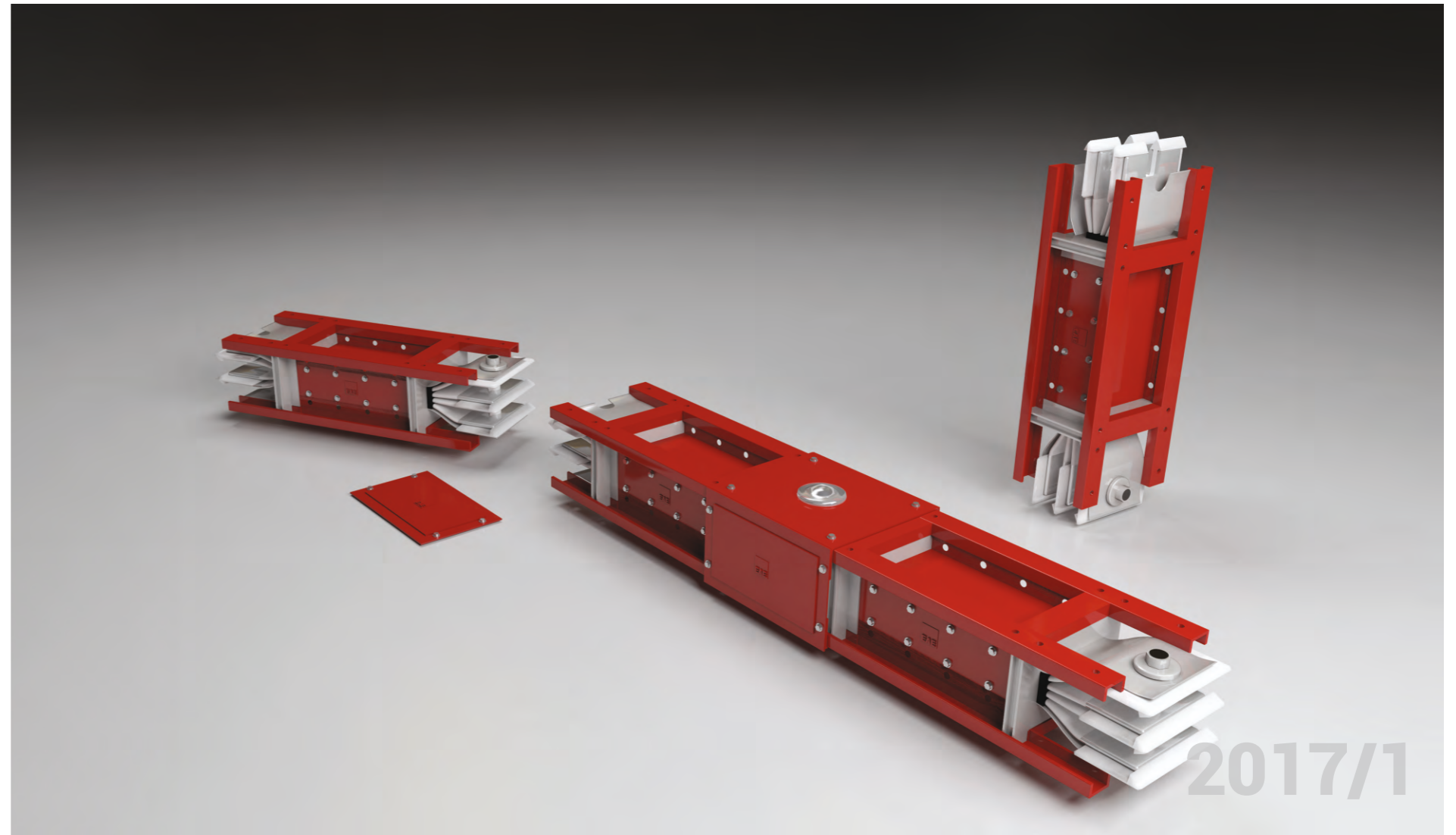


E-LINEKB

Busbar Systems 800 A...6300 A

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2017/1

E-LINEKB



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►► Introduction

EAE Electric manufactures, designs and provides a wide range of busbar systems from 25 A to 6000 A busbar systems have many advantages over wire and conduit.

Lower total installed cost

Busbar material costs are often equal or less than wire and conduit.

Lower life cycle cost

Busbar components can be added, deleted or relocated after the initial installation, saving time and money.

Predictable characteristics

Busbar systems conform to common standards. Readily published characteristics on busbar short-circuit ratings, voltage drops, weights and dimensions can be used.

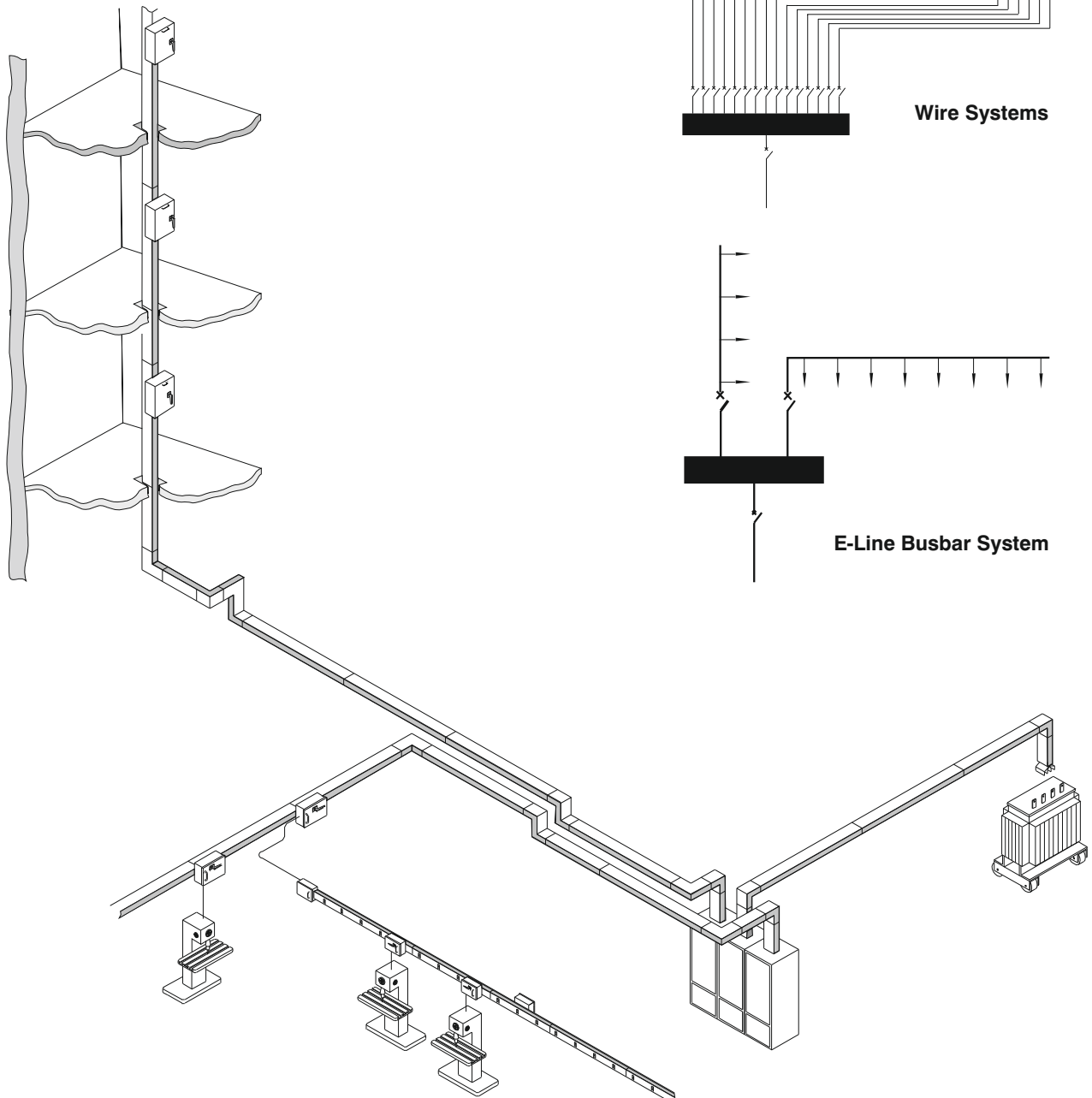
Fast, flexible engineering

The large number of tap-off points makes it possible to engineer the power supply systems at an early stage, even before the final disposition of loads is known.

Flexible power supply

Tap-off points at short intervals make electrical power available in all locations; the power supply can be adapted to different production processes simply by relocating the tap-off unit.

E-Line Busbar Systems; conform to EN standards and are tested according to EN 60439-2.



►► Technical Features

General

The perfect design for high current busbar systems is the "compact structure" where tin plated and insulated with B class polyester film and extruded polypropylene sleeve polyester film on conductors are tightly placed into the sheet metal housing (Figure 1).

Main features of E-Line KB compact busbar systems:

One bolt joint ensures safety and easy installation

E-Line KB 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. E-Line busbar systems are easily installed (Figures 2-3).

* The bolt is tightened to 83 Nm (60 lbf) using the torque spanner.

Heat Transfer

"In compact structure" there is no empty space filled with air and heat is easily transferred to the environment by the housing that works like a heat-shink (Figure 4).

High Short-Circuit Endurance

As there are no support points in "compact structure" momentum levers are not formed. This feature ensures high short-circuit endurance.

Minimum Voltage Drop

In E-Line KB, inductive reactance is very low due to closely placed conductors (Figures 1-4). The voltage drop comparison of compact and ventilated busbar that have same cross sectional area prove the importance of the compact structure (Figure 5).

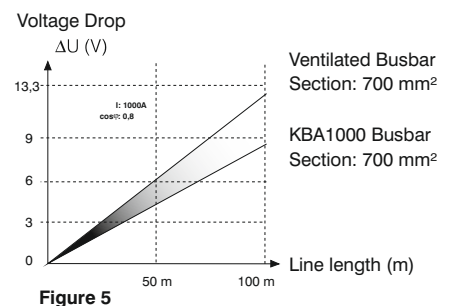
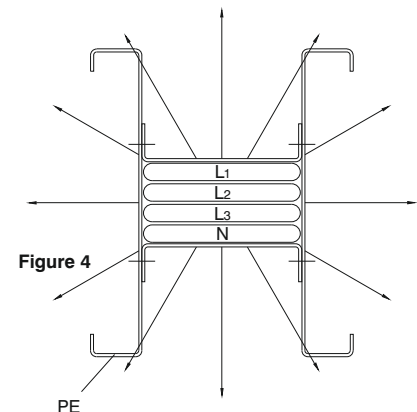
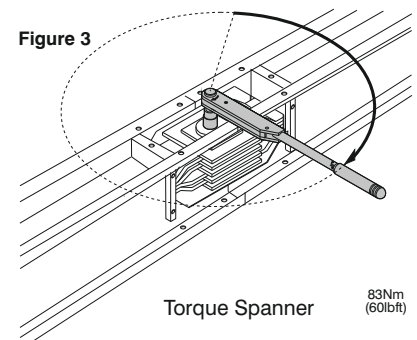
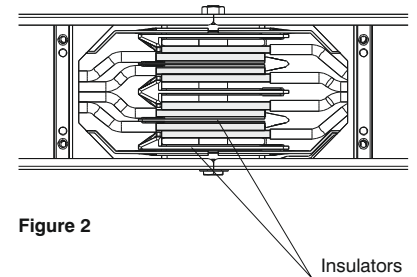
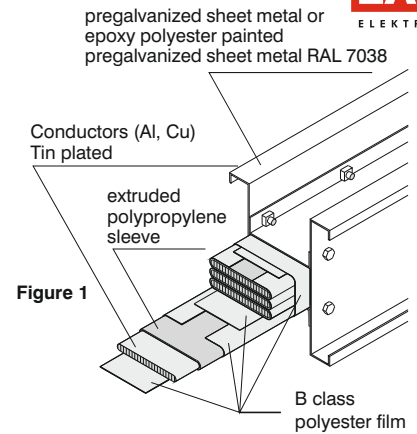
Standard Prefabricated Structure

E-Line KB busbar system can be adapted to any kind of building structure using. Space-saving prefabricated components. All necessary components and fitting elements are manufactured items.

* Special components can be manufactured in one week on request.

No Need For Fire Barrier

There is no risk of chimney effect in E-Line KB's compact structure. Internal fire barriers are not needed.



While designing an electrical distribution system with E-Line KB a few approximate details will be necessary.

- Location, number, type and approximate ratings of loads,
- Transformer rates and short-circuit capacities,
- Utilization factor= α ,
- System coordination with other distribution system (heat, water, etc),
- Determining the route of E-Line KB on layout,
- If necessary, coordination of E-Line KB Busbar with E-Line KO-II runs,
- Deciding on suitable hanger types.

Utilization Factor (α)

Utilization factor (α) depends on the type and number of loads.

It is usually around 0.7 or lower. The utilization factor of a line that supplies electricity to motors and lighting systems is usually lower than 0.6.

It is as low as 0.30 in weld shops of car factories, α can be 1 in lines where only one big load is supplied.

Voltage Drop

For practical voltage drop calculation, necessary values, formula and easy calculation methods are given on the technical characteristics table on pages 6-9.

Rated Current

The current is calculated using the following equation:

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

I_B = Operation current (A)

P = Installed load (W)

α = Utilization factor

U = Supply voltage (V)

- Busbar current rating is chosen as equal to or higher than the calculated I_B current.
- After the voltage drop calculation if the chosen current rate is not convenient, a higher rating is chosen.

Short-Circuit

Tested short-circuit capacities are given on technical characteristics table on pages 6-9.

Busbar Installation Plan

Our distributor's project & design departments will help you for preparing the installation plans on request.

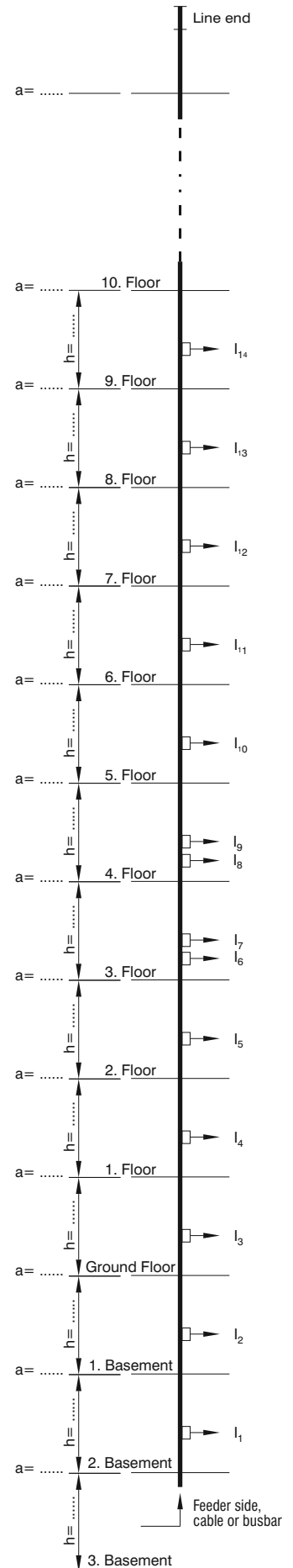
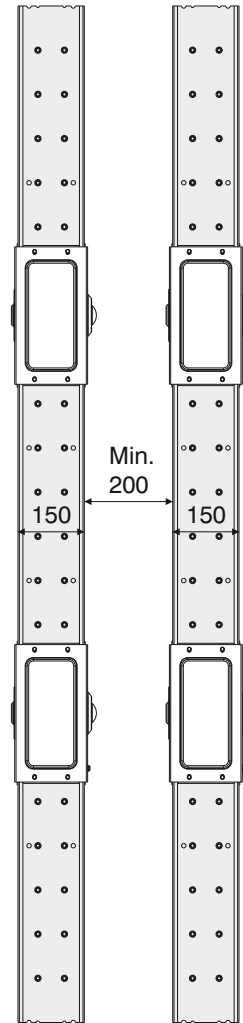
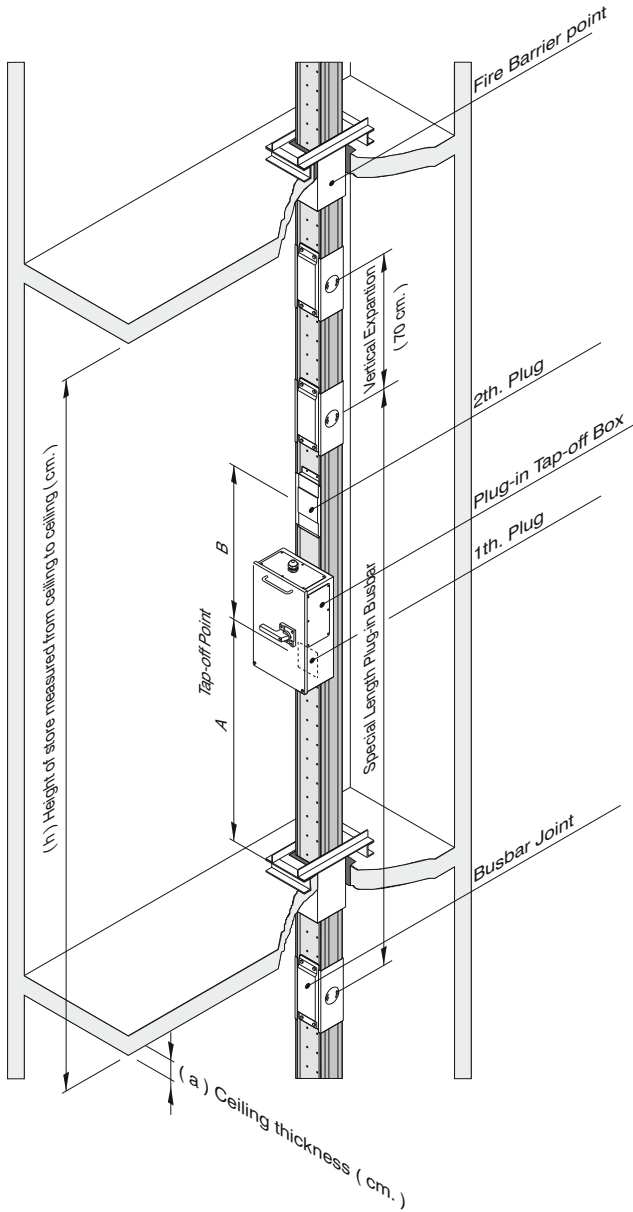
Components List			
Item	Components		Quantity
1	KBA 2050 - STD	Busbar (20 x 3m.)	60 m.
2	KBA 2050 - D	Downwards Elbow	2 pc.
3	KBA 2050 - R	Right Elbow	1 pc.
4	KBA 2050 - U	Upwards Elbow	1 pc.
5	KBA 2050 - L	Left Elbow	1 pc.
6	KBA 2050 - P11	Panel Connection	1 pc.
7	KBA 2050 - S10	End Closer	1 pc.
8	KBA 2050 - X85	Special Straight Length	1 pc.
9	KBA 2050 - X105	Special Straight Length	1 pc.
10	KBA 2050 - X107	Special Straight Length	1 pc.
11	KBA 2050 - X176	Special Straight Length	1 pc.
12	KBA 2050 - X142	Special Straight Length	1 pc.
13	KBB 1650	Tap-off Box	8 pc.
14	KBB 2550	Tap-off Box	6 pc.

Company : Yener Tekstil
 Project : Çorlu Tesisleri
 Project No : 0120

Prepared by : Name : Ercan Yıldız
 Date : 18 / 10 / 1994
 Signature: *Ercan Yıldız*

As each building's structure is different than the other for vertical applications of **E-Line KB** special projects has to be designed.

The details on this page briefly explain the necessary information for drawing a vertical application project.



Project Design

The details below should be sent to our Project & Design department.

- Location and dimensions of the floor penetration where busbar will be installed.
- Number, height and ceiling thickness of storeys. (a=..., h=...)
- Connected load for each storey.
- Supply type of the vertical line (busbar or cable).

Please send the information to us by fax or e-mail with a sample drawing like the sample (Figure 1).

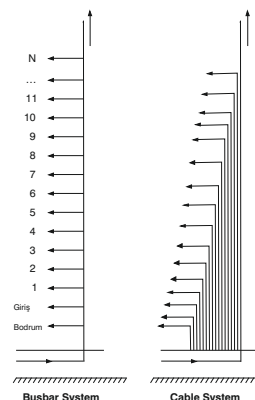
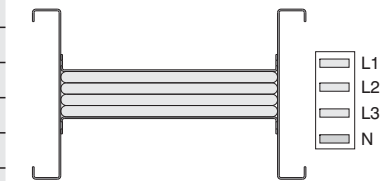
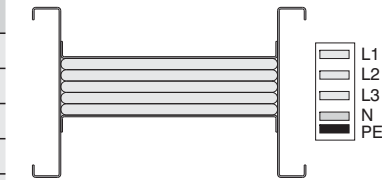


Figure 1

►► Technical Characteristics
Aluminium Conductor (Al)

Rated Current	In	A	800	1000	1250	1600	1600	2000	2500	3100	3200	4000	4250	5000
Busbar Code			8	10	12	13	16	20	25	30	27	40	41	50
Standards	IEC 61439-6, EN 61439-6, IEC 61439-1, EN 61439-1													
Rated Isolation Voltage	Ui	V	1000											
Max. Rated Operational Voltage	Ue	Vac	1000											
Rated Frequency	f	Hz	50											
Pollution Degree	3													
Protection Degree	IP		55											
External Mechanical Impacts (IK Code)*	Bolt-on Busbar IK10 Plug-in busbar IK08													
Protection for Safety	Basic Protection (HD 60364-4-41, Clause A1)													
Rated Short-time Withstand Current (1s)	Icw	kA(rms)	50	50	50	50	100	100	100	120	100	120	120	120
Rated Peak Withstand Current	Ipk	kA	105	105	105	105	220	220	220	264	220	264	264	264
Rated Short-time Withstand Current for Neutral Conductor (1s)	Icw	kA	30	30	30	30	60	60	60	72	60	72	72	72
Rated Peak Withstand Current for Neutral Conductor	Ipk	kA	63	63	63	63	132	132	132	158,4	132	158,4	158,4	158,4
Rated Short-time Withstand Current for PE (Housing) Conductor (1s)	Icw	kA	30	30	30	30	60	60	60	72	60	72	72	72
Rated Peak Withstand Current for PE (Housing) Conductor	Ipk	kA	63	63	63	63	132	132	132	158,4	132	158,4	158,4	158,4
MEAN PHASE CONDUCTOR CHARACTERISTICS AT RATED CURRENT In														
Resistance at a conductor temperature of 20 °C	R ₂₀	mΩ/m	0,057	0,041	0,031	0,026	0,028	0,020	0,016	0,013	0,013	0,010	0,009	0,008
Resistance at an ambient air temperature of 35 °C	R	mΩ/m	0,070	0,051	0,040	0,034	0,036	0,025	0,020	0,017	0,017	0,013	0,011	0,010
Reactance (Independent from Temperature)	X	mΩ/m	0,032	0,025	0,019	0,017	0,016	0,013	0,010	0,009	0,008	0,007	0,005	0,005
Positive and negative sequence impedances at an ambient air temperature of 35 °C	Z	mΩ/m	0,077	0,057	0,045	0,038	0,039	0,028	0,022	0,019	0,019	0,015	0,012	0,011
Positive and negative sequence impedances at a conductor temperature of 20 °C	Z ₂₀	mΩ/m	0,065	0,048	0,036	0,031	0,032	0,024	0,019	0,016	0,015	0,012	0,010	0,009
Rated Power Loss at 35 °C		W/m	134	153	188	261	276	300	375	490	522	624	596	750
DC Resistance at a conductor temperature of 20 °C for Phases	R/or _{th}	mΩ/m	0,057	0,041	0,031	0,026	0,029	0,020	0,016	0,013	0,013	0,011	0,009	0,008
DC Resistance at a conductor temperature of 20 °C for Neutral	R _N	mΩ/m	0,057	0,041	0,031	0,025	0,025	0,020	0,016	0,014	0,013	0,012	0,010	0,008
DC Resistance at a conductor temperature of 20 °C for PE (Housing)	R _{PE}	mΩ/m	0,200	0,200	0,178	0,169	0,100	0,095	0,089	0,063	0,084	0,059	0,056	0,045
SECTIONS														
L1,L2,L3,N		mm ²	525	700	910	1120	1050	1400	1820	2100	2240	2730	3360	3640
PE (4 ½ Conductors)		mm ²	226,5	350	455	560	525	700	910	1050	1120	1365	1680	1820
PE (5 Conductors)		mm ²	525	700	910	1120	1050	1400	1400	2100	2240	2730	3360	3640
Equivalent Al Section PE		mm ²	142	142	159	169	285	300	319	450	337	478	506	637
PE (Sheet Metal)		mm ²	918	918	1028	1088	1836	1936	2056	2904	2176	3084	3264	4112
Conductor Dimensions		mmxmm	7x75	7x100	7x130	7x160	2(7x75)	2(7x100)	2(7x130)	3(7x100)	2(7x160)	3(7x130)	3(7x160)	4(7x130)
Busbar Weight (4 Conductors)		kg/m	16	19	22	24	29	36	44	53	46	62	70	83
Busbar Weight (5 Conductors)		kg/m	17,5	21	24,5	27	32	40	49	59	51	69,5	79	93
MEAN FAULT-LOOP CHARACTERISTICS														
Zero-sequence Impedance														
Zero-sequence impedance at a conductor temperature of 20 °C	Z _{(0) b20phN}	mΩ/m	0,330	0,246	0,188	0,155	0,163	0,120	0,110	0,078	0,074	0,062	0,051	0,046
Zero-sequence impedance at a conductor temperature of 20 °C (Housing)	Z _{(0) b20phPE}	mΩ/m	1,174	0,981	0,825	0,698	0,620	0,510	0,439	0,350	0,371	0,288	0,267	0,230
Zero-sequence impedance at an ambient temperature of 35 °C	Z _{(0) b35phN}	mΩ/m	0,389	0,289	0,231	0,188	0,194	0,140	0,119	0,093	0,091	0,075	0,061	0,055
Zero-sequence impedance at an ambient temperature of 35 °C (Housing)	Z _{(0) b35phPE}	mΩ/m	1,358	1,142	1,003	0,852	0,728	0,595	0,522	0,414	0,459	0,352	0,319	0,274
Resistances and Reactances														
Resistance at a conductor temperature of 20 °C	R _{b20phph}	mΩ/m	0,116	0,085	0,066	0,054	0,057	0,042	0,032	0,027	0,027	0,022	0,018	0,016
Resistance at a conductor temperature of 20 °C	R _{b20phN}	mΩ/m	0,119	0,087	0,068	0,055	0,058	0,043	0,033	0,028	0,028	0,022	0,018	0,016
Resistance at a conductor temperature of 20 °C (Housing)	R _{b20phPE}	mΩ/m	0,529	0,431	0,370	0,309	0,271	0,225	0,190	0,155	0,162	0,128	0,114	0,099
Resistance at an ambient air temperature of 35 °C	R _{b35phph}	mΩ/m	0,145	0,106	0,086	0,070	0,072	0,052	0,041	0,034	0,035	0,028	0,022	0,021
Resistance at an ambient air temperature of 35 °C	R _{b35phN}	mΩ/m	0,148	0,109	0,089	0,071	0,073	0,053	0,042	0,035	0,036	0,029	0,023	0,021
Resistance at an ambient air temperature of 35 °C (Housing)	R _{b35phPE}	mΩ/m	0,660	0,537	0,484	0,402	0,341	0,280	0,240	0,195	0,213	0,167	0,144	0,126
Reactance (Independent from temperature)	X _{b35phph}	mΩ/m	0,058	0,046	0,035	0,029	0,029	0,023	0,018	0,015	0,015	0,011	0,009	0,012
Reactance (Independent from temperature)	X _{b35phN}	mΩ/m	0,091	0,071	0,054	0,046	0,046	0,036	0,028	0,024	0,023	0,018	0,016	0,014
Reactance (Housing) (Independent from temperature)	X _{b35phPE}	mΩ/m	0,386	0,308	0,254	0,208	0,195	0,162	0,133	0,110	0,108	0,087	0,078	0,070

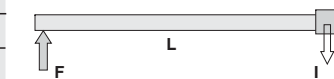


Voltage Drop Calculation

Voltage drop of a busbar system can be calculated with the following formula taking into account the "α" load distribution constant.

$$\Delta U = \alpha \sqrt{3} \cdot L \cdot I \cdot (R_1 \cdot \cos\phi + X_1 \cdot \sin\phi) \cdot 10^{-3} \text{ [V]}$$

- ΔU = Voltage Drop (V)
- α = Load Distribution Constant
- L = Line Length (m)
- I = Line Current (A)
- R₁ = Resistance (mΩ/m)
- X₁ = Inductive Reactance (mΩ/m)

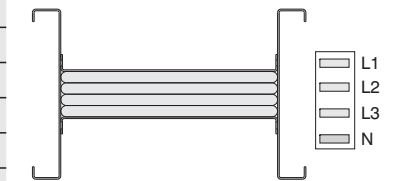
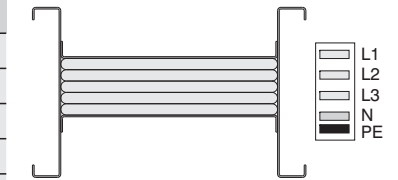


F = Supply

- All phase conductor characteristics had been determined according to Annex BB of IEC / EN 61439-6.
 - Fault-loop zero-sequences impedances had been determined according to Annex CC of IEC / EN 61439-6.
 - Fault-loop resistances and impedances had been determined according to Annex DD of IEC / EN 61439-6.
- * IK10 corresponds to impact energy of 20J according to IEC 62262.

►► Technical Characteristics Copper Conductor (Cu)

Rated Current	In	A	1000	1250	1600	2000	2250	2500	3000	3600	4250	4400	5300	6300
Busbar Code			10	12	16	20	23	25	30	36	42	44	53	63
Standards	IEC 61439-6, EN 61439-6, IEC 61439-1, EN 61439-1													
Rated Isolation Voltage	Ui	V	1000											
Max. Rated Operational Voltage	Ue	Vac	1000											
Rated Frequency	f	Hz	50											
Pollution Degree														
Protection Degree	IP	55												
External Mechanical Impacts (IK Code)*														
Protection for Safety	Basic Protection (HD 60364-4-41, Clause A1)													
Rated Short-time Withstand Current (1s)	Icw	kA(rms)	50	50	50	50	50	100	100	100	100	120	120	120
Rated Peak Withstand Current	Ipk	kA	105	105	105	105	105	220	220	220	220	264	264	264
Rated Short-time Withstand Current for Neutral Conductor (1s)	Icw	kA	30	30	30	30	30	60	60	60	60	72	72	72
Rated Peak Withstand Current for Neutral Conductor	Ipk	kA	63	63	63	63	63	132	132	132	132	158,4	158,4	158,4
Rated Short-time Withstand Current for PE (Housing) Conductor (1s)	Icw	kA	30	30	30	30	30	60	60	60	60	72	72	72
Rated Peak Withstand Current for PE (Housing) Conductor	Ipk	kA	63	63	63	63	63	132	132	132	132	158,4	158,4	158,4
MEAN PHASE CONDUCTOR CHARACTERISTICS AT RATED CURRENT In														
Resistance at a conductor temperature of 20 °C	R ₂₀	mΩ/m	0,040	0,036	0,026	0,019	0,015	0,018	0,013	0,010	0,008	0,009	0,007	0,006
Resistance at an ambient air temperature of 35 °C	R	mΩ/m	0,052	0,048	0,034	0,026	0,020	0,024	0,018	0,013	0,011	0,012	0,009	0,007
Reactance (Independent from Temperature)	X	mΩ/m	0,030	0,032	0,025	0,020	0,016	0,016	0,012	0,010	0,008	0,008	0,006	0,005
Positive and negative sequence impedances at an ambient air temperature of 35 °C	Z	mΩ/m	0,060	0,058	0,042	0,033	0,026	0,029	0,021	0,016	0,013	0,014	0,011	0,009
Positive and negative sequence impedances at a conductor temperature of 20 °C	Z ₂₀	mΩ/m	0,050	0,048	0,036	0,028	0,022	0,024	0,018	0,014	0,011	0,012	0,009	0,008
Rated Power Loss at 35 °C		W/m	156,6	224,5	264,2	315,6	338,7	455,6	475,2	513,2	585,2	673,7	741,6	869,2
DC Resistance at a conductor temperature of 20 °C for Phases	R/ort _{ph}	mΩ/m	0,039	0,036	0,026	0,018	0,016	0,018	0,013	0,010	0,008	0,009	0,006	0,005
DC Resistance at a conductor temperature of 20 °C for Neutral	R _N	mΩ/m	0,040	0,034	0,026	0,019	0,016	0,018	0,012	0,010	0,009	0,009	0,007	0,005
DC Resistance at a conductor temperature of 20 °C for PE (Housing)	R _{PE}	mΩ/m	0,200	0,200	0,190	0,178	0,169	0,100	0,095	0,089	0,084	0,063	0,059	0,056
SECTIONS														
L1,L2,L3,N		mm ²	450	525	700	910	1120	1050	1400	1820	2240	2100	2730	3360
PE (4 ½ Conductors)		mm ²	225	262,5	350	455	560	525	700	910	1120	1050	1365	1680
PE (5 Conductors)		mm ²	450	525	700	910	1120	1050	1400	1820	2240	2100	2730	3360
Equivalent Cu Section For PE		mm ²	89	89	94	100	106	178	188	199	211	282	299	317
PE (Sheet Metal)		mm ²	918	918	968	1028	1088	1836	1936	2056	2176	2904	3084	3264
Conductor Dimensions		mmxmm	6x75	7x75	7x100	7x130	7x160	2(7x75)	2(7x100)	2(7x130)	2(7x160)	3(7x100)	3(7x130)	3(7x160)
Busbar Weight (4 Conductors)		kg/m	26	28	36	44	52	54	70	86	102	104	128	152
Busbar Weight (5 Conductors)		kg/m	31	33	42	52	60	64	82	102	118	122	152	187
MEAN FAULT-LOOP CHARACTERISTICS														
Zero-sequence Impedance														
Zero-sequence impedance at a conductor temperature of 20 °C	Z _{(0) b20phN}	mΩ/m	0,258	0,244	0,186	0,142	0,119	0,124	0,092	0,072	0,057	0,063	0,047	0,038
Zero-sequence impedance at a conductor temperature of 20 °C (Housing)	Z _{(0) b20phPE}	mΩ/m	1,102	0,987	0,787	0,705	0,640	0,517	0,449	0,394	0,335	0,317	0,267	0,231
Zero-sequence impedance at an ambient temperature of 35 °C	Z _{(0) bphN}	mΩ/m	0,310	0,295	0,225	0,173	0,145	0,150	0,111	0,085	0,068	0,074	0,055	0,045
Zero-sequence impedance at an ambient temperature of 35 °C (Housing)	Z _{(0) bphPE}	mΩ/m	1,322	1,209	0,979	0,891	0,813	0,646	0,560	0,487	0,420	0,391	0,328	0,288
Resistances and Reactances														
Resistance at a conductor temperature of 20 °C	R _{b20phph}	mΩ/m	0,084	0,075	0,054	0,042	0,036	0,038	0,028	0,021	0,017	0,018	0,014	0,012
Resistance at a conductor temperature of 20 °C	R _{b20phN}	mΩ/m	0,086	0,078	0,057	0,044	0,037	0,040	0,028	0,022	0,018	0,019	0,015	0,012
Resistance at a conductor temperature of 20 °C (Housing)	R _{b20phPE}	mΩ/m	0,490	0,427	0,347	0,300	0,264	0,228	0,194	0,164	0,141	0,131	0,112	0,098
Resistance at an ambient air temperature of 35 °C	R _{bphph}	mΩ/m	0,109	0,100	0,074	0,057	0,049	0,052	0,037	0,028	0,023	0,024	0,019	0,015
Resistance at an ambient air temperature of 35 °C	R _{bphN}	mΩ/m	0,112	0,104	0,076	0,059	0,051	0,054	0,038	0,030	0,024	0,025	0,019	0,016
Resistance at an ambient air temperature of 35 °C (Housing)	R _{bphPE}	mΩ/m	0,638	0,571	0,468	0,407	0,359	0,308	0,260	0,216	0,187	0,173	0,147	0,130
Reactance (Independent from temperature)	X _{bphph}	mΩ/m	0,055	0,058	0,046	0,035	0,028	0,028	0,022	0,018	0,014	0,015	0,012	0,010
Reactance (Independent from temperature)	X _{bphN}	mΩ/m	0,084	0,090	0,071	0,055	0,045	0,044	0,035	0,028	0,022	0,024	0,019	0,015
Reactance (Housing) (Independent from temperature)	X _{bphPE}	mΩ/m	0,356	0,327	0,264	0,216	0,188	0,168	0,138	0,118	0,097	0,096	0,080	0,068

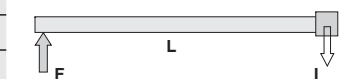


Voltage Drop Calculation

Voltage drop of a busbar system can be calculated with the following formula taking into account the "α" load distribution constant.

$$\Delta U = \alpha \sqrt{3} \cdot L \cdot I \cdot (R_1 \cdot \cos\phi + X_1 \cdot \sin\phi) \cdot 10^{-3} \text{ [V]}$$

- ΔU = Voltage Drop (V)
- α = Load Distribution Constant
- L = Line Length (m)
- I = Line Current (A)
- R₁ = Resistance (mΩ/m)
- X₁ = Inductive Reactance (mΩ/m)



F= Supply

- All phase conductor characteristics had been determined according to Annex BB of IEC / EN 61439-6.
 - Fault-loop zero-sequences impedances had been determined according to Annex CC of IEC / EN 61439-6.
 - Fault-loop resistances and impedances had been determined according to Annex DD of IEC / EN 61439-6.
- * IK10 corresponds to impact energy of 20J according to IEC 62262.

BUSBAR TYPE
 CONDUCTOR TYPE
 BUSBAR CODE
 PROTECTION DEGREE
 UTILIZATION TYPE
 PAINTED
 COMPONENT

KB A 16 5 0 - B - TR 4 1

Busbar Type

Aluminium (Al) **A**
 Copper (Cu) **C-II**

CONDUCTOR TYPE

KBA		KBC-II		Conductor Size
Al Conductor		Cu Conductor		
Rated Current	Busbar Code	Rated Current	Busbar Code	
----	---	1000	10	6x75
800	08	1250	12	7x75
1000	10	1600	16	7x100
1250	12	2000	20	7x130
1600	13	2250	23	7x160
1600	16	2500	25	2x(7x75)
2000	20	3000	30	2x(7x100)
2500	25	3600	36	2x(7x130)
3200	27	4250	42	2x(7x160)
3100	30	4400	44	3x(7x100)
4000	40	5300	53	3x(7x130)
4250	41	6300	63	3x(7x160)
5000	50	-----	---	4x(7x130)

BUSBAR CODE

IP 55

5

PROTECTION DEGREE

	Conductors		
	4 il.	5 il.	4+½
Bolt-on	0	3	6
Plug-in	1	4	7
Fedeer	2	5	8

TYPE*

Painted

B

COMPONENTS

Standard Length	STD
Special Length	X
Upwards Elbow	U
Downwards Elbow	D
Right Elbow	R
Left Elbow	L
Upwards Vertical Offset	UV
Downwards Vertical Offset	DV
Right Horizontal Offset	RH
Left Horizontal Offset	LH
Right Upwards Combined Offset	KRU
Left Upwards Combined Offset	KLU
Right Downwards Combined Offset	KRD
Left Downwards Combined Offset	KLD
Upwards Right Combined Offset	KUR
Upwards Left Combined Offset	KUL
Downwards Right Combined Offset	KDR
Downwards Left Combined Offset	KDL
Left Side Feeder "T"	TYL
Right Side Feeder "T"	TYR
Central Feeder "T"	TO
Horizontal Expansion	YDT
Vertical Expansion	DDT
Reduction	RD
End Closer	S10
End Closer	S11
Panel Connection	P10
Panel Connection	P11
Upwards Panel Connection	PU20
Upwards Panel Connection	PU21
Downwards Panel Connection	PD20
Downwards Panel Connection	PD21
Right Panel Connection	PR30
Right Panel Connection	PR31
Left Panel Connection	PL30
Left Panel Connection	PL31
Panel Connection	P40
Panel Connection	P41
Transformer Connection	TR11
Upwards Transformer Connection	TU21
Downwards Transformer Connection	TD21
Transformer Connection	TR31
Transformer Connection	TR41
Right Transformer Connection	TR51
Left Transformer Connection	TL51
Transformer Connection	TR61
Flexible	F
Feeder Box	B10
Feeder Box	B11
Central Feeder Box	BO

*TYPE Utilization Type

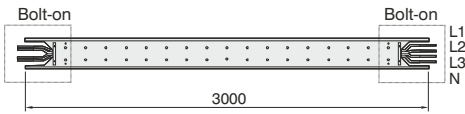
Bolt-on Energy is supplied from the joints.

Plug-in Energy is supplied either from the joints or the plug-in points.

Feeder Used where there is no need to use tap-off boxes.

►► Standard Straight Length

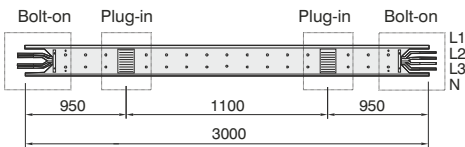
Bolt-on



Electrical energy up to 1000 A can be supplied from the joints of bolt-on type by bolt-on tap-off boxes.

- As feeder or sub-feeder line,
- Where a load has to be supplied from the busbar.

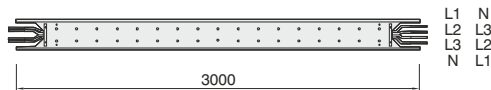
Plug-in



Electrical energy up to 1000/630 A can be supplied from the joints and up to 630 A can be supplied from the plug.

- In application of bolt-on
- As vertical feeder line high rise buildings
- For frequent energy supply

Feeder

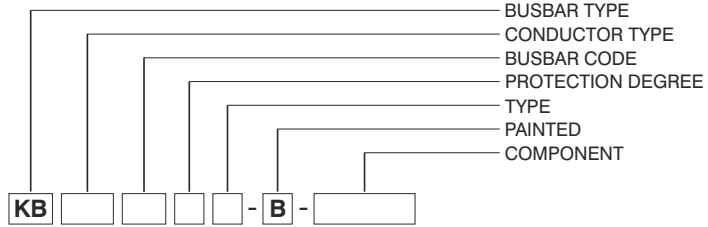


For applications where there is no need to use tap-off boxes.

- Transformer - panel connections
- Main panel - sub-panel connections
- Generator, compensation supplies
- Coupling connections.

Busbar cross-section dimensions

KBA		KBC-II		A
Al Conductor		Cu Conductor		
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)
-----	---	1000	10	130
800	08	1250	12	130
1000	10	1600	16	155
1250	12	2000	20	185
1600	13	2250	23	215
1600	16	2500	25	250
2000	20	3000	30	300
2500	25	3600	36	360
3200	27	4250	42	420
3100	30	4400	44	445
4000	40	5300	53	535
4250	41	6300	63	625
5000	50	-----	---	710

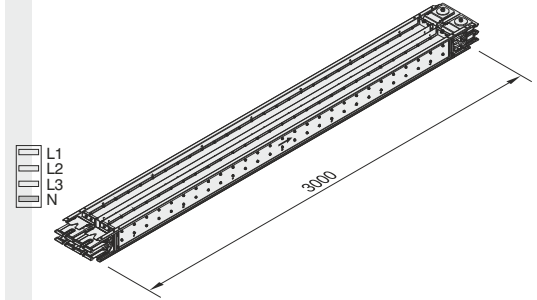


- STD

Bolt-on

0

Sample Order:
3000 A, Copper, Bolt-on,
IP 55, 4 Conductors
KBC-II 3050

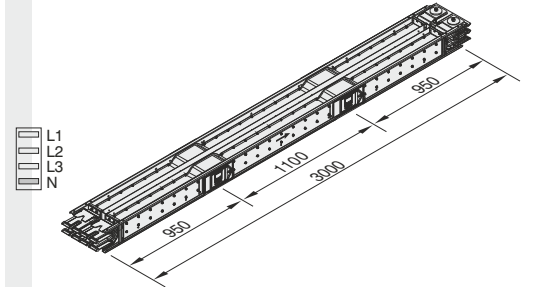


- STD

Plug-in

1

Sample Order:
2500 A, Copper, Plug-in,
IP 55, 4 Conductors
KBC-II 2551

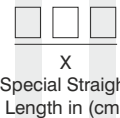
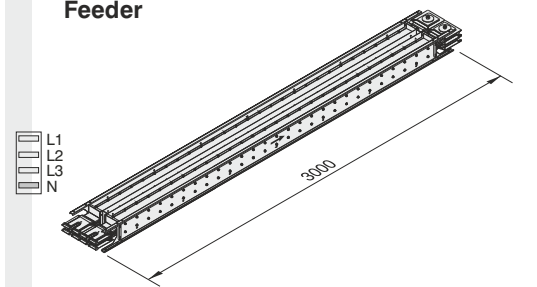


- STD

Feeder

2

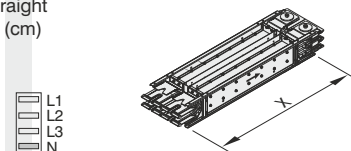
Sample Order:
2500 A, Aluminium,
Feeder, IP 55, 4 Conductors
KBA 2552

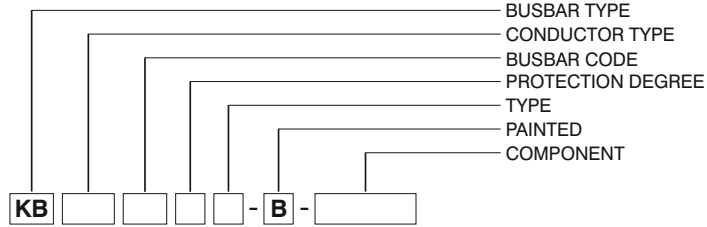


Special Straight Length

Sample Order:
2500 A, Copper, Feeder, IP 55,
4 Conductors, 147 cm
KBC-II 2552 -147

Minimum Length Bolt-on= 35 cm
Minimum Length Plug-in= 100 cm





- U

Sample Order:
3000 A, Copper, Bolt-on,
IP 55, 4 Conductors
KBC-II 3050 - U

- D

Sample Order:
3000 A, Copper, Bolt-on,
IP 55, 4 Conductors
KBC-II 3050 - D

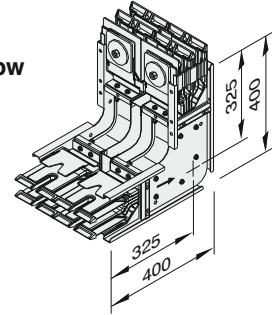
- L

Sample Order:
2500 A, Copper, Bolt-on,
IP 55, 4 Conductors
KBC-II 2550 - L

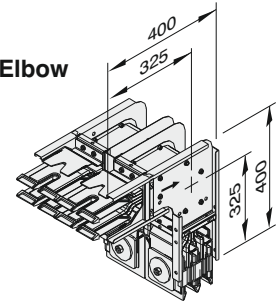
- R

Sample Order:
2000 A, Aluminium, Bolt-on,
IP 55, 4 Conductors
KBA 2050 - R

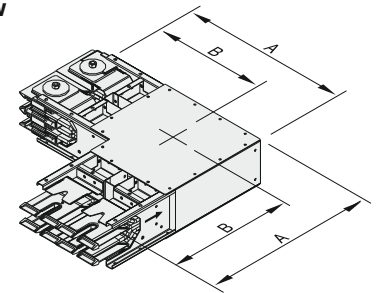
Upwards Elbow



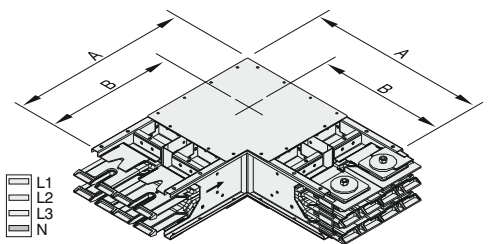
Downwards Elbow



Left Elbow



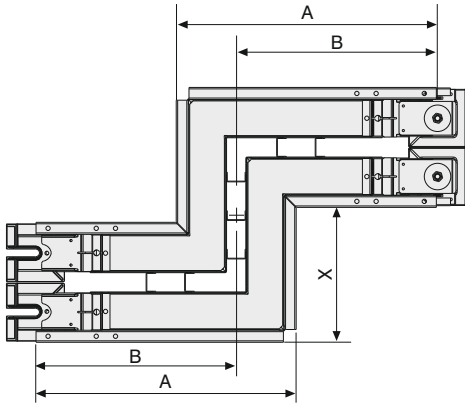
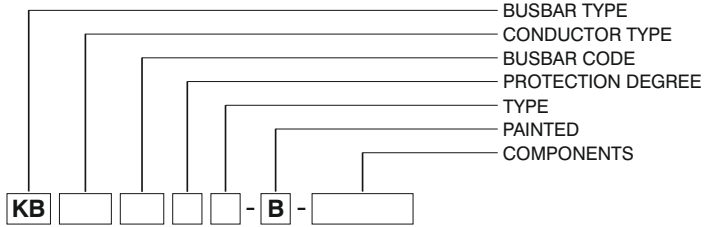
Right Elbow



KBA		KBC-II		A (mm)	B (mm)
Al Conductor		Cu Conductor			
Rated Current	Busbar Code	Rated Current	Busbar Code		
-----	---	1000	10	420	355
800	08	1250	12	420	355
1000	10	1600	16	445	367
1250	12	2000	20	475	383
1600	13	2250	23	505	398
1600	16	2500	25	540	415
2000	20	3000	30	590	440
2500	25	3600	36	650	470
3200	27	4250	42	710	500
3100	30	4400	44	735	512
4000	40	5300	53	825	558
4250	41	6300	63	915	603
5000	50	-----	---	1000	645

The dimensions given above are minimum values.

Please call us for non-standard components.

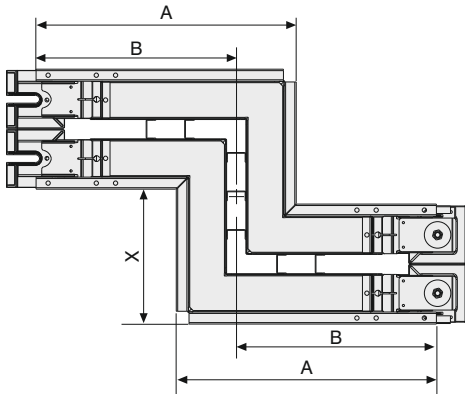
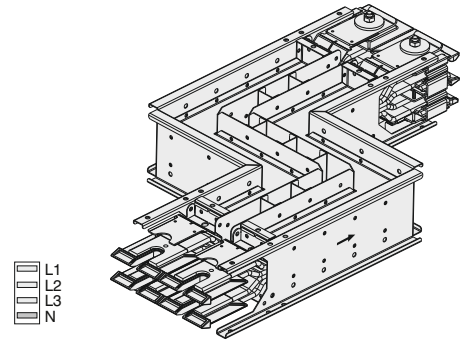


X=min:200 mm,
max: *Please see table

Sample Order:
X=600 mm, 3000 A, Copper
Bolton, IP 55, 4 Conductors

KBC-II 3050 - LH600 - LH X (mm)

Left Horizontal Offset

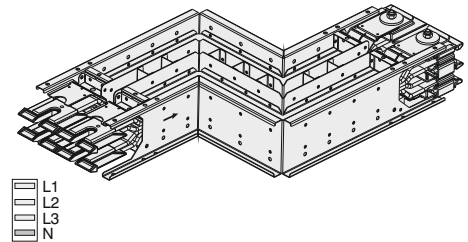


X=min:200 mm,
max: *Please see table

Sample Order:
X=600 mm, 3000 A, Copper
Bolton, IP 55, 4 Conductors

KBC-II 3050 - RH600 - RH X (mm)

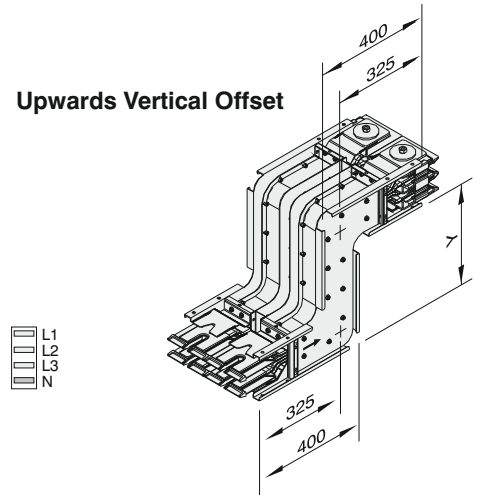
Right Horizontal Offset



Y=min:150mm / max:640mm
Sample Order:
Y=450mm, 2000 A, Aluminium
Bolt-on, IP 55, 4 Conductors

KBA 2050-UV450 - UV Y (mm)

Upwards Vertical Offset

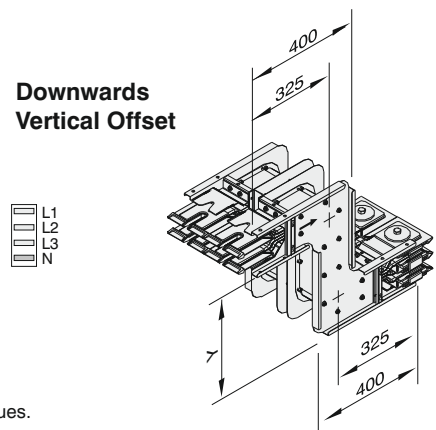


KBA		KBC-II		A	B	X
Al Conductor		Cu Conductor				
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	(mm)
----	---	1000	10	420	355	700
800	08	1250	12	420	355	700
1000	10	1600	16	445	367	730
1250	12	2000	20	475	383	760
1600	13	2250	23	505	398	780
1600	16	2500	25	540	415	820
2000	20	3000	30	590	440	870
2500	25	3600	36	650	470	930
3200	27	4250	42	710	500	990
3100	30	4400	44	735	512	1020
4000	40	5300	53	825	558	1110
4250	41	6300	63	915	603	1200
5000	50	-----	---	1000	645	1280

Y=min:150mm / max:640mm
Sample Order:
Y=450mm, 3000 A, Copper
Bolt-on, IP 55, 4 Conductors

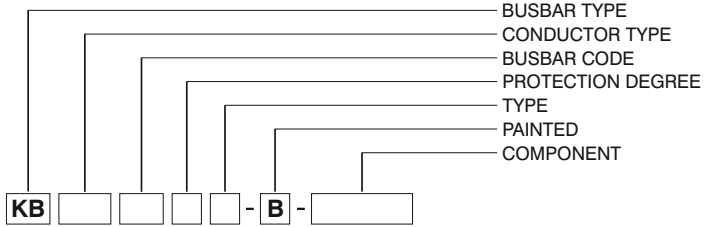
KBC-II 3050 - DV450 - DV Y (mm)

Downwards Vertical Offset



Please call us for non-standard components.

The dimensions given above are minimum values.

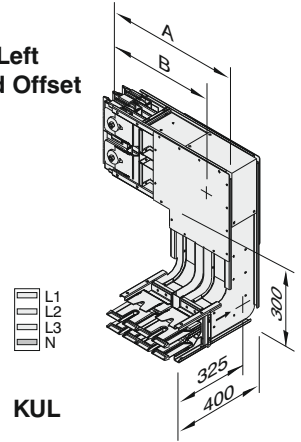


- K U L

Upwards Left Combined Offset

Sample Order:
3000 A, Copper
Bolt-on, IP 55, 4 Conductors

KBC-II 3050 - KUL

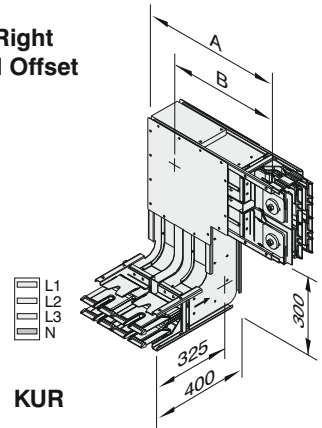


- K U R

Upwards Right Combined Offset

Sample Order:
3000 A, Aluminium
Bolt-on, IP 55, 4 Conductors

KBA 3050-KUR

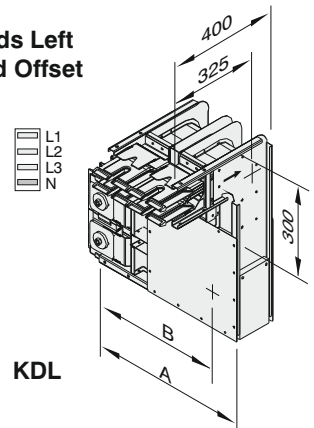


- K D L

Downwards Left Combined Offset

Sample Order:
3000 A, Copper
Bolt-on, IP 55, 4 Conductors

KBC-II 3050 - KDL

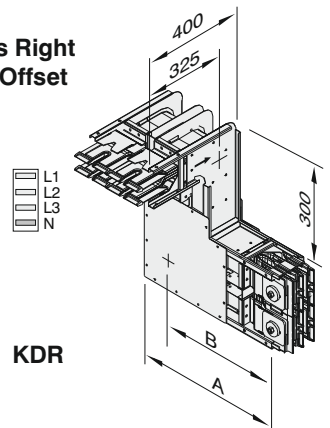


- K D R

Downwards Right Combined Offset

Sample Order:
3000 A, Aluminium
Bolt-on, IP 55, 4 Conductors

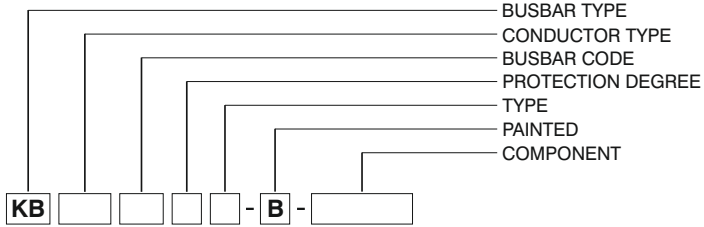
KBA 3050-KDR



KBA		KBC-II		A	B
Al Conductor		Cu Conductor			
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)
-----	---	1000	10	420	355
800	08	1250	12	420	355
1000	10	1600	16	445	367
1250	12	2000	20	475	383
1600	13	2250	23	505	398
1600	16	2500	25	540	415
2000	20	3000	30	590	440
2500	25	3600	36	650	470
3200	27	4250	42	710	500
3100	30	4400	44	735	512
4000	40	5300	53	825	558
4250	41	6300	63	915	603
5000	50	-----	---	1000	645

Please call us for non-standard components.

The dimensions given above are minimum values.

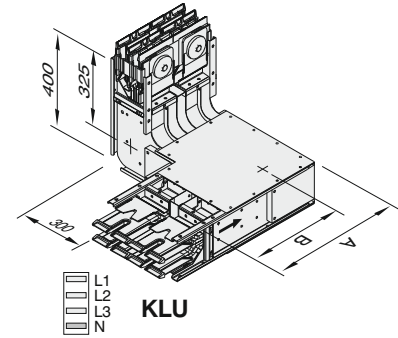


- K L U

Sample Order:
3000 A, Aluminium
Bolt-on, IP 55, 4 Conductors

KBA 3050-KLU

Left Upwards Combined Offset

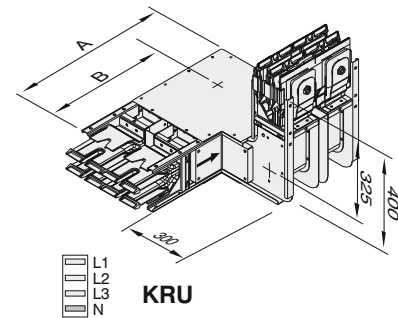


- K R U

Sample Order:
3000 A, Copper
Bolt-on, IP 55, 4 Conductors

KBC-II 3050 - KRU

Right Upwards Combined Offset

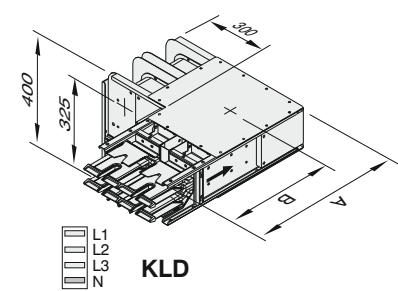


- K L D

Sample Order:
3000 A, Aluminium
Bolt-on, IP 55, 4 Conductors

KBA 3050-KLD

Left Downwards Combined Offset

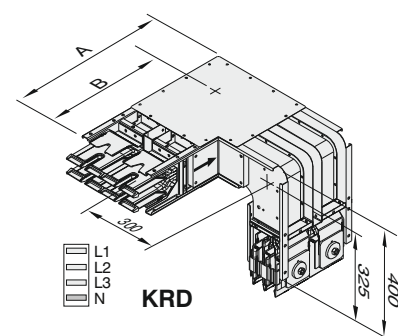


- K R D

Sample Order:
3000 A, Copper
Bolt-on, IP 55, 4 Conductors

KBC-II 3050 - KRD

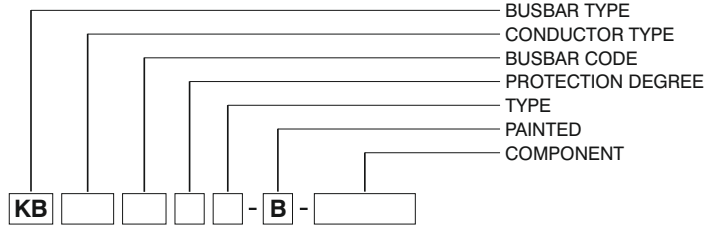
Right Downwards Combined Offset



KBA		KBC-II		A	B
Al Conductor	Cu Conductor	Al Conductor	Cu Conductor		
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)
-----	---	1000	10	420	355
800	08	1250	12	420	355
1000	10	1600	16	445	367
1250	12	2000	20	475	383
1600	13	2250	23	505	398
1600	16	2500	25	540	415
2000	20	3000	30	590	440
2500	25	3600	36	650	470
3200	27	4250	42	710	500
3100	30	4400	44	735	512
4000	40	5300	53	825	558
4250	41	6300	63	915	603
5000	50	-----	---	1000	645

Please call us for non-standard components.

The dimensions given above are minimum values.



End Closer

Is used to close the end of busbar run.

Reduction

Is used to change the busbar cross section.

Reducers Table

KBA - Al Conductor		Reduced Busbar Current										
Rated Current		800	1000	1250	1600	1600	2000	2500	3200	3100	4000	4250
1000	-	-	-	-	-	-	-	-	-	-	-	-
1250	✓	✓	-	-	-	-	-	-	-	-	-	-
1600	-	✓	✓	-	-	-	-	-	-	-	-	-
1600	-	✓	✓	-	-	-	-	-	-	-	-	-
2000	-	-	✓	✓	✓	-	-	-	-	-	-	-
2500	-	-	-	✓	✓	✓	-	-	-	-	-	-
3200	-	-	-	-	-	-	✓	-	✓	-	-	-
3100	-	-	-	-	-	✓	✓	-	-	-	-	-
4000	-	-	-	-	-	-	-	✓	✓	-	-	-
4250	-	-	-	-	-	-	-	-	-	✓	✓	-
5000	-	-	-	-	-	-	-	-	-	-	✓	✓

KBC-II Cu Conductor		Reduced Busbar Current										
Rated Current		1000	1250	1600	2000	2250	2500	3000	3600	4250	4400	5300
1250	✓	-	-	-	-	-	-	-	-	-	-	-
1600	✓	✓	-	-	-	-	-	-	-	-	-	-
2000	-	✓	✓	-	-	-	-	-	-	-	-	-
2250	-	-	✓	✓	-	-	-	-	-	-	-	-
2500	-	-	-	✓	✓	-	-	-	-	-	-	-
3000	-	-	-	-	✓	✓	-	-	-	-	-	-
3600	-	-	-	-	-	✓	✓	-	-	-	-	-
4250	-	-	-	-	-	-	✓	✓	-	-	-	-
4400	-	-	-	-	-	-	-	✓	✓	-	-	-
5300	-	-	-	-	-	-	-	-	✓	✓	-	-
6300	-	-	-	-	-	-	-	-	-	✓	✓	✓

KBA Al Conductor		KBC-II Cu Conductor		A	B	C
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	(mm)
-----	---	1000	10	420	355	710
800	08	1250	12	420	355	710
1000	10	1600	16	445	367	735
1250	12	2000	20	475	383	765
1600	13	2250	23	505	398	795
1600	16	2500	25	540	415	830
2000	20	3000	30	590	440	880
2500	25	3600	36	650	470	940
3200	27	4250	42	710	500	1000
3100	30	4400	44	735	512	1025
4000	40	5300	53	825	558	1115
4250	41	6300	63	915	603	1205
5000	50	-----	---	1000	645	1290

Please call us for non-standard components.

Sample Order: 2500 A, Copper, Bolt-on, IP 55, 4 Conductors
KBC-II 2550 - S10

Sample Order: 2500 A, Copper, Bolt-on, IP 55, 4 Conductors
KBC-II 2550 - S11

Sample Order: 2000A / 1600A, Aluminium, Bolt-on, IP 55, 4 Conductors
KBA 2050-RD16

NOTE: Decisions and selection of reduction module and protection on lower side is under the customer's responsibility.

Sample Order: 2500 A, Copper, Bolt-on, IP 55, 4 Conductors
KBC-II 2550 - TYR

Sample Order: 2500 A, Aluminium, Bolt-on, IP 55, 4 Conductors
KBA 2550-TYL

Sample Order: 3000 A, Copper, Bolt-on, IP 55, 4 Conductors
KBC-II 3050 - TO

End Closer

End Closer

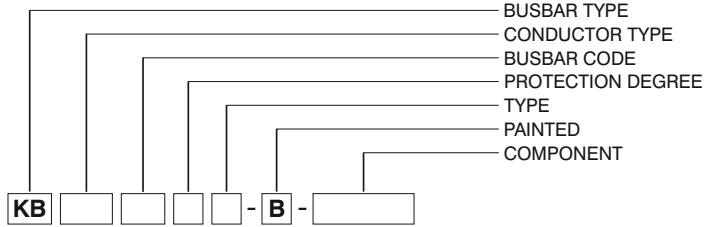
Reduction

Right Side Feeder "T"

Left Side Feeder "T"

Central Feeder "T"

The dimensions given above are minimum values.



Horizontal Expansion

Used at every 40 m in horizontal long lines and for crossing building expansions.

Note:1) Horizontal expansion joint should be utilised if busbar line is crossing to adjacent through building expansion joints.

2) This module is used on the long busbar line (>75m.) where line is ended by end closure and is not fixed on the support rigidly.

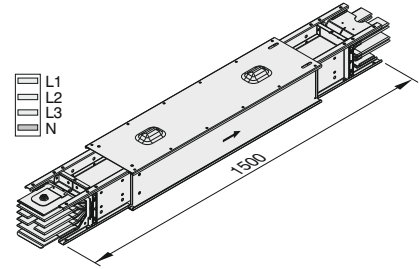
3) Horizontal expansion joint has sufficient movement span of 25mm. max.

EAE requests to be consulted during design stage.

- Y D T

Sample Order:
2500 A, Aluminium, Bolt-on, 4 Conductors
KBA 2550-YDT

Horizontal Expansion



Attention!
The total length of the module should be adjusted to 1500 mm. after installation.

- D D T

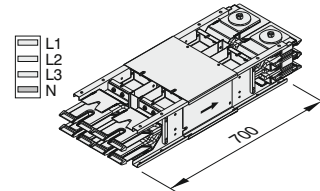
Vertical Expansion

For vertical application in many storey building.

- One vertical expansion unit is advised to be used at every floor between fixed support points.

Sample Order:
4250 A, Copper, Bolt-on, 4 Conductors
KBC-II 4250 - DDT

Vertical Expansion



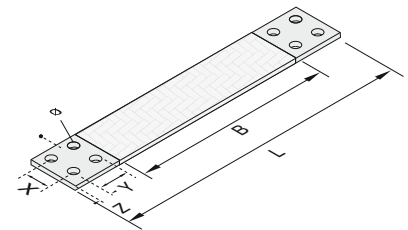
- F [] []
L
(cm)

Flexible are used for

- Transformer - busbar,
- Panel - busbar connections.

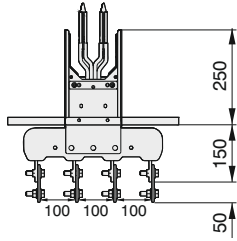
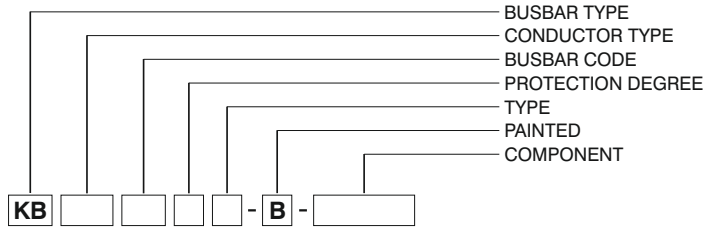
Sample Order:
800 A, Aluminium
KBA 0800-F40

Flexibles



B=.....mm
X=.....mm
Y=.....mm
Z=.....mm
ø=.....mm

- This side is punched according to the needs of the customer.

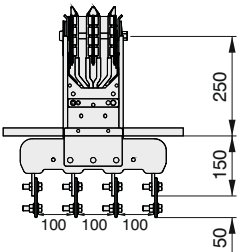
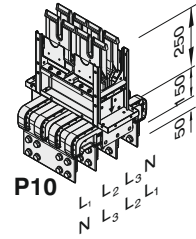


Panel Connection

Panel Feeder - P 1 0

Sample Order:
2500 A, Copper, Bolt-on,
for Panel Feeder

KBC-II 2550 - P10

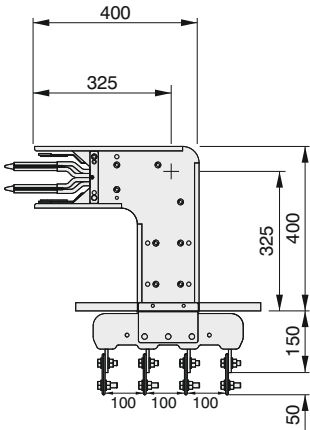
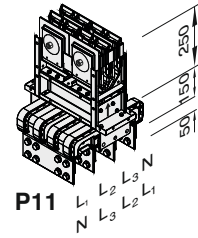


Panel Connection

Busbar Feeder - P 1 1

Sample Order:
2500 A, Copper, Bolt-on,
for Busbar Feeder

KBC-II 2550 - P11

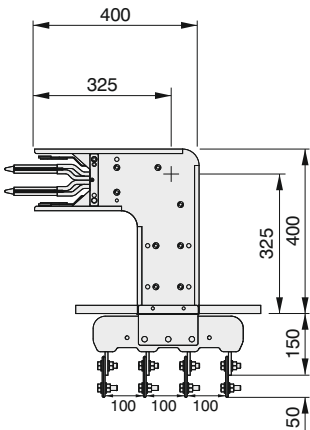
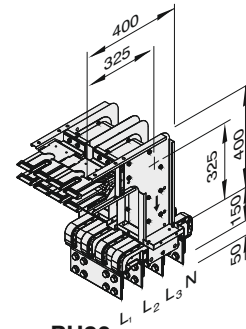


Upwards Panel Connection

Panel Feeder - P U 2 0

Sample Order:
3600 A, Copper, Bolt-on,
for Panel Feeder

KBC-II 3650 - PU20

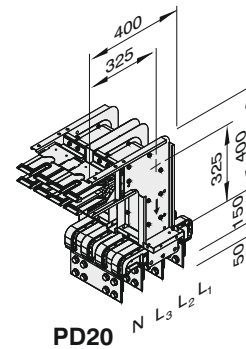


Downwards Panel Connection

Panel Feeder - P D 2 0

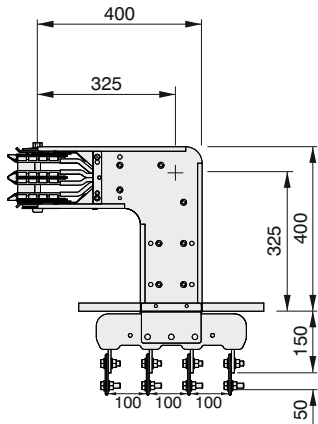
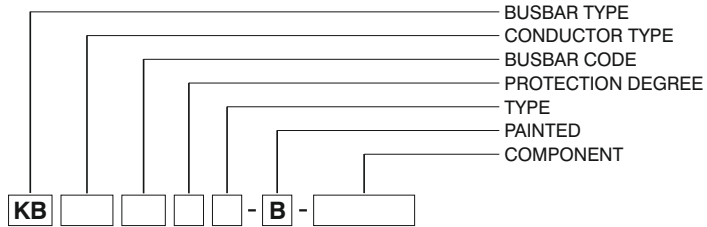
Sample Order:
4250 A, Copper, Bolt-on,
for Panel Feeder

KBC-II 4250 - PD20



- Distance between conductors can vary in ± 5 mm.
- Please call us for non-standard components.
- M12x40 bolts are mounted on panel modules.
- The dimensions given above are minimum values.

- Panel Connection Units are supplied with suitable flange as standard.
- For connection dimensions please refer to tables on pages 21 and 22.

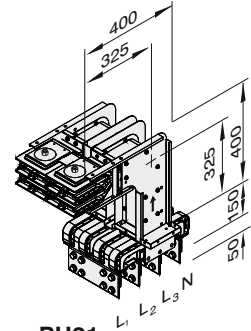


Upwards Busbar Connection

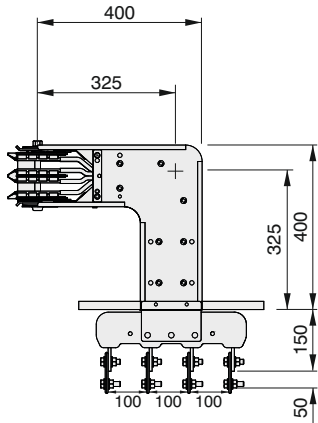
Busbar Feeder - P U 2 1

Sample Order:
3600 A, Copper, Bolt-on,
for Busbar Feeder

KBC-II 3650 - PU21



PU21

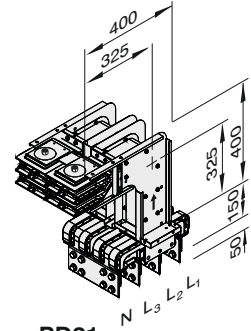


Downwards Busbar Connection

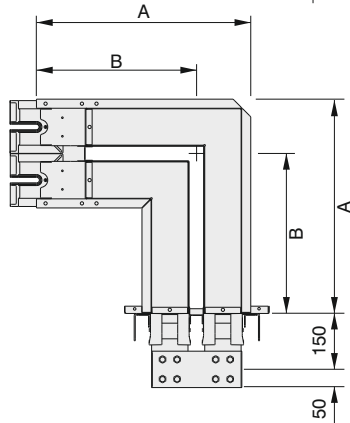
Busbar Feeder - P D 2 1

Sample Order:
4250 A, Copper, Bolt-on,
for Busbar Feeder

KBC-II 4250 - PD21



PD21

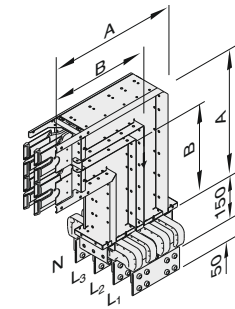


Right Panel Connection

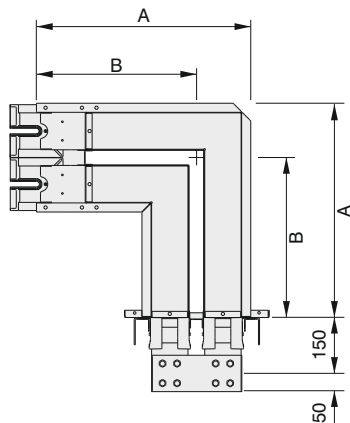
Panel Feeder - P R 3 0

Sample Order:
2500 A, Copper, Bolt-on,
for Panel Feeder

KBC-II 2550 - PR30



PR30

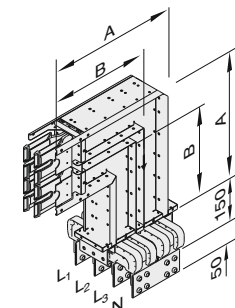


Left Panel Connection

Panel Feeder - P L 3 0

Sample Order:
4250 A, Copper, Bolt-on,
for Panel Feeder

KBC-II 4250 - PL30

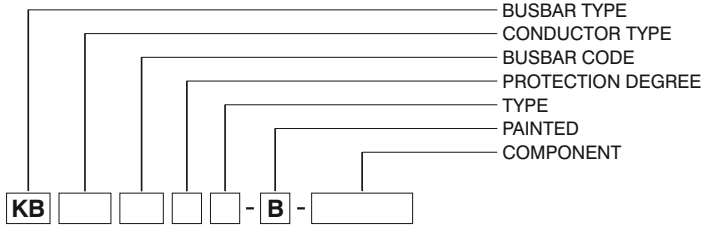
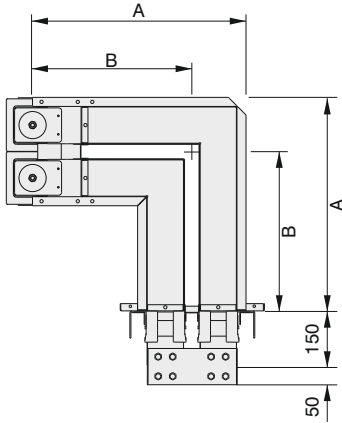


PL30

- Distance between conductors can vary in ± 5 mm.
- Please call us for non-standard components.
- M12x40 bolts are mounted on panel modules.
- The dimensions given above are minimum values.

- The "A" and "B" dimensions for PR30 and PL30 are the same dimensions as left and right elbows. Please refer to page 12 for the dimensions.
- Panel Connection Units are supplied with suitable flange as standard.
- For connection dimensions please refer to tables on pages 21 and 22.

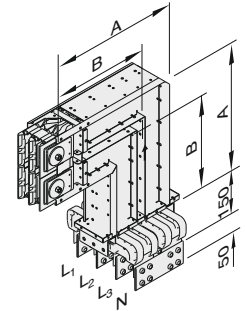
Panel Connections



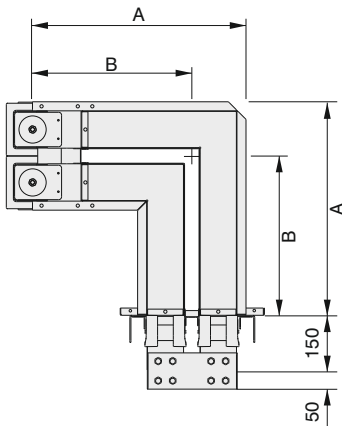
Right Panel Connection

Busbar Feeder - P R 3 1

Sample Order:
2500 A, Copper, Bolt-on,
for Busbar Feeder
KBC-II 2550 - PR31



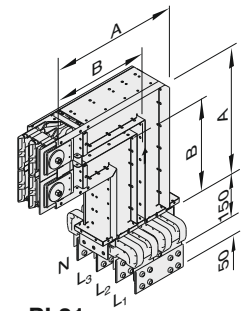
PR31



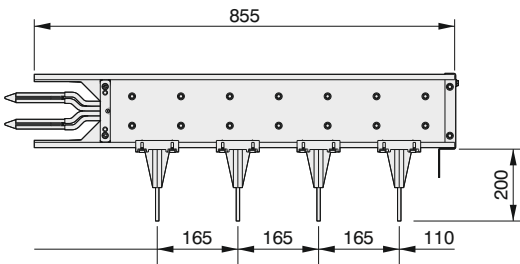
Left Panel Connection

Busbar Feeder - P L 3 1

Sample Order:
4250 A, Copper, Bolt-on,
for Busbar Feeder
KBC-II 4250 - PL31



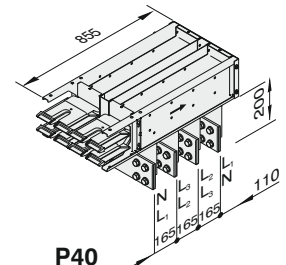
PL31



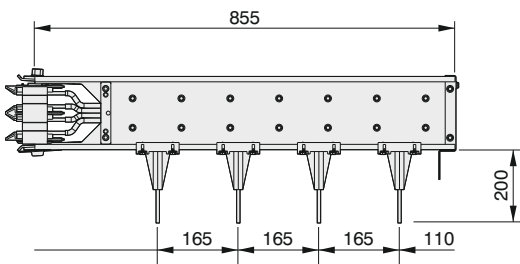
Panel Connection

Panel Feeder - P 4 0

Sample Order:
3000 A, Copper, Bolt-on,
for Panel Feeder
KBC-II 3050 - P40



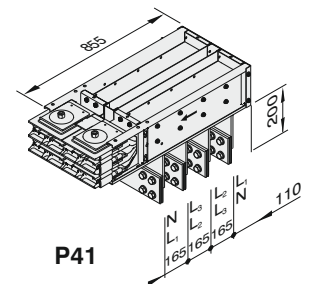
P40



Panel Connection

Busbar Feeder - P 4 1

Sample Order:
3000 A, Copper, Bolt-on,
for Busbar Feeder
KBC-II 3050 - P41



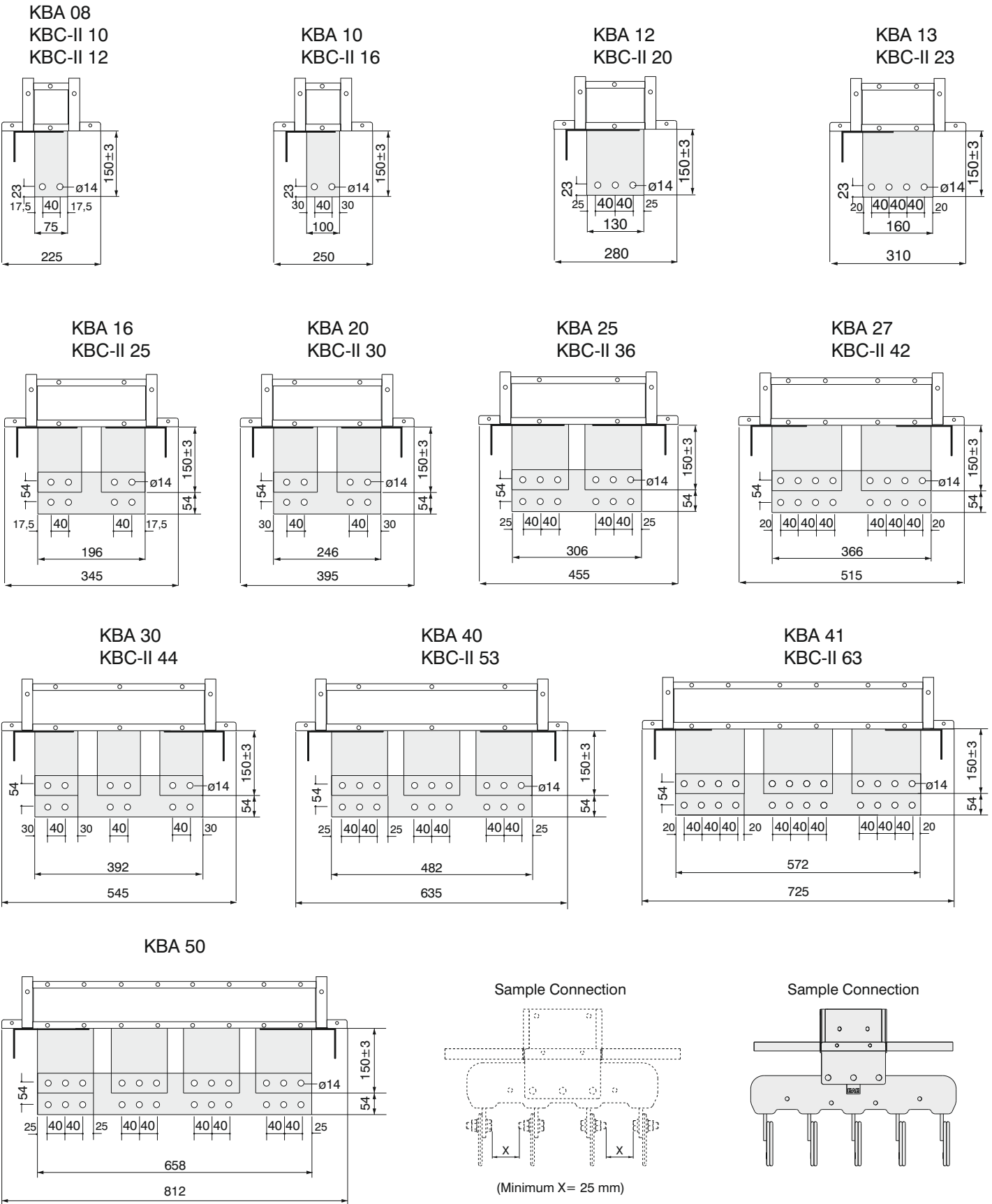
P41

- Distance between conductors can vary in ± 5 mm.
- Please call us for non-standard components.
- M12x40 bolts are mounted on panel modules.
- The dimensions given above are minimum values.

- The "A" and "B" dimensions for PR31 and PL31 are the same dimensions as left and right elbows. Please refer to page 12 for the dimensions.
- Panel Connection Units are supplied with suitable flange as standard.
- For connection dimensions please refer to tables on pages 21 and 22.

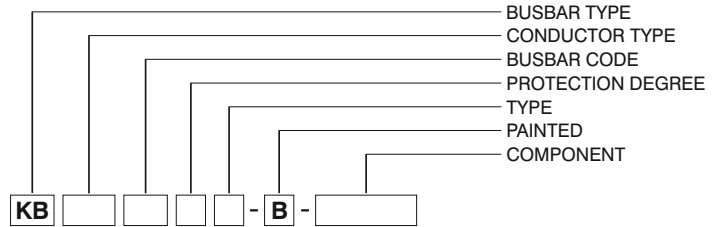
Panel Connection Units

Panel Connection Units (P10, P11, PU20, PD20, PU21, PD21, PR30, PL30, PR31, PL31, P40, P41)



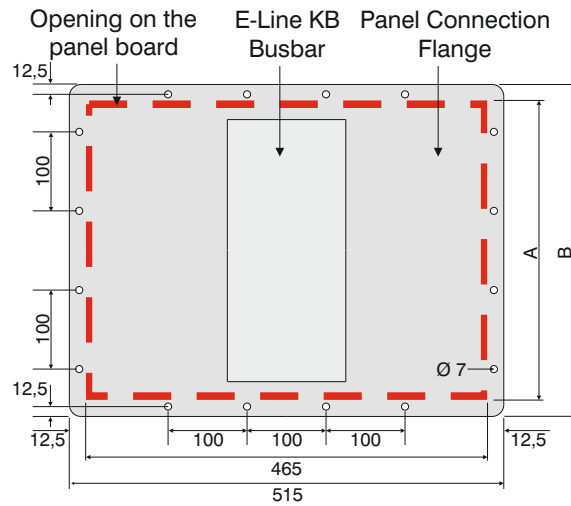
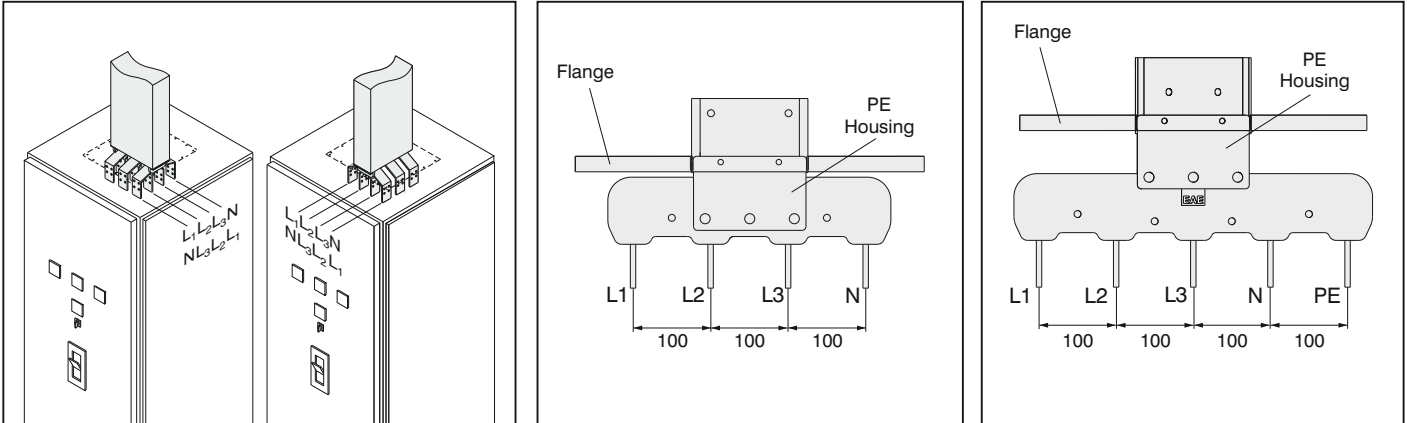
- Distance between conductors can vary in ± 5 mm.
- Please call us for non-standard components.

- M12x40 bolts are mounted on panel modules.
- The dimensions given above are minimum values.



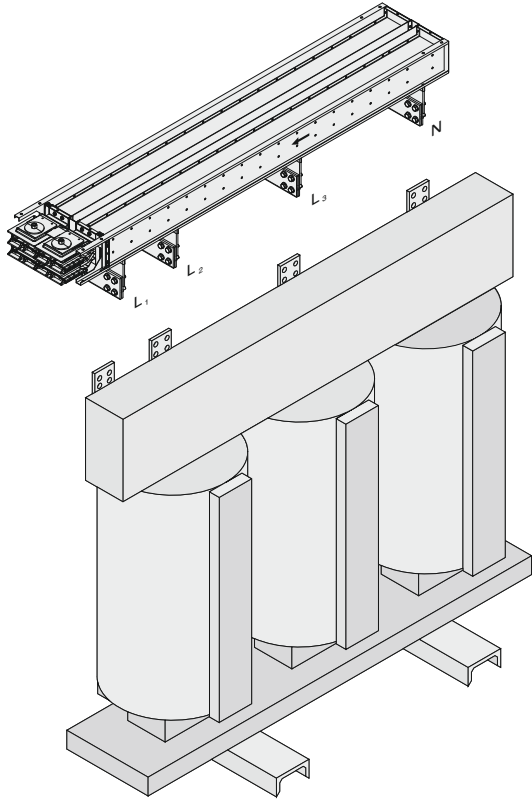
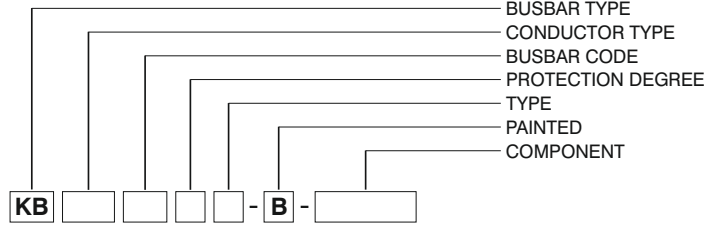
Flange Dimensions

Panel Connection Units are supplied with suitable flange as standard.



Aluminium (Al)		Copper (Cu)		Conductor Size	A (mm)	B (mm)	Number of the holes along B length	* M6 Bolt / Nut Set (Pcs)
Rated Current	Busbar Code	Rated Current	Busbar Code					
----	---	1000	10	6x75	175	225	3	20
800	08	1250	12	7x75	175	225	3	20
1000	10	1600	16	7x100	200	250	3	20
1250	12	2000	20	7x130	230	280	3	20
1600	13	2250	23	7x160	260	310	3	20
1600	16	2500	25	2(7x75)	295	345	4	24
2000	20	3000	30	2(7x100)	345	395	4	24
2500	25	3600	36	2(7x130)	405	455	4	24
3200	27	4250	42	2(7x160)	465	515	4	24
3100	30	4400	44	3(7x100)	495	545	6	30
4000	40	5300	53	3(7x130)	585	635	6	30
4250	41	6300	63	3(7x160)	675	725	8	30
5000	50	----	---	4(7x130)	762	812	8	30

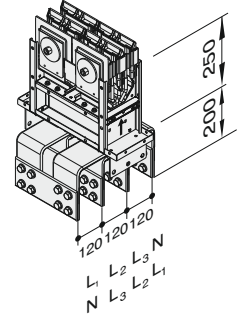
* Bolt and nut sets are delivered with related products as per below quantities.



Transformer Connection - T R 1 1

Sample Order:
2500 A, Aluminium, Bolt-on, 4 Conductors
KBA 2550-TR11

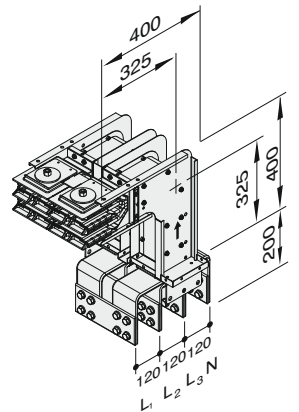
TR11



Upwards Transformer Connection - T U 2 1

Sample Order:
2500 A, Copper, Bolt-on, 4 Conductors
KBC-II 2550 - TU21

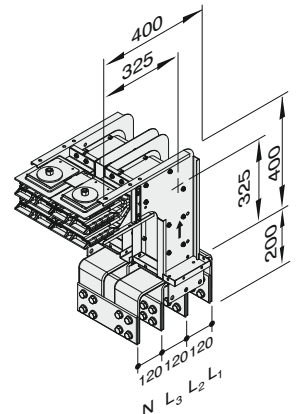
TU21



Downwards Transformer Connection - T D 2 1

Sample Order:
2500 A, Aluminium, Bolt-on, 4 Conductors
KBA 2550-TD21

TD21



For transformer and panel connection applications EAE design and planning group will prepare your projects upon request.

For the design the following informations are required;

- Plan of transformer and panel board room, heights.
- Transformer dimensions, distance between bushings.
- Panel board dimensions.

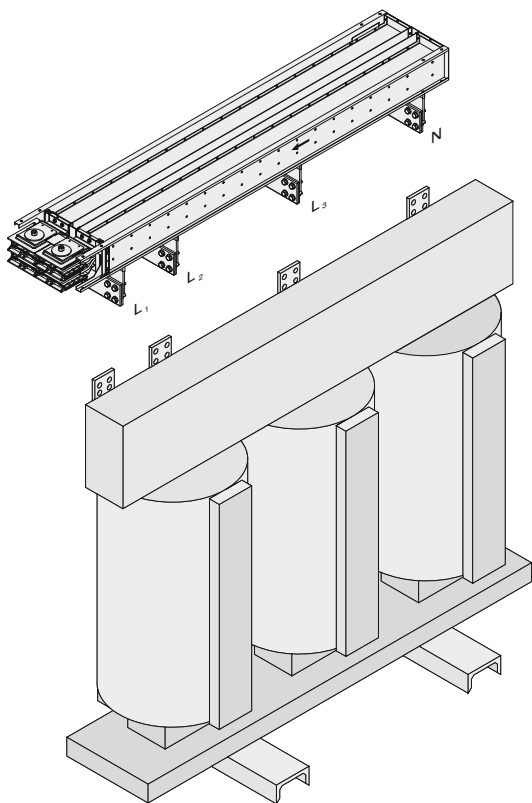
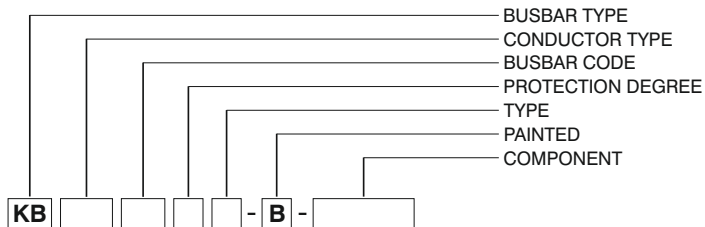
A and B dimensions of TR51 and TL51 are same as left and right elbows.

Please refer to page 12 for the dimensions.

Please use the tables on page 25 for connection hole details.

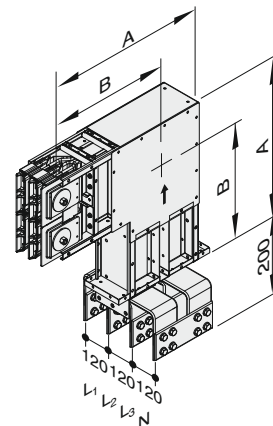
Please call us for non-standard components.

The dimensions given above are minimum values.



Right - T R 5 1 Transformer Connection

Sample Order:
2500 A, Copper, Bolt-on, 4 Conductors
KBC-II 2550 - TR51



TR51

For transformer and panel connection applications EAE design and planning group may prepare your projects upon request.

For Project;

- Plan of transformer and panel board room, heights.
- Transformer dimensions, distance between bushings.
- Panel board dimensions.

A and B dimensions of TR51 and TL51 are same as left and right elbows.

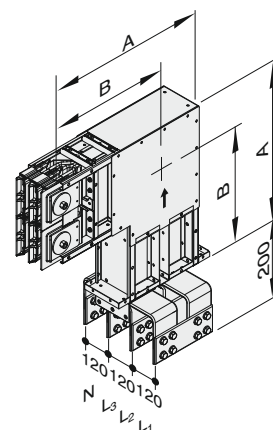
Please refer to page 12 for the dimensions.

Please use the tables on page 25 for connection hole details.

Please call us for non-standard components.

Left - T L 5 1 Transformer Connection

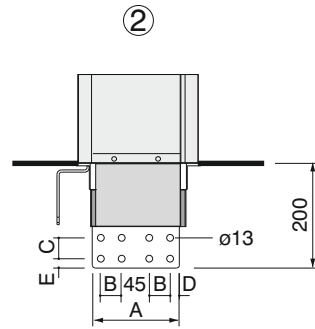
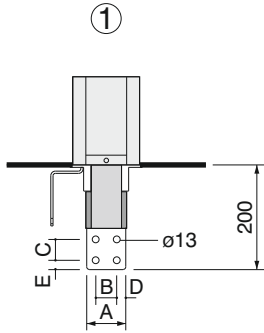
Sample Order:
2500 A, Aluminium, Bolt-on, 4 Conductors
KBA 2550-TL51



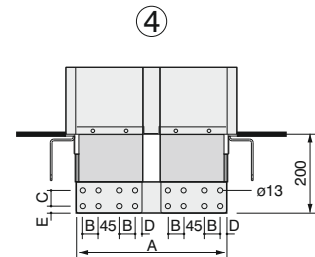
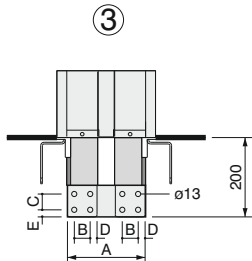
TL51

The dimensions given above are minimum values.

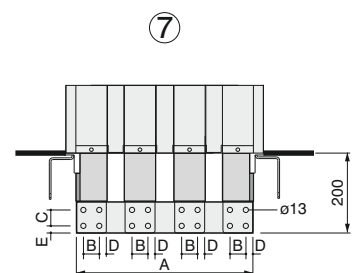
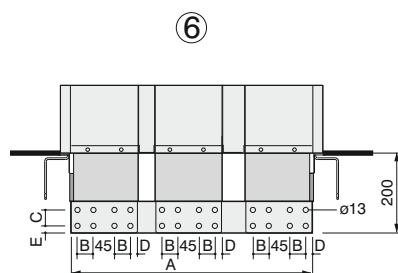
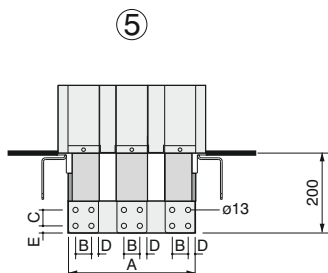
Aluminium (Al)		Copper (Cu)		Conductors	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Figure
Rated Current	Busbar Code	Rated Current	Busbar Code							
		1000	10	6x75	75	40	40	17,5	17,5	1
800	08	1250	12	7x75	75	40	40	17,5	17,5	1
1000	10	1600	16	7x100	100	50	50	25	25	1
1250	12	2000	20	7x130	130	60	40	35	25	1
1600	13	2250	23	7x160	160	40	40	17,5	17,5	2



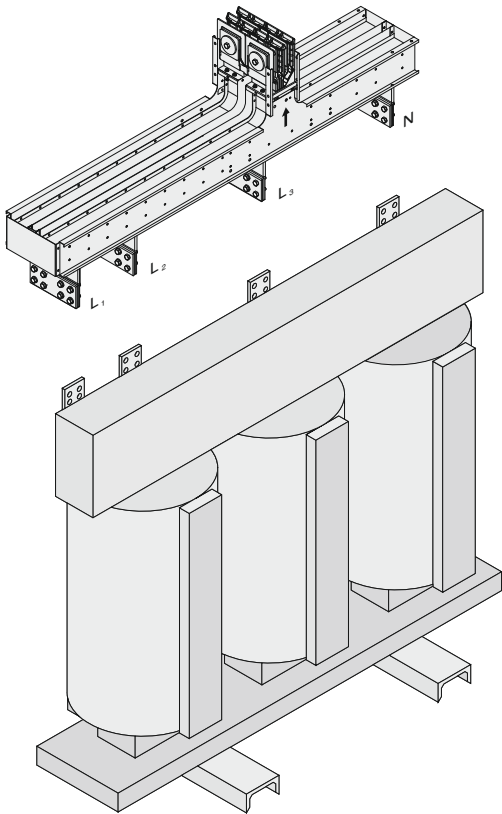
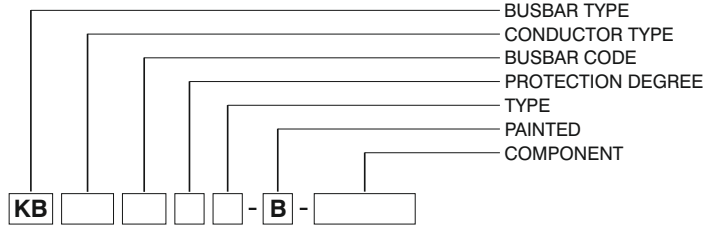
Aluminium (Al)		Copper (Cu)		Conductors	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Figure
Rated Current	Busbar Code	Rated Current	Busbar Code							
1600	16	2500	25	2(7x75)	196	40	40	17,5	17,5	3
2000	20	3000	30	2(7x100)	246	50	50	25	25	3
2500	25	3600	36	2(7x130)	306	60	40	35	25	3
3200	27	4250	42	2(7x160)	366	40	40	17,5	17,5	4



Aluminium (Al)		Copper (Cu)		Conductors	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Figure
Rated Current	Busbar Code	Rated Current	Busbar Code							
3100	30	4400	44	3(7x100)	392	50	50	25	25	5
4000	40	5300	53	3(7x130)	482	60	40	35	25	5
4250	41	6300	63	3(7x160)	572	40	40	17,5	17,5	6
5000	50	-----	---	4(7x130)	663	60	40	35	25	7



NOTE : The standard distance between conductors is 120mm and 165mm. Please call us for non-standard components.

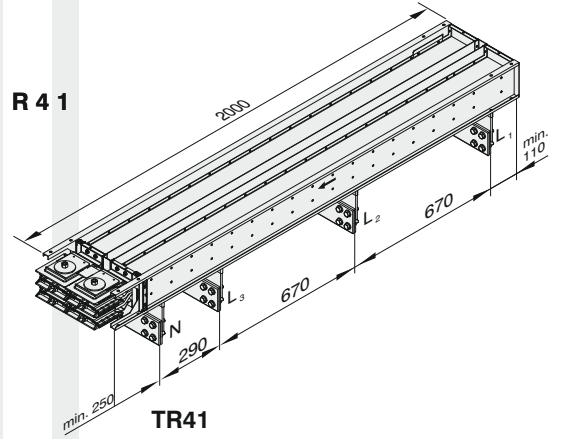


Transformer Connection

Sample Order:
2500 A, Copper, Bolt-on,
4 Conductors

KBC-II 2550 - TR41

- T R 4 1

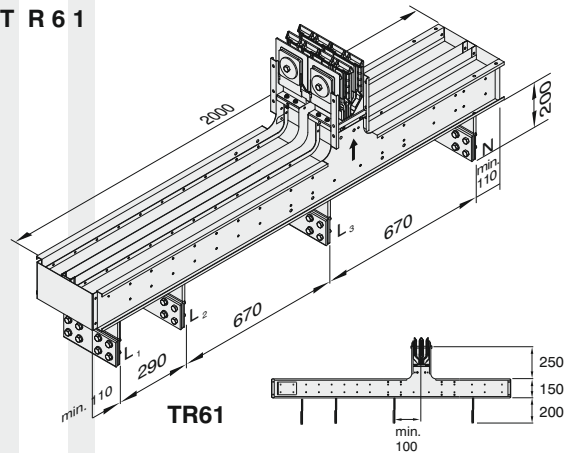


Transformer Connection

Sample Order:
3600 A, Copper, Bolt-on,
4 Conductors

KBC-II 3650 - TR61

- T R 6 1



For transformer and panel connection applications EAE design and planning group may prepare your projects upon request.

For Project;

- Plan of transformer and panel board room, heights.
- Transformer dimensions, distance between bushings.
- Panel board dimensions.

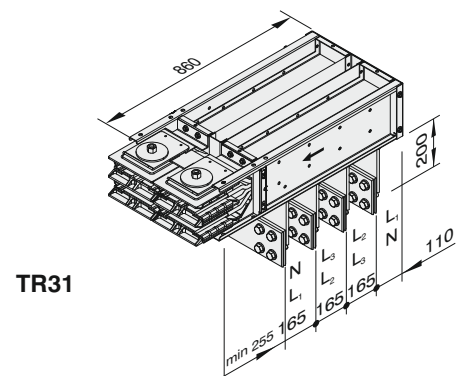
Please use the tables on page 25 for connection hole details.

Transformer Connection

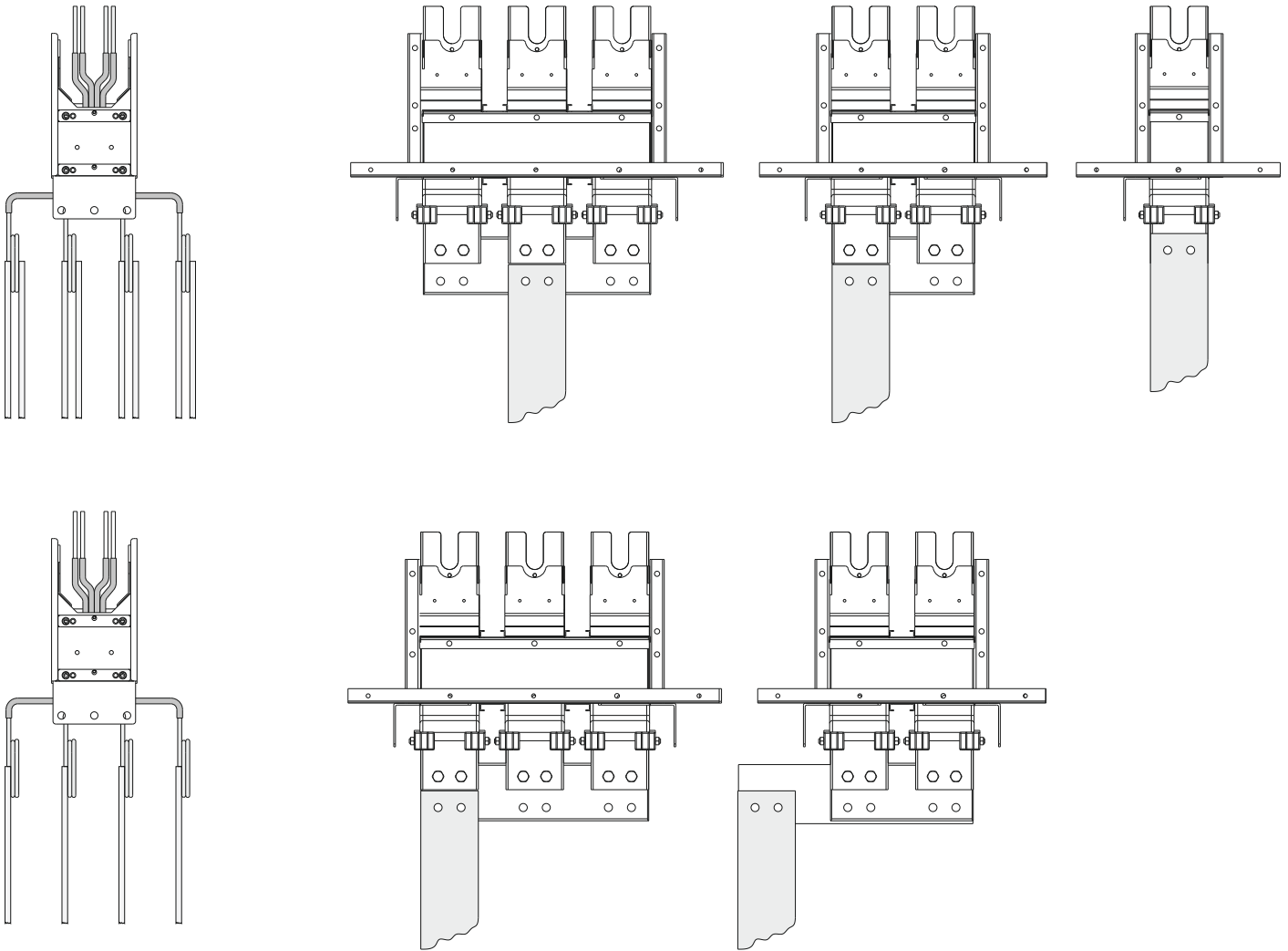
Sample Order:
2500 A, Copper, Bolt-on,
4 Conductors

KBC-II 2550 - TR31

- T R 3 1

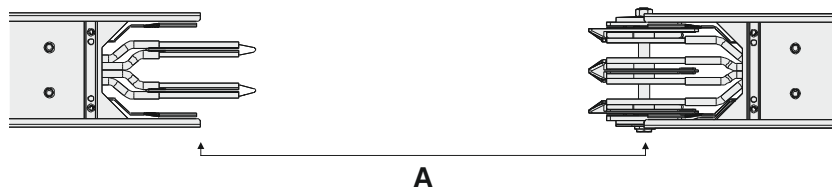


►► Proposed Connection Details to EAE Transformer & Panelboard Modules



►► Determination of Special Length

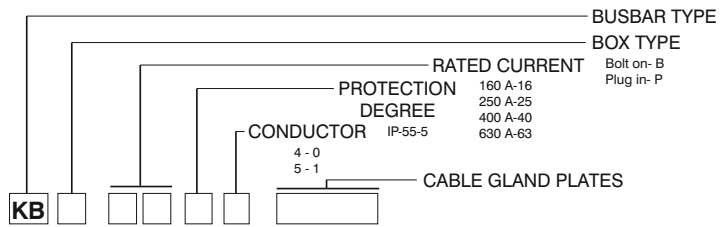
After the installation of standard 3m busbar lengths, you will be in need of special lengths which are smaller than 3m. The minimum length for these special elements can be 35 cm. Please measure the lengths of these modules as shown below.



"A" length should be indicated in cm. Measure the distance from one end of the side housing to the other.

A=Length of Special Busbar

▶▶ Tap-off Boxes with Fused Switches (SYK)



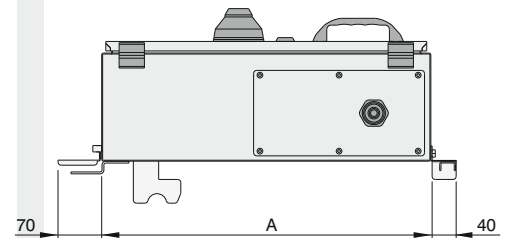
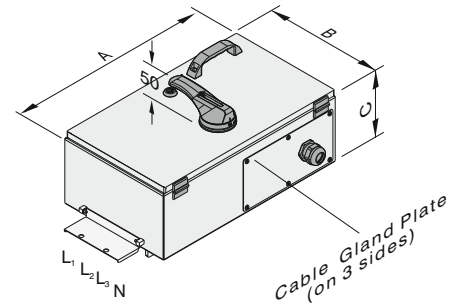
Cable Gland Plates

Mat.	Cable Gland Type	Order Code	Inner Diameter (mm)
Sheet	----	RP0	
Sheet	M32	RP1	25
Sheet	M40	RP2	32
Sheet	Special	RP3	63
AL	2xSpecial	RP4	63
AL	4xM25	RP5	18
AL	4xM32	RP6	25
AL	4xM40	RP7	32
AL	8xM32	RP8	25

KB B 1 6 5 0
KB B 2 5 5 0
KB B 4 0 5 0
KB B 6 3 5 0

Sample Order:
 Bolt-on / 630 A / IP-55 /
 5 Conductors
KBB 6351

Bolt-on Tap-off Boxes



Tap-off boxes are equipped with EAE SYK fused switches. The tap-off boxes are in red RAL 3020 colour as standard.

EAE SYK

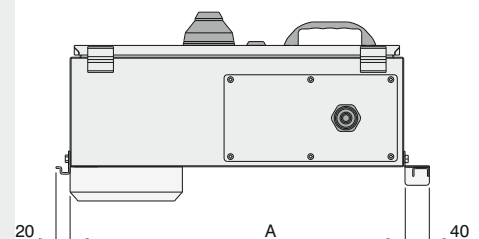
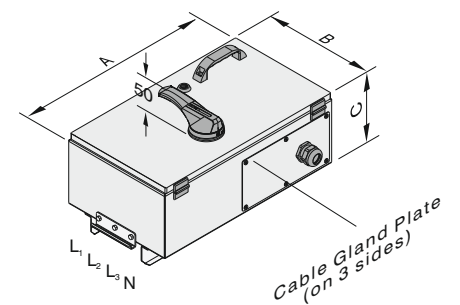
- Can operate under load
- Are equipped with NH fuse holders
- Have interlock mechanism
- Can be used with padlock.

- KYA 160 A
- KYA 250 A
- SYK 160A - 250 A
- SYK 630 A

KB P 1 6 5 0
KB P 2 5 5 0
KB P 4 0 5 0
KB P 5 0 5 0

Sample Order:
 Plug-in / 400 A / IP-55 /
 5 Conductors
KBP 4051

Plug-in Tap-off Boxes



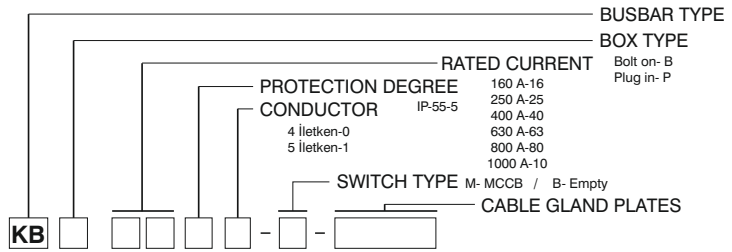
Tap-off Boxes	A (mm)	B (mm)	C (mm)	Standard Gland	Fuse Size	4W Order No.	5W Order No.	Fused Switches
KBB 16	670	380	240	RP2	NH 1	3038904	3043154	SYK
KBB 25	670	380	240	RP3	NH 1	3038899	3046011	SYK
KBB 40	670	380	255	RP4	NH 3	3038897	3046015	SYK
KBB 63	700	420	255	RP4	NH 3	3038895	3046019	SYK
KBP 16	450	300	190	RP2	NH 1	3035735	3035737	KYA
KBP 25	650	380	240	RP3	NH 1	3035738	3035740	KYA
KBP 40	670	380	255	RP4	NH 3	3038970	3043125	SYK
KBP 50	750	420	260	RP4	NH 3	3034733	3034734	SYK

Tap-off boxes can be equipped with any brand of switches, circuit breakers and etc.

Please call us for non-standard tap-off boxes.

The dimensions given above are minimum values.

▶▶ Tap-off Boxes for MCCB's



Cable Gland Plates

Mat.	Cable Gland Type	Order Code	Inner Diameter (mm)
Sheet	----	RP0	----
Sheet	M32	RP1	25
Sheet	M40	RP2	32
Sheet	Special	RP3	63
AL	2xSpecial	RP4	63
AL	4xM25	RP5	18
AL	4xM32	RP6	25
AL	4xM40	RP7	32
AL	8xM32	RP8	25

Special Cable Gland Plates

Mat.	Cable Gland Type	Order Code	Inner Diameter (mm)
Sheet	----	RPK0	----
Sheet	M25	RPK1	18
Sheet	M32	RPK2	25
Sheet	M40	RPK3	32
Sheet	1xSpecial	RPK4	63

Tap-off Boxes	A (mm)	B (mm)	C (mm)	Standard Gland	4W Order.No	5W Order.No
KBB 160	500	300	220	RPK3	3034592	3034594
KBB 250	500	300	220	RPK4	3034593	3034595
KBB 400	700	300	245	RP4	3034601	3034603
KBB 630	700	300	245	RP4	3034602	3034604
KBB 800	950	350	305	RP4	3034605	3034607
KBB 1000	950	350	305	RP4	3034606	3034608
KBP 160	500	300	220	RPK3	3034588	3034590
KBP 250	500	300	220	RPK4	3034589	3034591
KBP 400	700	300	220	RP4	3034596	3034598
KBP 630	700	300	220	RP4	3034597	3034600

* Tap-off boxes can be equipped with any brand of MCCB's.

Please call us for non-standard tap-off boxes.

KB B 1 6 5 0 - B1
KB B 2 5 5 0 - B1
KB B 4 0 5 0 - B1
KB B 6 3 5 0 - B1

KB B 1 6 5 0 - M1
KB B 2 5 5 0 - M1
KB B 4 0 5 0 - M1
KB B 6 3 5 0 - M1

Sample Order:
 Bolt-on / 630 A / IP-55 /
 5 Conductors, empty tap off box
KBB 6351 - B1

KB B 8 0 4 0 - B1
KB B 8 0 5 0 - B1
KB B 1 0 4 0 - B1
KB B 1 0 5 0 - B1

KB B 8 0 4 0 - M1
KB B 8 0 5 0 - M1
KB B 1 0 4 0 - M1
KB B 1 0 5 0 - M1

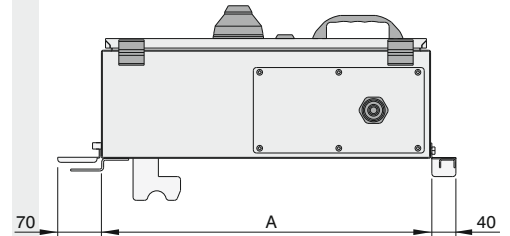
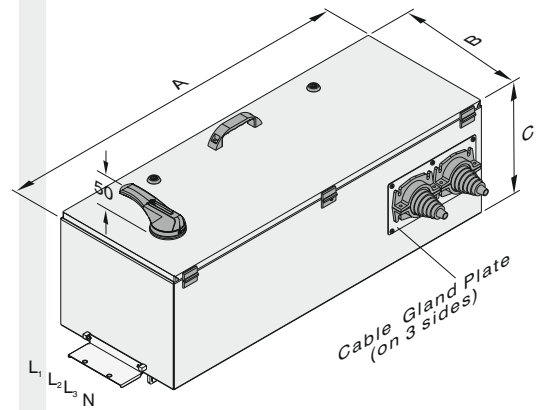
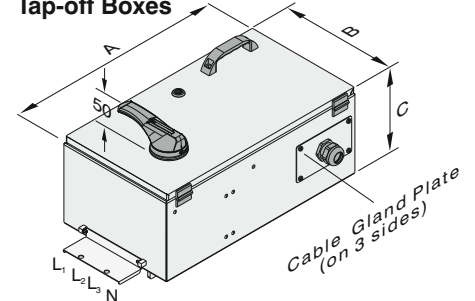
Sample Order:
 Bolt-on / 800 A / IP-55 /
 5 Conductors,
 empty tap off box
KBB 8051 - B1

KB P 1 6 5 0 - B1
KB P 2 5 5 0 - B1
KB P 4 0 5 0 - B1
KB P 6 3 5 0 - B1

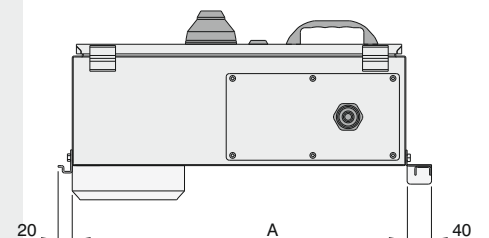
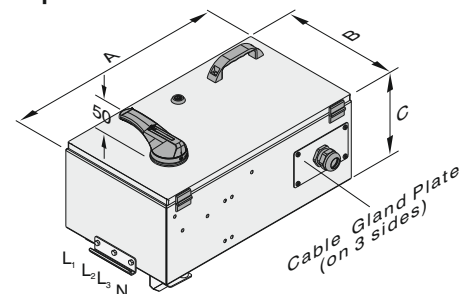
KB P 1 6 5 0 - M1
KB P 2 5 5 0 - M1
KB P 4 0 5 0 - M1
KB P 6 3 5 0 - M1

Sample Order:
 Plug-in / 400 A / IP-55 /
 5 Conductors, empty tap off box
KBP 4051 - B1

Bolt-on Tap-off Boxes



Plug-in Tap-off Boxes



The dimensions given above are minimum values.

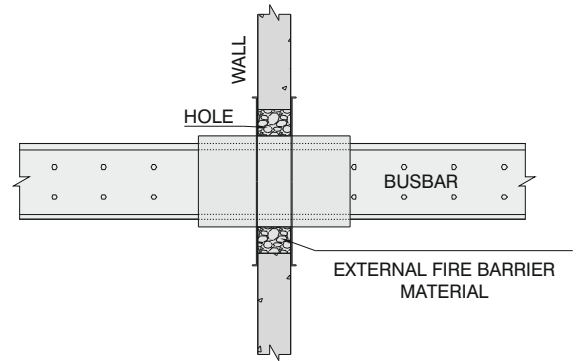
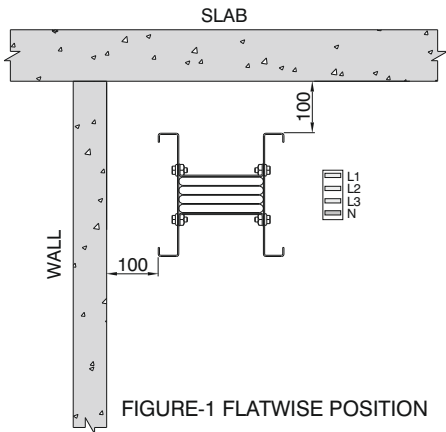


FIGURE-5 SAMPLE WALL CROSSING WITH FIRE BARRIER

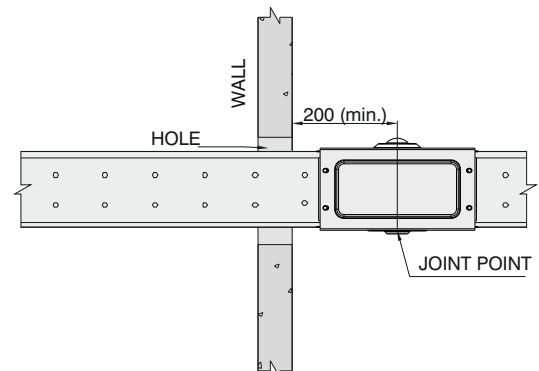
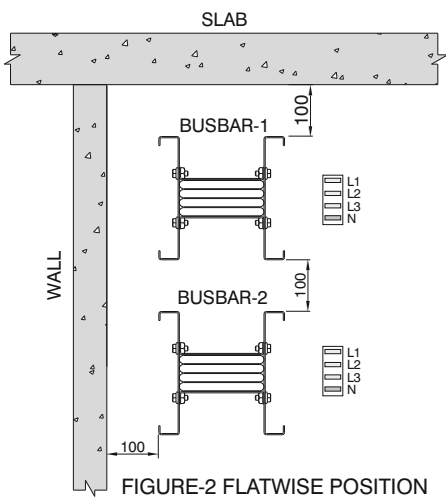
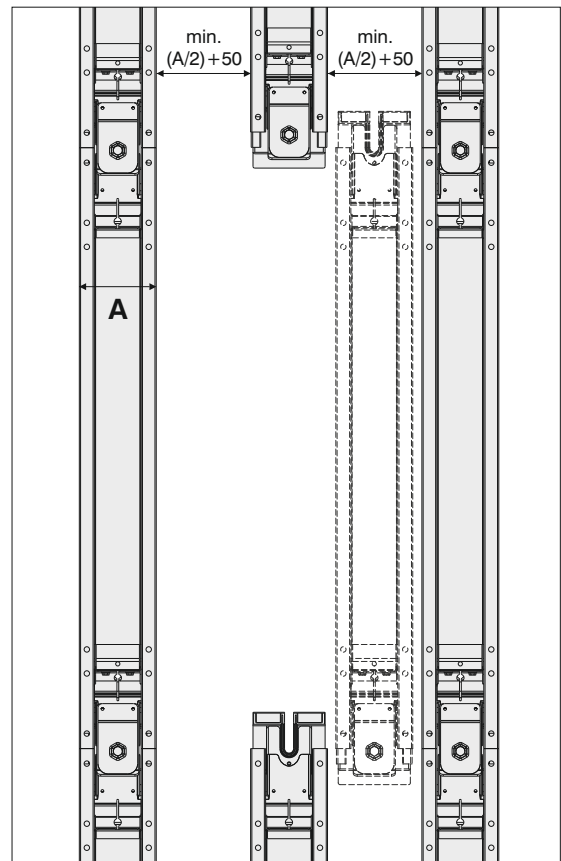
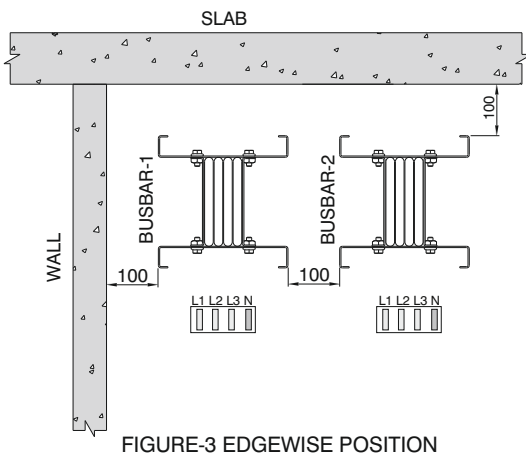


FIGURE-6 STANDARD WALL CROSSING



MINIMUM DISTANCE BETWEEN BUSBAR RUNS IN HORIZONTAL APPLICATIONS.

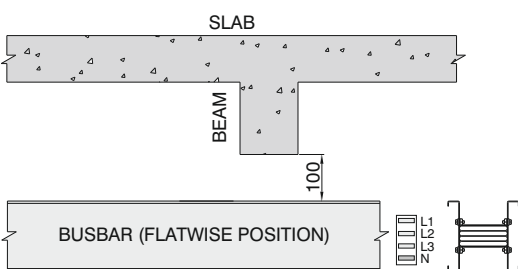


FIGURE-4 CROSSING UNDER A BEAM HORIZONTAL POSITION

■ The dimensions given above are minimum values.

■ All measures are given in mm.

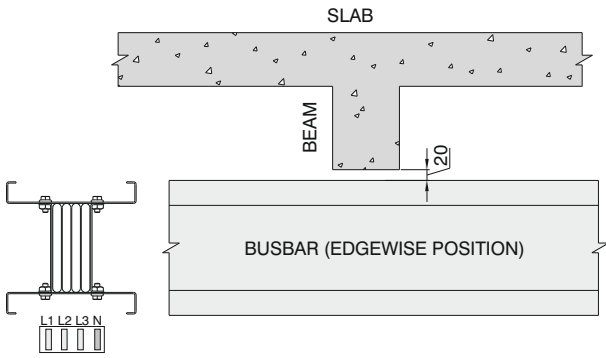


FIGURE-7 CROSSING UNDER A BEAM EDGEWISE POSITION

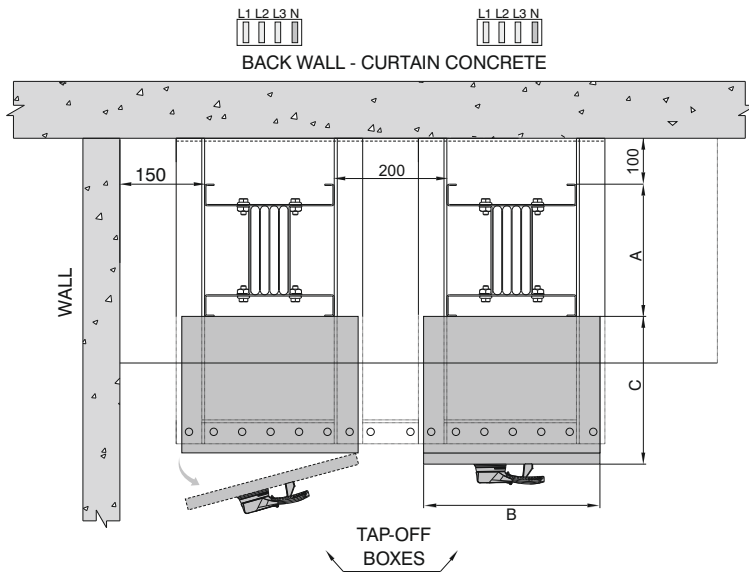


FIGURE-8 MINIMUM DIMENSIONS BETWEEN 2 TAP-OFF BOXES

⚠ NOTE: In order to accommodate the busbar systems in the riser shaft;

Table For Outer Dimension of Busbars

KBA		KBC-II		A (mm)
Al Conductor		Cu Conductor		
Rated Current	Busbar Code	Rated Current	Busbar Code	
-----	---	1000	10	130
800	08	1250	12	130
1000	10	1600	16	155
1250	12	2000	20	185
1600	13	2250	23	215
1600	16	2500	25	250
2000	20	3000	30	300
2500	25	3600	36	360
3200	27	4250	42	420
3100	30	4400	44	445
4000	40	5300	53	535
4250	41	6300	63	625
5000	50	-----	---	710

MDM = Minimum Distance from the wall

“A” dimension = All dimensions are for standard modules.

“C” dimension = Please see page 28-29 and special dimension for Tap-off box “C” dimension

“B” dimension = Max. opening distance for Tap-off box cover.

$$\text{Ş.Y.Ö} = \text{MDM} + \text{A} + \text{C} + \text{B} + 100\text{mm}$$

Shown as (Figure-8)

- The dimensions given above are minimum values.
- All measures are given in mm.

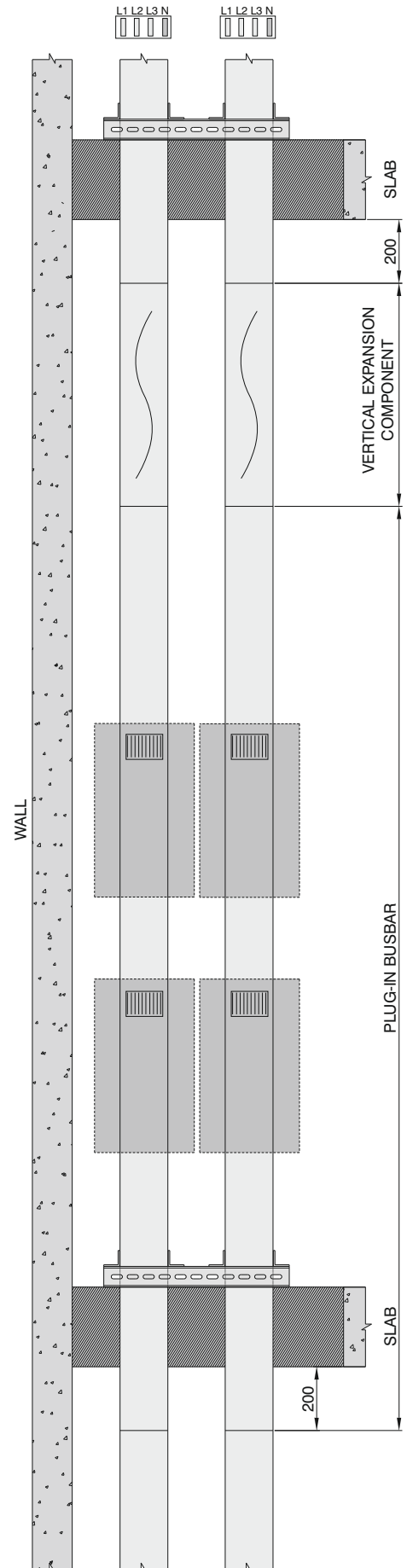
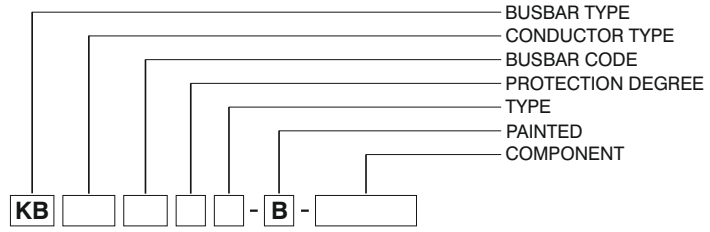


FIGURE-9 MINIMUM DIMENSIONS BETWEEN 2 RISERS

►► Feeder Boxes (B10,B11)

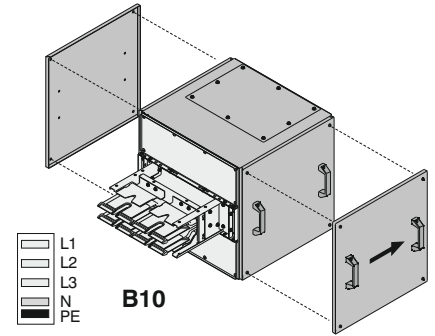


Cable Gland Plates

Busbar Housing Type	Cable Gland Plate	Type
		1
		2
		3
		4

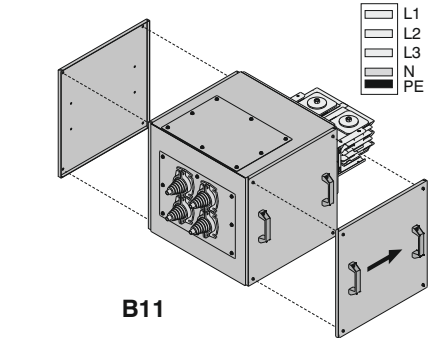
Feeder Box - B 1 0

Sample Order:
3050 A, Aluminium, Bolt-on
KBA 2750 - B10



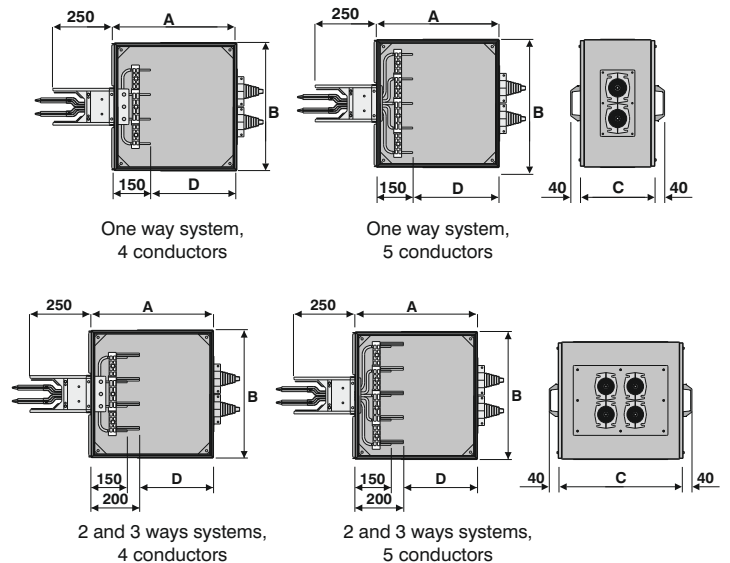
Feeder Box B11 - B 1 1

Sample Order:
3600 A, Copper, Bolt-on
KBC-II-3650 - B11



Ampere Ratings

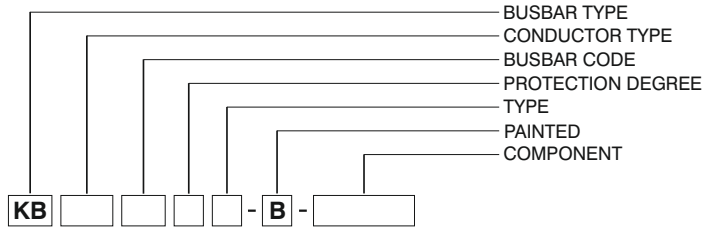
KBA		KBC-II		A	B	C	D	Gland Type
Aluminium (Al)	Copper (Cu)	Rated Current	Busbar Code					
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	(mm)	(mm)	
-----	---	1000	10	500	520	355	350	1
800	08	1250	12	500	520	355	350	1
1000	10	1600	16	500	520	355	350	1
1250	12	2000	20	500	520	355	350	1
1600	13	2250	23	500	520	355	350	1
1600	16	2500	25	500	520	555	300	2
2000	20	3000	30	500	520	555	300	2
2500	25	3600	36	500	520	555	300	2
3200	27	4250	42	500	520	555	300	2
3100	30	4400	44	700	520	770	500	3
4000	40	5300	53	700	520	770	500	3
4250	41	6300	63	700	520	770	500	3
5000	50	-----	---	700	520	955	500	4



The dimensions given above are minimum values.

Please call us for special applications or for applications with MCCB's

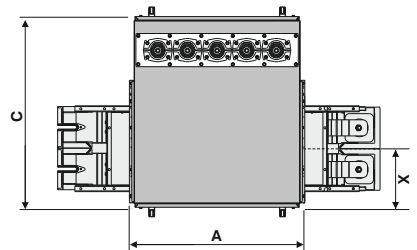
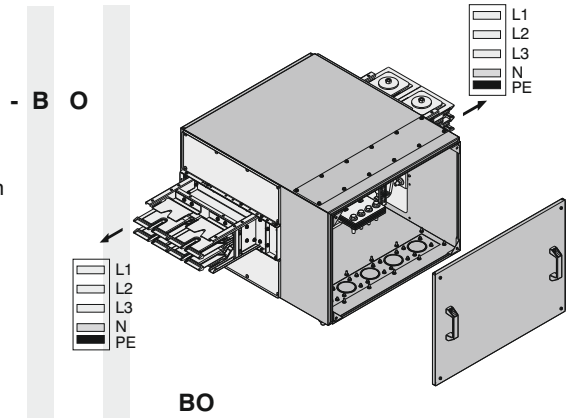
►► Feeder Boxes (Central Feeder Box BO)



Cable Gland Plates

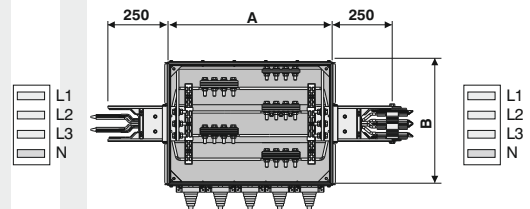
Busbar Housing Type	Cable Gland Plate	Type
		5
		6
		7
		8

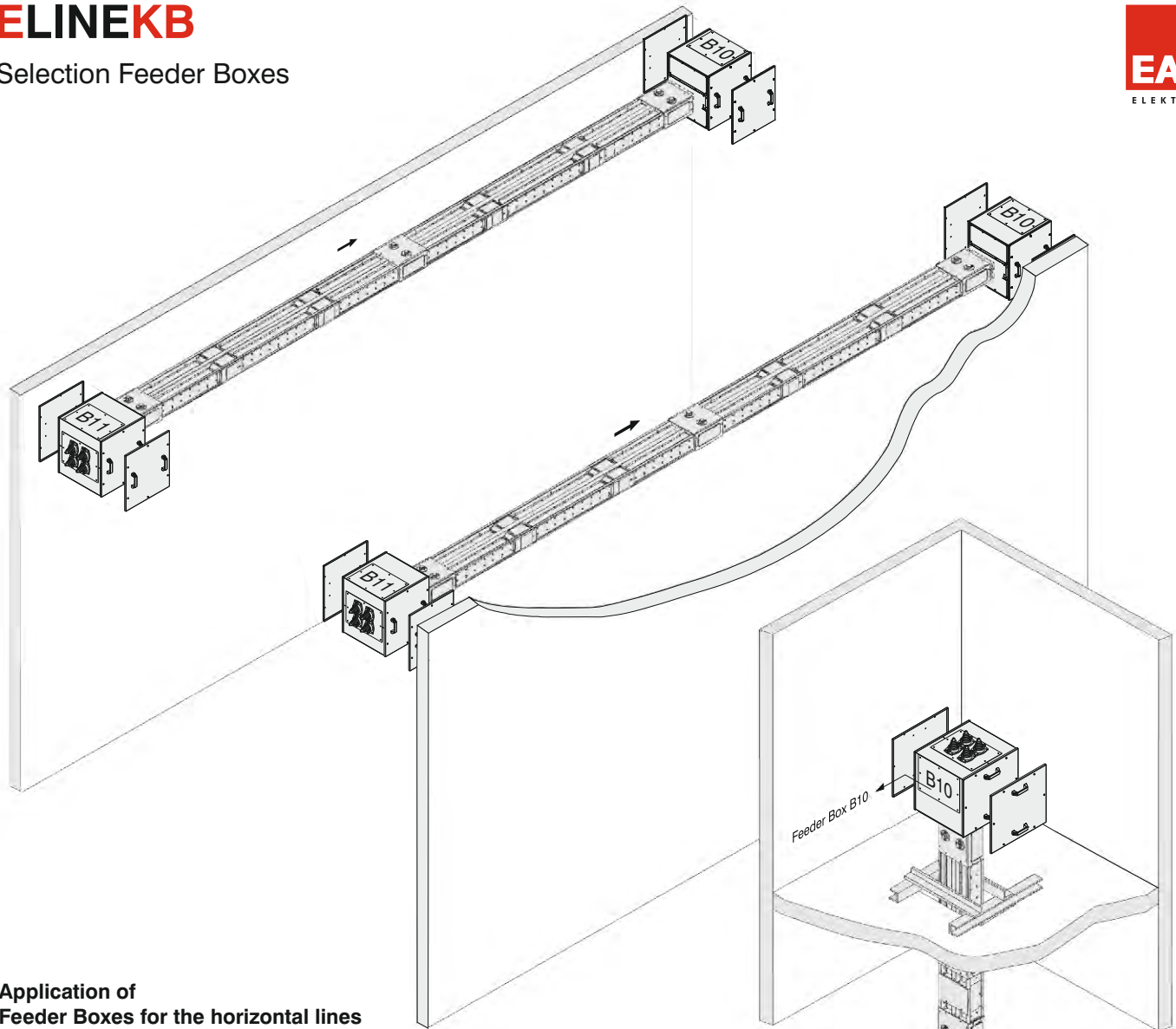
Central Feeder Box BO
Sample Order:
2500 A, Aluminium, Bolt-on
KBA 2550 - BO



Ampere Ratings

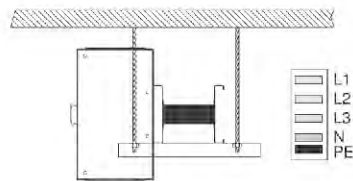
KBA		KBC-II		A	B	C	X	Gland Type
Aluminium (Al)		Copper (Cu)						
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	(mm)	(mm)	
-----	---	1000	10	500	520	405	130	5
800	08	1250	12	500	520	405	130	5
1000	10	1600	16	500	520	405	141	5
1250	12	2000	20	500	520	405	156	5
1600	13	2250	23	500	520	405	172	5
1600	16	2500	25	700	520	805	192	6
2000	20	3000	30	700	520	805	217	6
2500	25	3600	36	700	520	805	247	6
3200	27	4250	42	700	520	805	277	6
3100	30	4400	44	700	520	1005	295	7
4000	40	5300	53	700	520	1005	340	7
4250	41	6300	63	700	520	1005	385	7
5000	50	-----	---	700	700	1160	430	8





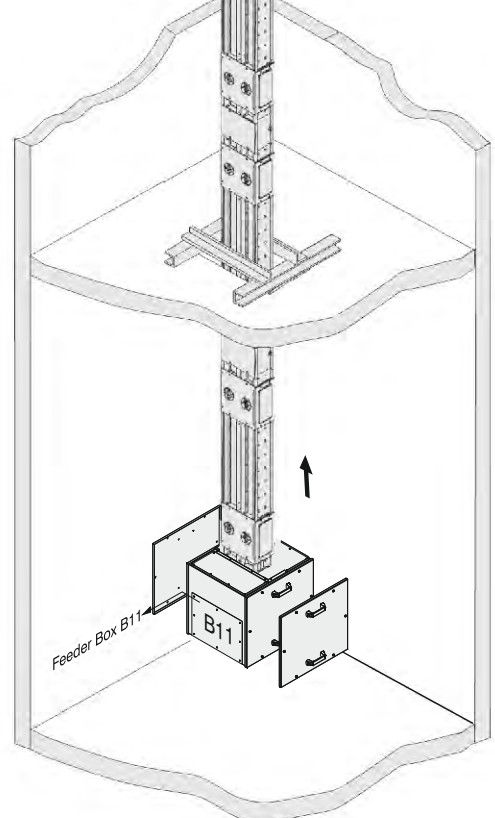
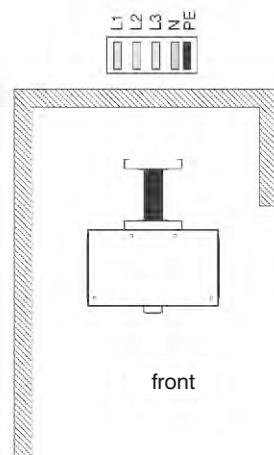
Application of Feeder Boxes for the horizontal lines

In horizontal applications neutral conductor is considered to be lower conductor.

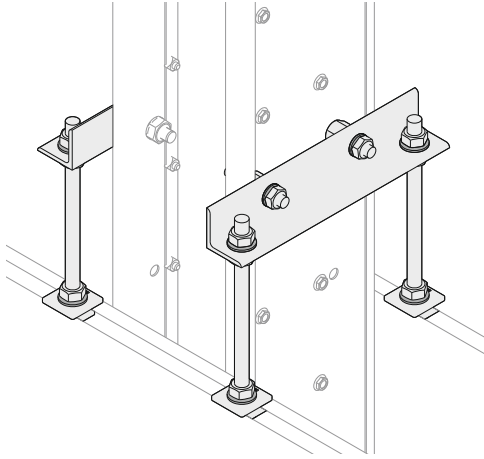


Application of Feeder Boxes for the vertical lines

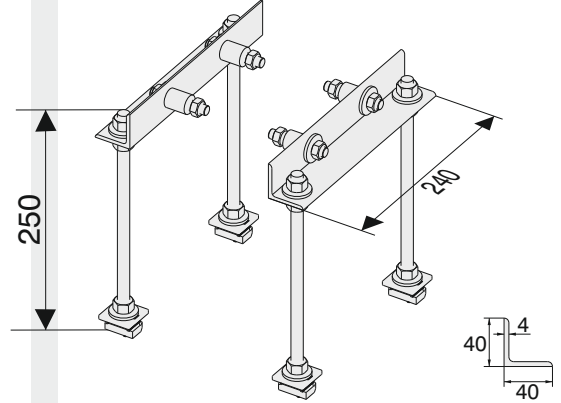
In vertical applications the neutral conductor should be on the right side.



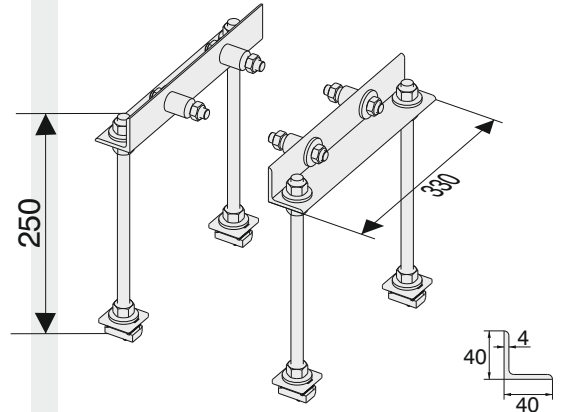
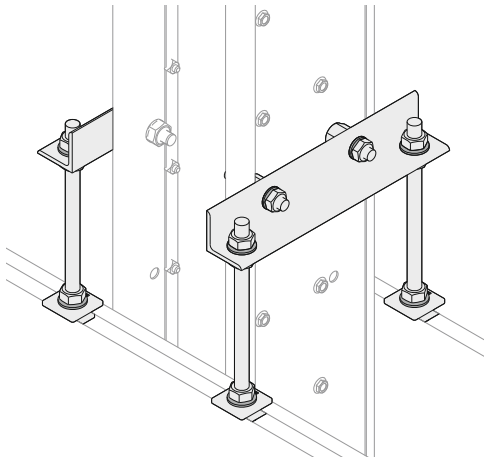
Supports



Description	Order Code
KB Vertical Riser Fixing Unit	3048708



Description	Order Code
KB Vertical Riser Fixing Unit (Fire Barrier)	3048709



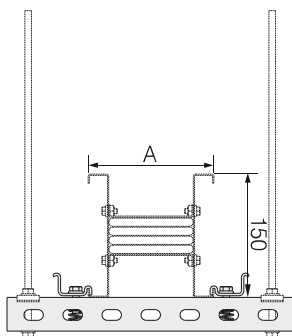
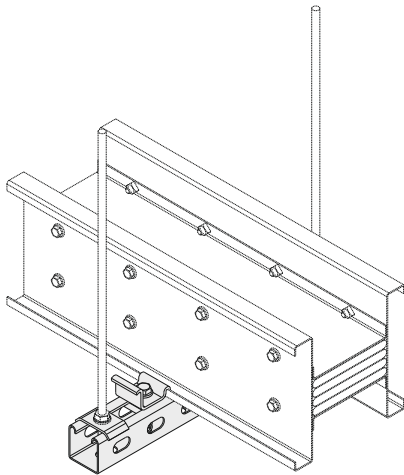
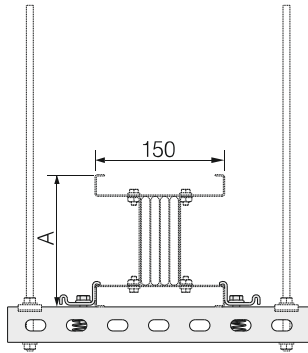
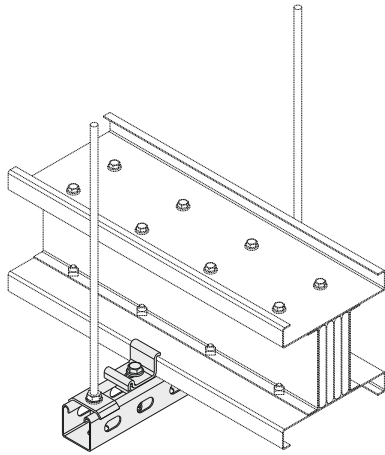
FIXING ELEMENTS



Description	Order Code
KB Fixing Clamp for Binrak Channel	2011227

Description	Order Code
KB Fixing Clamp for Steel Angle Profile	2011226

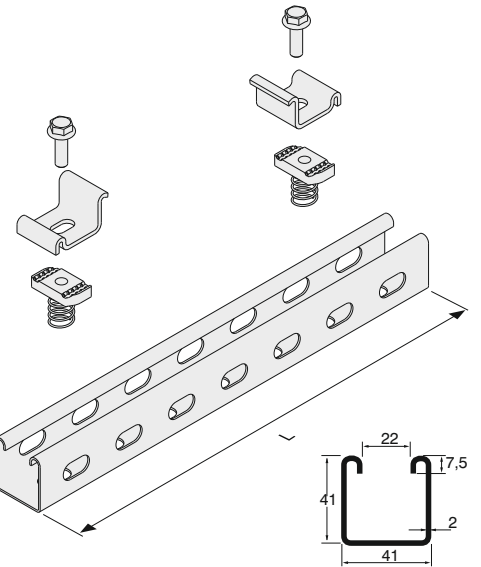
Please call us for non-standard components.



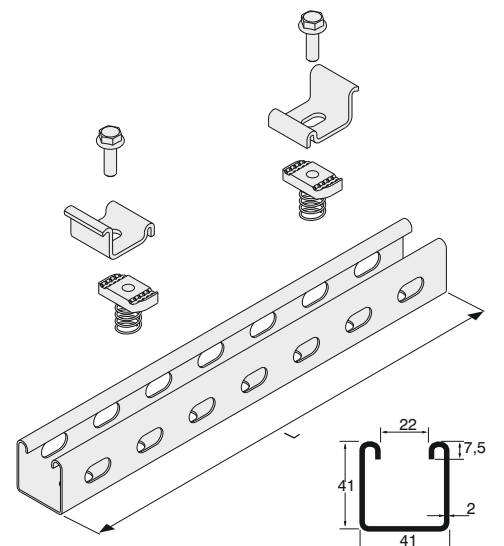
Supports KB - BRA HANGER SET FOR EDGEWISE APPLICATION TO BINRAK CHANNEL

KB - BRA HANGER SET FOR FLATWISE APPLICATION TO BINRAK CHANNEL

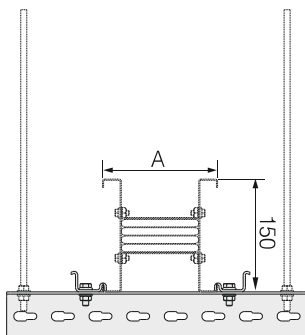
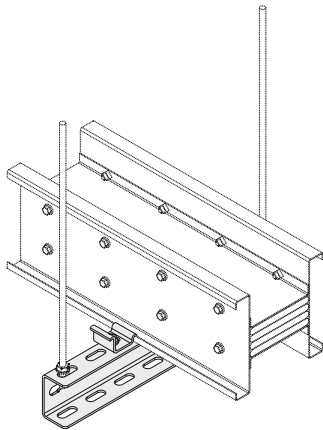
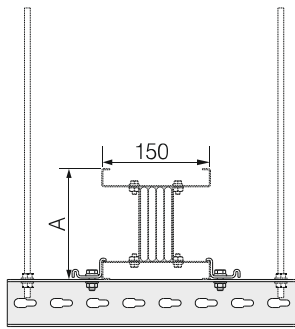
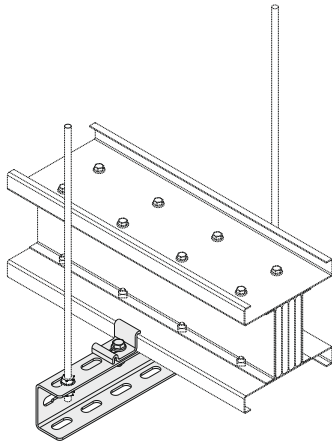
Al Conductor		Cu Conductor		L	A	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	
-----	---	1000	10	350	130	3025373
800	08	1250	12	350	130	3025373
1000	10	1600	16	350	155	3025373
1250	12	2000	20	350	185	3025373
1600	13	2250	23	350	215	3025373



Al Conductor		Cu Conductor		L	A	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	
-----	---	1000	10	350	130	3025373
800	08	1250	12	350	130	3025373
1000	10	1600	16	350	155	3025373
1250	12	2000	20	400	185	3025374
1600	13	2250	23	450	215	3025375



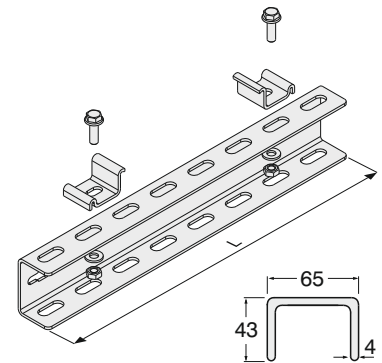
Please call us for non-standard components.



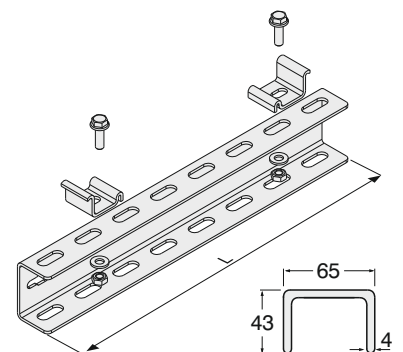
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KB - UT HANGER SET FOR FLATWISE APPLICATION TO NPU CHANNEL

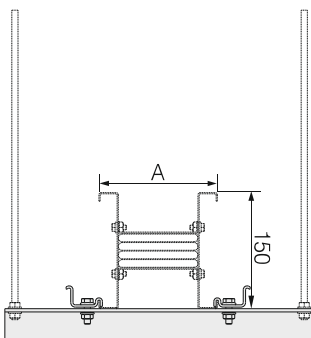
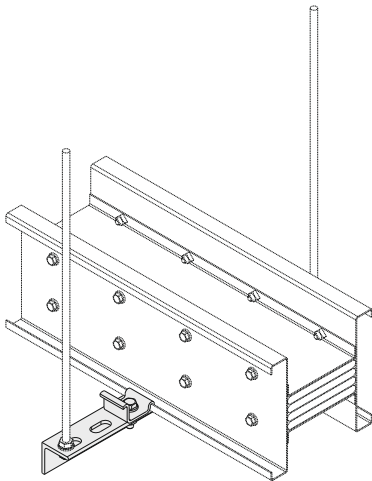
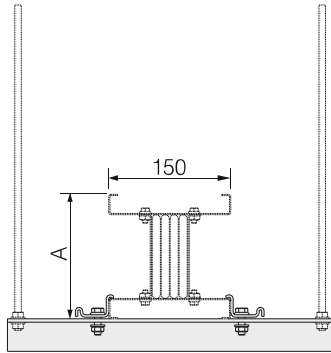
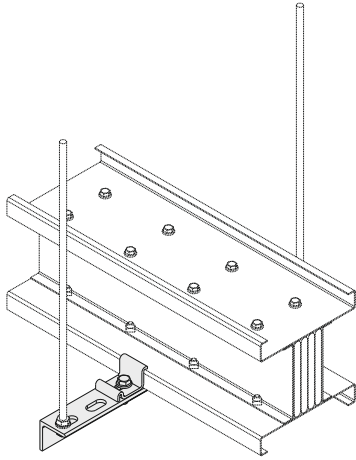
Al Conductor		Cu Conductor		L (mm)	A (mm)	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code			
-----	---	1000	10	350	130	3025348
800	08	1250	12	350	130	3025348
1000	10	1600	16	350	155	3025348
1250	12	2000	20	350	185	3025348
1600	13	2250	23	350	215	3025348
1600	16	2500	25	350	250	3025348
2000	20	3000	30	350	300	3025348
2500	25	3600	36	350	360	3025348
3200	27	4250	42	350	420	3025348
3100	30	4400	44	350	445	3025348
4000	40	5300	53	350	535	3025348
4250	41	6300	63	350	625	3025348
5000	50	-----	---	350	710	3025348



Al Conductor		Cu Conductor		L (mm)	A (mm)	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code			
-----	---	1000	10	350	130	3025348
800	08	1250	12	350	130	3025348
1000	10	1600	16	350	155	3025348
1250	12	2000	20	400	185	3025349
1600	13	2250	23	450	215	3025350
1600	16	2500	25	450	250	3025350
2000	20	3000	30	500	300	3025351
2500	25	3600	36	550	360	3025352
3200	27	4250	42	600	420	3025353
3100	30	4400	44	650	445	3025356
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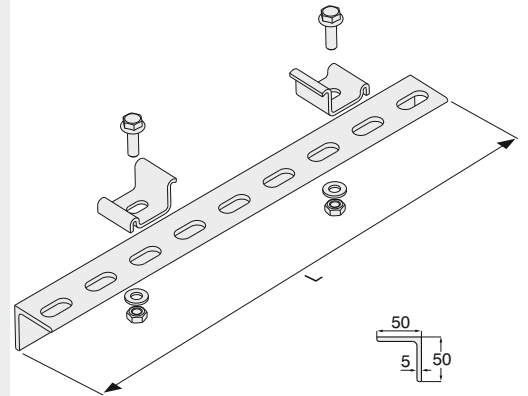


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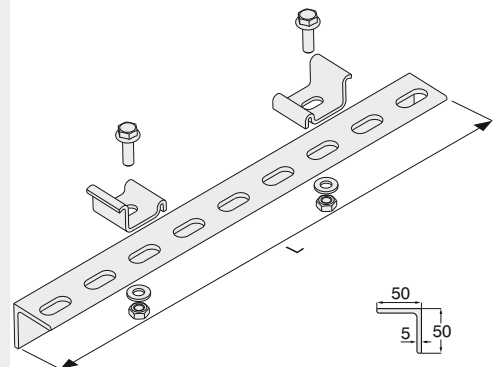
**Supports
KB HANGER SET FOR
EDGEWISE APPLICATION
TO STEEL ANGLE
PROFILE**

Al Conductor		Cu Conductor		L	A	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	
-----	---	1000	10	350	130	3025344
800	08	1250	12	350	130	3025344
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1250	12	2000	20	350	185	3025344
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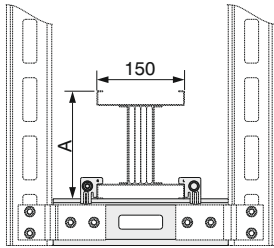
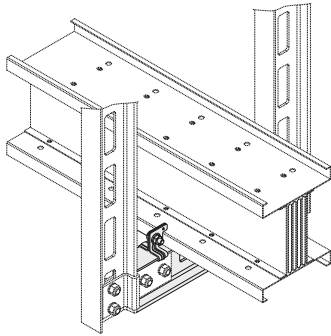
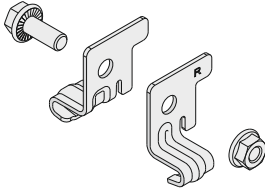
**KB HANGER SET FOR
FLATWISE APPLICATION
TO STEEL ANGLE
PROFILE**

Al Conductor		Cu Conductor		L	A	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code	(mm)	(mm)	
-----	---	1000	10	350	130	3025344
800	08	1250	12	350	130	3025344
1000	10	1600	16	350	155	3025344
1250	12	2000	20	400	185	3025345
1600	13	2250	23	450	215	3025346

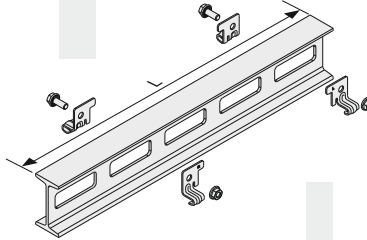


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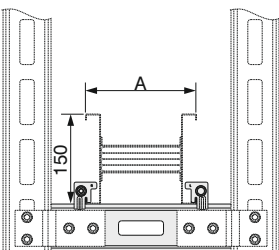
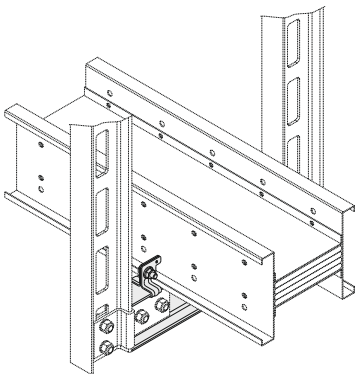
Supports



**KB - IDY TWO-WAY
FOR EDGEWISE
APPLICATION
TO NPI CHANNEL**



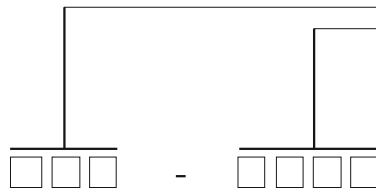
**KB - IDY TWO-WAY
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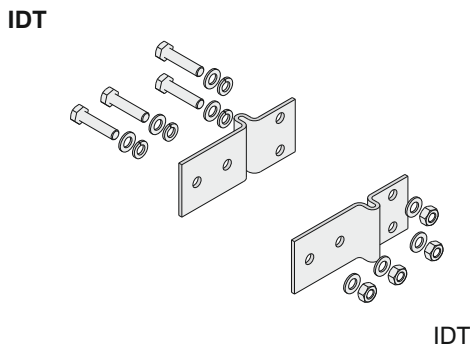
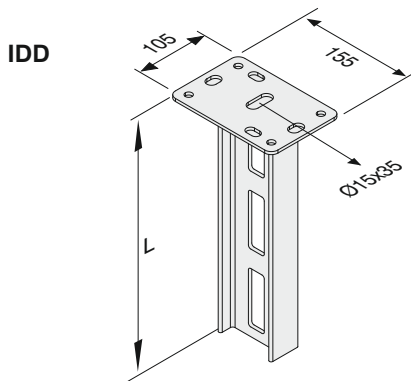
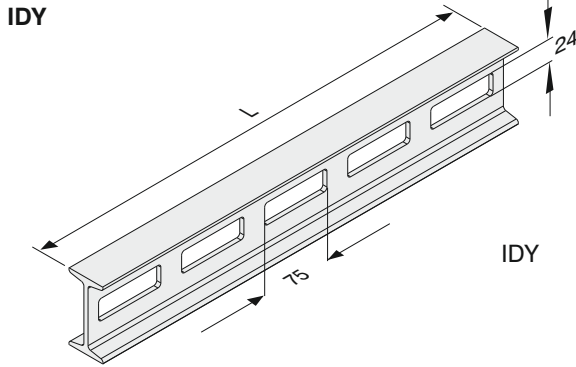
Description	Code
KB IDY Support Set	2054590

Al Conductor		Cu Conductor		L (mm)	A (mm)	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code			
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1000	10	1600	16		155	
1250	12	2000	20		185	
1600	13	2250	23		215	
1600	16	2500	25		250	
2000	20	3000	30		300	
2500	25	3600	36		360	
3200	27	4250	42		420	
3100	30	4400	44		445	
4000	40	5300	53	535		
4250	41	6300	63	625		
5000	50	-----	---	710		

Al Conductor		Cu Conductor		L (mm)	A (mm)	Order Code
Rated Current	Busbar Code	Rated Current	Busbar Code			
-----	---	1000	10	300	130	3113547
800	08	1250	12		130	
1000	10	1600	16		155	
1250	12	2000	20		185	
1600	13	2250	23	400	215	3113548
1600	16	2500	25		250	
2000	20	3000	30	500	300	3113549
2500	25	3600	36		360	
3200	27	4250	42	600	420	3113550
3100	30	4400	44		445	
4000	40	5300	53	700	535	3113551
4250	41	6300	63	800	625	3113552
5000	50	-----	---	900	710	3113553



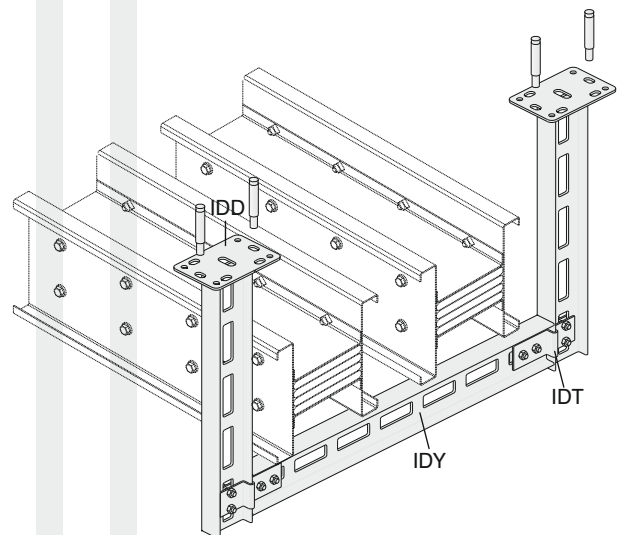
Supports



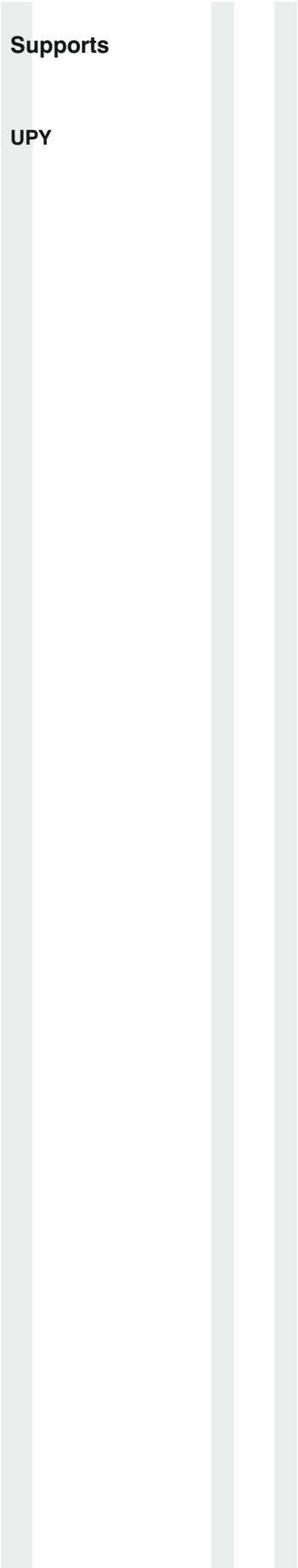
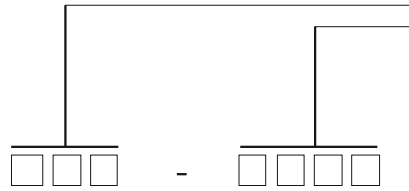
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IDY 500	500	3008289
IDY 600	600	3008288
IDY 700	700	3008287
IDY 800	800	3008286
IDY 900	900	3008285
IDY 1000	1000	3008284
IDY 1100	1100	3008283
IDY 1200	1200	3008282
IDY 1300	1300	3008236
IDY 1400	1400	3008281
IDY 1500	1500	3008280
IDY 1600	1600	3008241
IDY 1700	1700	3008240
IDY 1800	1800	3008239
IDY 1900	1900	3008238
IDY 2000	2000	3008237

IDD 300	300	3008314
IDD 400	400	3008313
IDD 500	500	3008312
IDD 600	600	3008311
IDD 700	700	3008310
IDD 800	800	3008309
IDD 900	900	3008308
IDD 1000	1000	3008307
IDD 1100	1100	3008306
IDD 1200	1200	3008305
IDD 1300	1300	3008304
IDD 1400	1400	3008303
IDD 1500	1500	3008302
IDD 1600	1600	3008301
IDD 1700	1700	3008300
IDD 1800	1800	3008299
IDD 1900	1900	3008298
IDD 2000	2000	3008297

IDT Fixing Element	-	3008279
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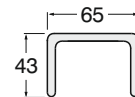
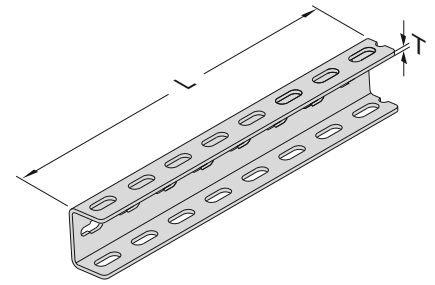
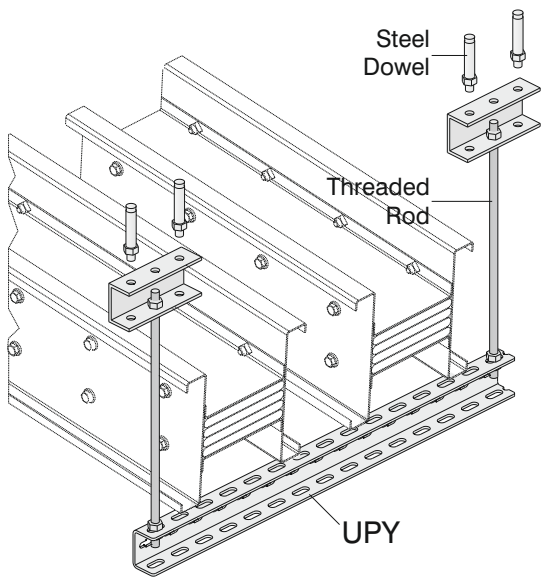


Please call us for non-standard components.

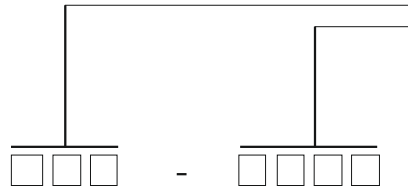


Supports

UPY

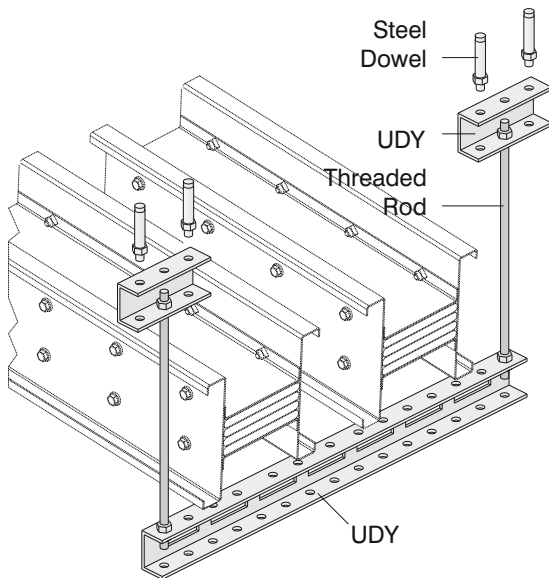
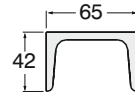
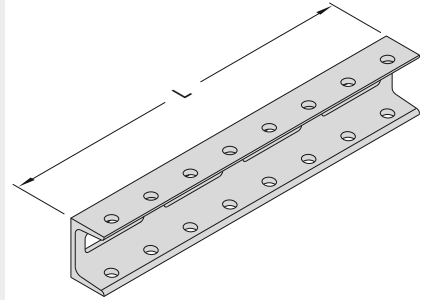
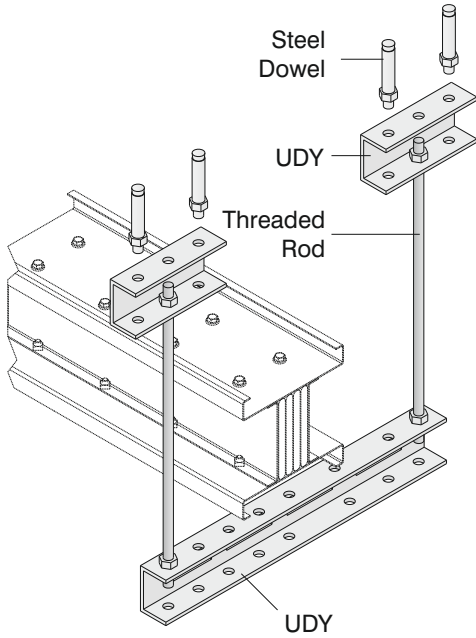


Description	T (mm)	L (mm)	Code
UPY 300	4	300	3004487
UPY 400	4	400	3004489
UPY 500	4	500	3004491
UPY 600	4	600	3004493
UPY 700	4	700	3004495
UPY 800	4	800	3004496
UPY 900	4	900	3004497
UPY 1000	4	1000	3004498
UPY 1100	4	1100	3004499
UPY 1200	4	1200	3004500
UPY 1500	4	1500	3004503



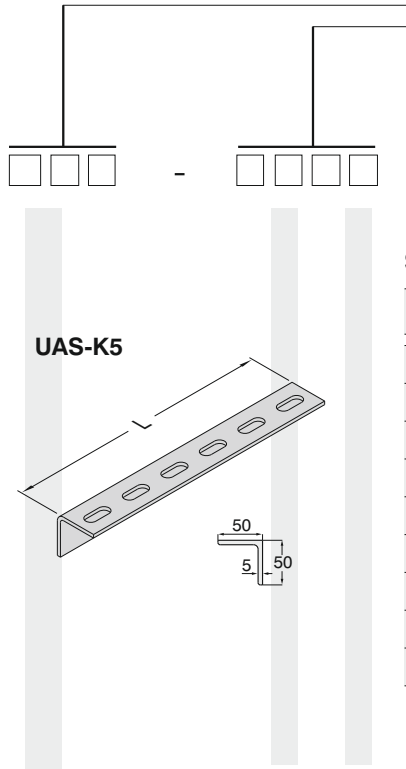
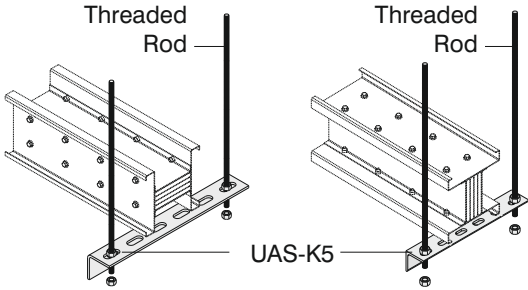
Supports

UDY



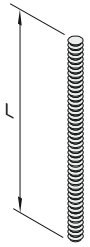
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UDY 400	400	3008024
UDY 500	500	3008025
UDY 600	600	3008026
UDY 700	700	3008027
UDY 800	800	3008028
UDY 900	900	3008029
UDY 1000	1000	3008030
UDY 1100	1100	3008031
UDY 1200	1200	3008032
UDY 1300	1300	3008033
UDY 1400	1400	3008034
UDY 1500	1500	3008035
UDY 1600	1600	3008036
UDY 1700	1700	3008037
UDY 1800	1800	3008038
UDY 1900	1900	3008039
UDY 2000	2000	3008040

Please call us for non-standard components.



Supports

Description	L (mm)	Code
UAS-K5 SUPPORT (1)	200	3005324
UAS-K5 SUPPORT (2)	250	3005323
UAS-K5 SUPPORT (3)	300	3005322
UAS-K5 SUPPORT (4)	350	3005321
UAS-K5 SUPPORT (5)	400	3005320
UAS-K5 SUPPORT (6)	500	3005319
UAS-K5 SUPPORT (7)	600	3005318
UAS-K5 SUPPORT (8)	700	3005317
UAS-K5 SUPPORT (9)	1100	3005316



Threaded Rod



Extension Unit



Steel Dowel

Diameter of the hole to be drilled
M10.....Ø14
M12.....Ø16



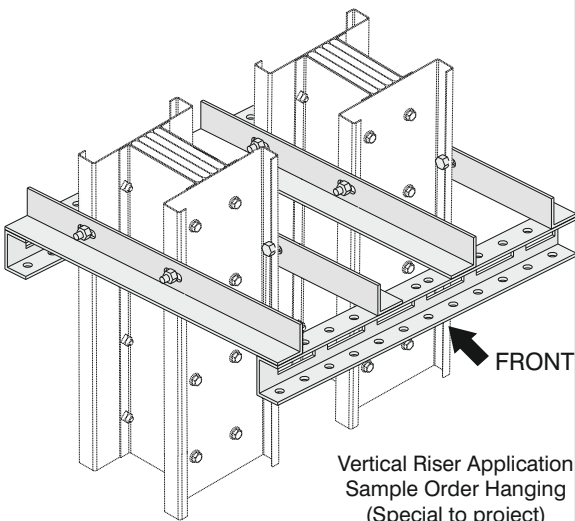
Steel Nut



Washer

Connection Units

Description	L (mm)	Code
BRA 12-05 Threaded Rod (M10)	500	5000037
BRA 12-10 Threaded Rod (M10)	1000	5000032
BRA 14-05 Threaded Rod (M12)	500	5000026
BRA 14-10 Threaded Rod (M12)	1000	5000034
BRA 13 Extension Unit (M10)	-	1004312
BRA 13 Extension Unit (M12)	-	1004282
BRA 9 Steel Dowel (M10)	-	5000023
BRA 9 Steel Dowel (M12)	-	5000022
M10 Steel Nut	-	1000522
M12 Steel Nut	-	1000964
M10 Washer	-	1000504
M12 Washer	-	1000505



Proje ve shaft ölçülerinize göre size özel shaft askısı tasarlanmaktadır.

CE DECLARATION OF CONFORMITY

Product Group E-Line KB Busbar Energy Distribution System

Manufacturer EAE Elektrik Asansor End. Insaat San. ve Tic. A.S.
Akcaburgaz Mahallesi, 3114. Sokak,
No:10 34510 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 :**EN 61439-6**

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

IEC 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"

2011/65/EU "Restriction of the use of certain hazardous substances (RoHS)"

Date

11.10.2016

EAE Elektrik A.S.**EAE Elektrik Asansor End. Insaat San. ve Tic. A.S.**

Akcaburgaz Mahallesi, 3114. Sokak, No:10 34510 Esenyurt-Istanbul
Tel: +90 (212) 866 20 00 Fax: +90 (212) 886 24 20 <http://www.eae.com.tr>

800A...6300A COMPACT BUSBAR PRODUCT OVERVIEW (E-LINE KB)

1- Standards & Certification:

- Busbar systems shall be designed and manufactured as per international IEC 61439-6 standards . Each busbar rating shall have a separate type test certificate from an independent internationally accredited laboratory.
- Busbar system shall have CE marking.
- The manufacturer of busbar system shall have ISO 9001 quality management system and ISO 14001 environment management system certification.
- The manufacturer shall have some major references which are since at least 15 years.
- Each product shall have a "Type Label" including coding system, which identifies the brand, type of the unit, number of conductors and electrical details. The same coding shall be on the related certificate and catalogue.

2- General Structure of Products

- Busbar systems should have low impedance and compact structure which means no air gap shall exist between isolated tin plated conductors.

2.1- Electrical Characteristics

- Busbar systems nominal insulation voltage shall be 1000 V
 - Rated short-time withstand current (I_{sw}) values for the busbars should be as given following;
 - When ambient temperature is max. 40°C iken, max temperature rising should be 95 K for tin plated Al or Cu conductors.
- | | For Al conductors; | | For Cu conductors; |
|----------------------|-------------------------------|-----------------|-------------------------------|
| 800A | :1 s. value 50kA, peak 105kA | 1000A | :1 s. value 50kA, peak 105kA |
| 1000A | :1 s. value 50kA, peak 105kA | 1250A | :1 s. value 50kA, peak 105kA |
| 1250A | :1 s. value 50kA, peak 105kA | 1600-2000-2250A | :1 s. value 50kA, peak 105kA |
| 1600A | :1 s. value 50kA, peak 105kA | 2500-3000A | :1 s. value 100kA, peak 220kA |
| 1600-2000-2500-3200A | :1 s. value 100kA, peak 220kA | 3600A | :1 s. value 100kA, peak 220kA |
| 3100A | :1 s. value 120kA, peak 264kA | 4250A | :1 s. value 100kA, peak 220kA |
| 4000-4250-5000A | :1 s. value 120kA, peak 264kA | 4400A and above | :1 s. value 120kA, peak 264kA |

2.2- Housing

- Busbar system shall have "Sandwich-Compact" structure as defined above
- 2 or 3 ways busbars should be connected as one piece enclosure .
- Housing shall be 1,50 mm galvanized steel . If required housing shall be RAL7038-Electrostatic painted.
- Busbar system shall have all necessary accessories (elbows, offsets, panel-transformer connections, reductions, end closers). Manufacturer shall supply special dimensioned units in short time, if the project conditions requires.
- For horizontal runs, a horizontal expansion unit shall be used at every 40m and expansion points of the building.
- For vertical applications, a vertical expansion unit shall be used at every floor.

2.3- Conductors and Phase Configuration

- Compact busbar system shall have aluminium conductors between 800A – 5000A.
- Compact busbar system shall have copper conductors between 1000A – 6300A
- Compact busbar system shall have the following number of conductors and wire configuration;
- 4 Conductors : (4 full size conductors + PE (housing)).
- 4 ½ Conductors: (4 full size conductors + PE (50% earth conductor + housing)),
- 5 Conductors : (5 full size conductors + PE (100% earth conductor + housing)),
- Phase conductors and neutral conductor shall have the same cross-section and they shall be insulated.
- Al conductors shall be continuously nickel and tin plated and have EC Grade.
- Cu conductors shall be continuously tin plated and electrolytic copper.

2.4- Insulation

- There shall be 2 layers PP (Polypropylene) and 2 layers of "B class" polyester film (Mylar) between neighbour conductors.

2.5- Joint Structure

- Busbars modules shall be installed by tightening the "one bolt joint" which consists of main bolt , insulators, Belleville spring washers on both ends of the bolt and square washers ensuring a more secure and reliable joint.
- At the joints, the conductors shall be overlapped to ensure direct electrical and mechanical contact.
- The bolt shall be locked after tightening.

2.6- Protection Degree

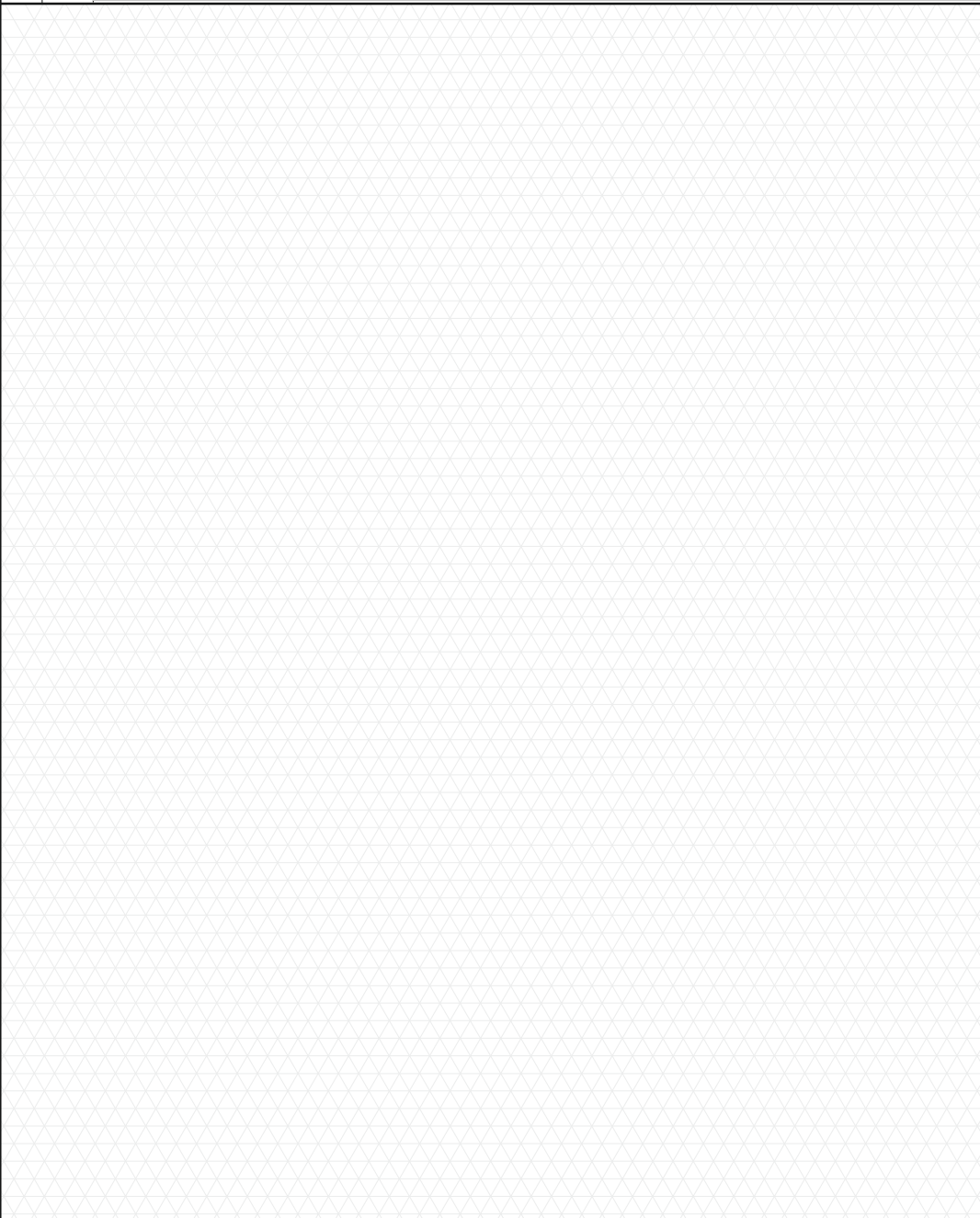
- Protection degree of Busbars shall be IP55.

3- Tap-off Boxes

- Both, Feeder and Plug-in busbar systems shall be suitable for bolt-on type tap off box connections at the joints up to 1.000A
- Bolt-on tap off boxes shall be installed to the joints without changing or adding any piece.
- Plug-in type busbars should be used for risers and the lines which requires high number of outlets by considering project conditions. Tap-off boxes up to 630A can be mounted to plug-in busbars. Plug-in tap off boxes shall be suitable to install or removed from busbars without switching off the power on the busbar. Plug-In busbars shall have minimum 2 plug-in points on each 300cm length. Unused plug-in points shall have covers, which can provide IP55 protection degree.
- Contact areas should be tin plated for plug-in tap-off boxes and tin plated for bolt-on tap-off boxes.
- Tap-off boxes should be manufactured of steel sheet and epoxy painted RAL 3020.
- Plug-in tap off boxes shall have following mechanical and electrical safety conditions.
- Electromechanical interlock mechanism shall ensure that the tap off box cannot be removed mechanically from the busbar, when the switch is at "ON" position. Electromechanical interlock mechanism shall ensure that, cover of the box can be opened only, when the switch is at "OFF" position. When the cover is opened, inside protection degree shall be minimum IP2X against accessing to live conductors. While inserting the contacts of plug-in tap off box, earth contact shall make the first touch. While removing, it shall be disconnected last.
- Tap-off boxes should be equipped with SYK or MCCB which prevent opening the door under load.

4- Installation and Commissioning

- Busbar systems shall be installed as per Single-Line drawings respect to required ampere rates and manufacturer installation guide (torque values, lockers, etc.). Manufacturer installation manual should be followed during installation. All joints should be tighten by adjusted torque wrench.
- Electrical installer shall run an insulation test after installation according to manufacturers test procedures. The results of the test shall be reported to the manufacturer. Minimum insulation value shall be 1 Mohm.


Component List	Quantity	Component	Item
			Company :
			Project :
			Project No :
			Prepared by
			Name :
			Date :
			Signature :

Please duplicate this page for your own use.

Component List	Item	Component	Quantity
Please duplicate this page for your own use.			

Company :
Project :
Project No :

Prepared by
Name :
Date :
Signature :



PRODUCT TYPES



BUSBAR ENERGY DISTRIBUTION SYSTEMS



CABLE TRAYS



TROLLEY BUSBAR ENERGY DISTRIBUTION SYSTEMS



INDOOR SOLUTIONS



SUPPORT SYSTEMS

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