APPLICATIONS
FOR ELECTROTECHNICS

Product catalogue
ETS INSULATION

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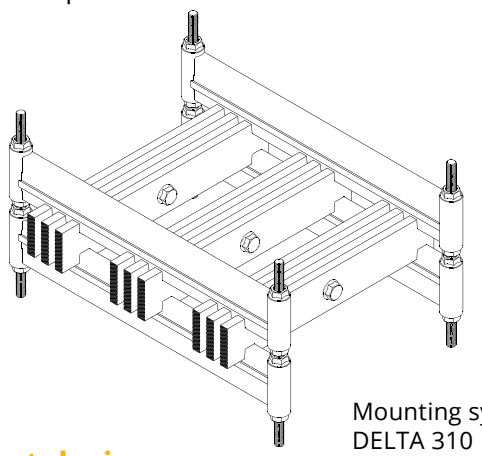
Bus-bar supports

DELTA

DELTA 110 • DELTA 210 • DELTA 310

The system is designed for setting up bus-bar systems with rated currents up to 5 000 A and short-circuit withstand up to 200 kA.



Mounting system
DELTA 310

Technical data of the productu

Phase spacing	120 mm
Permitted tensile load	20 kN
Support system weight	1500 g
Critical tensile load	40 kN
Operating voltage	1000 V
External breakdown voltage	20 kV
Operating temperature	-40 ˚C až +130 ˚C
Flammability rating	UL 94-VO
Permitted bending load	0,6 kN
Product colour	RAL 7032 grey

Product design

The body of the DELTA bus-bar support is made of highly resistant plastic based on polyester composites reinforced with glass fiber. The rigid support enables perfect fixing of vertically oriented 10-mm copper or aluminum conductors with a spacing of 120 mm. The supports are tightened and fastened to the structure using two metal bolts with M10 thread. The bus-bar support DELTA is manufactured in a three-groove design for three conductors in a phase with the type designation DELTA 310, and in a two-groove and a single-groove design with the type designation DELTA 210 and DELTA 110. The product is characterized by its high mechanical, electrical and thermal strength.

Product installation

The density and arrangement of the DELTA bus-bar supports should be such that the static bending load on the support caused by the weight of the system as well as the dynamic tensile load caused by the short-circuit current do not exceed the permitted load limits. In order to facilitate and simplify the design of the structure, the recommended density of the bus-bar supports to be installed is provided in the annex with the determination of the spacing (X). This value respects the mechanical properties of the entire system under static and dynamic load. These values are valid provided that the following basic quality features are respected by the manufacturer when installing the product:

1. Bus-bar supports are installed at a spacing that does not exceed the recommended maximum value (X). They are firmly connected to the structure of the distribution system so that the short-circuit dynamic load does not cause the axis of the system to deviate from its direction and exceed the permissible dynamic tensile load.
2. Particularly in the case of two- and three-wire systems with higher weight, make sure that the weight is evenly distributed on the individual supports. In these cases, we recommend installing at least a pair of supports in the individual assembly bays. Use the area in the dividing plane between the assemblies with advantage to install the mounting couplings. When the mounting couplings of the bus-bar system are disconnected during transport or installation, the static load ratios of the bus-bar supports will not change.
3. In horizontally oriented systems, the metal bolts of the supports are stressed by tensile or compression load; in vertically oriented systems, excessive bending load of the metal bolts should be eliminated.
4. When installing two or more conductors in a phase, it is recommended to combine conductors into bundles by connecting the phase conductors with screws, usually at 1/2 the distance (X) between the supports. The mechanical connection of the phase conductors by means of a terminal block consisting of a steel bolt limits the repulsive forces between the conductors during a short circuit and significantly affects the mechanical strength of the bus-bar system.
5. When using aluminum conductors, we recommend to combine conductors into bundles as a prerequisite for a high-quality structure.

Declaration of Conformity

DELTA Series bus-bar supports conform to the requirements of technical standards and regulations – TP 2002103, ČSN EN 6060243-1/99, ČSN EN 60695-2-11/01. The product is certified by EZÚ, Pod lisem 129, 171 02 Prague 8, Czech Republic.

Table 1 – Determination of the spacing X – the distance between supports (copper conductors, loose conductors, no conductor bundles formed)

Conductor cross-section (mm)	I_{ks} / I_{kdyn} (kA) Number of conductors	10 / 17	20 / 40	30 / 63	40 / 84	50 / 105	60 / 132	70 / 154	80 / 176	90 / 198	100 / 220	110 / 242
		Recommended values of the spacing (X) between DELTA supports in mm										
40 × 10	I	1 000	800	600	500	400	300	250	230	200		
40 × 10	II	1 000	900	550	400	300	250	230	200	180		
40 × 10	III	1 000	900	600	500	400	300	250	230	200		
50 × 10	I	1 000	900	700	500	400	300	250	230	200	180	150
50 × 10	II	1 000	900	650	500	350	300	250	230	200	180	150
50 × 10	III	1 000	900	700	500	400	300	250	230	200	180	150
60 × 10	I	1 000	900	700	600	400	350	300	250	200	180	150
60 × 10	II	1 000	1 000	700	500	400	350	300	250	200	180	150
60 × 10	III	1 000	1 000	850	600	500	400	350	250	200	180	150
80 × 10	I	1 000	900	800	600	500	400	300	250	200	180	150
80 × 10	II	1 000	1 000	800	600	500	400	300	250	200	180	150
80 × 10	III	1 000	1 000	900	700	500	400	350	250	200	180	150
100 × 10	I	1 000	1 000	900	750	500	400	350	250	200	180	150
100 × 10	II	1 000	1 000	1000	800	500	400	350	250	200	180	150
100 × 10	III	1 000	1 000	1000	800	500	400	350	250	200	180	150
120 × 10	I	1 000	1 000	1000	800	500	450	350	250	200	180	150
120 × 10	II	1 000	1 000	1000	800	500	450	350	300	200	200	150
120 × 10	III	1 000	1 000	1000	900	600	500	400	300	250	200	150

Table 2 – Determination of the spacing X – the distance between the supports (copper conductors bundles formed), conductor

Conductor cross-section (mm)	I_{ks} / I_{kdyn} (kA) Number of conductors	10 / 17	20 / 40	30 / 63	40 / 84	50 / 105	60 / 132	70 / 154	80 / 176	90 / 198	100 / 220	110 / 242
		Recommended values of the spacing (X) between DELTA supports in mm										
40 × 10	II	1 000	1 000	700	550	450	350	300	250	200		
40 × 10	III	1 000	1 000	900	700	500	400	300	250	200		
50 × 10	II	1 000	1 000	800	550	500	400	350	250	200	180	150
50 × 10	III	1 000	1 000	900	700	500	400	350	250	200	180	150
60 × 10	II	1 000	1 000	900	700	500	450	350	250	200	180	150
60 × 10	III	1 000	1 000	1 000	800	500	450	350	250	200	180	150
80 × 10	II	1 000	1 000	1 000	800	500	450	400	300	250	180	150
80 × 10	III	1 000	1 000	1 000	800	500	450	400	300	250	200	150
100 × 10	II	1 000	1 000	1 000	1 000	800	500	400	300	250	200	150
100 × 10	III	1 000	1 000	1 000	1 000	800	500	400	300	250	200	150
120 × 10	II	1 000	1 000	1 000	1 000	800	500	400	300	250	200	150
120 × 10	III	1 000	1 000	1 000	1 000	800	500	400	300	250	200	150

Table 3 and 4 – Dimensioning of the conductors in distribution boards – permitted current load (A) – applies to coated and horizontally mounted conductors

Bus-bar temperature 85 ˚C Temperature inside the distribution board 35 ˚C, ON 35 7102						
Conductor material	Copper bus-bars Number of conductors in a phase			Aluminum bus-bars Number of conductors in a phase		
Size	I	II	III	I	II	III
40×10	1055	1790	2640	830	1410	2075
50×10	1275	2170	3060	1020	1730	2450
60×10	1490	2530	3580	1190	2000	2860
80×10	1930	3080	4440	1550	2480	3580
100×10	2330	3730	5125	1880	3000	4140
120×10	2730	4370	5730	2215	3530	4650

Bus-bar temperature 85 ˚C Temperature inside the distribution board 35 ˚C, ON 35 7102						
Conductor material	Copper bus-bars Number of conductors in a phase			Aluminum bus-bars Number of conductors in a phase		
Size	I	II	III	I	II	III
40×10	664	1130	1660	523	890	1310
50×10	800	1365	1925	640	1080	1535
60×10	935	1590	2240	750	1270	1800
80×10	1215	1940	2800	975	1580	2220
100×10	1465	2340	3220	1180	1890	2600
120×10	1710	2720	3600	1400	2240	2940

Table 5 – Determination of the spacing X – the distance between supports (aluminum conductors, loose conductors, no conductor bundles formed)

Conductor cross-section (mm)	I_{ks}	10	20	30	40	50	60	70	80	90
	I_{kdyn} (kA)	17	40	63	84	105	132	154	176	198
	Number of conductors	Recommended values of the spacing (X) between DELTA supports in mm								
40 × 10	I	1 000	800	500	400	300				
40 × 10	II	1 000	550	350	250	200				
40 × 10	III	1 000	650	400	300	250				
50 × 10	I	1 000	800	550	400	330	250			
50 × 10	II	1 000	650	400	300	250	200			
50 × 10	III	1 000	700	500	350	300	230			
60 × 10	I	1 000	900	650	450	350	280	250		
60 × 10	II	1 000	700	500	370	300	230	200		
60 × 10	III	1 000	900	550	400	350	250	230		
80 × 10	I	1 000	900	700	500	400	300	250	230	
80 × 10	II	1 000	900	600	450	300	280	250	220	
80 × 10	III	1 000	1 000	700	500	400	330	280	250	
100 × 10	I	1 000	1 000	800	550	450	350	300	250	200
100 × 10	II	1 000	1 000	700	550	450	350	300	250	200
100 × 10	III	1 000	1 000	800	600	500	400	350	250	200
120 × 10	I	1 000	1 000	800	600	500	400	300	250	200
120 × 10	II	1 000	1 000	800	600	500	350	300	250	200
120 × 10	III	1 000	1 000	900	700	500	400	300	250	200

Table 6 – Determination of the spacing X – the distance between supports (aluminum conductors, conductor bundles formed)

Conductor cross-section (mm)	I_{ks}	10	20	30	40	50	60	70	80	90	100
	I_{kdyn} (kA)	17	40	63	84	105	132	154	176	198	220
	Number of conductors	Recommended values of the spacing (X) between DELTA supports in mm									
40 × 10	II	1 000	900	550	400	300	250	230	200		
40 × 10	III	1 000	900	600	500	350	300	250	230		
50 × 10	II	1 000	900	600	450	350	300	250	225	200	
50 × 10	III	1 000	1 000	700	500	400	300	250	230	200	
60 × 10	II	1 000	1 000	700	500	400	330	250	225	200	180
60 × 10	III	1 000	1 000	800	600	500	400	300	250	200	180
80 × 10	II	1 000	1 000	800	600	500	400	300	250	200	180
80 × 10	III	1 000	1 000	900	600	500	400	350	250	200	180
100 × 10	II	1 000	1 000	900	600	550	450	350	250	200	180
100 × 10	III	1 000	1 000	1 000	800	600	500	400	300	250	200
120 × 10	II	1 000	1 000	1 000	800	600	500	400	300	250	200
120 × 10	III	1 000	1 000	1 000	900	600	500	400	300	250	200

Table 7 – Mounting sizes of the DELTA bus-bar supports

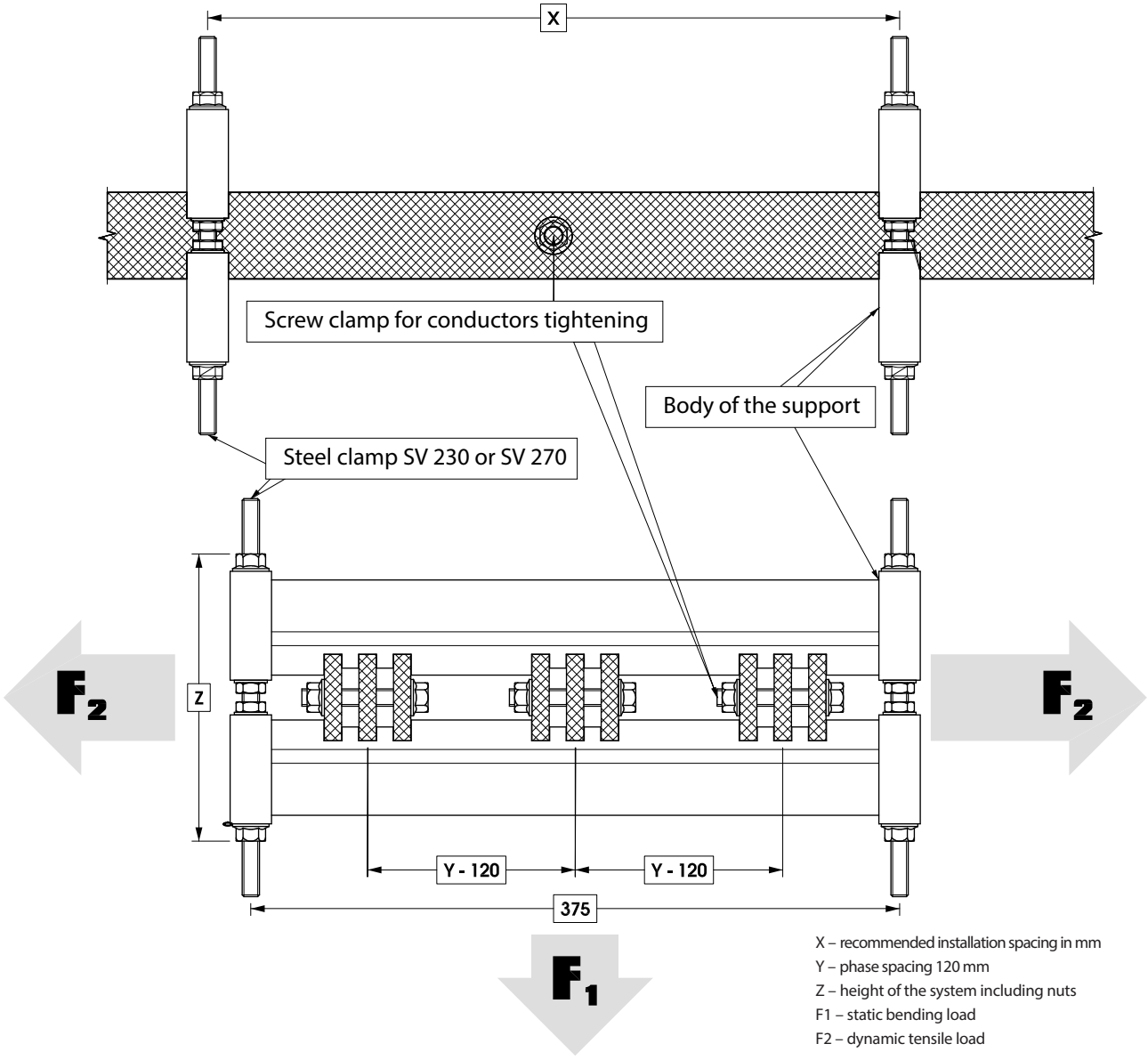
Conductor size (mm)	Z	Recommended support bolt type
40 × 10	160	SV 230
50 × 10	170	SV 230
60 × 10	180	SV 230
80 × 10	200	SV 230
100 × 10	220	SV 230
120 × 10	240	SV 270

The bus-bar support system consists of:
plastic pressing of the support body – 2 pcs, metal bolt SV 230 or SV 270 – 2 pcs, nut M10, washer and elastic washer – 8 pcs

Bus-bar supports

DELTA

DELTA 110 • DELTA 210 • DELTA 310



X – recommended installation spacing in mm
Y – phase spacing 120 mm
Z – height of the system including nuts
F1 – static bending load
F2 – dynamic tensile load

Bus-bar supports

DELTA–Compact

DELTA 110 C • DELTA 210 C • DELTA 305 C

We offer a new highly compact system designed for the installation of bus-bar systems in LV distribution facilities up to 1000 V with rated currents up to 3700 A and short-circuit withstand up to 220 kA.

Properties of the DELTA-C system

- Favorable price
- Good performance
- High operational strength
- Limited number of parts
- Simple and quick installation
- Rigid non-metallic frame
- Fixed phase spacing 100 mm
- Enables installation of 5-mm and 10-mm bus-bars
- The DELTA 305C system saves up to 40% of copper
- Reduced weight and price due to the small size
- Conveniently fits into cabinets with a depth of 400 mm

Technical data of products

Support width	272 mm
Mounting bolts spacing	100 mm
Phase spacing of conductors	100 mm
Permitted tensile load	16 kN
Critical tensile load	22 kN
Support system weight	1 100 g
Rated withstand voltage	12 kV
Rated operating voltage	1 200 V
Operating temperature	-40 ˚C až +130 ˚C
Flammability rating	UL94–V0
Load capacity of the system	80 kg
Nut torque of the products	15 N/m
Coverage	IP 00

Product use and installation

The product is intended for setting up bus-bar systems in LV distribution systems up to 1 000 V. The body of the DELTA-C support is made of highly resistant plastic, and provides the product with mechanical strength up to 130 ˚C. The rigid support enables perfect fixing of vertically oriented 5-mm and 10-mm copper conductors. The supports are tightened and fastened to the structure using two screws M10 with the spacing of 100 mm. The screws pass through a pair of insulating and spacing tubes that determine the clamping of the copper conductors. Their height varies according to the height of the conductors used, and this must therefore be specified in each order. The installation density of the DELTA-C supports is determined by the manufacturer according to the mechanical and short-circuit load of the entire system. The recommended values are provided for each product type in Tables 1–5. For the DELTA 210C and DELTA 305C supports, we recommend to connect the conductors with screws multiple times in each phase to form bundles to reinforce the systems and provide the required short-circuit withstand declared by the manufacturer.

The DELTA 110C support is designed for the use of one conductor in a 10-mm phase, whereas the DELTA 210C support allows the use of two conductors in a 10-mm phase. The DELTA 305C support is designed for mounting one, two or three conductors with thickness of 5 mm. The DELTA 305C support system provides better cooling of the conductors, and thus allows an increase in the current load of the systems by up to 40%. Thus, a reduction in copper conductor weight and production costs can be achieved.

Being only 272 mm in width, the DELTA-Compact system saves space in distribution equipment, and is suitable for installation in cabinets with a depth of 400 mm.

Certificates

The product is certified by EZÚ, Pod lisem 129, 170 08 Prague 8, Czech Republic. Test protocol: 502959-01/01
Certificate number: 1051155
Certification date: 1 December 2005

Declaration of Conformity

The product DELTA–Compact conforms to the requirements of the standards: ČSN EN 60439-2 ed.2:2001 following up the standard ČSN-EN 60439-1 ed.2:2000 + A1:2004 Sections 8.2.2, 8.3.4, 8.2.5., 8.2.13, 8.2.10, ČSN EN 60439-3:1995+A1:1997+A2:2002 Section 8.2.12.

Conformity of the products to the above standards ensures the compliance of the product to the basic requirements of the Czech Governmental Decree No. 17/2003 Coll., as amended.

Bus-bar supports

DELTA–Compact

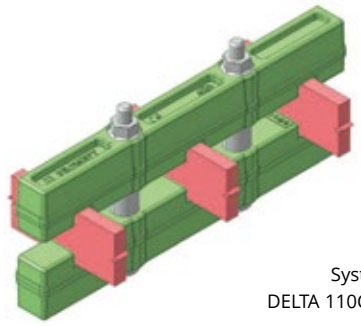
DELTA 110 C • DELTA 210 C • DELTA 305 C

The system is designed for setting up bus-bar systems with a phase spacing of 100 mm.

DELTA 110C – copper conductor 1 x 10 mm

Table 1 – DELTA 110C support spacing according to the required short-circuit withstand

Ic kA ef. 1s	10	20	30	40	50	60	70	80	90	100
Ic kA dyn.	17	40	63	84	105	132	154	176	198	220
1 × 30 × 10	800	700	600	400	300	225	200	175	175	150
1 × 40 × 10	900	800	600	450	350	300	250	200	175	150
1 × 50 × 10	1 000	900	700	500	400	300	250	200	175	150
1 × 60 × 10	1 000	900	700	600	400	350	300	200	175	150
1 × 80 × 10	1 000	900	800	600	500	350	300	200	175	150
1 × 100 × 10	1 000	1 000	900	750	500	350	300	200	175	150
1 × 125 × 10	1 000	1 000	1 000	800	500	350	300	200	175	150

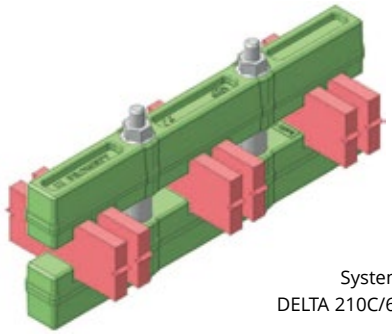


System
DELTA 110C/60

DELTA 210C – copper conductor 2 x 10 mm

Table 2 – DELTA 210C support spacing according to the required short-circuit withstand, conductor bundles formed

Ic kA ef. 1s	10	20	30	40	50	60	70	80	90	100
Ic kA dyn.	17	40	63	84	105	132	154	176	198	220
2 × 30 × 10	1 000	900	700	600	300	250	200	175	175	150
2 × 40 × 10	1 000	900	700	600	350	300	250	200	175	150
2 × 50 × 10	1 000	900	800	600	400	300	300	200	175	150
2 × 60 × 10	1 000	1 000	900	700	450	350	300	200	175	150
2 × 80 × 10	1 000	1 000	900	800	500	350	300	200	175	150
2 × 100 × 10	1 000	1 000	1 000	900	500	350	300	200	175	150
2 × 125 × 10	1 000	1 000	1 000	1 000	500	350	300	200	175	150



System
DELTA 210C/60

Bus-bar supports

DELTA–Compact

DELTA 110 C • DELTA 210 C • DELTA 305 C

The system is designed for setting up bus-bar systems with a phase spacing of 100 mm.

DELTA 305C – copper conductor 1 x 5 mm

Table 3 – DELTA 305C support spacing according to the required short-circuit withstand

Ic kA ef. 1s	10	20	30	40	50	60	70
Ic kA dyn.	17	40	63	84	105	132	154
1 × 30 × 5	700	350	250	200	150	100	100
1 × 40 × 5	800	400	300	225	175	125	125
1 × 50 × 5	900	450	350	275	200	140	125
1 × 60 × 5	1 000	500	400	300	200	140	125
1 × 80 × 5	1 000	550	450	325	225	140	125
1 × 100 × 5	1 000	650	500	375	225	140	125
1 × 125 × 5	1 000	700	550	400	225	140	125

DELTA 305C – copper conductors 2 x 5 mm

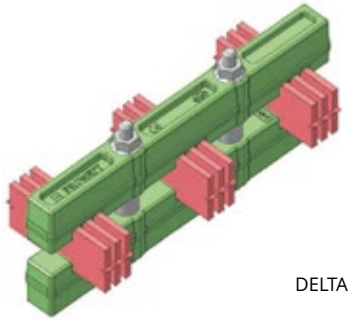
Table 4 – DELTA 305C support spacing according to the required short-circuit withstand, conductor bundles formed

Ic kA ef. 1s	10	20	30	40	50	60	70
Ic kA dyn.	17	40	63	84	105	132	154
2 × 30 × 5	1 000	500	350	250	200	150	150
2 × 40 × 5	1 000	550	450	300	200	200	150
2 × 50 × 5	1 000	600	500	350	250	200	200
2 × 60 × 5	1 000	700	550	400	300	250	200
2 × 80 × 5	1 000	800	600	450	300	250	200
2 × 100 × 5	1 000	900	650	500	300	250	200
2 × 125 × 5	1 000	1 000	700	600	400	300	200

DELTA 305C – copper conductors 3 x 5 mm

Table 5 – DELTA 305C support spacing according to the required short-circuit resistance, conductor bundles formed

Ic kA ef. 1s	10	20	30	40	50	60	70	80	90
Ic kA dyn.	17	40	63	84	105	132	154	176	198
3 × 30 × 5	1 000	600	400	350	250	200	150	150	150
3 × 40 × 5	1 000	700	500	400	300	200	200	150	150
3 × 50 × 5	1 000	800	600	450	300	250	200	200	150
3 × 60 × 5	1 000	900	650	500	350	300	250	250	200
3 × 80 × 5	1 000	1 000	700	550	400	300	300	250	200
3 × 100 × 5	1 000	1 000	800	600	450	350	300	250	200
3 × 125 × 5	1 000	1 000	900	700	500	400	350	250	200

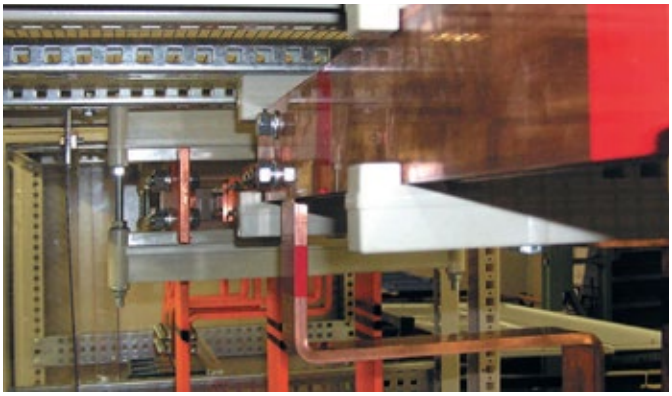
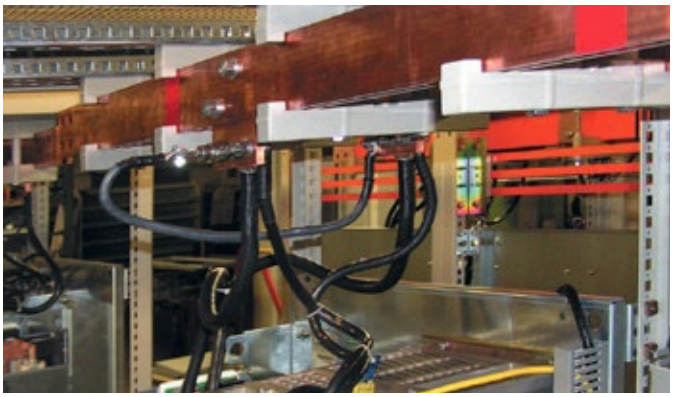
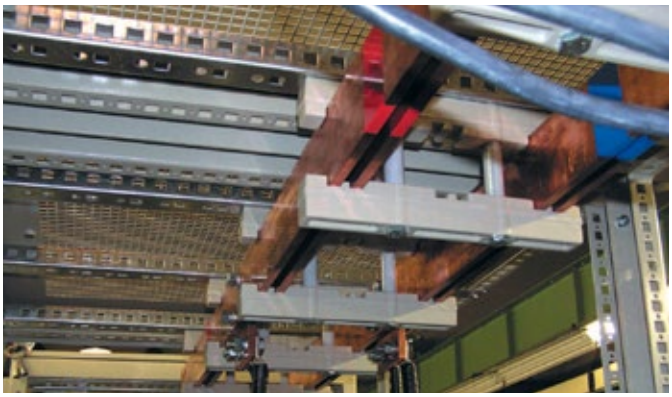


System
DELTA 305C/60

Bus-bar supports

DELTA–Compact

Application of the product DELTA 210C/80

Product order

The product design requires that the height of the conductor for which the system is to be used is always specified.
When ordering the DELTA system, you can order the entire system as a complete assembly or individual parts of the assembly. The assembly includes: 2 pcs DELTA plastic pressings, 2 pcs spacing tubes, 2 pcs M10 screws, 2 x nuts M10 and flat washers. The spacing tubes and the above-mentioned fasteners are supplied as a DS assembly set, see the valid price list.

Example A:
When ordering ten DELTA 210C mounting assemblies for 80 x 10 mm strip, order:
– the DELTA 210C/80 assembly .... 10 pcs

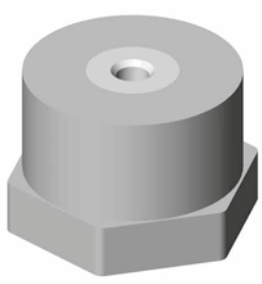
Example B:
Or you can order the same material item by item according to the product price list, e.g.:
– DELTA 210C pressing ..... 20 pcs
– mounting kit DS80 ..... 10 pcs

Support insulators

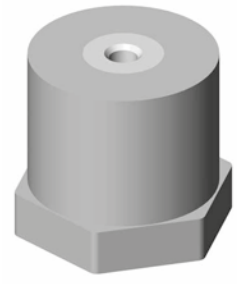
PROFIX PW

PW 30 • PW 40 • PW 50

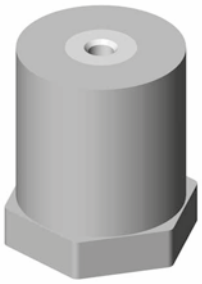
The PROFIX PW support insulators are designed primarily for installation and firm fixation of bus-bar systems, bus-bars, terminal boards and boxes, cable taps, live parts of devices and other electrical equipment.



Insulator PW 30 M10



Insulator PW 40 M10



Insulator PW 50 M10

Technical data of products

Products marking	PW 30 M8 PW 30 M10	PW 40 M8 PW 40 M10 PW 40 M12	PW 50 M8 PW 50 M10 PW 50 M12
Support height	30 mm	40 mm	50 mm
Weight	90 g – 88 g	120 g – 116 g – 116 g	144 g – 140 g – 140 g
Operating voltage	800 V	1 000 V	1 000 V
Operating temperature	-40 ˚C to +130 ˚C	-40 ˚C to +130 ˚C	-40 ˚C to +130 ˚C
Tensile strength	10 kN	12 kN	14 kN
Bending strength	8 kN	8 kN	5 kN
Tightening torque	3,6 N/m	3,6 N/m	3,6 N/m
Internal breakdown voltage	20 kV	20 kV	30 kV
External breakdown voltage	10 kV	10 kV	20 kV
Flammability rating	UL 94-VO	UL 94-VO	UL 94-VO

Product design and use

The body of the PROFIX PW support insulator is made of a highly resistant plastic based on polyesters reinforced with glass fiber. Steel dies for fixing screws are pressed into the 40-mm insulator body on opposite sides. The PROFIX PW series support insulators are available as PW 30 with M8 and M10 internal threads, PW 40 with M8, M10 and M12 internal threads, and PW 50 with M8, M10 and M12 internal threads.
Support insulators PROFIX PW are designed primarily for the setting up and installation of electrical equipment and distribution equipment with low voltage up to 1 000 V. They are used for the installation and firm fixation of bus--bar systems, bus-bars, terminal boards and boxes, cable taps, live parts of devices to the structure of electrical equipment. They are designed for installation in indoor environments with operating temperatures from –40 ˚C to +130 ˚C. The properties of the PROFIX PW support insulators allow for a safe set-up of electrical distribution systems with high dynamic short-circuit current loads.

Declaration of Conformity

DELTA Series bus-bar supports conform to the requirements of technical standards and regulations – TP 2002103, ČSN EN 6060243- 1/99, ČSN EN 60695-2-11/01. The product is certified by EZÚ, Pod lisem 129, 171 02 Prague 8, Czech Republic.

Support insulators

PROFIX PW

System 60 mm (Y)

Strip width in mm	Idyn(kA)10	20	30	40	50	60	70	80	90	100	
30		800	800	700	500	Insulators distance (X)					
40		800	800	800	650	500					

System 100 mm (Y)

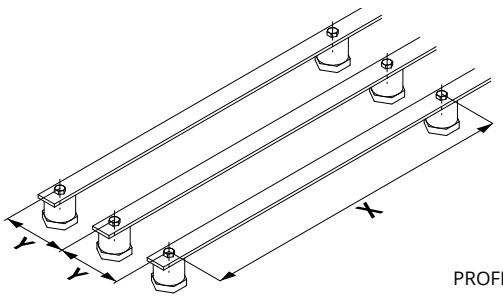
Strip width in mm	Idyn(kA)10	20	30	40	50	60	70	80	90	100	
30		800	800	800	600	Insulators distance (X)					
40		1000	1000	1000	800	700					
50		1000	1000	1000	1000	800	600	550			
60		1000	1000	1000	1000	800	700	550	500		
80		1000	1000	1000	1000	800	600	500	480	250	280

System 150 mm (Y)

Strip width in mm	Idyn(kA)10	20	30	40	50	60	70	80	90	100	
30		800	800	800	750	Insulators distance (X)					
40		1000	1000	1000	800	800					
50		1000	1000	1000	1000	800	800	700			
60		1000	1000	1000	1000	1000	900	800	700		
80		1000	1000	1000	1000	1000	900	800	700	600	500
100		1000	1000	1000	1000	1000	900	800	700	600	500

System 185 mm (Y)

šířka pásoviny v mm	Idyn (kA)10	20	30	40	50	60	70	80	90	100	
30		800	800	800	800	vzdálenost izolátorů (X)					
40		1000	1000	1000	1000	900					
50		1000	1000	1000	1000	1000	900	800			
60		1000	1000	1000	1000	1000	1000	1000	800		
80		1000	1000	1000	1000	1000	1000	1000	800	700	600
100		1000	1000	1000	1000	1000	1000	1000	800	700	600
120		1000	1000	1000	1000	1000	1000	1000	800	700	600



PROFIX

Support insulators

PROFIX PA

PROFIX PA

The PROFIX PA support insulators are designed primarily for installation and firm fixation of bus-bar systems, bus-bars, terminal boards and boxes, cable taps, live parts of devices and other electrical equipment.

PA 30 M8
PA 30 M10

PA 40 M8
PA 40 M10
PA 40 M12

PA 50 M8
PA 50 M10
PA 50 M12

Technical data of products

	PA 30 M8 PA 30 M10	PA 40 M8 PA 40 M10 PA 40 M12	PA 50 M8 PA 50 M10 PA 50 M12
Support height	30 mm	40 mm	50 mm
Weight	90 g	110 g	165 g
Material used	PA6	PA6	PA6
Operating temperature	-40 ˚C to +130 ˚C	-40 ˚C to +130 ˚C	-40 ˚C to +130 ˚C
Tensile strength	10 kN	12 kN	14 kN
Bending strength	10 kN	8 kN	6 kN
Torsional strength	100 N/m	100 N/m	100 N/m
Rated insulation voltage	1000 V	1200 V	1200 V
Rated withstand voltage	12 kV	12 kV	12 kV
Flammability rating	UL 94-VO	UL 94-VO	UL 94-VO
Flammability rating	Hot loop 960 ˚C	Hot loop 960 ˚C	Hot loop 960 ˚C

Product design

The body of the PROFIX PA support insulator is made of highly resistant plastic based on polyamides reinforced with glass fiber. Steel dies for fixing screws are pressed into the insulator body on opposite sides. The extended hexagon-shaped insulator section allows for easier installation of the product, and its locking against turning. The design and the processing technology of the product ensure its excellent thermal, mechanical and electrical strength.

Use of the product

The PROFIX PA support insulators are designed primarily for the setting up and installation of electrical equipment and distribution equipment with low voltage up to 1,000 V. They are used for the installation and firm fixation of bus-bar systems, bus-bars, terminal boards and boxes, cable taps, live parts of devices to the structure of electrical equipment. They are designed for installation in indoor environments with operating temperatures from –40 ˚C to +130 ˚C.

The declared electrical, thermal and mechanical properties of the product are certified by EZÚ Praha, certificate no. 1060212. The properties of the PROFIX PA support insulators allow for a safe set-up of electrical distribution systems with high dynamic short-circuit current loads.

Support insulators

PROFIX PA

Installation of PROFIX PA support insulators

The supporting insulators must be positioned in a way that the calculated force stress on the insulator does not exceed the permitted bending load limit of 10 kN. To facilitate the installation of some selected types of bus-bar systems, we have provided a table with the recommended spacing for the support insulators installation.

Support insulators location overview

These values apply only to bus-bar systems with one copper conductor in each phase mounted flat.

The table is optimized for flat conductors with a rectangular cross-section and a thickness of 5 to 10 mm.

System 60 mm (Y)

Strip width in mm	Idyn(kA)	10	20	30	40	50	60	70	80	90	100
30		800	800	700	500	Insulators distance (X)					
40		800	800	800	650	500					

System 100 mm (Y)

Strip width in mm	Idyn(kA)	10	20	30	40	50	60	70	80	90	100
30		800	800	800	600	Insulators distance (X)					
40		1000	1000	1000	800	700					
50		1000	1000	1000	1000	800	600	550			
60		1000	1000	1000	1000	800	700	550	500		
80		1000	1000	1000	1000	800	600	500	480	250	280

System 150 mm (Y)

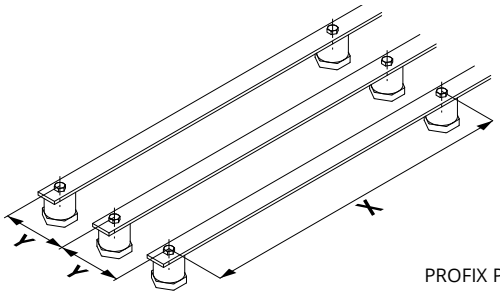
Strip width in mm	Idyn(kA)	10	20	30	40	50	60	70	80	90	100
30		800	800	800	750	Insulators distance (X)					
40		1000	1000	1000	800	800					
50		1000	1000	1000	1000	800	800	700			
60		1000	1000	1000	1000	1000	900	800	700		
80		1000	1000	1000	1000	1000	900	800	700	600	500
100		1000	1000	1000	1000	1000	900	800	700	600	500

Support insulators

PROFIX PA

System 185 mm (Y)

Strip width in mm	Idyn(kA)	10	20	30	40	50	60	70	80	90	100
30		800	800	800	800	Insulators distance (X)					
40		1000	1000	1000	1000	900					
50		1000	1000	1000	1000	1000	900	800			
60		1000	1000	1000	1000	1000	1000	1000	800		
80		1000	1000	1000	1000	1000	1000	1000	800	700	600
100		1000	1000	1000	1000	1000	1000	1000	800	700	600
120		1000	1000	1000	1000	1000	1000	1000	800	700	600



PROFIX PA

Certificates

The product is certified by EZÚ, Pod lisem 129, 170 08 Prague 8, Czech Republic. Test protocol: 502959-01/01
Certificate number: 1051155
Certification date: 1 December 2005

Declaration of Conformity

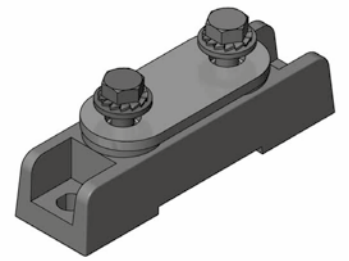
The support insulators of PROFIX PA series, according to the certification, are in compliance with the requirements of Czech and European standards and regulations.
The product has been marked with the CE symbol.

Support insulators for electrical terminals

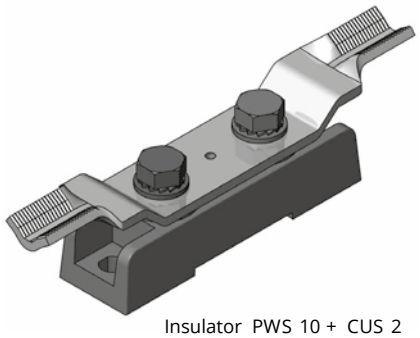
PROFIX PWS

PWS 12 • PWS 10

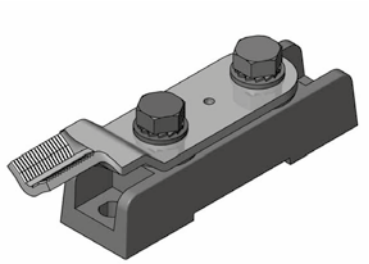
Insulators with the type designation PWS 10 and PWS 12 are designed for the firm fixation and set-up of a conductive connection of solid copper or spun cable conductors in electrical installations with low voltage up to 1 000 V.



Insulator PWS 12 + CUS 1



Insulator PWS 10 + CUS 2



Insulator PWS 10 + CUS 3

Technical data of the product

Support height	28 mm
Weight	143 g +3 %
Operating voltage	1 000 V
Operating temperature	– 40 ˚C až +130 ˚C
Internal breakdown voltage	20 kV
External breakdown voltage	8 kV
Screw torque for PWS 12	6 N/m
Screw torque for PWS 10	6 N/m
Flammability rating	UL 94-VO
Hot loop test	960 ˚C

Declaration of Conformity

PROFIX support insulators comply with the requirements: TP 2002103, ČSN EN 60243-1:99, EN 60695-2- 11:0,1.
The products are certified by EZÚ Prague.
Further information is available at www.prowatt.cz.

Product design and use

The body of the support insulator is based on polyester composites reinforced with glass fiber. The insulator is fitted with two recessed nuts with M12 threads in the upper part, and is supplied with the type designation PWS 12, or is fitted with M10 nuts with the type designation PWS 10. The product is fitted with two holes on the edge for fixing it to the structure of the electrical equipment with two M8 screws. The mechanical strength of the support insulator and the possibility of fastening the electrically conductive parts to the device structure at four connection points enable the set-up of a mechanically strong structural node with excellent directional stability. This solution fully replaces the ceramic structural elements used to date. PWS Series insulators are equipped with auxiliary connecting material by the manufacturer, which allows to set up an input or output terminal of the distribution device:

A. The connection of rigid or flexible conductors using the joints CUS 1, CUS 2, CUS 3.
B. The CUS 2, CUS 3 joints allow the mounting of the „V“ terminal with the possibility of connecting conductors up to 240 mm^2.
C. A direct connection using a KU 50 cable eye with an extended lug.
D. A connection of bare conductors using a CUS 1 joint.

Notes

APPLICATIONS
FOR ELECTROTECHNICS

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