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E-LINE CCR-II

Busbar Systems 400A...6000A

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E-LINE CCR-II

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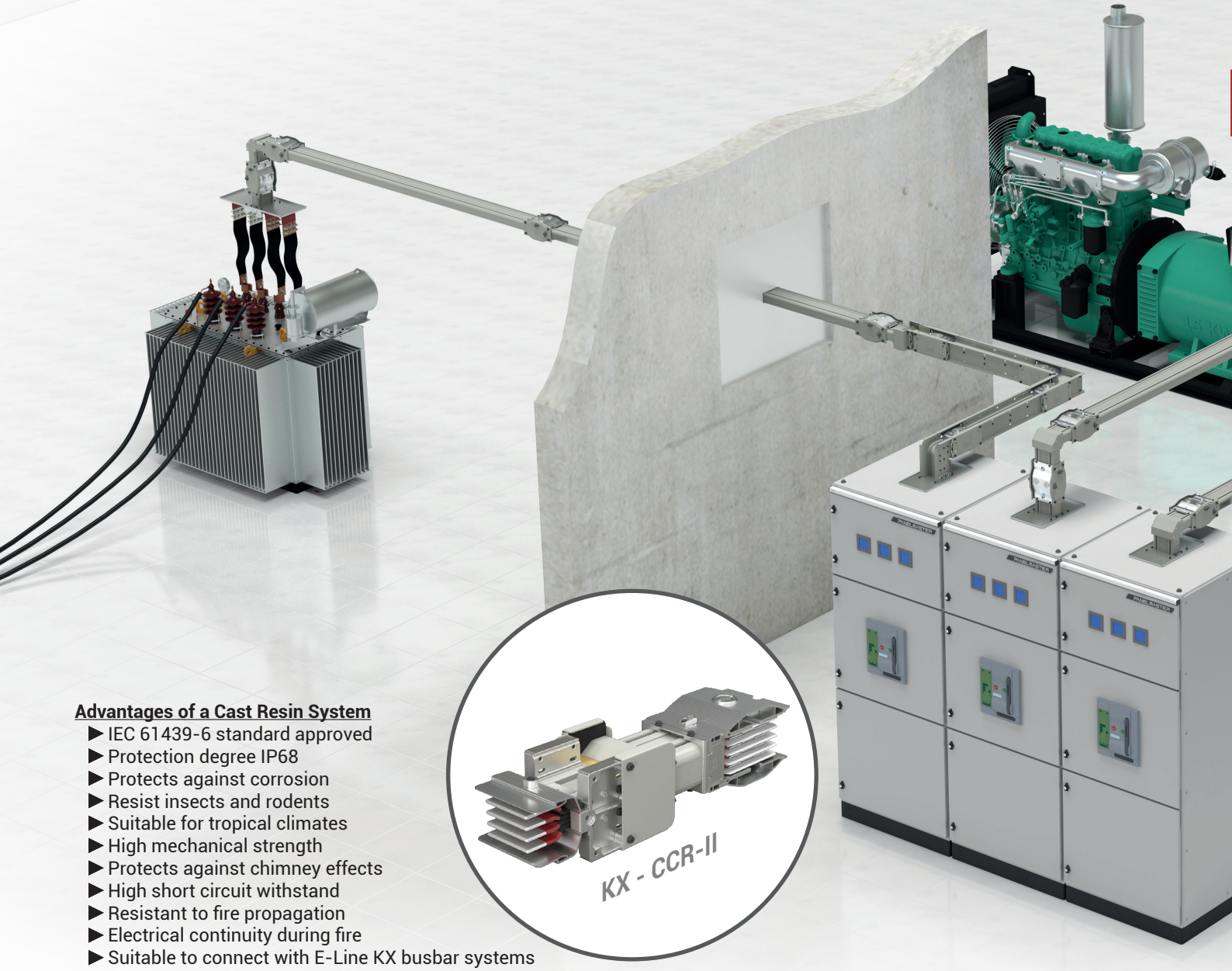
▶▶Introduction

Traditionally, carrying high currents (transformer to switchboards, main distribution lines, power distribution for factories) was achieved using multiples of large cross-section cables in parallel.
In order to support these cables in the buildings, there were used a lot of cable trays, cable ladders, under-floor cable channels, etc.

Using "Cast Resin Busbars" in outdoor environments, gallery transitions, chemical plants, harbour applications, tunnels instead of cables that are applied as mandatory offers many advantages.

Safe and Easy Installation
Detachable IP 68 Ext.
Due to alignment piece on the joint point, block joint element and busbar tray are aligned. This makes installation easier and correct on the right axes.



Advantages of a Cast Resin System

- ▶ IEC 61439-6 standard approved
- ▶ Protection degree IP68
- ▶ Protects against corrosion
- ▶ Resist insects and rodents
- ▶ Suitable for tropical climates
- ▶ High mechanical strength
- ▶ Protects against chimney effects
- ▶ High short circuit withstand
- ▶ Resistant to fire propagation
- ▶ Electrical continuity during fire
- ▶ Suitable to connect with E-Line KX busbar systems
- ▶ Voltage layout advantage thanks to its compact structure

***Special components can be manufactured quickly.**

High IP Isolation
Aluminium body over the IP 68 "DUROCOMP" composite material that is made by specially selected pure silicium minerals and epoxy resin and has high temperature and mechanical operation features protects E-LINE CCR-II busbar from external elements.

Effective Heat Dissipation
Heat accumulated in conductors are transferred into the environment through the aluminium body thanks to the additives with high heat transfer rate used in the system. (Figure 1)

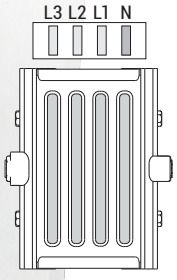
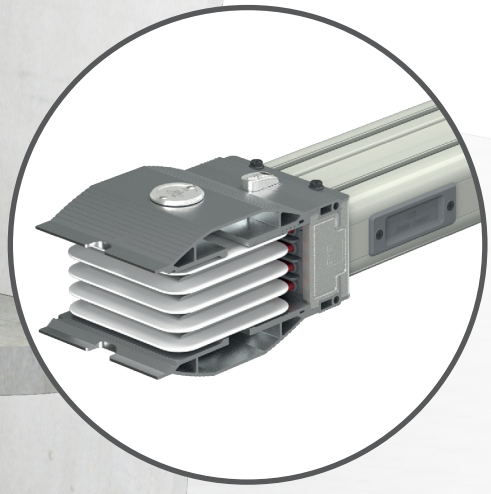


Figure 1



Short Circuit Withstand
High mechanical and thermal resistance within aluminium body thanks to DUROCOMP material.

One Bolt Joint Ensures Safety and Easy Installation

E-Line CRR Busbars are installed by tightening the "one bolt joint". **Belleville spring washers** on both ends of the bolt retains the original contact pressure, ensuring a more secure, reliable and maintenance - free joint.

***The bolt is tightened to 83Nm (60 lbft)**

Fire and Earthquake Resistance
- 3 hours Electrical Continuity under Fire as per IEC 60331-1
- 2 hours current continuity according to BS 8602 standard
- Seismic Resistance as per IEC 60068-3-3 / 60068-2-57 and IEEE 693

EX - Protected
- ATEX as per EN 60079-0:2009, EN 60079-18:2009, EN60079-31:2009

II 2G Ex mb IIC Gb
II 2D IIIC Db

E-LINE CCR-II

▶▶Distribution & Horizontal Applications

When using the E-Line CCR-II to create an electrical distribution system, the following criteria should be taken into consideration.

- The Power of the load to be connected to the system and their locations.
- Utilisation factor (diversity) assay,
- Power and short circuit currents of transformers, System coordination with other distribution systems (heat, steam, water, etc.),
- Determining a route of the E-Line CCR-II on layout of the designed system,
- Determination of the types of supports according to plan,
- If necessary, the system can be integrated with E-Line KX busbar system.

Rated Current

The rating of the busbar current required is calculated using the formula shown below.

$$I_B = \frac{P.\alpha}{\sqrt{3}.U.\cos\varphi}$$

I_B = Operation current (A)
P = Total power load (W)
α = Utilisation factor (diversity)
U = Supply voltage (V)

- The busbar current rating is chosen as being equal to, or greater than the calculated current (IB).
- After calculating the volt drop, if the current rating is not adequate, then a higher rating should be chosen.

Utilisation Factor (Diversity)

The utilisation factor (a) depends on the type and number of loads. Most are 0.7 or less. Intense Lighting and Motor Fed Lines “0,6” is quite difficult to rise above. Even at automobile welding plants it could fall down to “0,30”. With only one single and large load can it go up to “1”.

Voltage Drop

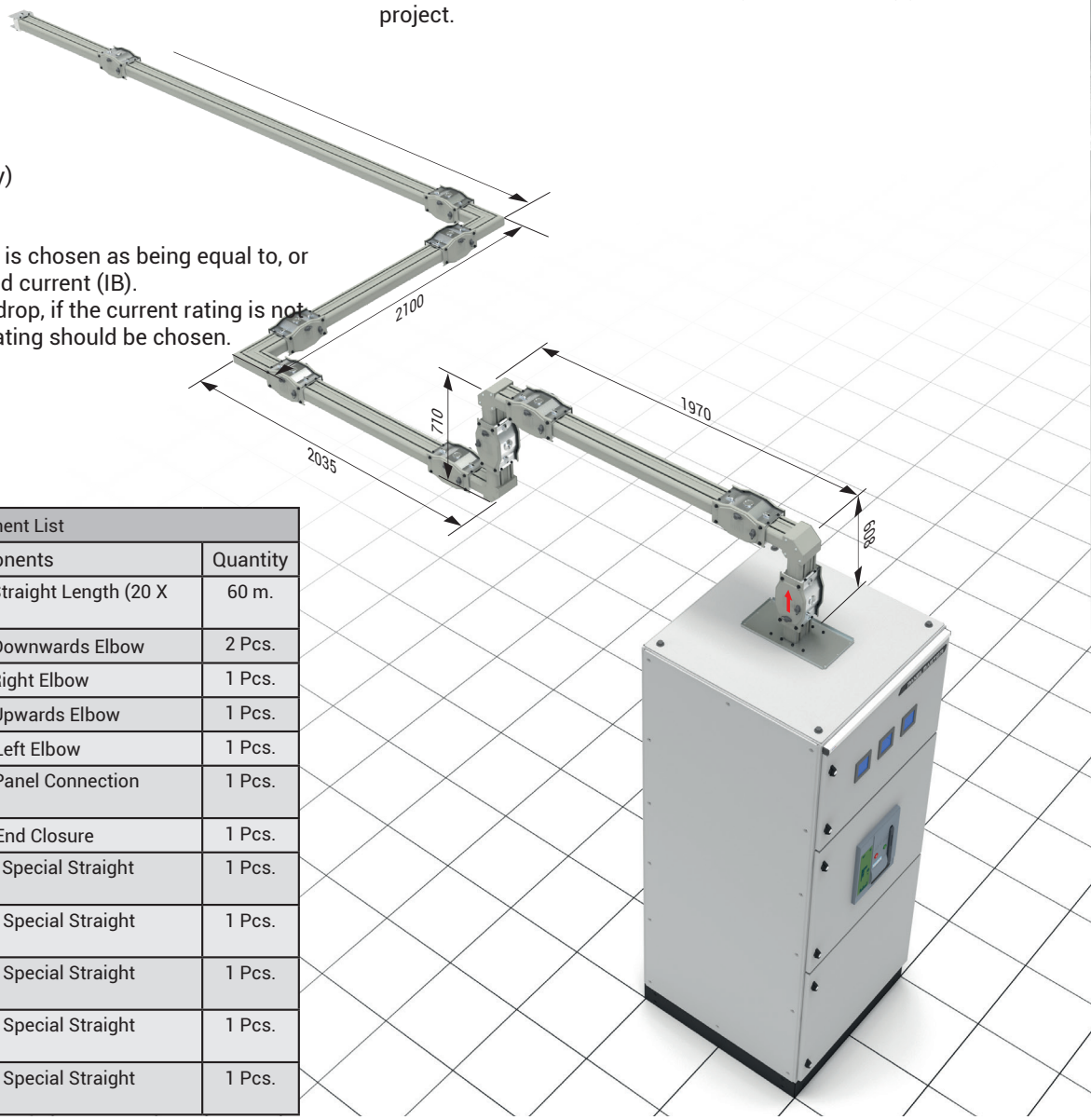
All the required values for voltage Drop Calculations, formulas, basic calculations for simple cases the tables are given on pages 6-9. Further support can be obtained from our Design Department.

Short Circuit Values

Short circuit test values are given on the tables on pages 6-9. The short circuit values high-light the high short circuit withstand characteristic of the E-Line CCR-II.

Busbar Installation Plan

Shown below is an example of an E-Line CCR-II busbar system. On request, our distributors' project and design departments will be pleased to help you in preparing your project.



Component List		
Item No	Components	Quantity
1	CCRC-II 20804 - STD Straight Length (20 X 3m.)	60 m.
2	CCRC-II 20804 - D Downwards Elbow	2 Pcs.
3	CCRC-II 20804 - R Right Elbow	1 Pcs.
4	CCRC-II 20804 - U Upwards Elbow	1 Pcs.
5	CCRC-II 20804 - L Left Elbow	1 Pcs.
6	CCRC-II 20804 - P10 Panel Connection Module	1 Pcs.
7	CCRC-II 20804 - S End Closure	1 Pcs.
8	CCRC-II 20804 - X95 Special Straight Length	1 Pcs.
9	CCRC-II 20804 - X120 Special Straight Length	1 Pcs.
10	CCRC-II 20804 - X122 Special Straight Length	1 Pcs.
11	CCRC-II 20804 - X200 Special Straight Length	1 Pcs.
12	CCRC-II 20804 - X174 Special Straight Length	1 Pcs.

E-LINE CCR-II

▶▶Riser & Vertical Applications

As each building's structure is different, each of the **E-Line CCR-II** projects has to be specially designed.

The details on this page briefly explain the information necessary for designing the vertical installation project.

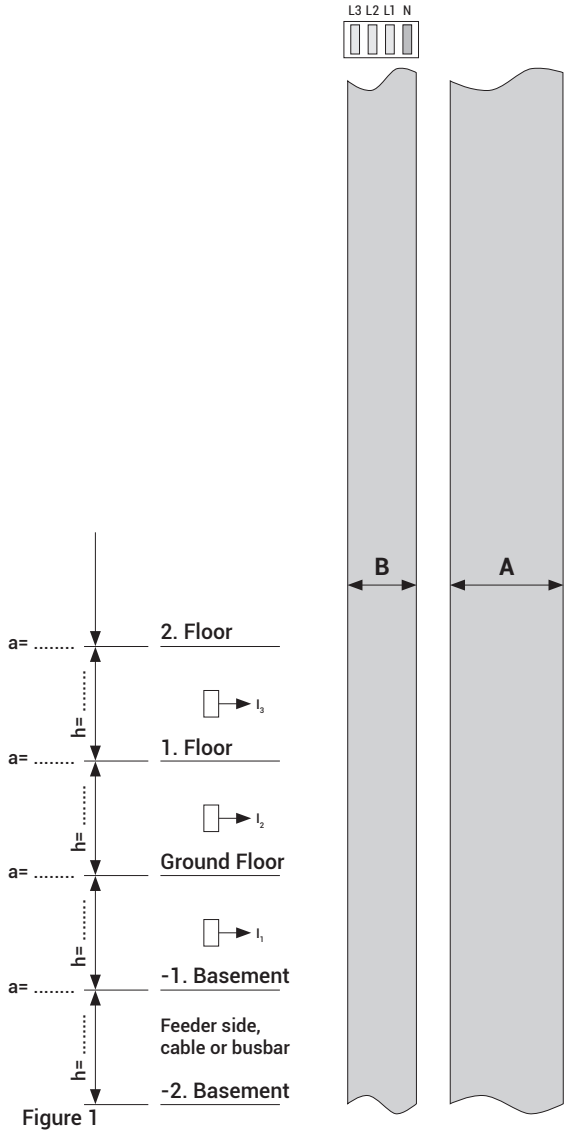


Figure 1

Pre-Project Design and cost Analysis

Before design and cost analysis can be made, please submit the following information to our Design Department.

Location and Dimensions of the floor penetration where the busbar line will be installed.
Floor height and Floor thickness (h=... a=...)
Vertical line feeding method (by busbar or by cable)

By supplying the above information of the dimensions on a drawing similar to the example in Figure 1 and by faxing or emailing it to us we will be able to produce a quotation.

Please refer to table on page 11 for "A" size.

Number of Conductors	B (mm)
3 Conductors	73
4 Conductors	80
4 ½ Conductors	87
5 Conductors	87

E-LINE CCR-II

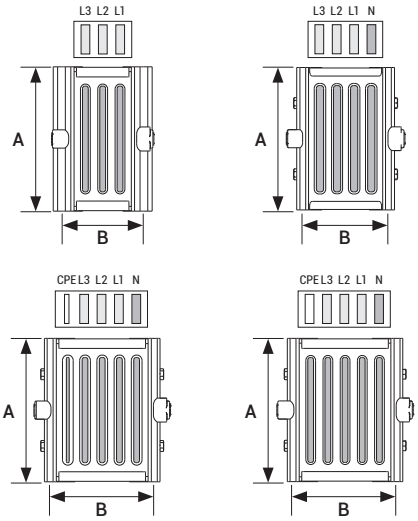
▶▶Technical Characteristics

Aluminium Conductor (Al)

Rated Current	I_n	A	400	550	630	800	1000	1300
Busbar Code			04	05	06	08	10	13
Standards	IEC 61439-6:2012 Ed.1 IEC 61439-1 Ed.2:2011, TS EN 61439-1: 2011							
Rated Operational Voltage	U_e	V	1000	1000	1000	1000	1000	1000
Rated Isolation Voltage	U_i	V_{ac}	1000	1000	1000	1000	1000	1000
Rated Impulse Withstand Voltage	U_{imp}	kV	12	12	12	12	12	12
Rated Frequency	f	Hz	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
Pollution Degree			III	III	III	III	III	III
Protection Degree	IP 68		IP 68	IP 68	IP 68	IP 68	IP 68	IP 68
External Mechanical Impacts (IK Code)*	50J, >IK10		50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10
Rated Short-time Withstand Current (1s - 3 phase)	I_{cw}	kA	25	35	35	35	35	60
Rated Peak Withstand Current	I_{pk}	kA	52,5	73,5	73,5	73,5	73,5	132
Rated Short-time Withstand Current for Neutral Conductor (1s) (Single phase)	I_{cw}	kA	15	21	21	21	21	36
Rated Peak Withstand Current for Neutral Conductor (Phase-Neutral)	I_{pk}	kA	31,5	44,1	44,1	44,1	44,1	75,6
Rated Short-time Withstand Current for PE (Housing-Phase) Conductor	I_{cw}	kA	15	21	21	21	21	36
Rated Peak Withstand Current for PE (Housing-Phase) Conductor	I_{pk}	kA	31,5	44,1	44,1	44,1	44,1	75,6
PHASE CONDUCTOR CHARACTERISTICS (In)								
Resistance at a conductor temperature of 20°C	R_{20}	mΩ/m	0,1219	0,0848	0,0613	0,0506	0,0439	0,0294
Resistance at an ambient air temperature of 35°C	R	mΩ/m	0,1689	0,1139	0,0807	0,0652	0,0569	0,0392
Reactance (Independent from Temperature)	X	mΩ/m	0,032	0,0241	0,0175	0,0142	0,0131	0,0095
Positive and negative sequence impedances at an ambient air temperature of 35°C	Z	mΩ/m	0,1719	0,1164	0,0825	0,0667	0,0584	0,0403
Positive and negative sequence impedances at an ambient air temperature of 20°C	Z_{20}	mΩ/m	0,1261	0,0881	0,0637	0,0525	0,0458	0,0309
Rated Power Loss at 35°C		W/m	173,4	161,8	192,6	190,8	255,9	294,1
DC Resistance at a conductor temperature of 20°C for Phases	$R_{ph(dc)}$	mΩ/m	0,113	0,081	0,059	0,049	0,043	0,031
DC Resistance at a conductor temperature of 20°C for Neutral	$R_{N(dc)}$	mΩ/m	0,113	0,081	0,059	0,049	0,043	0,031
DC Resistance at a conductor temperature of 20°C for PE	$R_{PE(dc)}$	mΩ/m	0,122	0,068	0,063	0,051	0,035	0,026
SECTIONS								
L1, L2, L3 (Phase Conductor)		mm^2	240	330	480	570	660	960
Neutral		mm^2	240	330	480	570	660	960
PE (Aluminium Housing)		mm^2	1179	1184	1261	1949	1984	2379
Conductor Dimensions		mmxmm	6x40	6x55	6x80	6x95	6x110	6x160
Busbar Weight (3 conductors)		kg/m	12,4	14,8	18,4	20,8	23,3	31,7
Busbar Weight (4 conductors)		kg/m	12,8	15,3	19,2	21,5	24,5	33,5
Busbar Weight (4,5 conductors)		kg/m	13,9	16,6	20,9	23,3	26,6	36,4
Busbar Weight (5 conductors)		kg/m	14,0	16,7	21,1	23,9	27,0	36,8
MEAN FAULT-LOOP CHARACTERISTICS								
Zero-sequence Impedance								
Zero-sequence impedance at a conductor temperature of 20°C (Phase-Neutral)	$Z_{(0)b20phN}$	mΩ/m	0,532	0,406	0,293	0,246	0,207	0,144
Zero-sequence impedance at a conductor temperature of 20°C (Phase-Housing)	$Z_{(0)b20phPE}$	mΩ/m	0,301	0,273	0,214	0,185	0,162	0,147
Zero-sequence impedance at an ambient temperature of 35°C (Phase-Neutral)	$Z_{(0)bphN}$	mΩ/m	0,717	0,530	0,376	0,309	0,261	0,187
Zero-sequence impedance at an ambient temperature of 35°C (Phase-Housing)	$Z_{(0)bphPE}$	mΩ/m	0,376	0,332	0,258	0,216	0,191	0,183
Mean Resistances and Reactances								
Resistance at a conductor temperature of 20°C	$R_{b20phph}$	mΩ/m	0,241	0,176	0,128	0,105	0,088	0,061
Resistance at a conductor temperature of 20°C	R_{b20phN}	mΩ/m	0,246	0,180	0,132	0,108	0,091	0,063
Resistance at a conductor temperature of 20°C	$R_{b20phPE}$	mΩ/m	0,159	0,128	0,098	0,081	0,069	0,062
Resistance at an ambient air temperature of 35°C	R_{bphph}	mΩ/m	0,333	0,237	0,168	0,135	0,114	0,081
Resistance at an ambient air temperature of 35°C	R_{bphN}	mΩ/m	0,341	0,242	0,173	0,139	0,118	0,084
Resistance at an ambient air temperature of 35°C	R_{bphPE}	mΩ/m	0,221	0,171	0,129	0,104	0,090	0,082
Reactance (Independent from temperature)	X_{bphph}	mΩ/m	0,060	0,041	0,033	0,028	0,024	0,019
Reactance (Independent from temperature)	X_{bphN}	mΩ/m	0,084	0,064	0,047	0,039	0,035	0,027
Reactance (Independent from temperature)	X_{bphPE}	mΩ/m	0,083	0,072	0,054	0,049	0,043	0,033

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.

1600	2000	2500	3000	3200	3600	4000	4500
16	20	25	30	32	36	40	45
1000	1000	1000	1000	1000	1000	1000	1000
1000	1000	1000	1000	1000	1000	1000	1000
12	12	12	12	12	12	12	12
50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
III	III	III	III	III	III	III	III
IP 68	IP 68	IP 68	IP 68	IP 68	IP 68	IP 68	IP 68
50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10
60	80	100	100	100	100	100	100
132	176	220	220	220	220	220	220
36	48	60	60	60	60	60	60
75,6	100,8	132	132	132	132	132	132
36	48	60	60	60	60	60	60
75,6	100,8	132	132	132	132	132	132
0,0233	0,0186	0,0155	0,0125	0,0106	0,0092	0,0090	0,0083
0,0314	0,0249	0,0208	0,0168	0,0139	0,0121	0,0120	0,0110
0,0077	0,0063	0,0051	0,0041	0,0031	0,0033	0,0029	0,0029
0,0323	0,0257	0,0214	0,0173	0,0142	0,0125	0,0124	0,0113
0,0246	0,0196	0,0164	0,0131	0,0110	0,0097	0,0095	0,0088
329,7	384,4	574,4	658,2	651	713,8	880,7	939,8
0,022	0,018	0,015	0,011	0,011	0,009	0,009	0,008
0,022	0,018	0,015	0,011	0,011	0,009	0,009	0,008
0,014	0,016	0,022	0,009	0,015	0,004	0,008	0,015
960	1380	1560	1920	2160	2400	2760	3000
960	1380	1560	1920	2160	2400	2760	3000
2379	2986	4548	4758	5010	5133	5972	6104
6x160	6x230	2x6x130	2x6x160	2x6x180	2x6x200	2x6x230	2x6x250
31,7	42,5	53,7	63,4	69,4	76,1	85,0	91,7
33,5	45,0	56,4	67,0	73,3	80,6	90,2	97,6
36,4	49,1	61,5	72,9	79,9	87,8	98,1	106,0
36,8	49,4	61,9	73,7	80,8	88,7	99,0	107,3
0,114	0,092	0,075	0,061	0,054	0,049	0,043	0,042
0,123	0,132	0,077	0,069	0,049	0,046	0,041	0,041
0,148	0,119	0,097	0,080	0,069	0,062	0,056	0,054
0,152	0,169	0,095	0,086	0,058	0,055	0,049	0,049
0,048	0,038	0,031	0,026	0,022	0,019	0,012	0,017
0,050	0,040	0,032	0,027	0,023	0,021	0,020	0,018
0,049	0,051	0,031	0,027	0,019	0,018	0,016	0,016
0,065	0,051	0,042	0,034	0,029	0,026	0,017	0,022
0,067	0,053	0,043	0,036	0,030	0,027	0,026	0,023
0,067	0,068	0,042	0,037	0,025	0,023	0,022	0,021
0,014	0,011	0,009	0,007	0,006	0,006	0,010	0,005
0,021	0,017	0,013	0,011	0,009	0,009	0,008	0,007
0,028	0,024	0,017	0,015	0,012	0,001	0,010	0,010

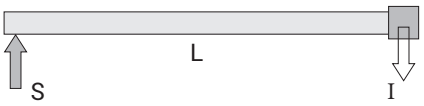


Voltage Drop Calculation

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)
Cosφ	= 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 50J according to IEC 62262.

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

E-LINE CCR-II

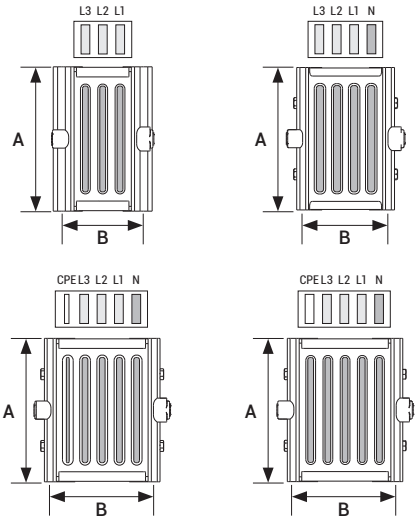
▶▶Technical Characteristics

Copper Conductor (Cu)

Rated Current	I_n	A	630	800	1000	1250	1600
Busbar Code			06	08	10	12	16
Standards	IEC 61439-6:2012 Ed.1 IEC 61439-1 Ed.2:2011, TS EN 61439-1: 2011						
Rated Operational Voltage	U_e	V	1000	1000	1000	1000	1000
Rated Isolation Voltage	U_i	V_{ac}	1000	1000	1000	1000	1000
Rated Impulse Withstand Voltage	U_{imp}	kV	12	12	12	12	12
Rated Frequency	f	Hz	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
Pollution Degree			III	III	III	III	III
Protection Degree	IP 68		IP 68	IP 68	IP 68	IP 68	IP 68
External Mechanical Impacts (IK Code)*	50J, >IK10		50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10
Rated Short-time Withstand Current (1s - 3 phase)	I_{cw}	kA	35	50	80	80	80
Rated Peak Withstand Current	I_{pk}	kA	73,5	105	176	176	176
Rated Short-time Withstand Current for Neutral Conductor (1s) (Single phase)	I_{cw}	kA	21	30	48	48	48
Rated Peak Withstand Current for Neutral Conductor (Phase-Neutral)	I_{pk}	kA	44,1	63	100,8	100,8	100,8
Rated Short-time Withstand Current for PE (Housing-Phase) Conductor	I_{cw}	kA	21	30	48	48	48
Rated Peak Withstand Current for PE (Housing-Phase) Conductor	I_{pk}	kA	44,1	63	100,8	100,8	100,8
PHASE CONDUCTOR CHARACTERISTICS (In)							
Resistance at a conductor temperature of 20 °C	R_{20}	mΩ/m	0,0648	0,0534	0,0358	0,0256	0,0198
Resistance at an ambient air temperature of 35 °C	R	mΩ/m	0,0890	0,0727	0,0473	0,0345	0,0263
Reactance (Independent from Temperature)	X	mΩ/m	0,0281	0,0246	0,0180	0,0132	0,0097
Positive and negative sequence impedances at an ambient air temperature of 35°C	Z	mΩ/m	0,0934	0,0768	0,0506	0,0369	0,0281
Positive and negative sequence impedances at an ambient air temperature of 20°C	Z_{20}	mΩ/m	0,0706	0,0588	0,0401	0,0288	0,0221
Rated Power Loss at 35°C		W/m	190,8	212,3	219,5	269,7	304,9
DC Resistance at a conductor temperature of 20°C for Phases	$R_{ph(dc)}$	mΩ/m	0,065	0,053	0,035	0,026	0,019
DC Resistance at a conductor temperature of 20°C for Neutral	$R_{N(dc)}$	mΩ/m	0,065	0,053	0,035	0,026	0,019
DC Resistance at a conductor temperature of 20°C for PE	$R_{PE(dc)}$	mΩ/m	0,068	0,053	0,040	0,031	0,033
SECTIONS							
L1, L2, L3 (Phase Conductor)		mm^2	270	330	480	660	900
Neutral		mm^2	270	330	480	660	900
PE (Aluminium Housing)		mm^2	1261	1261	1784	1984	2379
Conductor Dimensions		mmxmm	6x45	6x55	6x80	6x110	6x150
Busbar Weight (3 conductors)		kg/m	19,6	20,8	27,2	35,4	46,7
Busbar Weight (4 conductors)		kg/m	21,4	23,3	30,8	40,7	53,6
Busbar Weight (4,5 conductors)		kg/m	23,6	25,6	34,0	44,8	59,5
Busbar Weight (5 conductors)		kg/m	24,7	26,7	35,7	47,1	62,3
MEAN FAULT-LOOP CHARACTERISTICS							
Zero-sequence Impedance							
Zero-sequence impedance at a conductor temperature of 20°C (Phase-Neutral)	$Z_{(0)b20phN}$	mΩ/m	0,336	0,280	0,194	0,146	0,108
Zero-sequence impedance at a conductor temperature of 20°C (Phase-Housing)	$Z_{(0)b20phPE}$	mΩ/m	0,279	0,267	0,196	0,155	0,122
Zero-sequence impedance at an ambient temperature of 35°C (Phase-Neutral)	$Z_{(0)bphN}$	mΩ/m	0,439	0,360	0,243	0,186	0,136
Zero-sequence impedance at an ambient temperature of 35°C (Phase-Housing)	$Z_{(0)bphPE}$	mΩ/m	0,337	0,329	0,232	0,187	0,145
Mean Resistances and Reactances							
Resistance at a conductor temperature of 20°C	$R_{b20phph}$	mΩ/m	0,136	0,110	0,074	0,055	0,041
Resistance at a conductor temperature of 20°C	R_{b20phN}	mΩ/m	0,141	0,114	0,078	0,059	0,043
Resistance at a conductor temperature of 20°C	$R_{b20phPE}$	mΩ/m	0,111	0,107	0,072	0,056	0,043
Resistance at an ambient air temperature of 35°C	R_{bphph}	mΩ/m	0,187	0,150	0,098	0,075	0,055
Resistance at an ambient air temperature of 35°C	R_{bphN}	mΩ/m	0,194	0,156	0,103	0,079	0,057
Resistance at an ambient air temperature of 35°C	R_{bphPE}	mΩ/m	0,153	0,145	0,095	0,076	0,057
Reactance (Independent from temperature)	X_{bphph}	mΩ/m	0,053	0,046	0,033	0,025	0,019
Reactance (Independent from temperature)	X_{bphN}	mΩ/m	0,075	0,065	0,048	0,036	0,026
Reactance (Independent from temperature)	X_{bphPE}	mΩ/m	0,083	0,070	0,054	0,043	0,034

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.

2000	2500	3200	3600	4000	5000	6000
20	25	32	36	40	50	60
1000	1000	1000	1000	1000	1000	1000
1000	1000	1000	1000	1000	1000	1000
12	12	12	12	12	12	12
50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
III	III	III	III	III	III	III
IP 68	IP 68	IP 68	IP 68	IP 68	IP 68	IP 68
50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10	50J, >IK10
100	100	120	120	120	120	120
220	220	264	264	264	264	264
60	60	72	72	72	72	72
132	132	158,4	158,4	158,4	158,4	158,4
60	60	72	72	72	72	72
132	132	158,4	158,4	158,4	158,4	158,4
0,0181	0,0133	0,0107	0,0086	0,0080	0,0063	0,0057
0,0242	0,0180	0,0145	0,0112	0,0106	0,0082	0,0075
0,0084	0,0066	0,0053	0,0044	0,0038	0,0030	0,0028
0,0256	0,0192	0,0154	0,0120	0,0112	0,0088	0,008
0,0200	0,0148	0,0119	0,0097	0,0088	0,0070	0,0063
447,9	538	674,3	648	782,6	776,2	843,9
0,018	0,013	0,010	0,007	0,007	0,006	0,005
0,018	0,013	0,010	0,007	0,007	0,006	0,005
0,022	0,018	0,017	0,017	0,016	0,016	0,013
960	1320	1680	2160	2250	2880	3240
960	1320	1680	2160	2250	2880	3240
3568	3698	4569	5010	6645	7137	7515
6x250	2(6x110)	2(6x140)	2(6x180)	3(6x125)	3(6x160)	3(6x180)
54,3	70,9	87,8	109,1	118,6	148,1	163,6
61,6	81,3	100,4	126,2	136,3	170,9	189,3
68,0	89,5	111,4	139,5	150,5	188,7	209,2
71,4	94,2	117,3	147,0	158,5	198,6	220,4
0,100	0,074	0,059	0,049	0,040	0,035	0,031
0,102	0,081	0,064	0,069	0,044	0,040	0,038
0,127	0,094	0,075	0,060	0,051	0,043	0,040
0,121	0,096	0,076	0,082	0,052	0,047	0,044
0,038	0,027	0,021	0,018	0,017	0,013	0,012
0,041	0,029	0,023	0,019	0,018	0,014	0,012
0,037	0,028	0,022	0,024	0,016	0,014	0,013
0,051	0,037	0,029	0,023	0,022	0,017	0,015
0,054	0,039	0,031	0,025	0,023	0,018	0,016
0,049	0,037	0,030	0,031	0,022	0,018	0,017
0,016	0,012	0,010	0,008	0,007	0,006	0,005
0,024	0,018	0,015	0,012	0,011	0,008	0,008
0,027	0,022	0,017	0,016	0,013	0,011	0,010

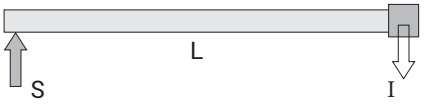


Voltage Drop Calculation

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)
Cosφ	= 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 50J according to IEC 62262.

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

E-LINE CCR-II

▶▶Order Code System

BUSBAR
CONDUCTOR MATERIAL
BUSBAR CODE
PROTECTION DEGREE
CONDUCTOR CONFIGURATION
BUSBAR TYPE
COMPONENT

CCR-II | C | 12 | 8 | 04 - B - STD

BUSBAR TYPE

Busbar Type

CONDUCTOR MATERIAL

Aluminium	(Al)	A
Copper	(Cu)	C

CCRA-II - Al Conductor		Conductor Cross Section
Anma Akımı	Busbar Kodu	
400	04	6x40
550	05	6x55
630	06	6x80
800	08	6x95
1000	10	6x110
1300	13	6x160
1600	16	6x200
2000	20	6x50
2500	25	2x6x160
3000	30	2x6x200
3200	32	2x6x230
3600	36	2x6x250
4000	40	3x6x180
4500	45	3x6x200

BUSBAR CODE

CCRC-II - Cu Conductor		Conductor Cross Section
Anma Akımı	Busbar Kodu	
630	06	6x45
800	08	6x55
1000	10	6x80
1250	12	6x110
1600	16	6x150
2000	20	2(6x80)
2500	25	2(6x110)
3200	32	2(6x140)
3600	36	2(6x180)
4000	40	3(6x125)
5000	50	3(6x160)
6000	60	3(6x180)

PROTECTION DEGREE

IP68	8

Number of Conductors	Code	Conductor Configuration								
		L1	L2	L3	N	Earth	½ Earth	Clean Earth	½ Clean Earth	Earth (Hosing)
3 Conductor	03	√	√	√						√
4 Conductor	04	√	√	√	√					√
4 ½ Conductor	08	√	√	√	√				√	√
5 Conductor	09	√	√	√	√			√		√

* TYPE	Utilisation Type
(B) Bolt-on	Where there is no need for tap off boxes, power is is supplied from one point to the other end point of the line.

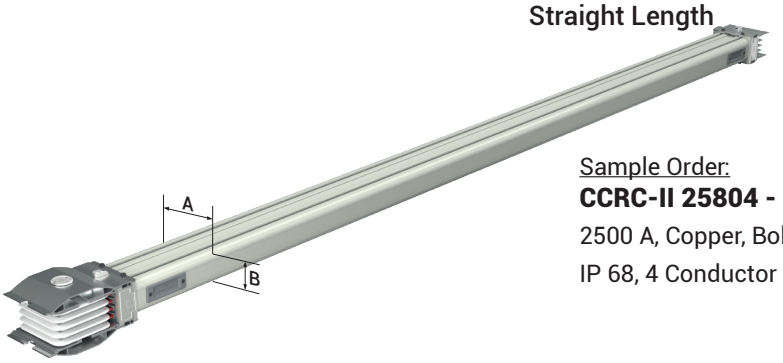
COMPONENT

Standard Straight Length	STD
Special Straight Length	X
Upwards Elbow	U
Downwards Elbow	D
Left Elbow	L
Right Elbow	R
Left Horizontal Offset	LH
Right Horizontal Offset	RH
Upwards Vertical Offset	UV
Downwards Vertical Offset	DV
Upwards Left Combined Offset	KUL
Upwards Right Combined Offset	KUR
Downwards Left Combined Offset	KDL
Downwards Right Combined Offset	KDR
Left Upwards Combined Offset	KLU
Right Upwards Combined Offset	KRU
Left Downwards Combined Offset	KLD
Right Downwards Combined Offset	KRD
End Closure	S10
End Closure	S11
Reduction	RD
Crossing Module	CCR-IIKX
Crossing Module	KXCCR-II
Right Side Feeder "T"	TYR
Left Side Feeder "T"	TYL
Central Feeder "T" Module	TO
Horizontal Expansion	YDT
Vertical Expansion	DDT
Phase Transposition Module	FDM
Panel/Transformer Con.	P10 / TR10
Panel/Transformer Con.	P11 / TR11
Upwards Panel/Transformer Con.	PU20 / TU20
Upwards Panel/Transformer Con.	PU21 / TU21
Downwards Panel/Transformer Con.	PD20 / TD20
Downwards Panel/Transformer Con.	PD21 / TD21
Right Panel/Transformer Con.	PR30 / TR30
Right Panel/Transformer Con.	PR31 / TR31
Left Panel/Transformer Con.	PL30 / TL30
Left Panel/Transformer Con.	PL31 / TL31
Horizontal Panel/Transformer Con.	P40 / TR40
Horizontal Panel/Transformer Con.	P41 / TR41
Transformer Connection	TR61

E-LINE CCR-II

▶▶Standard Straight Length

Standard Feeder Straight Length - STD



Sample Order:

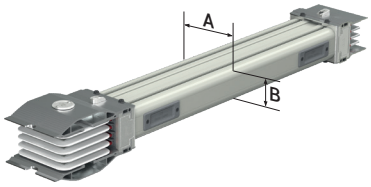
CCRC-II 25804 - STD

2500 A, Copper, Bolt-on,
IP 68, 4 Conductor

Application Areas:

- Between Transformer - Panel Applications
- Between Panel to Panel Applications
- Generator and Compensation
- Panels Feeding

Special Straight Length - X



Special Straight Length in (mm)

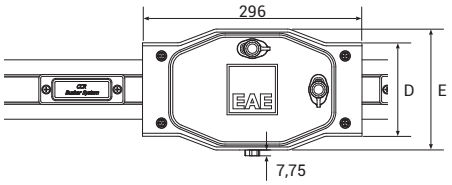
Sample Order:

CCRC-II 25804 - X - 147

2500 A, Copper, Bolt-on,
IP 68, 4 Conductor, 1470 mm
Special Straight Length

Application Areas:

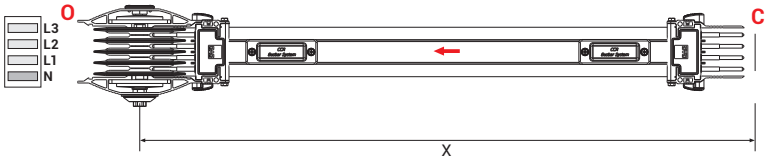
- Between Transformer - Panel Applications
- Between Panel to Panel Applications
- Generator and Compensation
- Panels Feeding



Number of Conductors	3 - 4 Conductor	4½ - 5 Conductor
D (mm)	126	144
E (mm)	163	181

information:

Feeder Minimum Midsize = 450 mm



Number of Conductors	3 Conductor	4 Conductor	4 ½ Conductor	5 Conductor
B (mm)	73	80	87	87

Table For Outer Dimension of Busbars

CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	70	85	110	125	140	190	230	280	390	470	530	570	650	710

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	75	85	110	140	180	230	290	350	430	485	590	650

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.

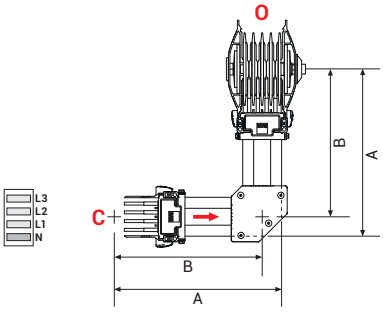
■ The dimensions given above are minimum values. ■ Please call us for non-standard components.

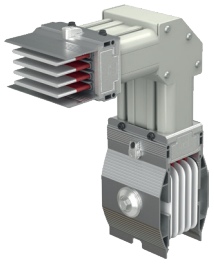
E-LINE CCR-II

▶▶Elbows

Upwards Elbow - U

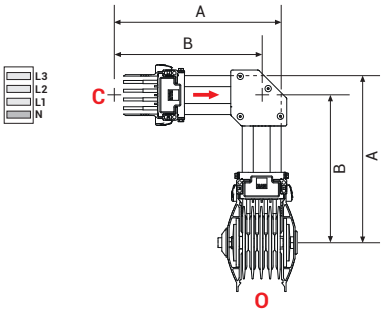
Sample Order:
CCRC-II 32804 - B - U
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor





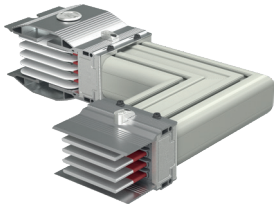
Downwards Elbow - D

Sample Order:
CCRC-II 32804 - B - D
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



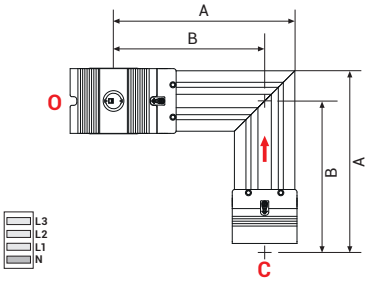
Conductor Dimension Table

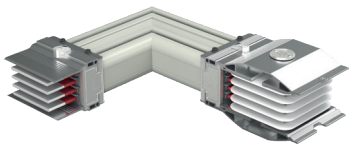
Number of Conductors	3	4	4½	5
A (mm)	337	344	351	351
B (mm)	300	304	307	307



Left Elbow - L

Sample Order:
CCRC-II 32804 - B - L
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor





Right Elbow - R

Sample Order:
CCRC-II 32804 - B - R
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

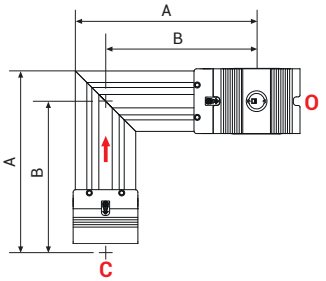


Table For Outer Dimension of Busbars

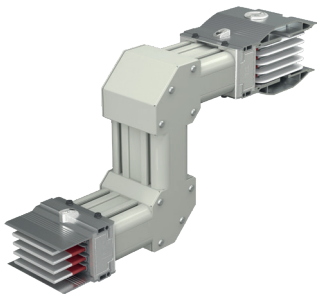
CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	310	325	350	365	380	430	470	520	630	710	770	810	890	950
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	315	325	350	380	420	470	530	590	670	725	830	890
B	(mm)	278	283	295	310	330	355	385	415	455	483	535	565

■The dimensions given above are minimum values. ■ Please call us for non-standard components.

E-LINE CCR-II

▶▶Elbows

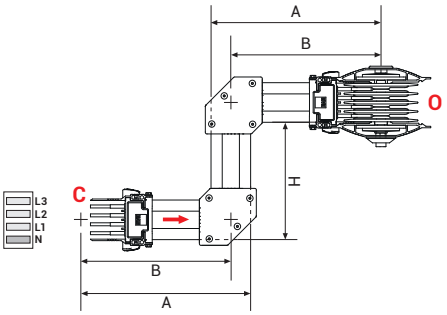


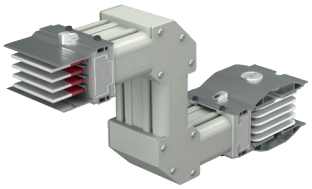
Upwards Vertical Offset - UV

Sample Order:

CCRC-II 32804 - B - UV

H= 60cm, 3200 A, Copper,
Bolt-on, IP 68, 4 Conductor



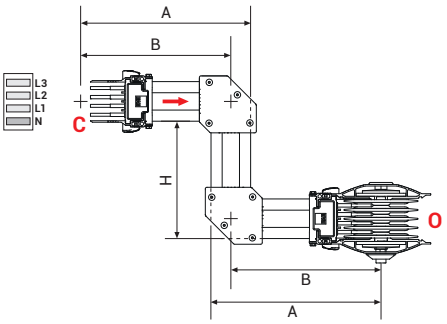


Downwards Vertical Offset - DV

Sample Order:

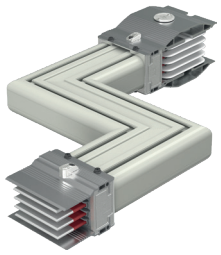
CCRC-II 32804 - B - DV

H= 60cm, 3200 A, Copper,
Bolt-on, IP 68, 4 Conductor



Conductor Dimension Table

Number of Conductors	3	4	4½	5
A (mm)	337	344	351	351
B (mm)	300	304	307	307
H (mm)	231	238	245	245
H max.	601	608	615	615



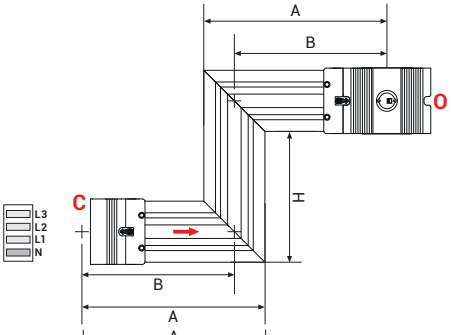
Left Horizontal Offset - LH

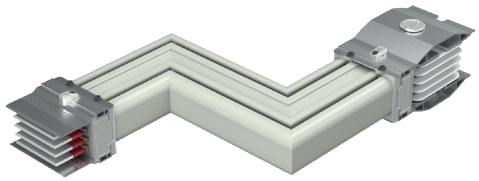
Sample Order:

CCRC-II 32804 - B - LH

H= 60cm, 3200 A, Copper,
Bolt-on, IP 68, 4 Conductor

H min= 280mm





Right Horizontal Offset - RH

Sample Order:

CCRC-II 32804 - B - RH

H= 60cm, 3200 A, Copper,
Bolt-on, IP 68, 4 Conductor

H min= 280mm

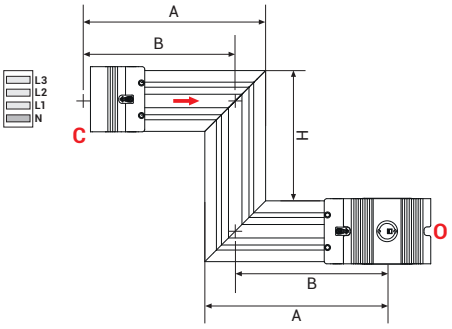


Table For Outer Dimension of Busbars

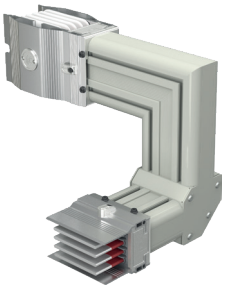
CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	310	325	350	365	380	430	470	520	630	710	770	810	890	950
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	315	325	350	380	420	470	530	590	670	725	830	890
B	(mm)	278	283	295	310	330	355	385	415	455	483	535	565

■ The dimensions given above are minimum values. ■ Please call us for non-standard components.

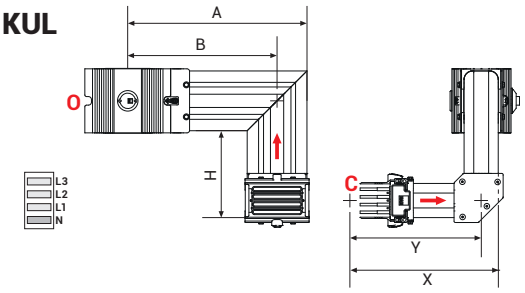
E-LINE CCR-II

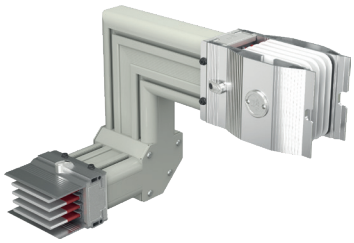
▶▶Elbows



Upwards Left Combined Offset - KUL

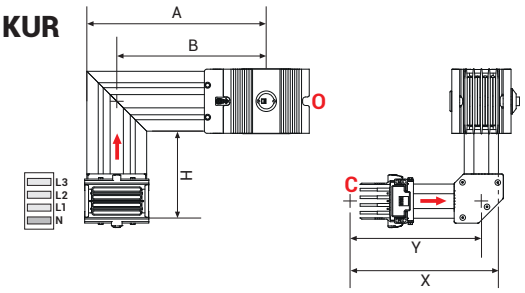
Sample Order:
CCRC-II 32804 - B - KUL
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

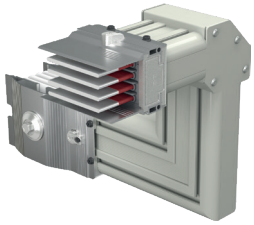




Upwards Right Combined Offset - KUR

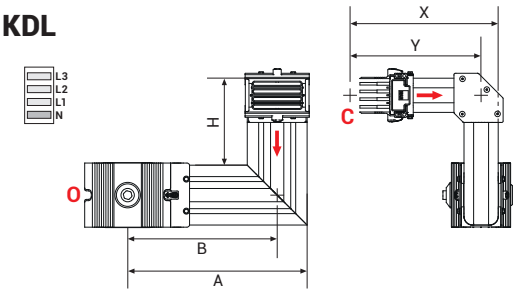
Sample Order:
CCRC-II 32804 - B - KUR
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

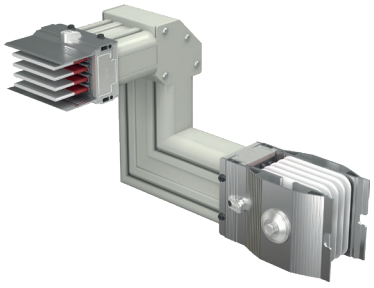




Downwards Left Combined Offset - KDL

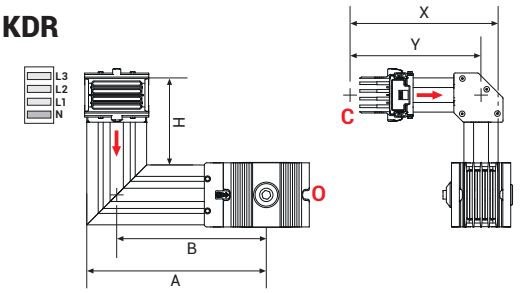
Sample Order:
CCRC-II 32804 - B - KDL
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor





Downwards Right Combined Offset - KDR

Sample Order:
CCRC-II 32804 - B - KDR
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



Conductor Dimension Table

Number of Conductors	3	4	4½	5
X (mm)	337	344	351	351
Y (mm)	300	304	307	307
H (mm)	207	214	221	221
H max.	577	584	591	591

Table For Outer Dimension of Busbars

CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	310	325	350	365	380	430	470	520	630	710	770	810	890	950
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	315	325	350	380	420	470	530	590	670	725	830	890
B	(mm)	278	283	295	310	330	355	385	415	455	483	535	565

■ The dimensions given above are minimum values. ■ Please call us for non-standard components.

E-LINE CCR-II

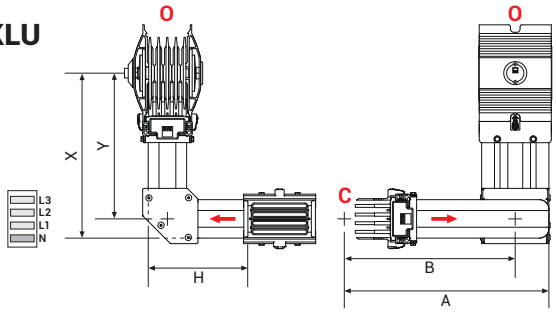
▶▶Elbows

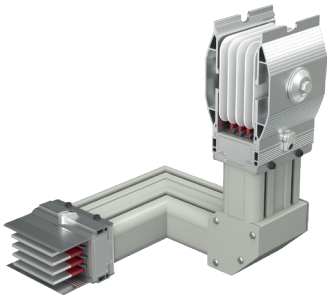
Left Upwards Combined Offset **- KLU**

Sample Order:

CCRC-II 32804 - B - KLU

3200 A, Copper, Bolt-on, IP 68, 4 Conductor



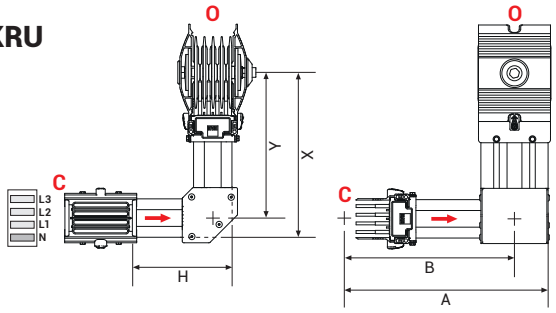


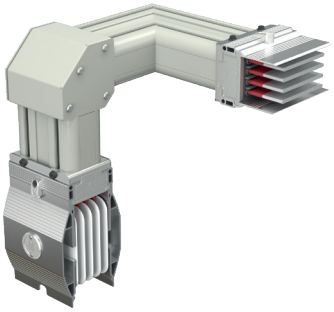
Right Upwards Combined Offset **- KRU**

Sample Order:

CCRC-II 32804 - B - KRU

3200 A, Copper, Bolt-on, IP 68, 4 Conductor



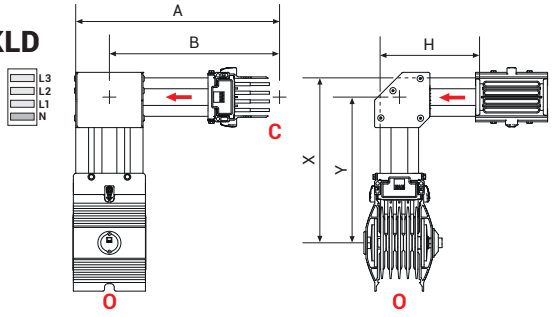


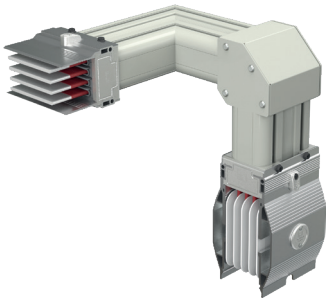
Left Downwards Combined Offset **- KLD**

Sample Order:

CCRC-II 32804 - B - KLD

3200 A, Copper, Bolt-on, IP 68, 4 Conductor



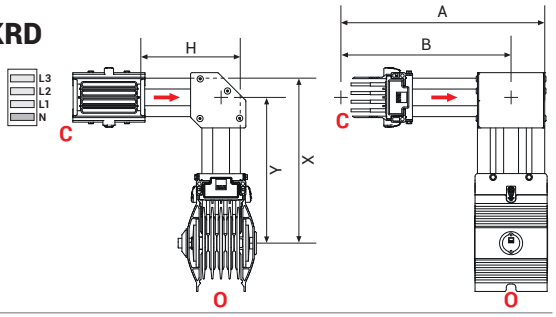


Right Downwards Combined Offset **- KRD**

Sample Order:

CCRC-II 32804 - B - KRD

3200 A, Copper, Bolt-on, IP 68, 4 Conductor



Conductor Dimension Table

Number of Conductors	3	4	4½	5
X (mm)	337	344	351	351
Y (mm)	300	304	307	307
H (mm)	207	214	221	221
H max.	577	584	591	591

Table For Outer Dimension of Busbars

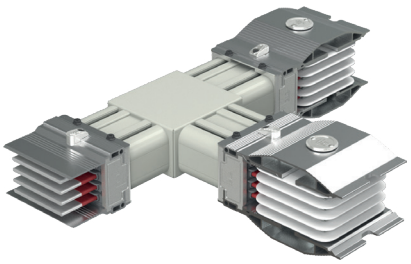
CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	310	325	350	365	380	430	470	520	630	710	770	810	890	950
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	315	325	350	380	420	470	530	590	670	725	830	890
B	(mm)	278	283	295	310	330	355	385	415	455	483	535	565

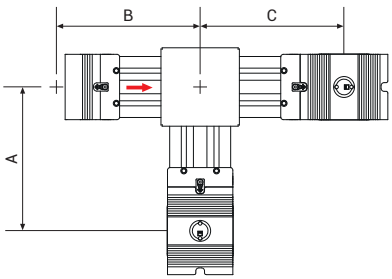
■ The dimensions given above are minimum values. ■ Please call us for non-standard components.

E-LINE CCR-II

▶▶Elbows



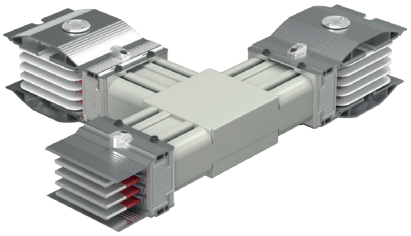
Right "T" Module - TYR



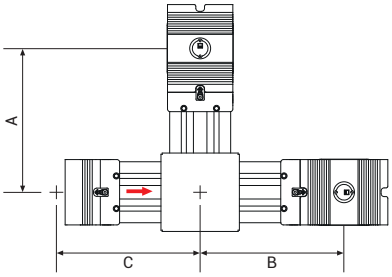
Sample Order:

CCRC-II 32804 - B - TYR

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



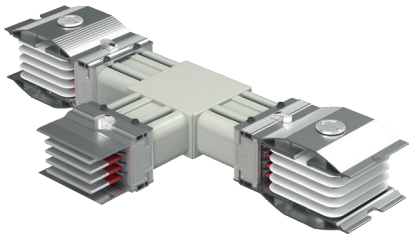
Left "T" Module - TYL



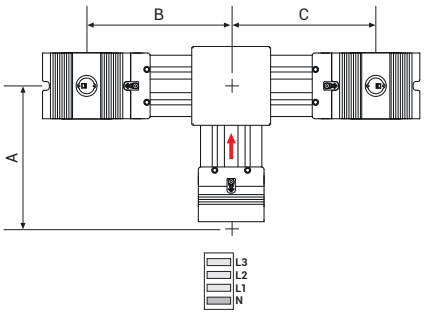
Sample Order:

CCRC-II 32804 - B - TYL

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



Central Feeder "T" Module - TO



Sample Order:

CCRC-II 32804 - B - TO

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

Table For Outer Dimension of Busbars

CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595
C	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	275	283	295	310	330	355	385	415	455	483	535	565
B	(mm)	275	283	295	310	330	355	385	415	455	483	535	565
C	(mm)	275	283	295	310	330	355	385	415	455	483	535	565

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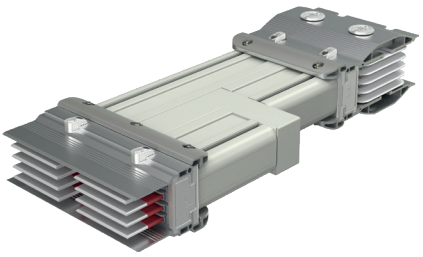
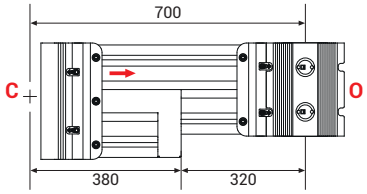
E-LINE CCR-II

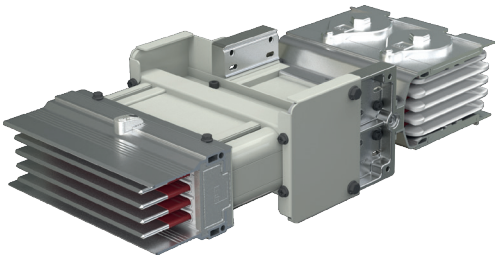
▶▶Standard Modules



Reduction Modules - RD

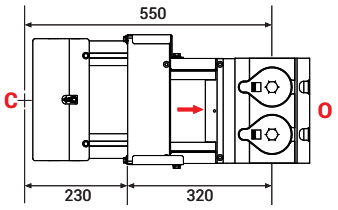
Sample Order:
CCRC-II 32804 - B - RD
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

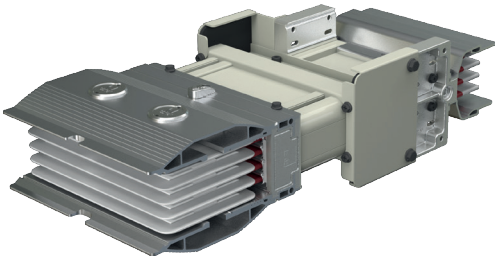




CCR-II - KX Crossing Module - CCR-IIKX

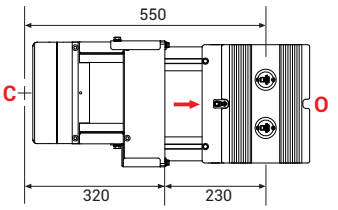
Sample Order:
CCRC-II 16804- B - CCR-IIKX
1600 A, Copper, Bolt-on,
IP 68, 4 Conductor





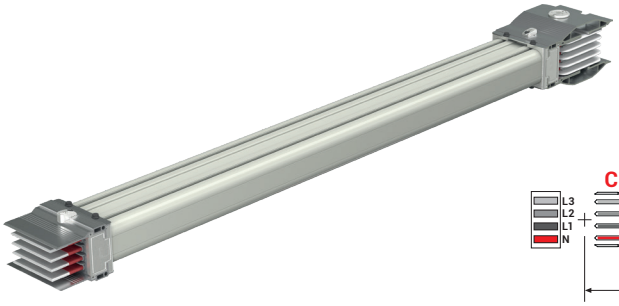
KX - CCR-II Crossing Module - KXCCR-II

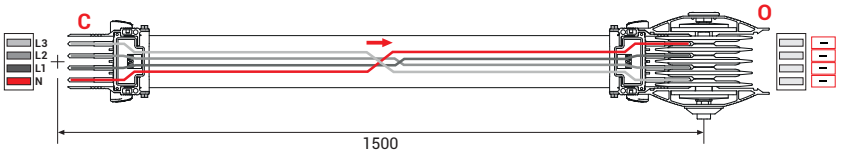
Sample Order:
CCRC-II 16804- B - KXCCR-II
1600 A, Copper, Bolt-on,
IP 68, 4 Conductor



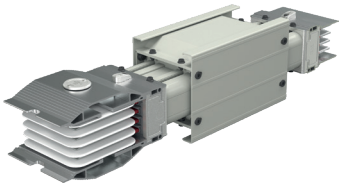
Phase Transposition Module - FDM

Sample Order:
CCRC-II 32804- B - FDM
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



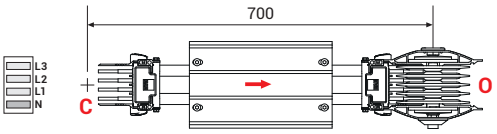


■ The dimensions given above are minimum values. ■ Please call us for non-standard components.



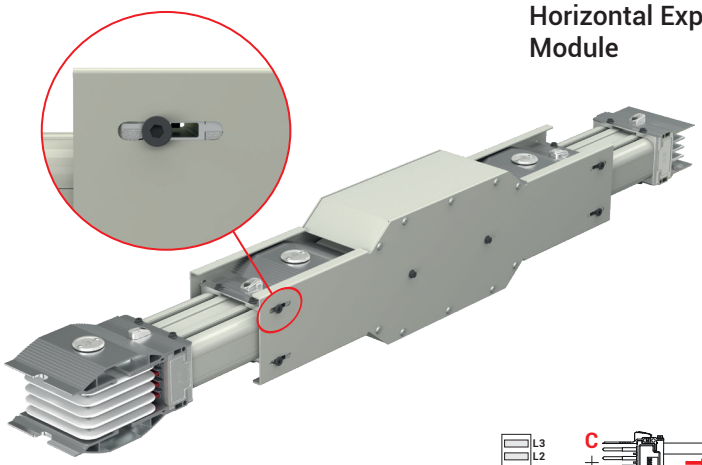
Vertical Expansion Module - DDT

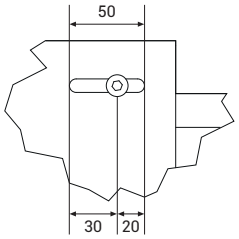
Sample Order:
CCRC-II 32804 - B - DDT
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

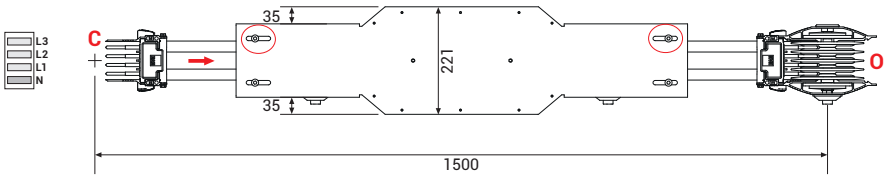


DDT Expansion
• Used for vertical applications in multi storey buildings. One vertical expansion unit is advised to be used at every floor between fixed support points.

Horizontal Expansion Module - YDT





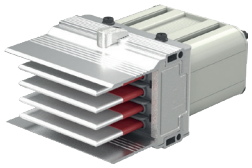


YDT Horizontal Expansion Module
• It is used as a horizontal expansion element every 40m on a long straight run.

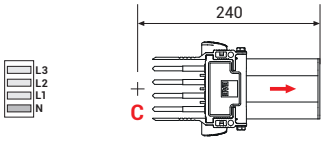
Note:
• If the busbar run passes through a horizontal expansion of building, a Dilation Module has to be used.
• Dilation Modules must be used for very long free lines (>75m) that are closed with an end closer and not fixed on the hanger.
• The movement span of Dilation Module is 50mm.

We recommend consulting our company during the project phase.

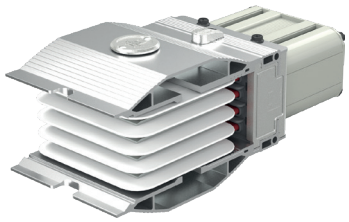
End Closer - S 10



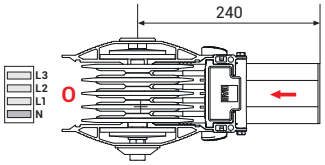
Sample Order:
CCRC-II 32804 - B - S10
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



End Closer - S 11



Sample Order:
CCRC-II 32804 - B - S11
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



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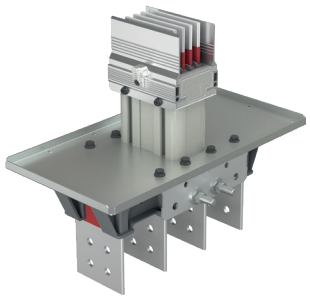
E-LINE CCR-II

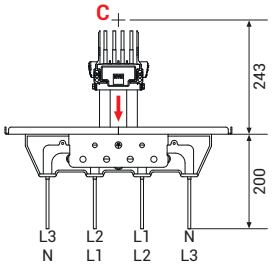
▶▶Panel / Transformer Connections

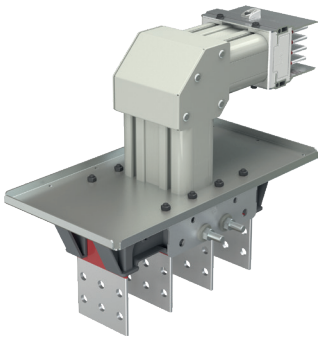


Panel / Transformer Connection **- P 10** **- TR 10**

Panel/Transformer Feeder

Sample Order:
CCRC-II 32804 - B - P10
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

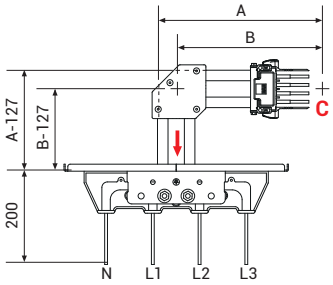


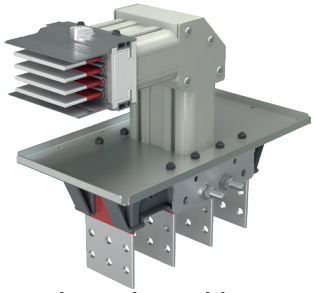


Upwards Panel / Transformer Connection **- PU 20** **- TU 20**

Panel/Transformer Feeder

Sample Order:
CCRC-II 32804 - B - PU20
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

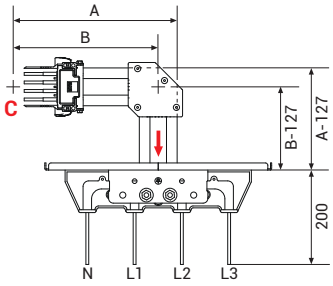




Downwards Panel / Transformer Connection **- PD 20** **- TD 20**

Panel/Transformer Feeder

Sample Order:
CCRC-II 32804 - B - PD20
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



Conductor Dimension Table

Number of Conductors	3	4	4½	5
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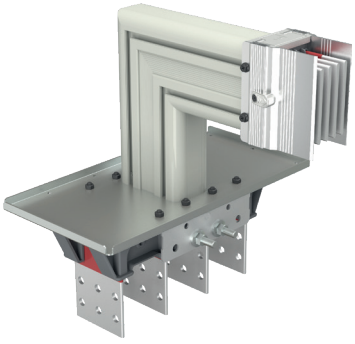


Right Panel / Transformer Connection **- PR 30** **- TR 30**

Panel/Transformer Feeder

Sample Order:
CCRC-II 32804 - B - PL30
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

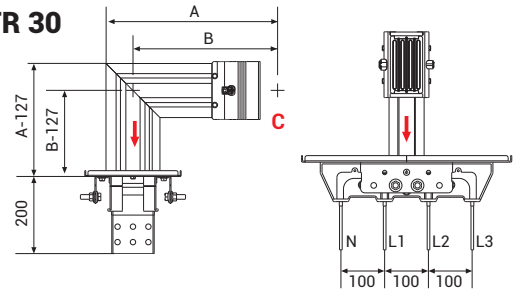


Table For Outer Dimension of Busbars

CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	310	325	350	365	380	430	470	520	630	710	770	810	890	950
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	315	325	350	380	420	470	530	590	670	725	830	890
B	(mm)	278	283	295	310	330	355	385	415	455	483	535	565

■ The dimensions given above are minimum values. ■ Please call us for non-standard components.

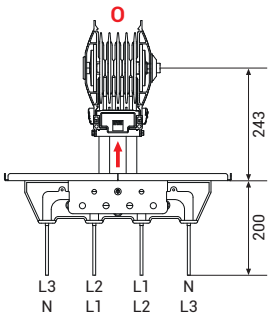
E-LINE CCR-II

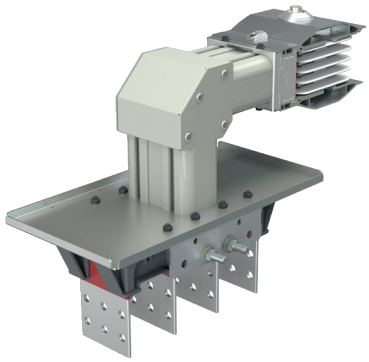
▶▶Panel / Transformer Connections

Panel / Transformer Connection **- P 11**
- T R11

Panel/Transformer Output

Sample Order:
CCRC-II 32804 - B - TR11
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

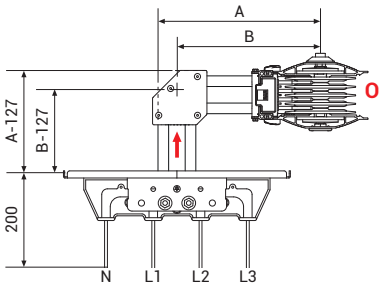


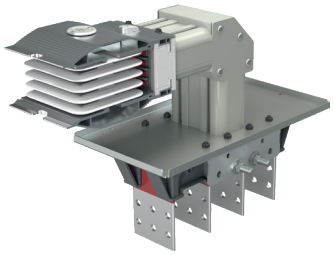


Upwards Panel / Transformer Connection **- PU 21**
- TU 21

Panel/Transformer Output

Sample Order:
CCRC-II 32804 - B - TU21
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

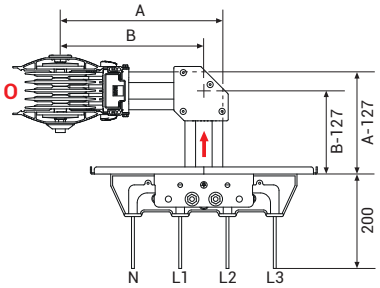




Downwards Panel / Transformer Connection **- PD 21**
- TD 21

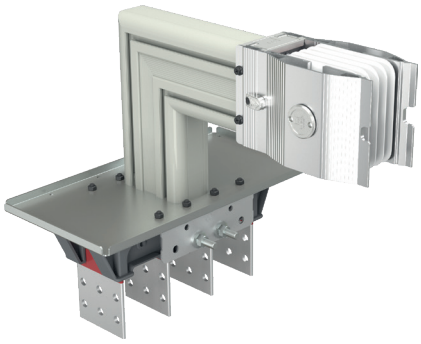
Panel/Transformer Output

Sample Order:
CCRC-II 32804 - B - TD21
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



Conductor Dimension Table

Number of Conductors	3	4	4½	5
A (mm)	337	344	351	351
B (mm)	300	304	307	307



Right Panel / Transformer Connection **- PR 31**
- TR 31

Panel/Transformer Output

Sample Order:
CCRC-II 32804 - B - TR31
3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

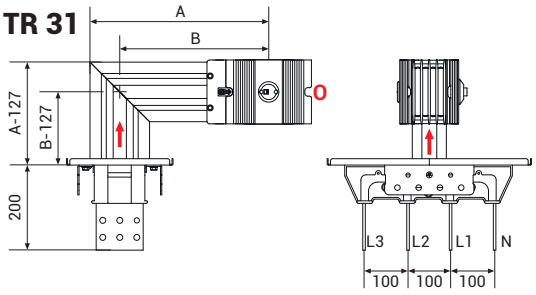


Table For Outer Dimension of Busbars

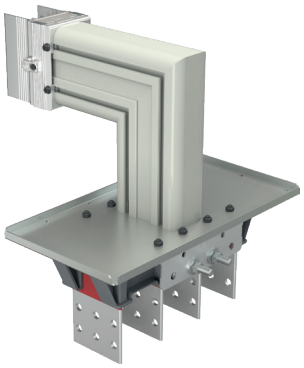
CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
A	(mm)	310	325	350	365	380	430	470	520	630	710	770	810	890	950
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
A	(mm)	315	325	350	380	420	470	530	590	670	725	830	890
B	(mm)	278	283	295	310	330	355	385	415	455	483	535	565

■ The dimensions given above are minimum values. ■ Please call us for non-standard components.

E-LINE CCR-II

▶▶Panel / Transformer Connections



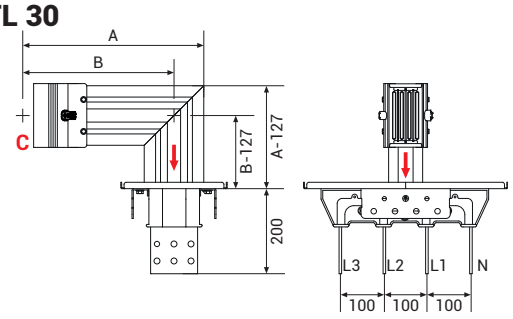
Left Panel / Transformer Connection **- PL 30** **- TL 30**

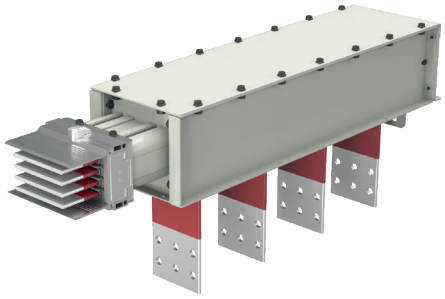
Panel/Transformer Feeder

Sample Order:

CCRC-II 32804 - B - PL30

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor





Horizontal Panel / Transformer Connection **- P 40** **- TR 40**

Panel/Transformer Feeder

Sample Order:

CCRC-II 32804 - B - P40

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

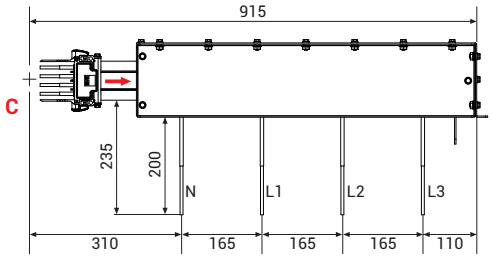


Table For Outer Dimension of Busbars

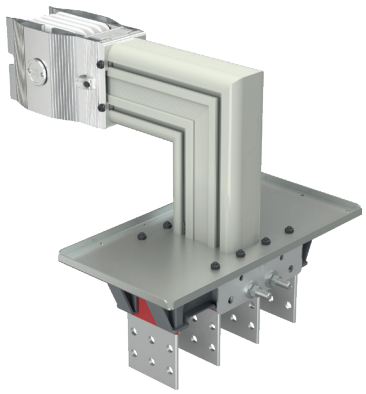
CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
	Conductor	6x40	6x55	6x80	6x95	6x110	6x160	6x200	6x250	2(6x160)	2(6x200)	2(6x230)	2(6x250)	3(6x180)	3(6x200)
A	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
	Conductor	6x45	6x55	6x80	6x110	6x150	2(6x80)	2(6x110)	2(6x140)	2(6x180)	3(6x125)	3(6x160)	3(6x180)
A	(mm)	275	283	295	310	330	355	385	415	455	483	535	565
B	(mm)	275	283	295	310	330	355	385	415	455	483	535	565

■The dimensions given above are minimum values. ■ Please call us for non-standard components.

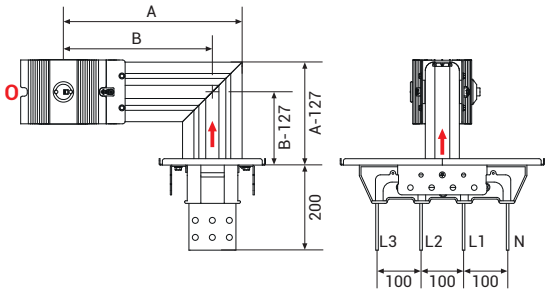
E-LINE CCR-II

▶▶Panel / Transformer Connections



Left Panel / Transformer Connection **- PL 31** **- TL 31**

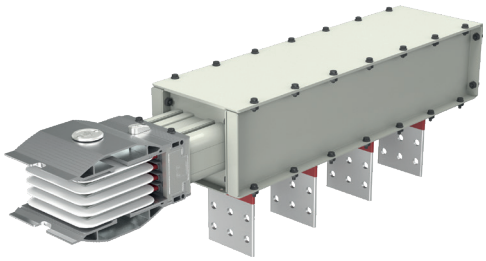
Pano/Transformer Output



Sample Order:

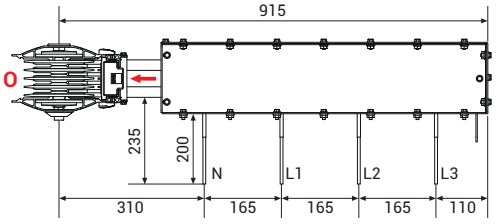
CCRC-II 32804 - B - TL31

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



Horizontal Panel / Transformer Connection **- P 41** **- TR 41**

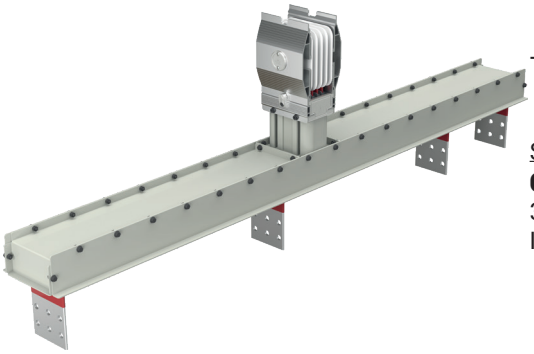
Pano/Transformer Output



Sample Order:

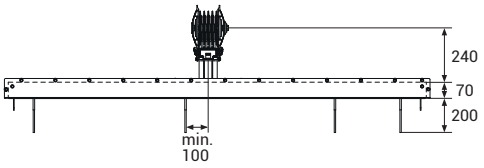
CCRC-II 32804 - B - TR41

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor



Transformer Connection **- TR 61**

Transformer Output



Sample Order:

CCRC-II 32804 - B - TR61

3200 A, Copper, Bolt-on,
IP 68, 4 Conductor

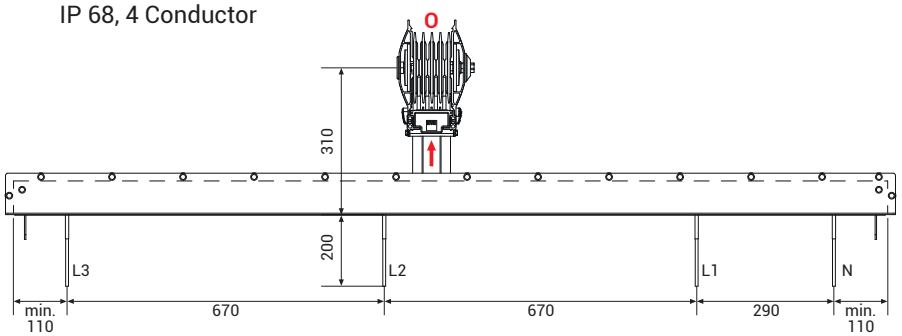


Table For Outer Dimension of Busbars

CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
	Conductor	6x40	6x55	6x80	6x95	6x110	6x160	6x200	6x250	2(6x160)	2(6x200)	2(6x230)	2(6x250)	3(6x180)	3(6x200)
A	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595
B	(mm)	275	283	295	303	310	335	355	380	435	475	505	525	565	595

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
	Conductor	6x45	6x55	6x80	6x110	6x150	2(6x80)	2(6x110)	2(6x140)	2(6x180)	3(6x125)	3(6x160)	3(6x180)
A	(mm)	275	283	295	310	330	355	385	415	455	483	535	565
B	(mm)	275	283	295	310	330	355	385	415	455	483	535	565

■ The dimensions given above are minimum values. ■ Please call us for non-standard components.

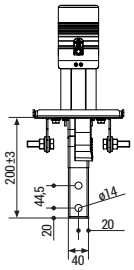
E-LINE CCR-II

▶▶Panel / Transformer Connections

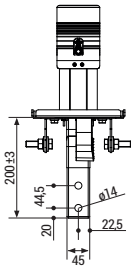
Panel Connection Units

Panel Connection Units (P10, TR11, PU20, TU21, PD20, TD21, PR30, TR31, PL30, TL31, P40, TR41, TR61)

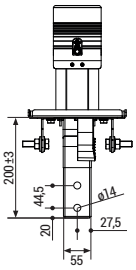
CCRA-II 04



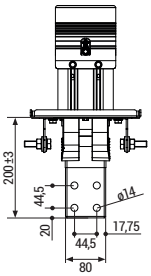
CCRC-II 06



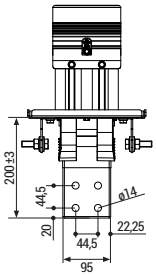
CCRA-II 05
CCRC-II 08



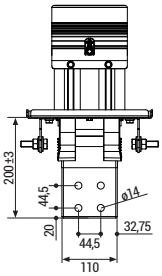
CCRA-II 06
CCRC-II 10



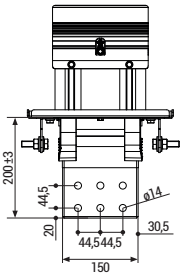
CCRA-II 08



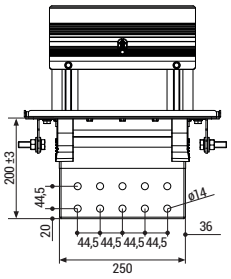
CCRA-II 10
CCRC-II 12



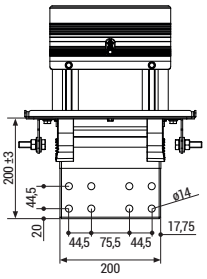
CCRC-II 16



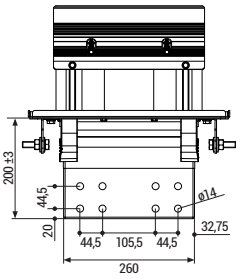
CCRA-II 20



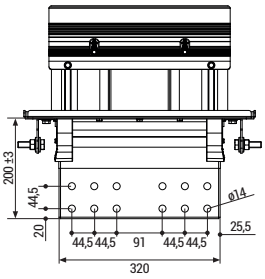
CCRA-II 30
CCRC-II 20



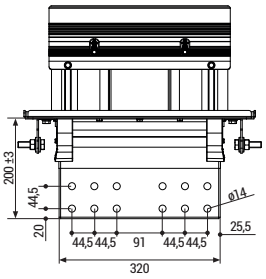
CCRC-II 25



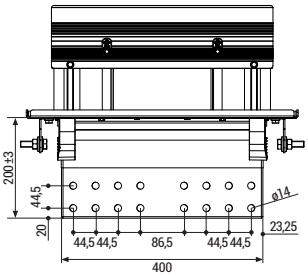
CCRC-II 32



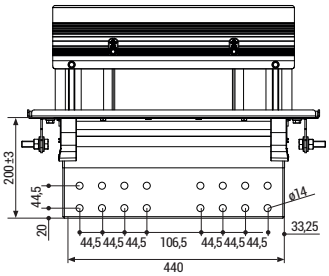
CCRA-II 25



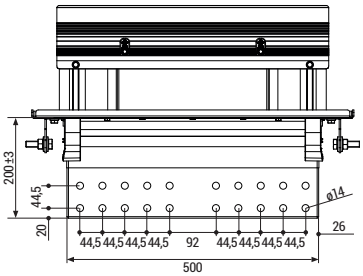
CCRC-II 36



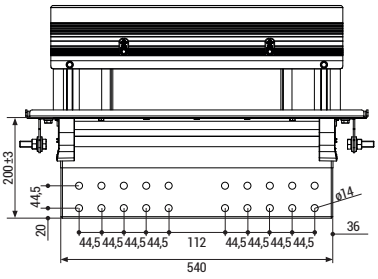
CCRA-II 30



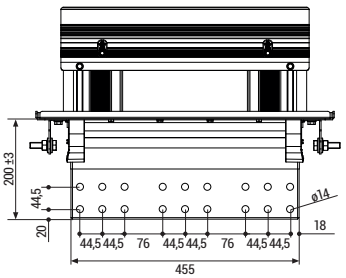
CCRA-II 32



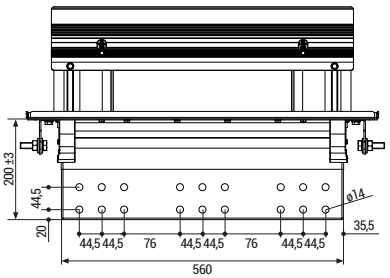
CCRA-II 36



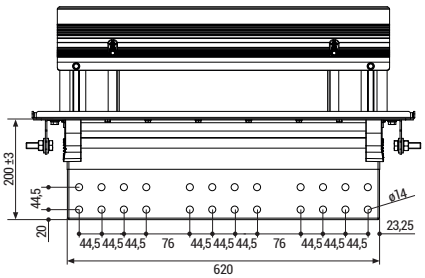
CCRC-II 40



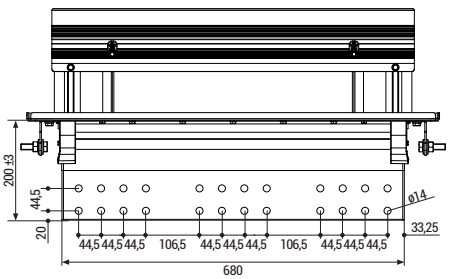
CCRC-II 50



CCRA-II 40
CCRC-II 60

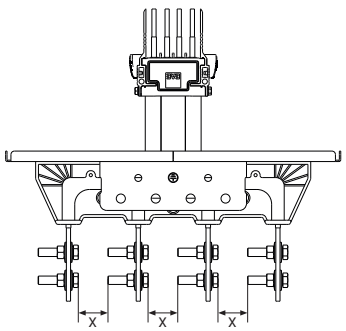


CCRA-II 45



Sample Connection

(Minimum X=25mm)



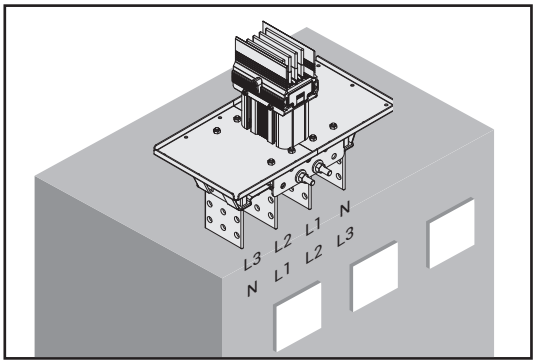
■Please call us for non-standard components. ■Distance between conductors can vary in ±5 mm. ■The dimensions given above are minimum values.

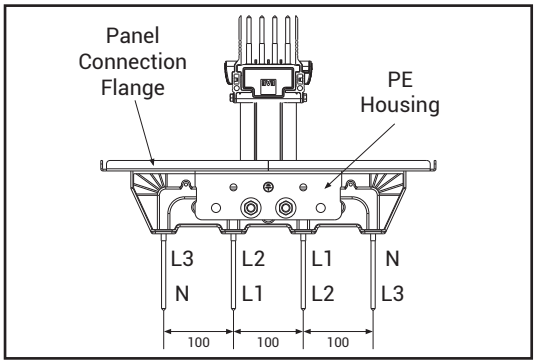
E-LINE CCR-II

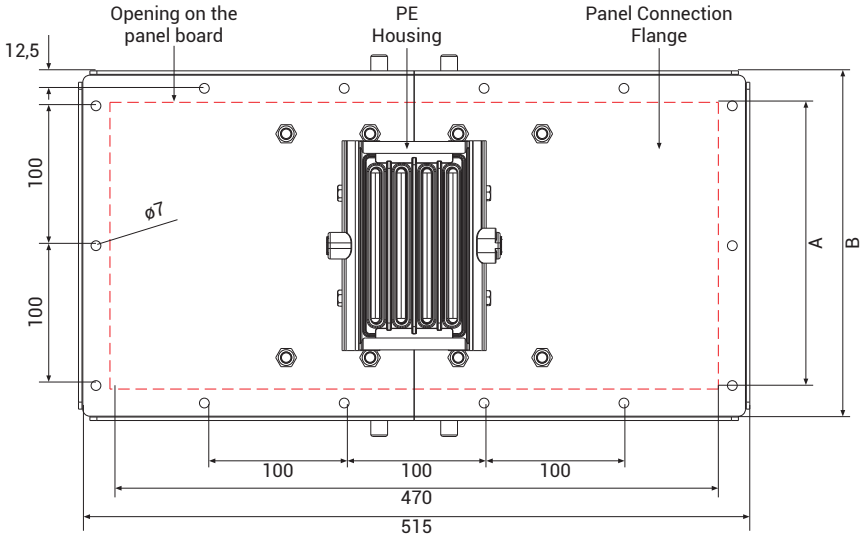
▶▶Panel / Transformer Connections

Panel Modules Flange Dimensions

Panel Connection Units are supplied with suitable flange as standard.







Panel Modules Flange Dimensions

* Bolt and nut sets are supplied together with related product as per the quantities below.

CCRA-II - Al Conductor	Rated Current	400	550	630	800	1000	1300	1600	2000	2500	3000	3200	3600	4000	4500
	Busbar Code	04	05	06	08	10	13	16	20	25	30	32	36	40	45
	Conductor	6x40	6x55	6x80	6x95	6x110	6x160	6x200	6x250	2(6x160)	2(6x200)	2(6x230)	2(6x250)	3(6x180)	3(6x200)
A	(mm)	135	150	175	195	205	255	295	345	455	535	595	635	715	775
B	(mm)	180	195	220	235	250	300	340	390	500	580	640	680	760	820
Number of the holes along "B" length		2	2	2	3	3	3	4	4	5	6	7	7	8	8
* M6 Bolt/Nut Set (Pcs.)		12	12	12	14	14	14	16	16	18	20	22	22	24	24

CCRC-II - Cu Conductor	Rated Current	630	800	1000	1250	1600	2000	2500	3200	3600	4000	5000	6000
	Busbar Code	06	08	10	12	16	20	25	32	36	40	50	60
	Conductor	6x40	6x55	6x80	6x110	6x150	2(6x80)	2(6x110)	2(6x140)	2(6x180)	3(6x125)	3(6x160)	3(6x180)
A	(mm)	135	150	175	205	245	295	355	415	495	550	655	715
B	(mm)	180	195	220	250	290	340	400	460	540	595	700	760
Number of the holes along "B" length		2	2	2	3	3	4	4	5	6	6	7	8
* M6 Bolt/Nut Set (Pcs.)		12	12	12	14	14	16	16	18	20	20	22	24

E-LINE CCR-II

▶▶Edgewise and Flatwise CCR-II Applications

Figure 1 - Edgewise Application

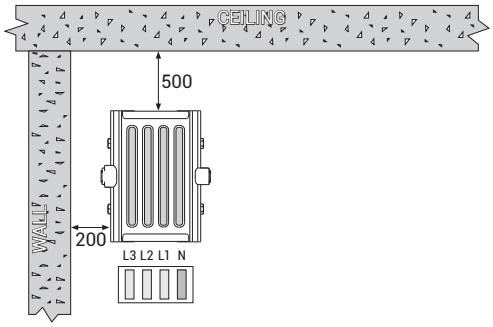
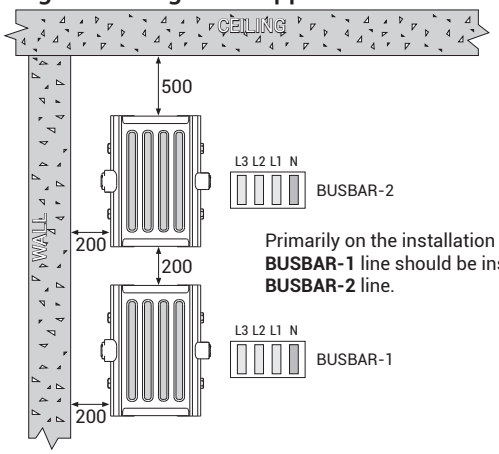
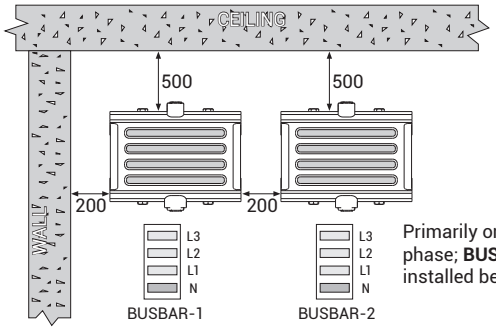


Figure 2 - Edgewise Application



Primarily on the installation phase; **BUSBAR-1** line should be installed before **BUSBAR-2** line.

Figure 3 - Flatwise Application



Primarily on the installation phase; **BUSBAR-1** line should be installed before **BUSBAR-2** line.

Figure 4 - Crossing Under A Beam On Edgewise Application

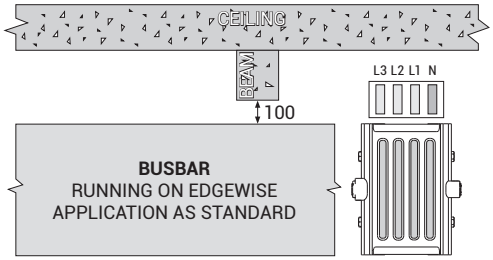


Figure 5 - Crossing Under A Beam On Flatwise Application

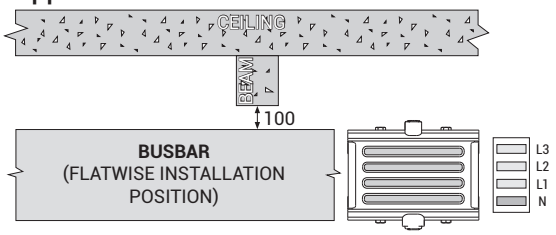


Figure 6 - Sample Wall Crossing With Fire Barrier

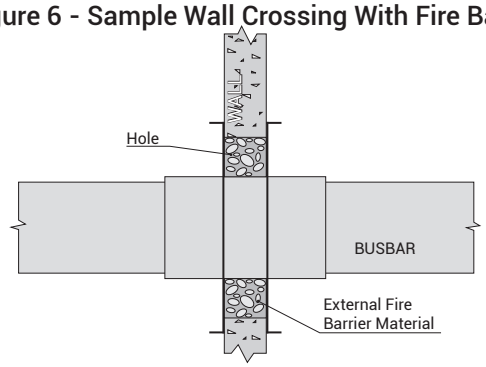


Figure 7 - Standard Wall Crossing

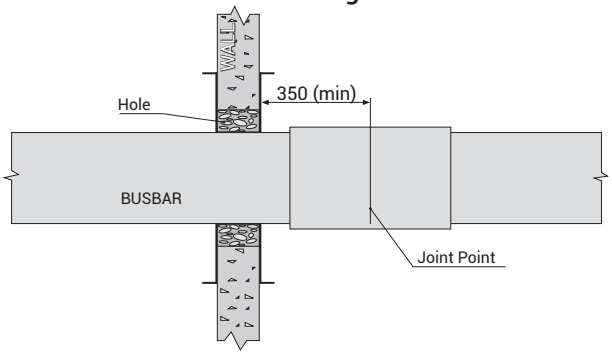


Figure 8 - Edgewise application in gallery

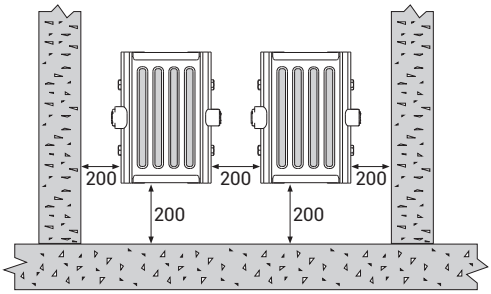
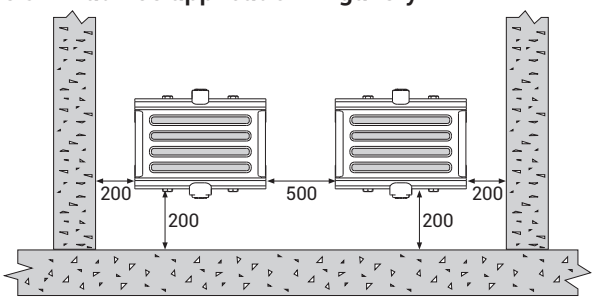


Figure 9 - Flatwise application in gallery



Attention!

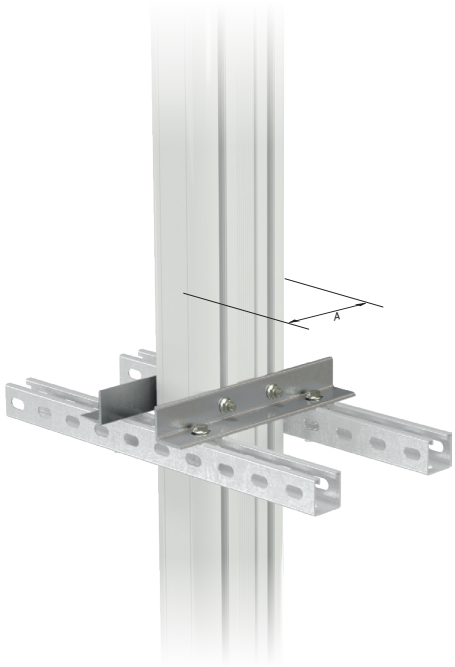
- For correct installation, the dimension from the busbar to the ceiling should not be less than 500mm.
- He joint should be not come across to Beams.
- The dimensions given above are minimum values.
- All dimensions are given in mm.

E-LINE CCR-II

▶▶Fixing Elements

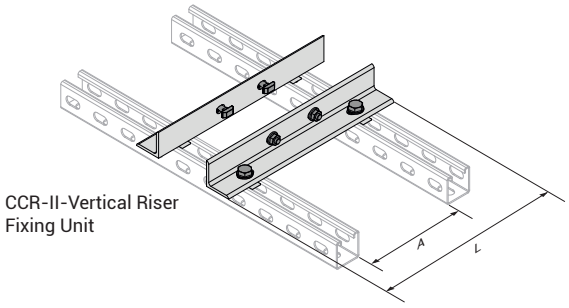
Vertical Shaft Type Carriers

CCR-II Vertical Riser Fixing Unit

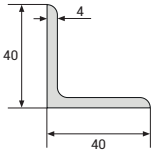


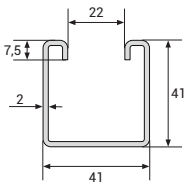
CCRA-II-Al Conductor		Conductor	A (mm)	L (mm)	Order Code
Rated Current	Busbar Code				
400	04	6x40	70	225	3266297
550	05	6x55	85	225	3266297
630	06	6x80	110	250	3257224
800	08	6x95	125	265	3325698
1000	10	6x110	140	280	3257225
1300	13	6x160	190	330	3290768
1600	16	6x200	230	400	3359335
2000	20	6x250	280	450	3290769
2500	25	2(6x160)	390	530	3290770
3000	30	2(6x200)	470	610	3290772
3200	32	2(6x230)	530	670	3325702
3600	36	2(6x250)	570	710	3325703
4000	40	3(6x180)	650	790	3257234
4500	45	3(6x200)	710	850	3290774

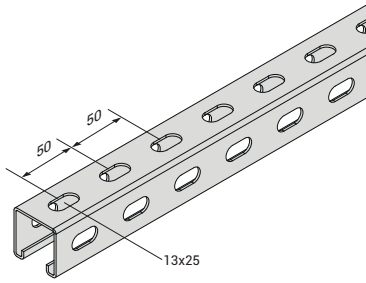
CCRC-II-Cu Conductor		Conductor	A (mm)	L (mm)	Order Code
Rated Current	Busbar Code				
630	06	6x40	75	225	3266297
800	08	6x55	85	225	3266297
1000	10	6x80	110	250	3257224
1250	12	6x110	140	280	3257225
1600	16v	6x150	180	320	3257226
2000	13	2(6x80)	230	370	3257228
2500	16	2(6x110)	290	430	3257229
3200	20	2(6x140)	350	490	3257231
3600	25	2(6x180)	430	570	3290771
4000	30	3(6x125)	485	625	3257232
5000	32	3(6x160)	590	730	3257233
6000	36	3(6x180)	650	790	3257234

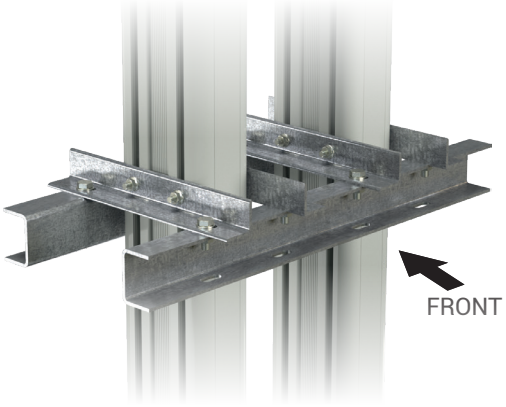


CCR-II-Vertical Riser Fixing Unit









Vertical Riser Application Sample Order Hanging (Special to project)

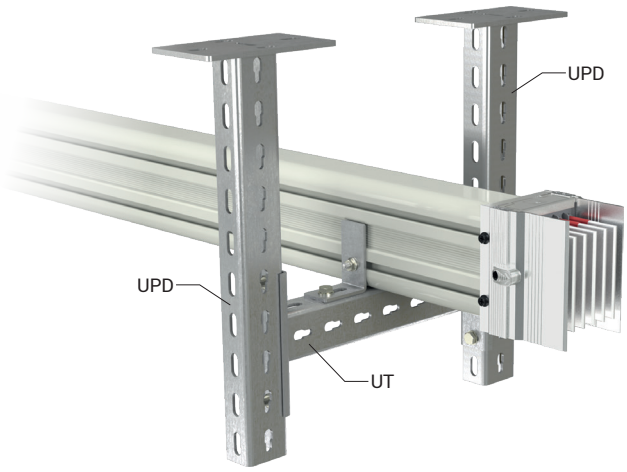
■ The dimensions given above are minimum values. ■ Please call us for non-standard components. ■ All measures are given in mm.

E-LINE CCR-II

▶▶Fixing Elements

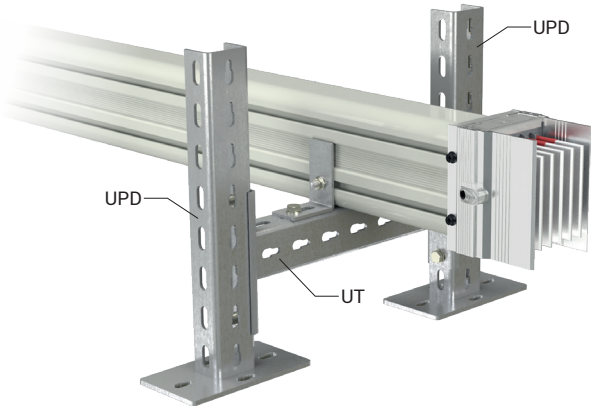
Ceiling Type Supports

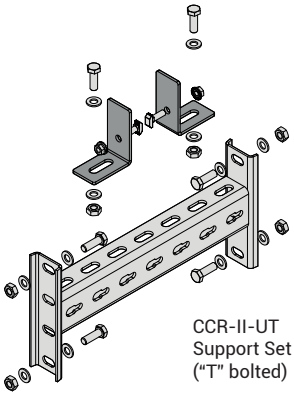
CCR-II-UT Two-Way For Edgewise Application To NPI Channel



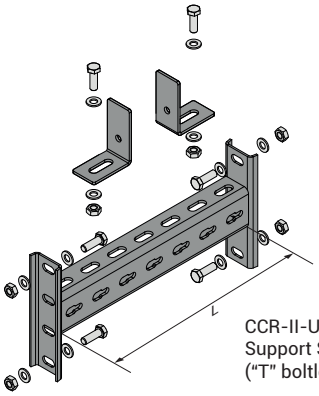
Floor Type Supports

CCR-II-UT Two-Way For Edgewise Application To NPI Channel

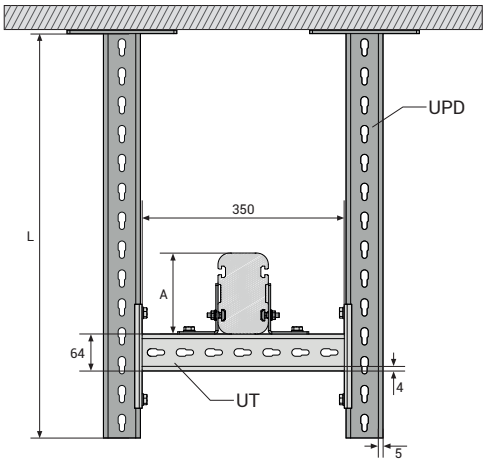




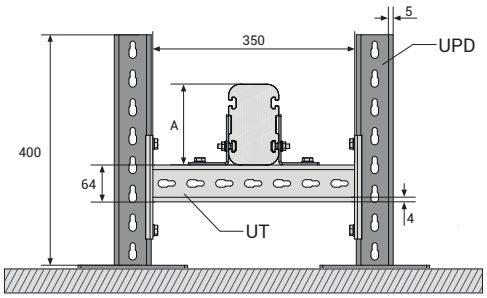
CCR-II-UT
Support Set
("T" bolted)

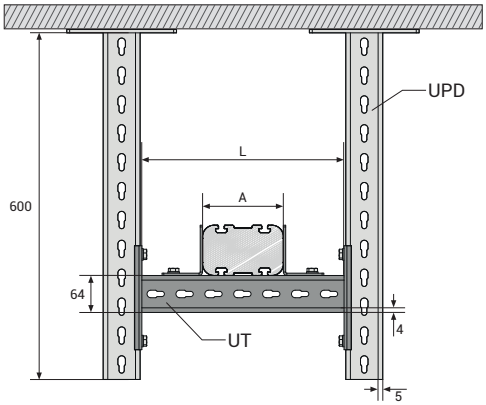


CCR-II-UT
Support Set
("T" boltless)

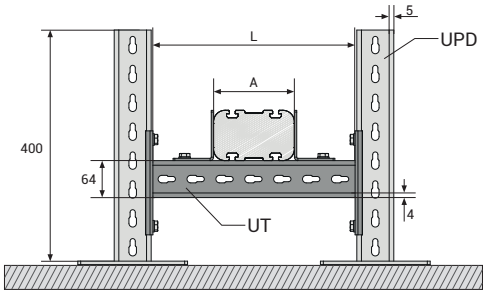


When selecting an **UPD** product, please keep in mind to select the **UPD** product suitable to the Busbar **A** dimension.





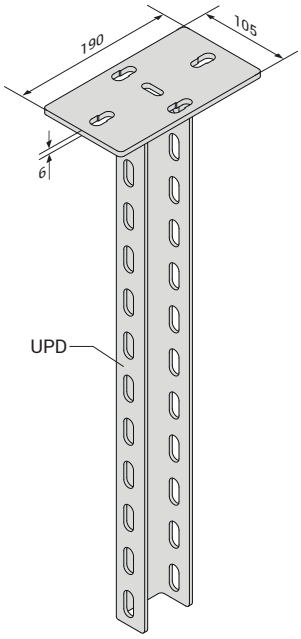
When choosing **CCR-II-UT Suspension Set**, appropriate **CCR-II-UT Suspension Set** should be selected according to Busbar size.



■The dimensions given above are minimum values. ■Please call us for non-standard components. ■All measures are given in mm.

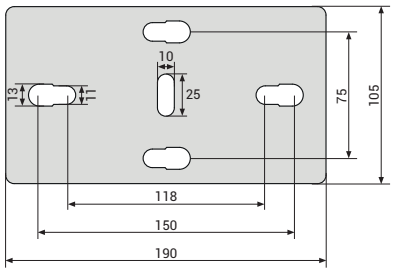
Heavy Duty Supports (U)

Hot Dip Galvanized After Fabrication (TS EN ISO 1461)



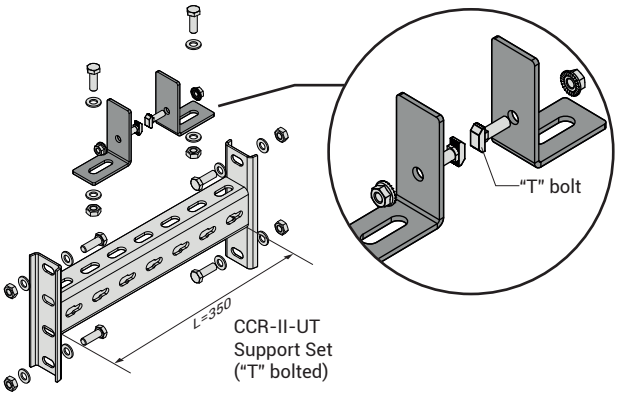
CCRC-II-Cu Conductor		Conductor	A (mm)	UPD L (mm)	Order Code
Rated Current	Busbar Code				
630	06	6x40	75	700	3004518
800	08	6x55	85	700	3004518
1000	10	6x80	110	700	3004518
1250	12	6x110	140	800	3004519
1600	16v	6x150	180	800	3004519
2000	13	2(6x80)	230	800	3004519
2500	16	2(6x110)	290	800	3004519
3200	20	2(6x140)	350	1000	3004521
3600	25	2(6x180)	430	1100	3004522
4000	30	3(6x125)	485	1100	3004522
5000	32	3(6x160)	590	1200	3004523
6000	36	3(6x180)	650	1200	3004523

CCRA-II-Al Conductor		Conductor	A (mm)	UPD L (mm)	Order Code
Rated Current	Busbar Code				
400	04	6x40	70	700	3004518
550	05	6x55	85	700	3004518
630	06	6x80	110	700	3004518
800	08	6x95	125	700	3004518
1000	10	6x110	140	800	3004519
1300	13	6x160	190	800	3004519
1600	16	6x200	230	900	3004520
2000	20	6x250	280	900	3004520
2500	25	2(6x160)	390	1000	3004521
3000	30	2(6x200)	470	1100	3004522
3200	32	2(6x230)	530	1100	3004522
3600	36	2(6x250)	570	1100	3004522
4000	40	3(6x180)	650	1200	3004523
4500	45	3(6x200)	710	1300	3004524

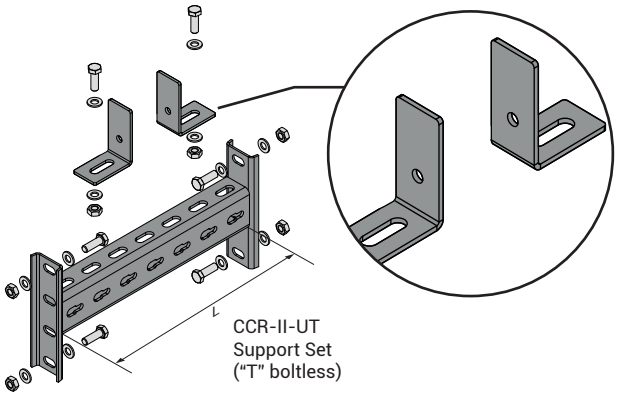


When selecting an **UPD** product, please keep in mind to select the **UPD** product suitable to the Busbar **A** dimension.

CCR-II-UT Suspension Assembly



CCR-II-UT Support Set ("T" bolted)



CCR-II-UT Support Set ("T" boltless)

When choosing **CCR-II-UT Suspension Set**, appropriate **CCR-II-UT Suspension Set** should be selected according to Busbar size.

CCRC-II-Cu Conductor		Conductor	A (mm)	UT L (mm)	Order Code
Rated Current	Busbar Code				
630	06	6x40	75	350	3108705
800	08	6x55	85	350	3108705
1000	10	6x80	110	350	3108705
1250	12	6x110	140	350	3108705
1600	16v	6x150	180	450	3108707
2000	13	2(6x80)	230	450	3108707
2500	16	2(6x110)	290	550	3108708
3200	20	2(6x140)	350	650	3108709
3600	25	2(6x180)	430	750	3108710
4000	30	3(6x125)	485	750	3108710
5000	32	3(6x160)	590	850	3108711
6000	36	3(6x180)	650	950	3108712

CCRA-II-Al Conductor		Conductor	A (mm)	UT L (mm)	Order Code
Rated Current	Busbar Code				
400	04	6x40	70	350	3108705
550	05	6x55	85	350	3108705
630	06	6x80	110	350	3108705
800	08	6x95	125	350	3108705
1000	10	6x110	140	350	3108705
1300	13	6x160	190	450	3108707
1600	16	6x200	230	550	3004537
2000	20	6x250	280	650	3004539
2500	25	2(6x160)	390	750	3108710
3000	30	2(6x200)	470	750	3108710
3200	32	2(6x230)	530	750	3108710
3600	36	2(6x250)	570	750	3108710
4000	40	3(6x180)	650	950	3108712
4500	45	3(6x200)	710	1050	3290778

■ Please check our Suspension Systems (A-A) Catalogue to see our alternative solutions for suspension types.

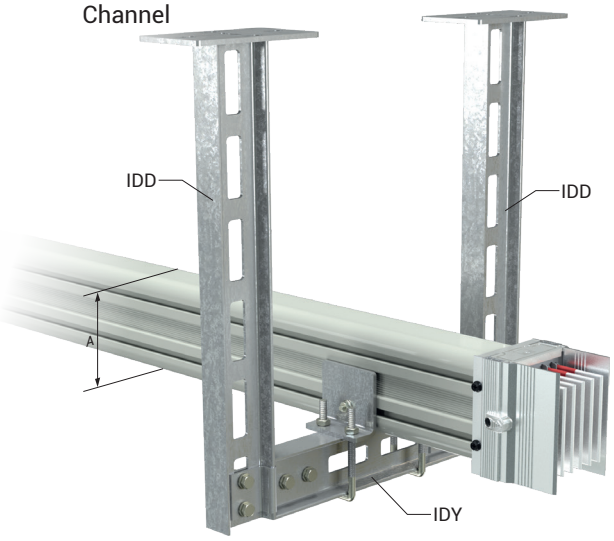
■ The dimensions given above are minimum values. ■ Please call us for non-standard components. ■ All measures are given in mm.

E-LINE CCR-II

▶▶Fixing Elements

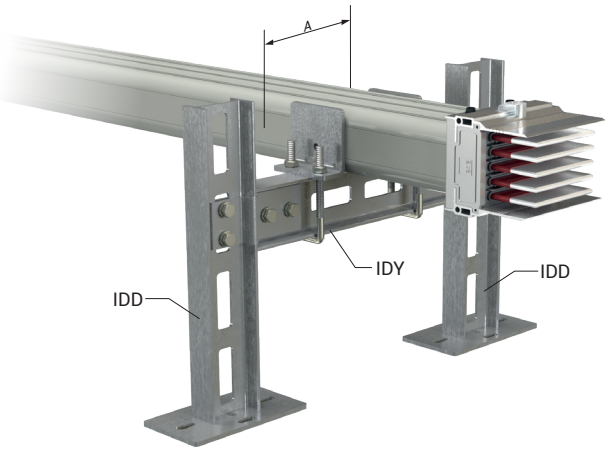
Ceiling Type Supports

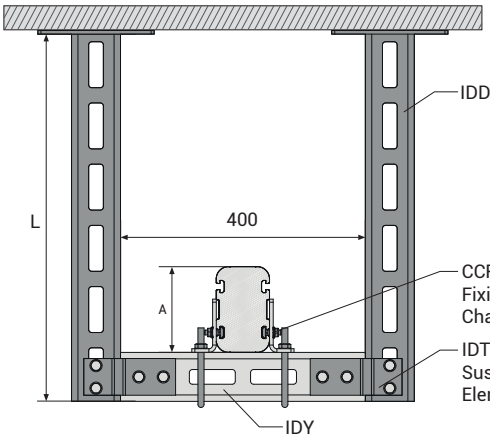
CCR-II-IDY Two-Way For Edgewise Application To NPI Channel



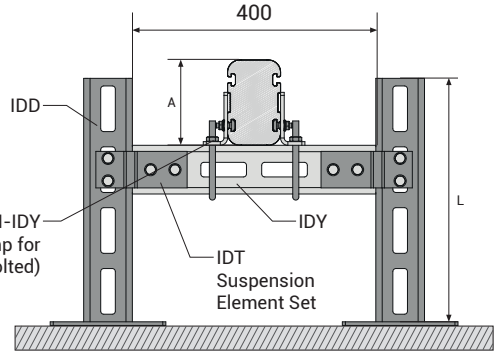
Floor Type Supports

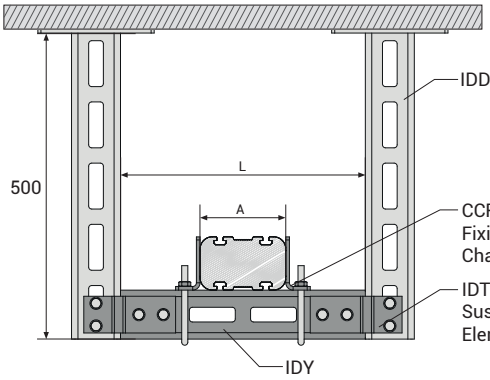
CCR-II-IDY Two-Way For Edgewise Application To NPI Channel



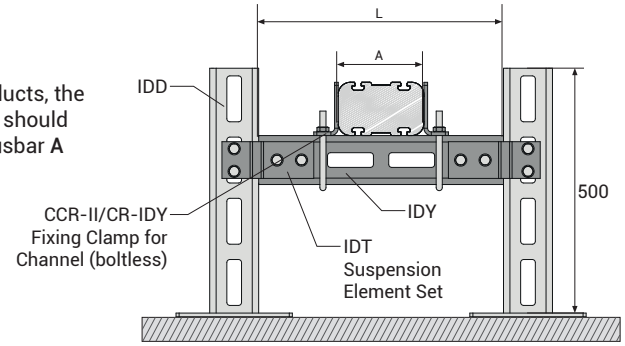


When selecting **IDD** products, the appropriate **IDD** product should be selected based on Busbar **A** measurement.

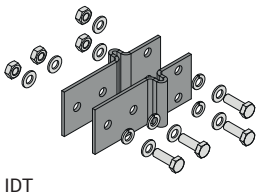




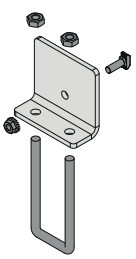
When selecting **IDY** products, the appropriate **IDY** product should be selected based on Busbar **A** measurement.



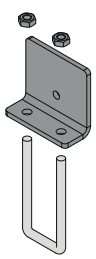
Supports



IDT
Suspension Element Set



CCR-II-IDY
Fixing Clamp for
Channel (bolted)



CCR-II/CR-IDY
Fixing Clamp for
Channel (boltless)

Description	Order Code
CCR-II-IDT Suspension Element Set	3008279
CCR-II-IDY Fixing Clamp for Channel (bolted)	3265712
CCR-II/CR-IDY Fixing Clamp for Channel (boltless)	3265713

■ Please check our Suspension Systems (A-A) Catalogue to see our alternative solutions for suspension types.

■ The dimensions given above are minimum values.

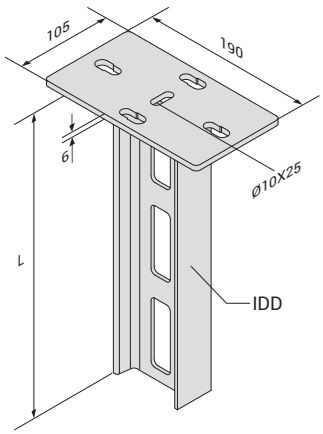
■ Please call us for non-standard components.

■ All measures are given in mm.

E-LINE CCR-II

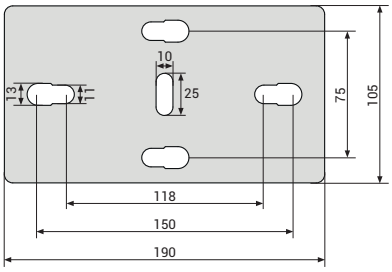
▶▶Fixing Elements

IDD Type Supports



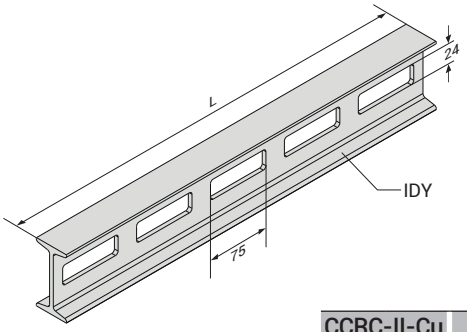
CCRC-II-Cu Conductor		Conductor	A (mm)	Description	IDD L (mm)	Order Code
Rated Current	Busbar Code					
630	06	6x40	75	IDD 500	500	3008312
800	08	6x55	85	IDD 500	500	3008312
1000	10	6x80	110	IDD 500	500	3008312
1250	12	6x110	140	IDD 600	600	3008311
1600	16v	6x150	180	IDD 700	700	3008310
2000	13	2(6x80)	230	IDD 700	700	3108707
2500	16	2(6x110)	290	IDD 800	800	3008309
3200	20	2(6x140)	350	IDD 800	800	3008309
3600	25	2(6x180)	430	IDD 1000	1000	3008307
4000	30	3(6x125)	485	IDD 1000	1000	3008309
5000	32	3(6x160)	590	IDD 1100	1100	3008306
6000	36	3(6x180)	650	IDD 1100	1100	3008306

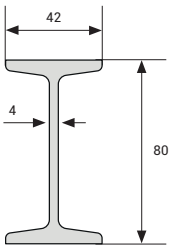
CCRC-II-Al Conductor		Conductor	A (mm)	Description	IDD L (mm)	Order Code
Rated Current	Busbar Code					
400	04	6x40	70	IDD 500	500	3008312
550	05	6x55	85	IDD 500	500	3008312
630	06	6x80	110	IDD 500	500	3008312
800	08	6x95	125	IDD 500	500	3008312
1000	10	6x110	140	IDD 600	600	3008311
1300	13	6x160	190	IDD 700	700	3008310
1600	16	6x200	230	IDD 800	800	3008309
2000	20	6x250	280	IDD 800	800	3008309
2500	25	2(6x160)	390	IDD 900	900	3008308
3000	30	2(6x200)	470	IDD 1000	1000	3008307
3200	32	2(6x230)	530	IDD 1100	1100	3008306
3600	36	2(6x250)	570	IDD 1100	1100	3008306
4000	40	3(6x180)	650	IDD 1100	1100	3008306
4500	45	3(6x200)	710	IDD 1200	1200	3008305



When selecting **IDD** products, the appropriate **IDD** product should be selected based on Busbar **A** measurement.

IDY Type Supports





CCRC-II-Cu Conductor		Conductor	A (mm)	Description	IDY L (mm)	Order Code
Rated Current	Busbar Code					
630	06	6x40	75	IDY 400	400	3008290
800	08	6x55	85	IDY 400	400	3008290
1000	10	6x80	110	IDY 400	400	3008290
1250	12	6x110	140	IDY 400	400	3008290
1600	16v	6x150	180	IDY 500	500	3008289
2000	13	2(6x80)	230	IDY 500	500	3008289
2500	16	2(6x110)	290	IDY 500	500	3008289
3200	20	2(6x140)	350	IDY 600	600	3008288
3600	25	2(6x180)	430	IDY 700	700	3008287
4000	30	3(6x125)	485	IDY 700	700	3008287
5000	32	3(6x160)	590	IDY 800	800	3008286
6000	36	3(6x180)	650	IDY 900	900	3008285

CCRC-II-Al Conductor		Conductor	A (mm)	Description	IDY L (mm)	Order Code
Rated Current	Busbar Code					
400	04	6x40	70	IDY 400	400	3008290
550	05	6x55	85	IDY 400	400	3008290
630	06	6x80	110	IDY 400	400	3008290
800	08	6x95	125	IDY 400	400	3008290
1000	10	6x110	140	IDY 400	400	3008290
1300	13	6x160	190	IDY 500	500	3008289
1600	16	6x200	230	IDY 600	600	3008288
2000	20	6x250	280	IDY 600	600	3008288
2500	25	2(6x160)	390	IDY 700	700	3008287
3000	30	2(6x200)	470	IDY 700	700	3008287
3200	32	2(6x230)	530	IDY 800	800	3008286
3600	36	2(6x250)	570	IDY 800	800	3008286
4000	40	3(6x180)	650	IDY 900	900	3008285
4500	45	3(6x200)	710	IDY 1000	1000	3008284

When selecting **IDY** products, the appropriate **IDY** product should be selected based on Busbar **A** measurement.

■ Please check our Suspension Systems (A-A) Catalogue to see our alternative solutions for suspension types.

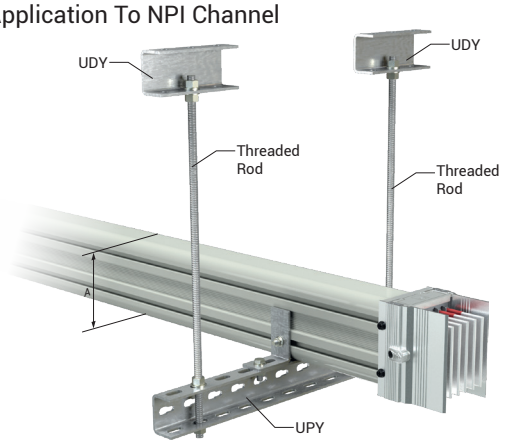
■ The dimensions given above are minimum values. ■ Please call us for non-standard components. ■ All measures are given in mm.

E-LINE CCR-II

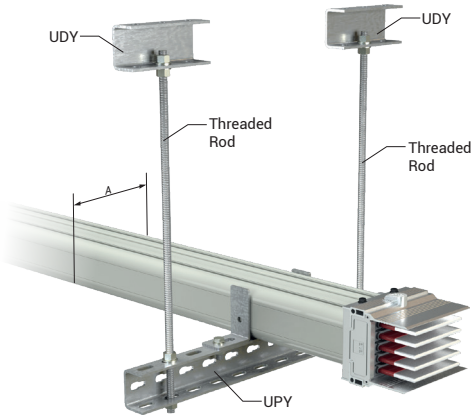
▶▶Fixing Elements

Ceiling Type Supports

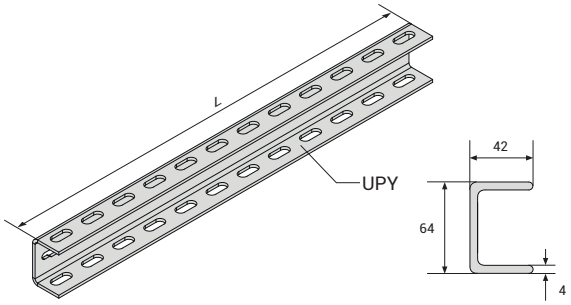
CCR-II-Threaded Rod Two-Way For Edgewise Application To NPI Channel



CCR-II-Threaded Rod Two-Way For Flatwise Application To NPI Channel



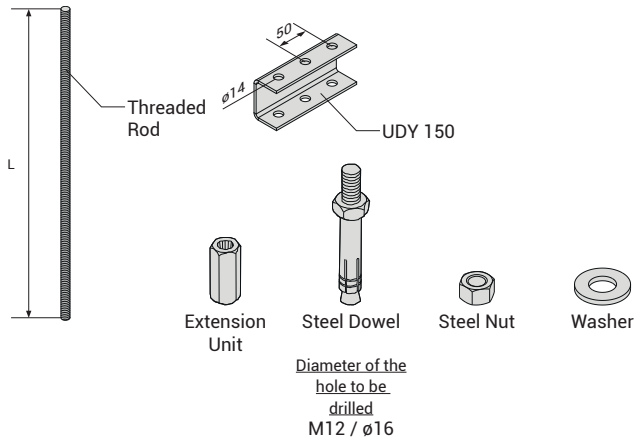
Supports



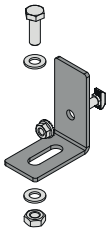
CCRA-II-Al Conductor		Conductor	A (mm)	Description	UPY L (mm)	Order Code
Rated Current	Busbar Code					
400	04	6x40	70	UPY 600	600	3004493
550	05	6x55	85	UPY 600	600	3004493
630	06	6x80	110	UPY 600	600	3004493
800	08	6x95	125	UPY 600	600	3004493
1000	10	6x110	140	UPY 600	600	3004493
1300	13	6x160	190	UPY 700	700	3004495
1600	16	6x200	230	UPY 800	800	3004429
2000	20	6x250	280	UPY 800	800	3004429
2500	25	2(6x160)	390	UPY 900	900	3004497
3000	30	2(6x200)	470	UPY 1000	1000	3004498
3200	32	2(6x230)	530	UPY 1100	1100	3004499
3600	36	2(6x250)	570	UPY 1100	1100	3004499
4000	40	3(6x180)	650	UPY 1100	1100	3004499
4500	45	3(6x200)	710	UPY 1200	1200	3004500

CCRA-II-Cu Conductor		Conductor	A (mm)	Description	UPY L (mm)	Order Code
Rated Current	Busbar Code					
630	06	6x40	75	UPY 600	600	3004493
800	08	6x55	85	UPY 600	600	3004493
1000	10	6x80	110	UPY 600	600	3004493
1250	12	6x110	140	UPY 600	600	3004493
1600	16v	6x150	180	UPY 700	700	3004495
2000	13	2(6x80)	230	UPY 700	700	3004495
2500	16	2(6x110)	290	UPY 800	800	3004496
3200	20	2(6x140)	350	UPY 900	900	3004497
3600	25	2(6x180)	430	UPY 1000	1000	3004498
4000	30	3(6x125)	485	UPY 1000	1000	3004498
5000	32	3(6x160)	590	UPY 1100	1100	3004499
6000	36	3(6x180)	650	UPY 1100	1100	3004499

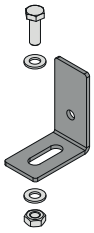
Fixing Elements



CCR-II-L Suspension Set



CR-L Suspension Connection Set



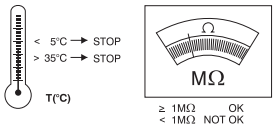
■ Please check our Suspension Systems (A-A) Catalogue to see our alternative solutions for suspension types.

■ The dimensions given above are minimum values. ■ Please call us for non-standard components. ■ All measures are given in mm.

E-LINE CCR-II

▶▶Preparation of Joint Flex-Comp

The meger test must be carried out before casting. If Flex-Comp (A) and Flex-Comp (B) are stored in a cold environment, they should be kept in a warm environment one day before casting (> 20 °C).
Ambient temperature during casting should be 5 °C < T casting < 35 °C.



Preparation of Flex-Comp

Add Flex-Comp (B) product into Flex-Comp (A).
One set is 3.5 kg. The required kg values for filling the joints according to their cross-section are indicated in the table next to it. The number of sets to be prepared should be calculated based on the number of joints in the assembly time.

CCR-II Flex-Comp Mixer

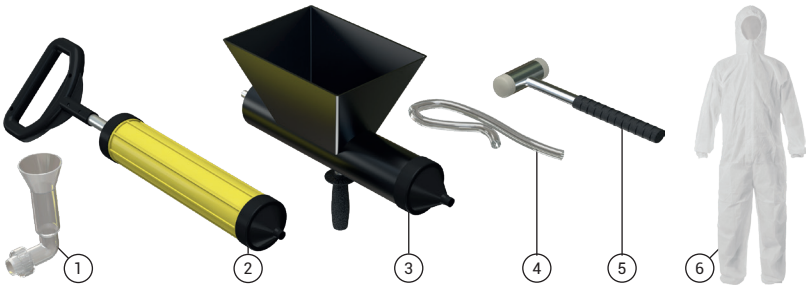
Mix the mixture with a beater at low speed for at least 30sec - 1 minutes until it is homogeneous.

Description	Order Code
CCR-II Flex-Comp Mixer	5002396

Amount of Resin to be Used

CCRA-II-Al Conductor		Conductor	4 Conductor (kg)	4½ - 5 Conductor (kg)
Rated Current	Busbar Code			
400	04	6x40	1,3	1,4
550	05	6x55	1,5	1,5
630	06	6x80	1,6	1,8
800	08	6x95	1,8	2
1000	10	6x110	1,9	2,1
1300	13	6x160	2,4	2,7
1600	16	6x200	3,5	3,5
2000	20	6x250	3,5	3,5
2500	25	2(6x160)	4,3	4,9
3000	30	2(6x200)	5,1	5,7
3200	32	2(6x230)	5,4	5,9
3600	36	2(6x250)	5,5	6
4000	40	3(6x180)	7	7,6
4500	45	3(6x200)	7,6	7,8

CCRC-II-Cu Conductor		Conductor	4 Conductor (kg)	4½ - 5 Conductor (kg)
Rated Current	Busbar Code			
630	06	6x40	1,3	1,4
800	08	6x55	1,5	1,5
1000	10	6x80	1,6	1,8
1250	12	6x110	1,9	2,1
1600	16v	6x150	2,3	2,6
2000	13	2(6x80)	2,7	3
2500	16	2(6x110)	3,3	3,5
3200	20	2(6x140)	3,9	4,2
3600	25	2(6x180)	4,7	5,3
4000	30	3(6x125)	5,2	5,7
5000	32	3(6x160)	6,2	6,9
6000	36	3(6x180)	7	7,6



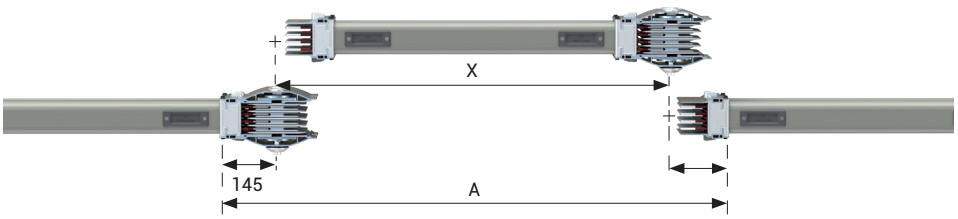
Casting Materials

No	Description	Order Code
1	CCR-II Level Check Pipe	3271279
2	CCR-II Injection Pomp	3254100
3	Flex-Comp Casting Apparatus	5003447
4	Flex-Comp Transparent Hose Set	5003607
5	CR Plastic Hammer	5000310
6	Disposable Protective Overall	5003622

▶▶Measuring a Special Length

After installation of standard busbar 3m lengths, you will be in need of special lengths which are smaller than 3m.The minimum length for these special elements can be 450mm. Please measure the lengths of these modules as shown below.

Length A is measured between housing of 2 busbars in mm. A. The special length is calculated by deducting 290mm from this measured length.

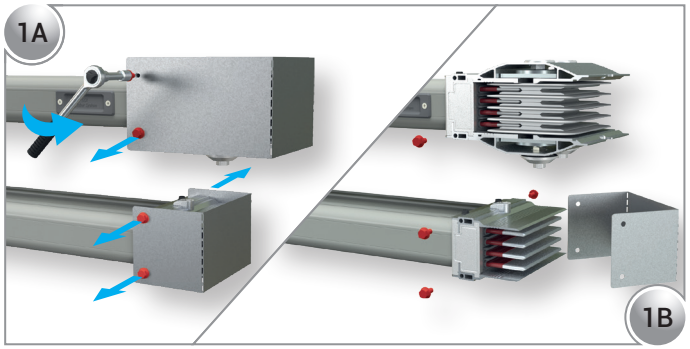


X = A - 290mm

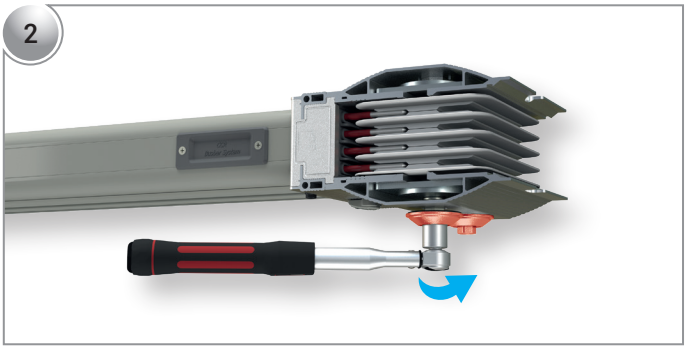
X = Length of Special Busbar

E-LINE CCR-II

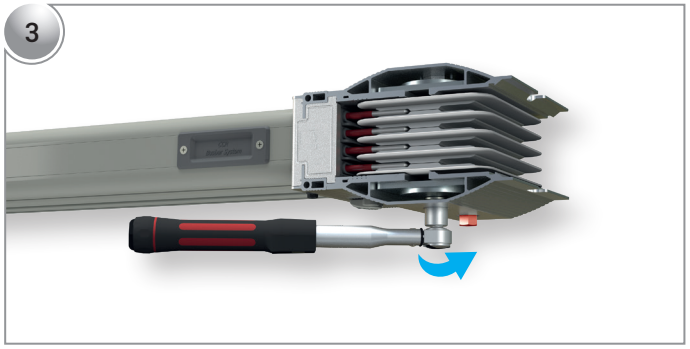
▶▶Installation / Horizontal



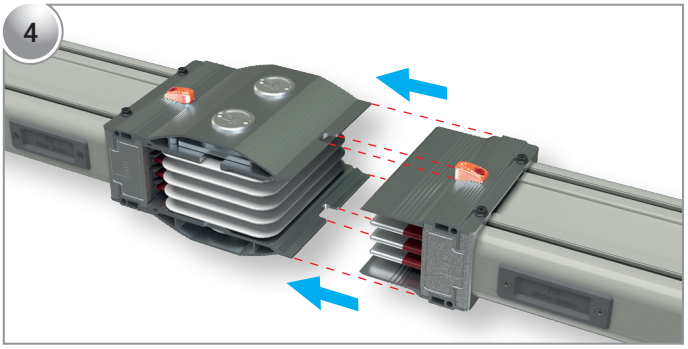
Remove the busbar protection covers by unscrewing the bolts



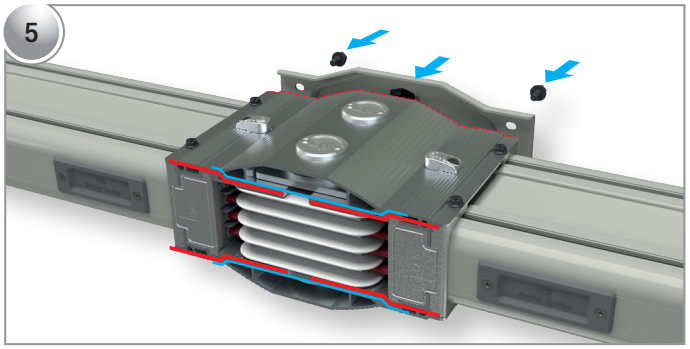
Remove the nut locking cover.



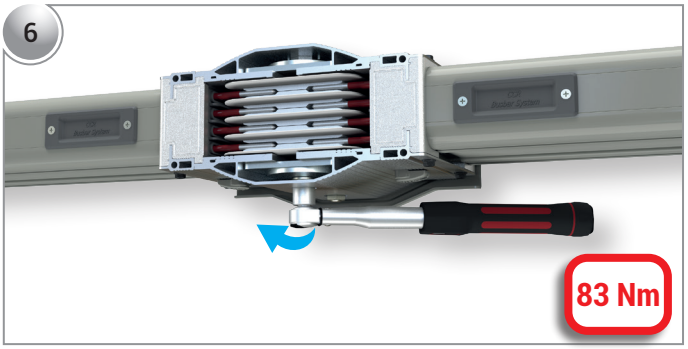
Loosen the block splice nuts.



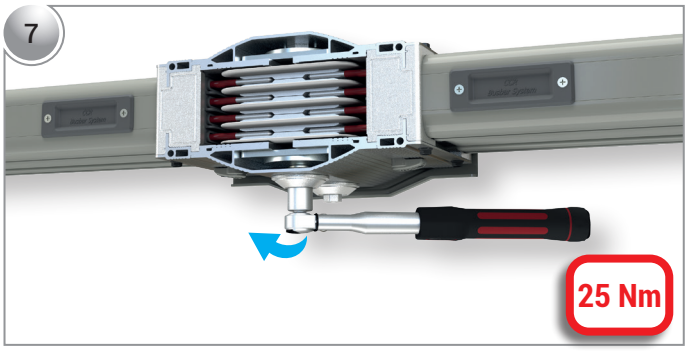
Verify the orientation and compatibility of the busbars and alignment components to be added. Connect the busbars with the small alignment components on top.



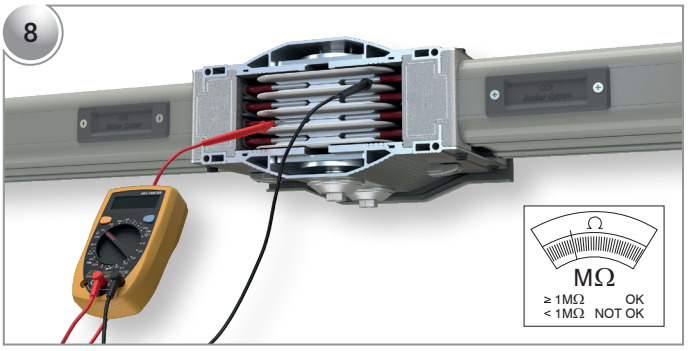
Install the block joint cover to align the busbars, tightening the cover bolts to a moderate torque. Adjust until the busbars fit perfectly into the alignment slots.



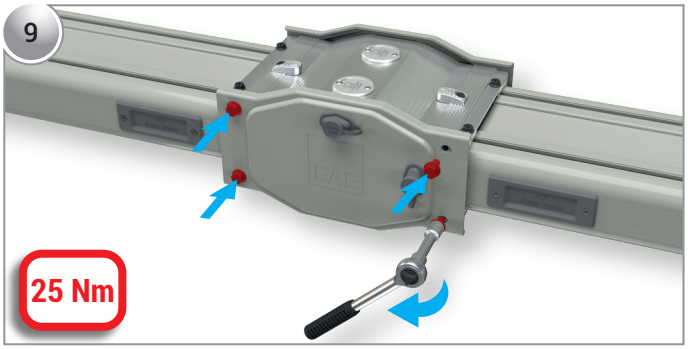
After verifying alignment, torque the block joint nuts to 83 Nm.



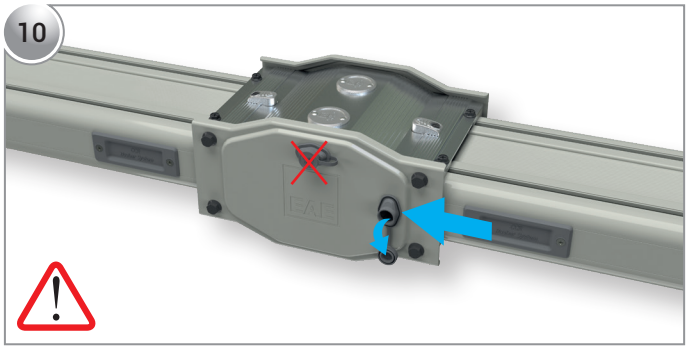
Reinstall the nut locking covers and torque with 25 Nm.



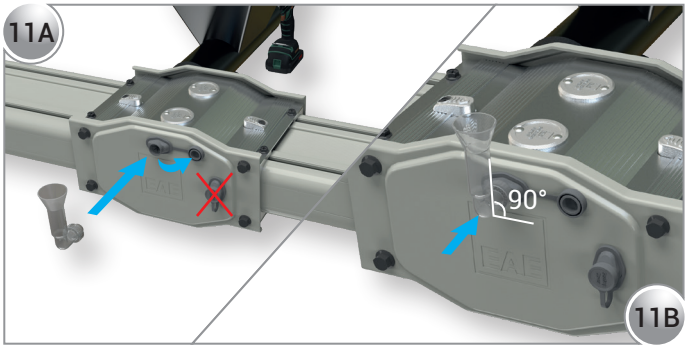
Perform an insulation resistance test between all phases at the installed block joint point.



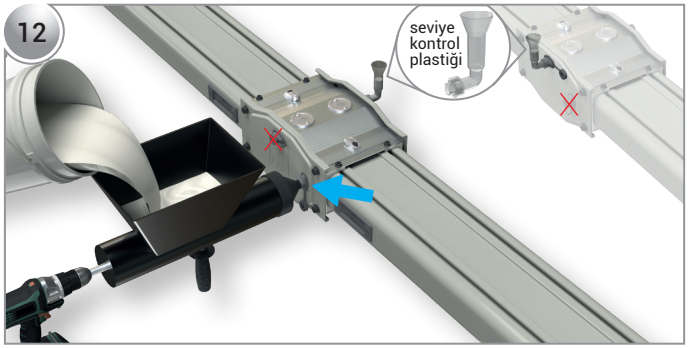
Install the other block joint cover and torque its bolts to 25 Nm.



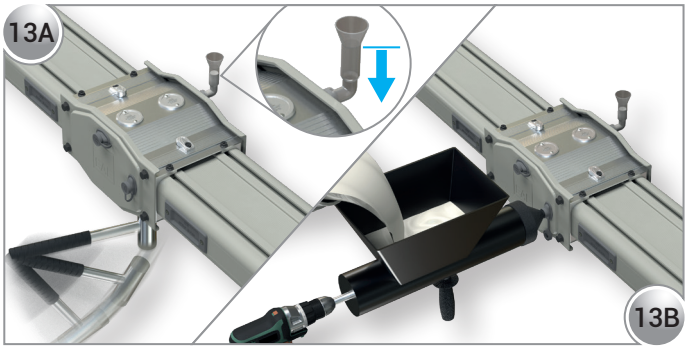
Remove the plastic cover from the casting area as shown in the visual.



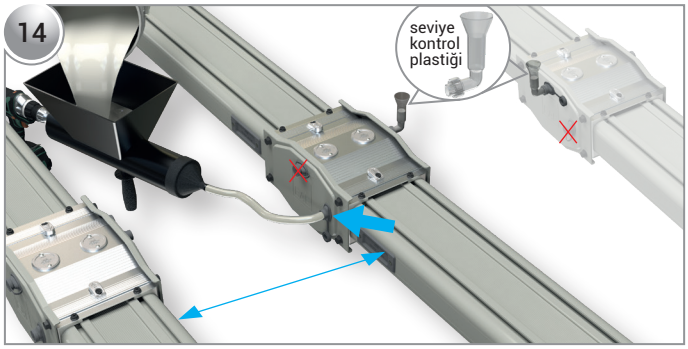
Open the plastic cover on the opposite side of the block joint to be cast, and install the CCR-II Block Joint Casting Level Control Plastic.
Attention: The level control plastic must be oriented 90° upwards.



Inject material through the filling hole as shown. Continue filling until Flex-Comp is visible inside the level control plastic.
Attention: Check the Flex-Comp level in the level control plastic. Add more Flex-Comp if it drops.

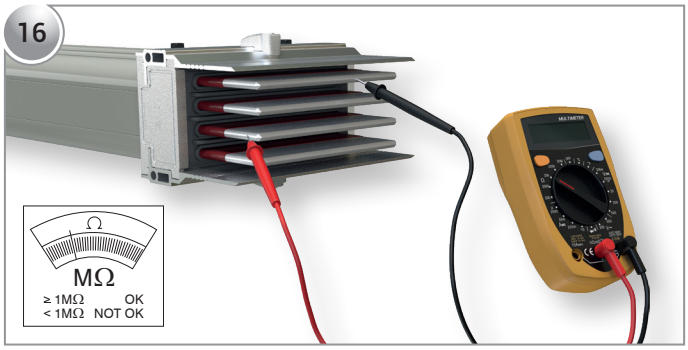


After the initial filling, tap the busbar block joint from underneath with a plastic mallet. If a drop in the Flex-Comp level is observed in the level control plastic, continue the filling process.
Attention: Refilling the process until the Flex-Comp level stabilizes.



Use a transparent hose in confined spaces to complete the filling process through the indicated filling hole. Continue filling until Flex-Comp is visible inside the control plastic, and apply step 13.

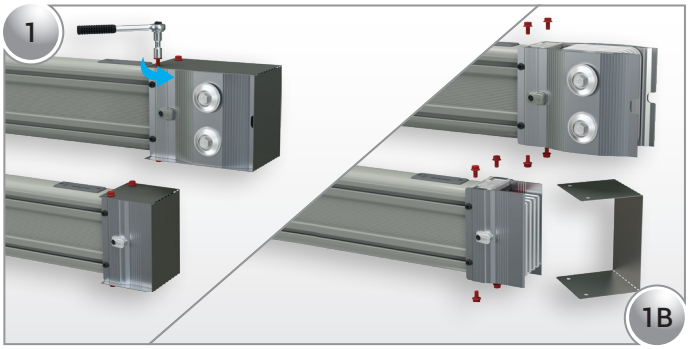
Once the injection process is complete, close the plastic cover and finalize the installation.



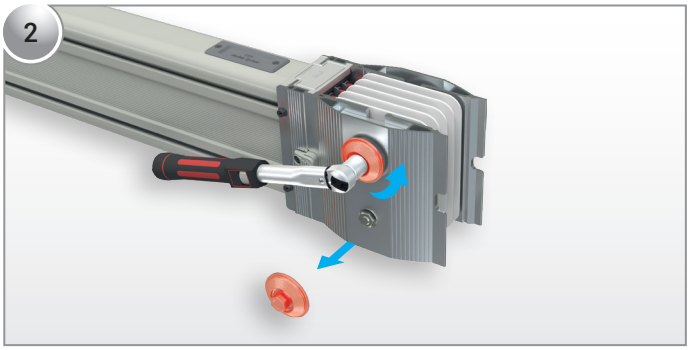
An insulation resistance test must be conducted at least 24 hours after the procedure is completed.

E-LINE CCR-II

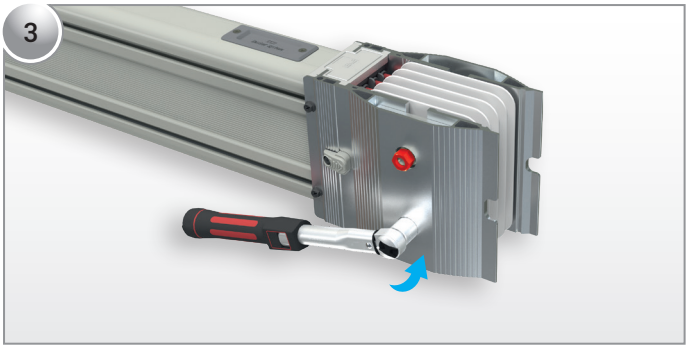
▶▶Installation / Edgewise



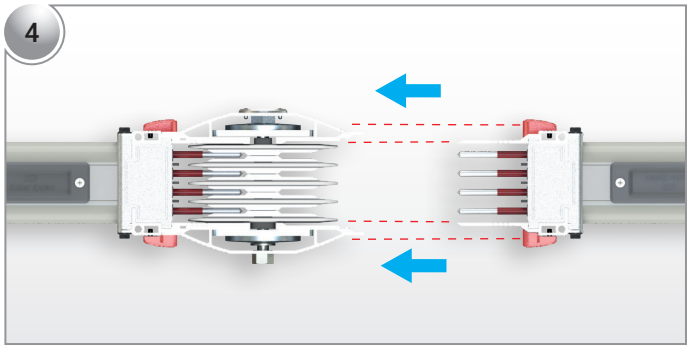
Remove the busbar protection covers by unscrewing the bolts.



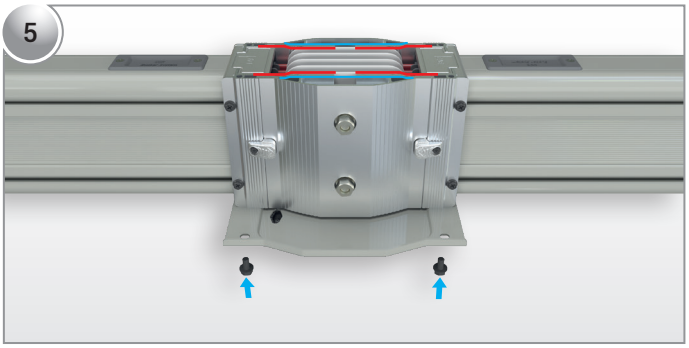
Remove the nut locking cover.



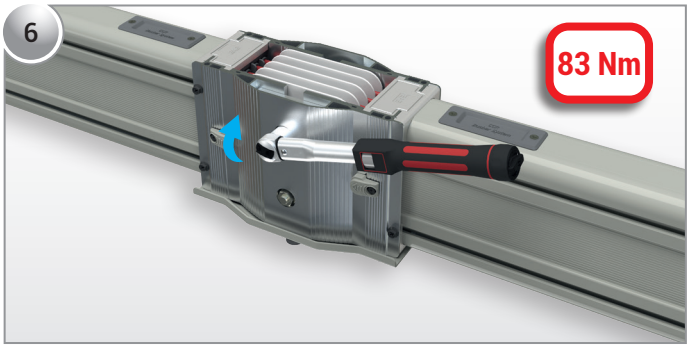
Loosen the block joint nuts.



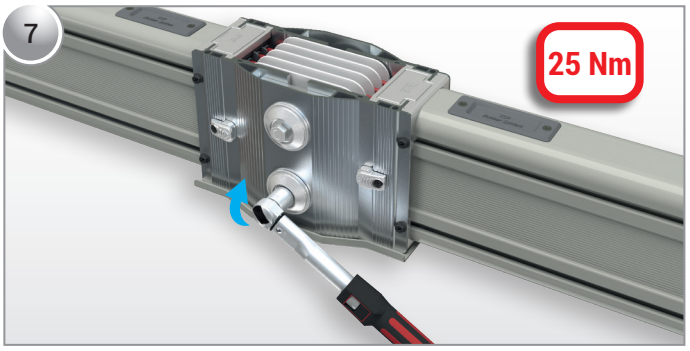
Verify the orientation and compatibility of the busbars and alignment components to be added. Connect the busbars with the small alignment components on top.



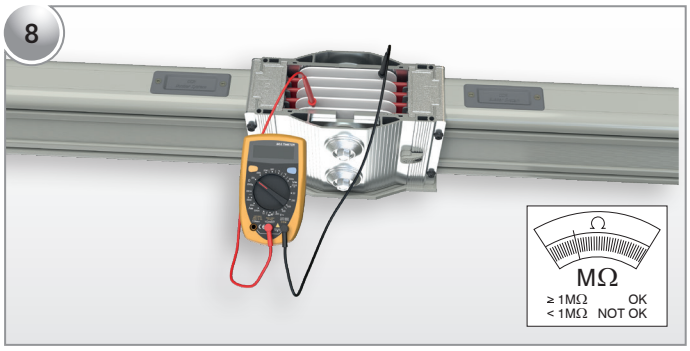
Install the lower block joint cover to align the busbars, tightening the cover bolts to a moderate torque. Adjust until the busbars fit perfectly into the alignment slots.



After verifying alignment, torque the block joint nuts to 83 Nm.

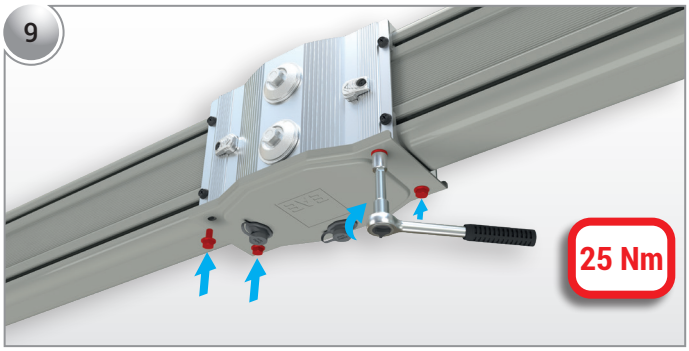


Reinstall the nut locking covers and torque with 25 Nm.



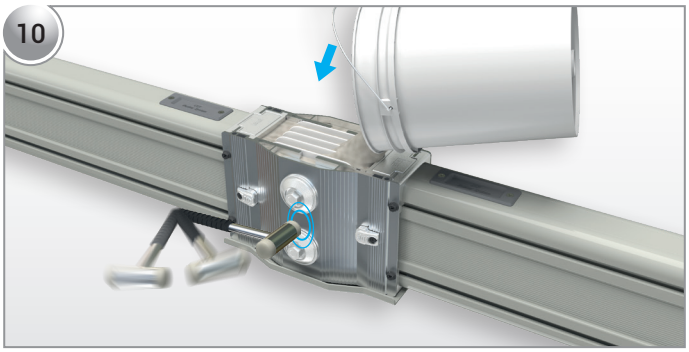
Perform an insulation resistance test between all phases at the installed block jiont point

9



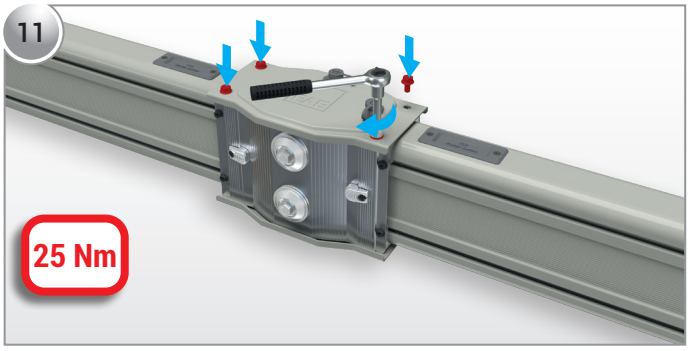
Torque the bolts of the lower block joint cover to 25 Nm.

10



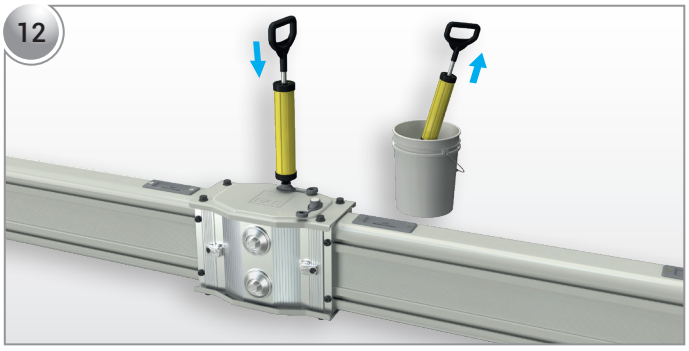
At the open end of the block joint cover, perform the Flex-Comp casting to the top level of the blocj joint. Apply vibration with a plastic mallet.

11



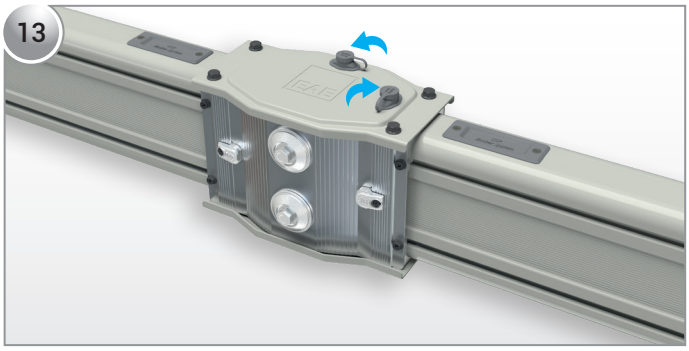
Install the top block joint cover and torque its bolts to 25 Nm.

12



Ensure the injection piston is fitted to prevent leakage at the casting opening and inject Flex-Comp material into the block joint cavity using a lever. Continue injection until Flex-Comp is visible from the other end. Close the plastic cover and finalize the installation.

13



Once the injection process is complete, close the plastic cover and finalize the installation.

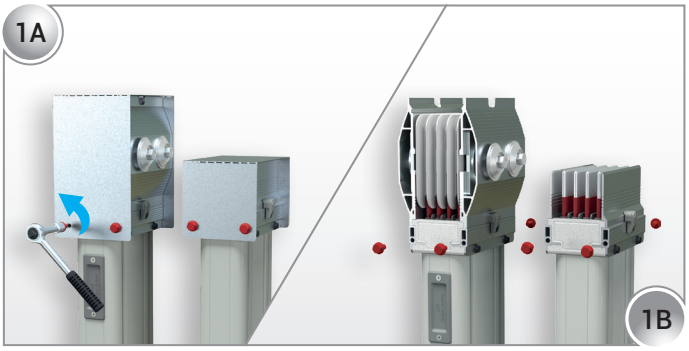
14

An insulation resistance test must be conducted at least 24 hours after the procedure is completed.

E-LINE CCR-II

▶▶Installation / Vertical

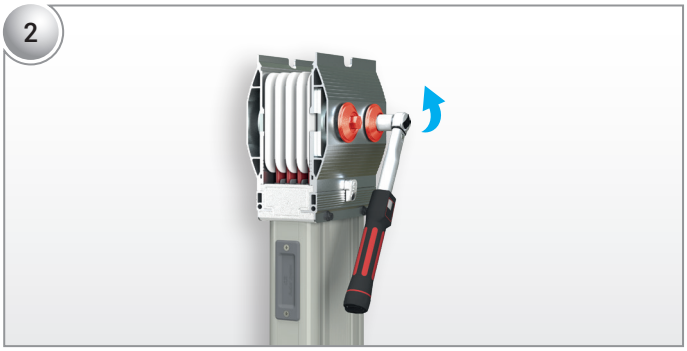
1A



1B

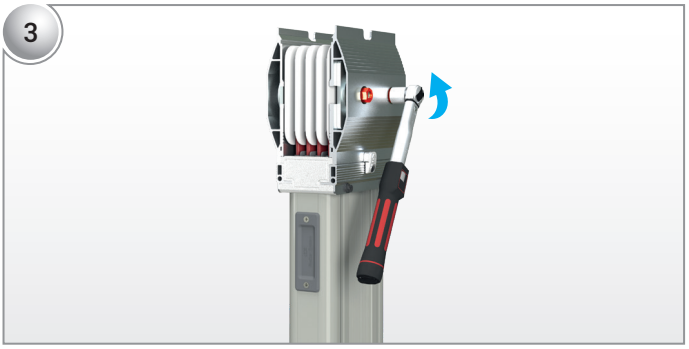
Remove the busbar protection covers by unscrewing the bolts

2



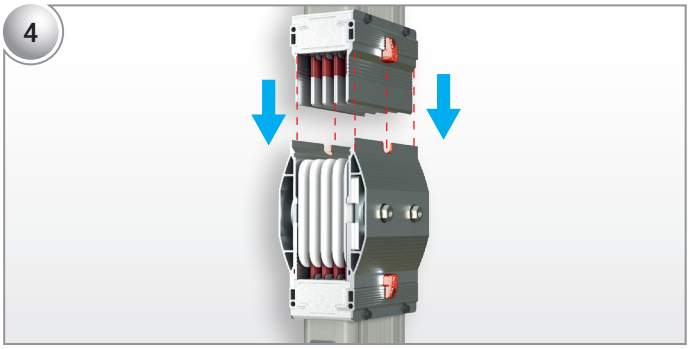
Remove the nut locking cover.

3



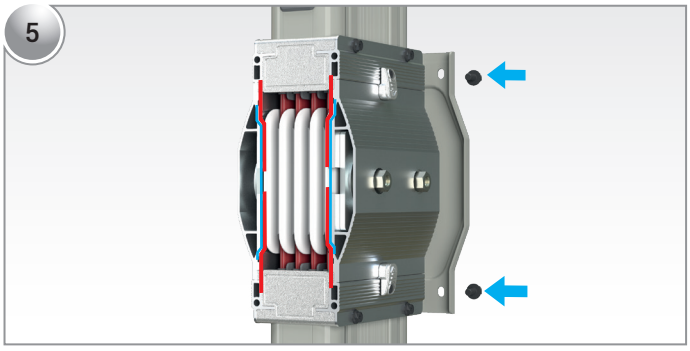
Loosen the block splice nuts.

4



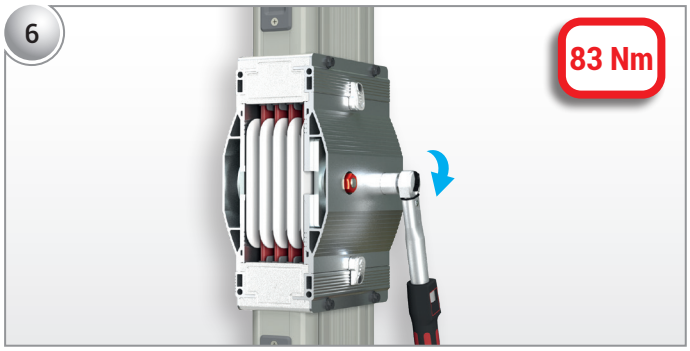
Verify the orientation and compatibility of the busbars and alignment components to be added. Connect the busbars with the small alignment components on top.

5



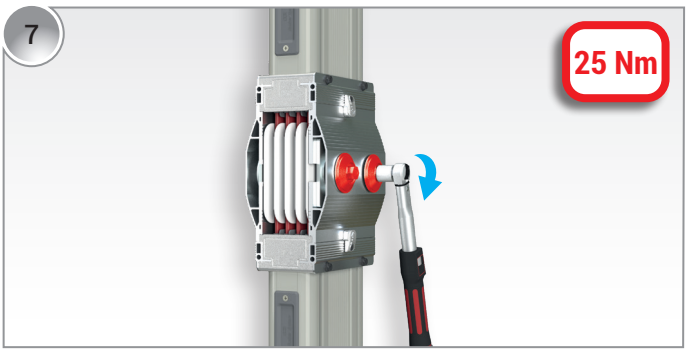
Install the block joint cover to align the busbars, tightening the cover bolts to a moderate torque. Adjust until the busbars fit perfectly into the alignment slots.

6



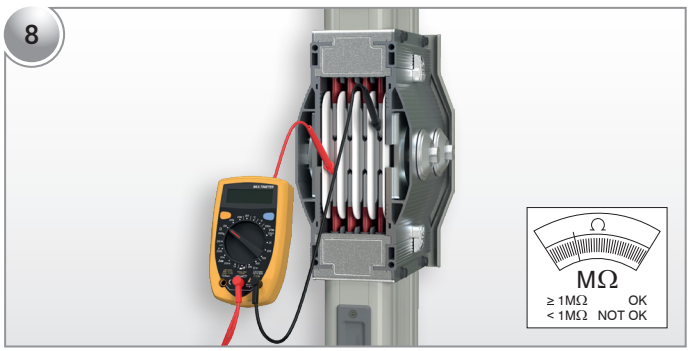
After verifying alignment, torque the block joint nuts to 83 Nm.

7



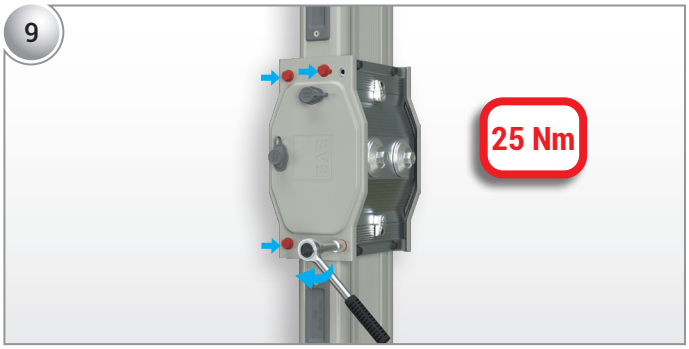
Reinstall the nut locking covers and torque with 25 Nm.

8



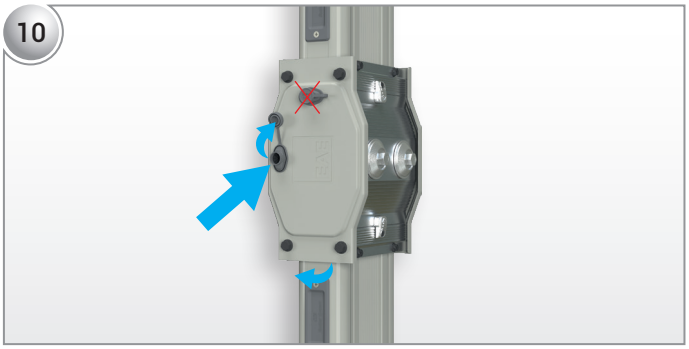
Perform an insulation resistance test between all phases at the installed block joint point.

9



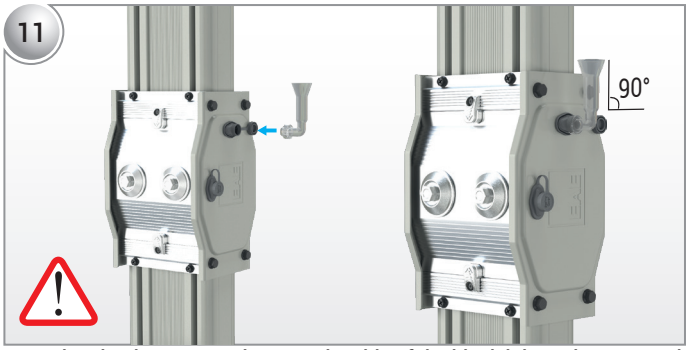
Install the other block joint cover and torque its bolts to 25 Nm.

10



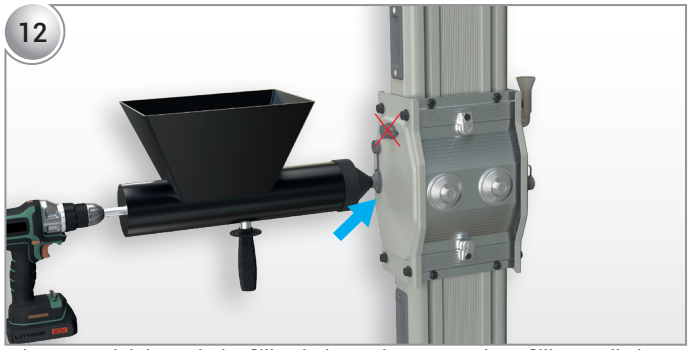
Remove the plastic cover from the casting area as shown in the visual.

11



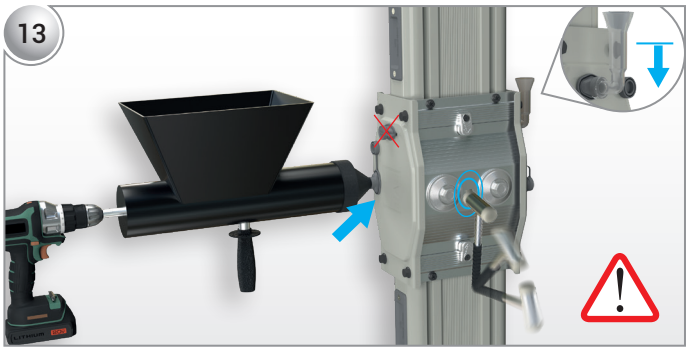
Open the plastic cover on the opposite side of the block joint to be cast, and install the CCR-II Block Joint Casting Level Control Plastic.
Attention: The level control plastic must be oriented 90° upwards.

12



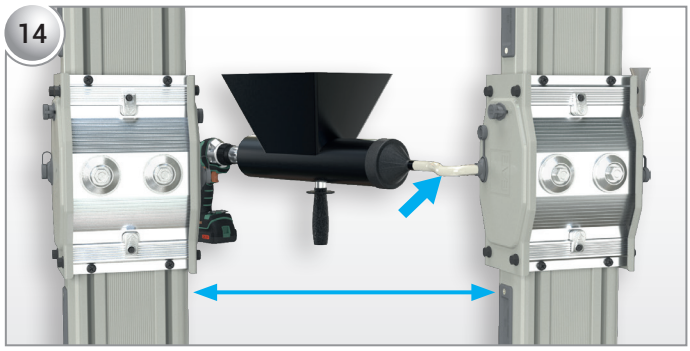
Inject material through the filling hole as shown. Continue filling until Flex-Comp is visible inside the level control plastic.
Attention: Check the Flex-Comp level in the level control plastic. Add more Flex-Comp if it drops.

13



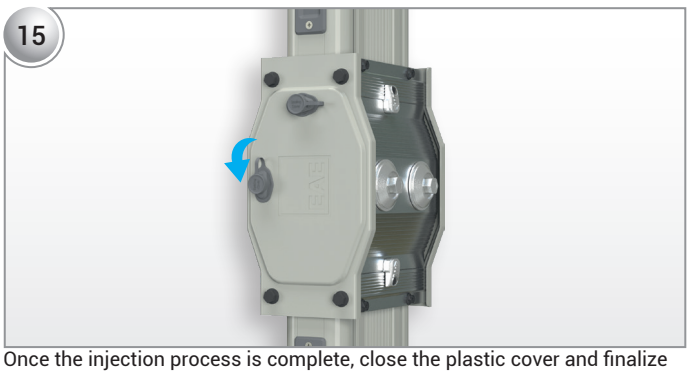
After the initial filling, tap the busbar block joint from underneath with a plastic mallet. If a drop in the Flex-Comp level is observed in the level control plastic, continue the filling process.
Attention: Refilling the process until the Flex-Comp level stabilizes.

14



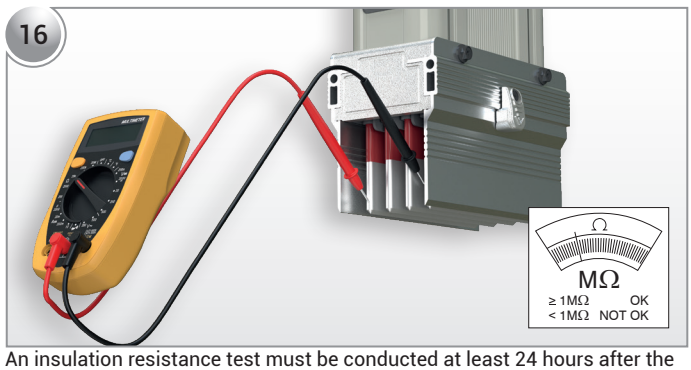
Use a transparent hose in confined spaces to complete the filling process through the indicated filling hole. Continue filling until Flex-Comp is visible inside the control plastic, and apply step 13.

15



Once the injection process is complete, close the plastic cover and finalize the installation.

16



An insulation resistance test must be conducted at least 24 hours after the procedure is completed.

CE DECLARATION OF CONFORMITY

Product Group E-Line CCR-II Busbar Energy Distribution System

Manufacturer EAE Elektrik Asansor End. Insaat San. ve Tic. A.S.
Akcaburgaz Mahallesi, 3114. Sokak,
No:10, 34522 Esenyurt - Istanbul

The objects of the declaration described below is in conformity with the relevant Union harmonisation legislation. This declaration of conformity is issued under the sole responsibility of the manufacturer.

Standard:

TS EN 61439-6

Low-voltage switchgear and controlgear assemblies - Part 6: Busbar trunking systems (busways)

CE - Directive:
2014/35/EU "The Low Voltage Directive"

2014/30/EU "Electromagnetic Compatibility (EMC) Directive"

Technical Document Preparation Official ;

EAE Elektrik Asansor End. Insaat San. ve Tic. A.S.
Akcaburgaz Mahallesi, 3114. Sokak, No:10 34522 Esenyurt-Istanbul

Mustafa AKÇELİK

Date

03.03.2024

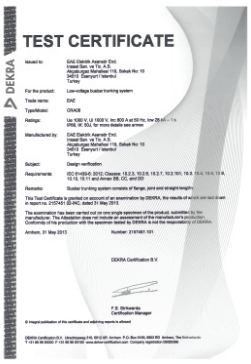
Document Authorized Signatory

Elif Gamze KAYA OK
Deputy General Manager

E-LINE CCR-II

▶▶Certificates


TEST CERTIFICATE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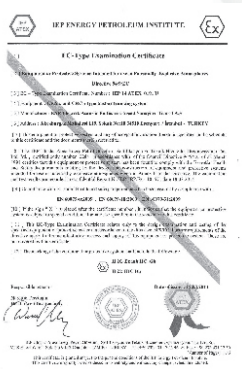
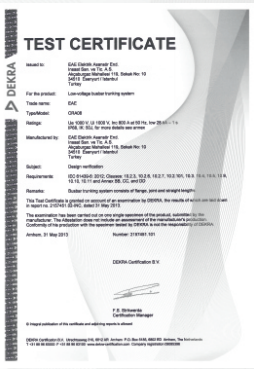
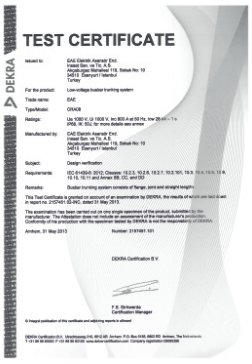

IEC-Type Examination Certificate


TEST CERTIFICATE

For the product: Low-voltage busbar trunking system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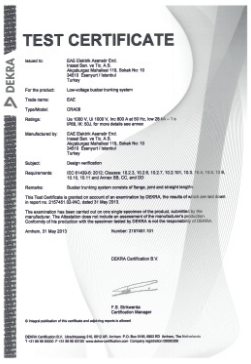
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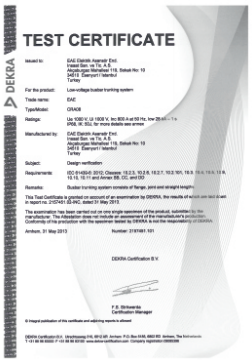
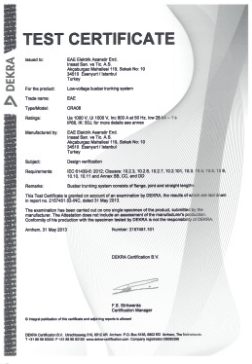

TEST CERTIFICATE


TEST CERTIFICATE

Requirements: IEC 61439-6: 2012; Clauses: 10.2.3, 10.2.6, 10.2.7, 10.2.101, 10.3, 10.4, 10.5, 10.9, 10.10, 10.11 and Annex BB, CC, and DD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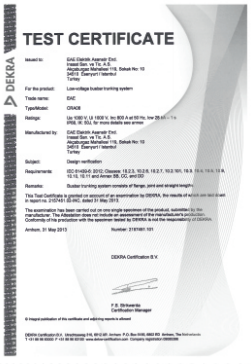
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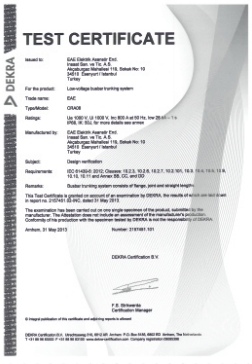
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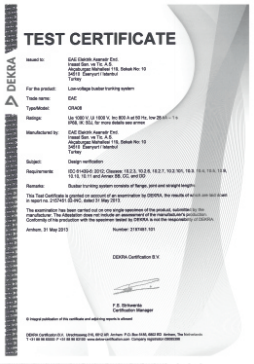
TEST CERTIFICATE


ПромМашТест

PROMMASHTESTLIMITED COMPANY

Test Center

Low-Voltage Equipment Test Laboratory

28/1ILNVOK issue number and dated 28.11.2019

TEST REPORT

DEKRA Certification B.V.

F.S. Strikwerda

Certification Manager

his certificate and adjoining reports is allowed

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T +31 88 96 83000 F +31 88 96 83100 www.dekra-certification.com Company registration 09085396

E-LINE CCR-II

▶▶Project Design Form

Component List

Item	Component	Quantity

Company :
Project :
Project No :

Prepared by

Name :
Date :
Signature :

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EAE ELEKTRİK

Component List

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Project :
Project No :

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PRODUCT TYPES

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