

Ex e Instruction Manual N° 32

CBC Series "increased safety" terminal blocks, are manufactured according to the prescriptions given by IEC / EN 60079-0, IEC / EN 60079-7, IEC / EN 61241-0 Standards and are in compliance with the ATEX 94/9/CE Directive and the IEC Ex Certification Scheme

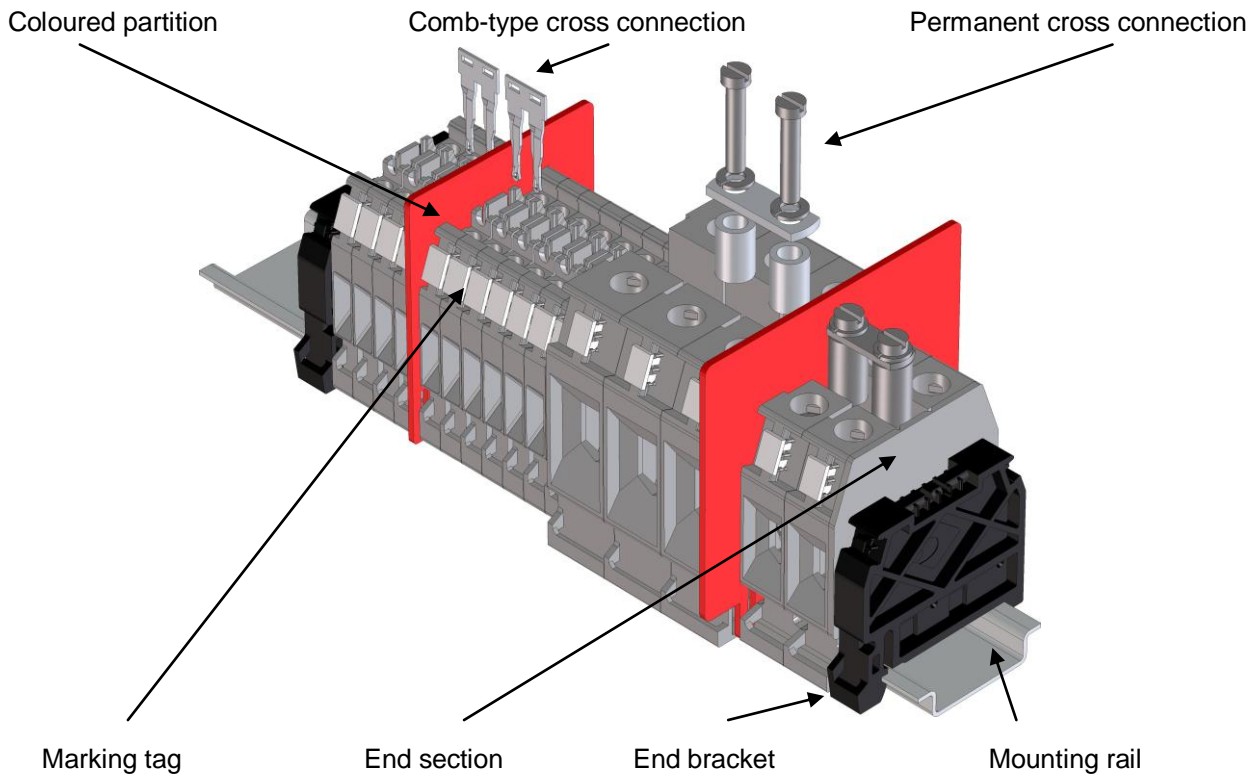
CBC Series terminal blocks are also designed and manufactured in compliance with IEC / EN 60947-1 and IEC / EN 60947-7-1 reference product standards.

Terminal blocks (components) must be inserted in Ex e enclosures. The terminal blocks + enclosure assembly must be subjected to separate certification.

CBC Series terminal blocks are suited for a temperature range between - 40 and + 80 °C

Ambient temperature range shall be between - 40 and + 40 °C

Rail assembly composition in potentially explosive (Ex e) environments



Rail assembly guide - also referred to beige coloured terminal blocks

Each rail assembly is formed by two or more adjoining terminal blocks and by END BRACKETS, that are located at the ends of the assembly, in a way to obtain a compact and single arrangement.

As the back of each terminal block performs the function of insulating wall of the adjoining terminal block, an END SECTION is necessary in order to close and provide appropriate insulation to the first terminal block, forming the assembly.

Rail assemblies can be subdivided into groups by interposing COLOURED PARTITIONS, in order to ease the location of different circuits

Adjoining terminal blocks can be visually separated by interposing a COLOURED PARTITION, having a thickness of 1,5 mm.

Each terminal block can be connected to adjoining elements by means of CROSS CONNECTION of the comb type (CBC.2, CBC.4, CBC.6, CBC.10)

Multiple cross connections can be performed between terminal blocks, by means of a comb-type CROSS CONNECTION the use of which enables also to obtain parallel extending, pole skipping, staggered, and parallel skipping cross-connection schemes

Terminal blocks type CBC.16 and CBC.35 can be connected to adjoining elements by means of CROSS CONNECTION of the fixed type, which are anti-loosening thanks to an elastic washer located under the head of each screw forming the cross connection itself.

Adjoining jumpers can be electrically separated by interposing a COLOURED PARTITION or a CROSS CONNECTION BARRIER

With the exception of staggered mode and parallel pole skipping cross-connection schemes, when permanent cross-connections are used, it is necessary to separate adjoining different phases by interposing a COLOURED PARTITION, having a thickness of 1,5 mm, between adjoining jumpers and between jumpers and adjoining terminal blocks.

Multiple cross connections can be performed between terminal blocks, by means of a multiple commoning bar

If cross-connections are used, the rated insulation voltage is determined according to their number, type and insertion schemes.

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		32	1	4	28/10/10	<i>Raffetti</i>	

ATEX Marking:



I M 2 / II 2 G

Ex eb

- 0722 = number of the ATEX surveillance Notifying Body (CESI)
- I M 2 = group I (mines), category M 2
- II 2 = group II (surface), category 2
- G = explosive atmosphere with presence of GAS
- Ex eb = "increased safety" protection mode and EPL
- V = rated Ex e voltage
- CBC = terminal block series or type
- (es) 4 = rated cross section of terminal block

IEC Ex Marking

- Ex eb = "increased safety" protection mode and EPL
- II = group II (surface)

CBC Series feed-through terminal blocks - Rated Ex e values

Terminal block	Rated cross section [mm ²]	Minimum / maximum flexible and rigid conductor [mm ²]	Rated current [A]	Resistance of the terminal block [Ω] (*)	Ex e rated voltage [Vac] (**)	Jumper	Multiple commoning bar	Screw and sleeve	Tightening torque of the jumper screw [Nm] (****)	Current of the jumper [A]
CBC.2	2,5	0,2 / 4	24	5,54 x 10 ⁻⁴	500	PTC/2/...	-	-	-	21 / 24 (***)
CBC.4	4	0,2 / 6	32	4,64 x 10 ⁻⁴	500	PTC/4/...	-	-	-	25 / 32 (***)
CBC.6	6	0,5 / 10	41	1,20 x 10 ⁻⁴	500	PTC/6/...	-	-	-	35 / 41 (***)
CBC.10	10	1,5 / 16	57	9,82 x 10 ⁻⁵	400	PTC/10/...	-	-	-	47 / 57 (***)
CBC.16	16	2,5 / 25	76	7,03 x 10 ⁻⁵	500	PFX/53	PMP/05	CPX/53	1,2	76
CBC.35	35	2,5 / 50	125	4,16 x 10 ⁻⁵	630	PFX/35	PMP/35	CPX/35	1,2	125

Notes: (*) : values calculated from the results of the voltage drop test according to paragraph 8.4.4 of IEC 60947-7-1 Std.
 (**): rated voltage values can be subjected to a ± 10 % tolerance as listed in Table 1 of IEC 60079-7 Std.
 (***): the higher current value corresponds to the capacity embedding two jumpers for each one of the poles connected together
 (****): values taken from Table 4 of IEC 60947-1 Std.

Cross-connection configurations

	Single or parallel extending	Pole skipping	Adjacent with partition	Staggered mode	Parallel pole skipping
	Ex e rated voltage (Vac) (****)	Ex e rated voltage (Vac) (****)	Ex e rated voltage (Vac) (****)	Ex e rated voltage (Vac) (****)	Ex e rated voltage (Vac) (****)
CBC.2	400	400	400	320	320
CBC.4	320	320	320	320	320
CBC.6	320	320	320	250	250
CBC.10	250	250	250	250	250
CBC.16	400	320	500	n.a.	n.a.
CBC.35	250	n.a.	630	n.a.	n.a.

Note (****): rated voltage values can be subjected to a ± 10 % tolerance as listed in Table 1 of IEC 60079-7 Std.

Instructions for the connection of PTC "Easy bridge" jumper:

After having cut the bar according to the number of poles, insert the cross-connection in the appropriate groove of the terminal block. At this point, by using the blade of a screwdriver, push down the cross-connection until it reaches its blocking point. The cross-connection will be fully insulated and intrinsically IPXXB protected.

After having mounted the cross-connection the connected poles can be outlined and visually detected by placing the PTC/SP green strip. This strip is supplied in a standard length of 100 mm and it can be easy cut to the appropriate length with the aid of a cutter. To remove the cross-connection it is sufficient to remove the PTC/SP strip: insert the blade of the screwdriver in the jumper slot, then lift it up and finally extract it.

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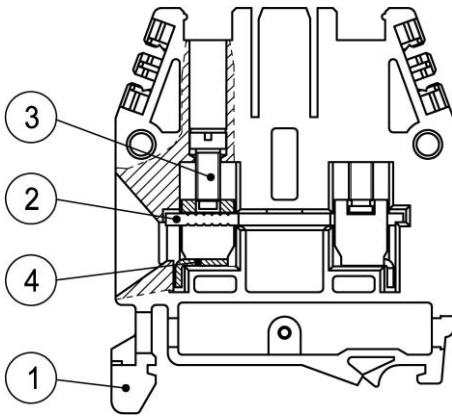


Figure A

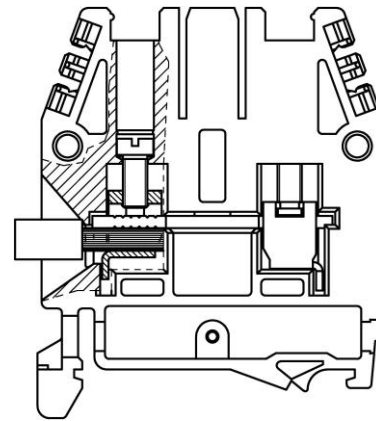


Figure B

POSITION	COMPONENT
1	Insulating body
2	Conducting body
3	Tightening screw
4	Wire clamping collar

TERMINAL BLOCK	INSULATION STRIPPING LENGTH [mm]	TIGHTENING TORQUE VALUES [Nm] (*)
CBC.2	9	0,4
CBC.4	10	0,5
CBC.6	10	0,8
CBC.10	12	1,2
CBC.16	18	2
CBC.35	18	2,5

Note(*): values taken from Table 4 of IEC 60947-1 Std.

Cabur CBC Series terminal blocks allow the direct and anti-loosening connection of solid, stranded and flexible conductors, by means of wire clamping collars, captive screws and conducting body. Each clamping unit shall house only one conductor

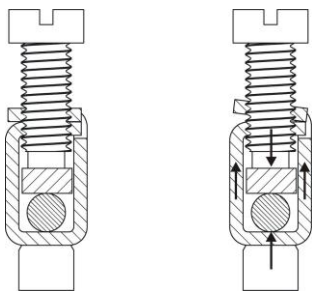
The insertion of the cable is eased by:

- Sloping entrance planes provided on the insulating body
- A tab provided in the collar that avoids faulty introduction of the conductors
- Adequate dimensioning of the conductors insertion hole, with respect to the diameter of the maximum connectable conductor (according to the different Gauges prescribed by IEC 60947-1Std.)

Appropriate grooving, provided in the wire clamping collar and on the conducting body guarantee a perfect electrical contact and an efficient blocking of the conductor.

Both the wire clamping collar and the tightening screw are manufactured in tempered steel with galvanic RoHS conforming zinc plating; thanks to their coupling it is possible to apply the correct contact pressure

By acting on the tightening screw, the collar tightens the conductor against the conducting body, which is manufactured in tin-plated copper. With the clamping yoke tightening system a gasproof, particularly safe connection is guaranteed



Thanks to the force applied during the tightening process, the overlapped threaded parts system act, by means of elastic deformation on the head of the screw, blocking it and avoiding subsequent loosening



For the connection of the conductor it is necessary to::

- 1) Loosen the tightening screw (Pos.3 - Fig. A) until it frictions, making the collar (Pos.4 - Fig. A) reach its lower position; once this operation is performed, the conductor's insertion hole results to be completely open and is ready to house the conductor.

2) Prepare the conductor by stripping one end from its insulation (Fig. B) and according to the correct insulation stripping length given in the table. introduce it in the terminal block until the limiting wall is reached. By holding firmly the conductor in one hand, tightening operation must be performed (applying the prescribed torque values given in the table). Once this operation is performed the conductor is firmly secured.

Thanks to the force applied during the tightening process, the overlapped threaded parts system acts, by means of elastic deformation on the head of the screw, blocking it and avoiding subsequent loosening

For the connection of jumpers, instructions with reference to terminal blocks type CBC.2 ÷ CBC.10 and torque values with reference to cross connections of terminal blocks type CBC.16 and CBC.35 are given in the previous page

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Declaration of Conformity to ATEX 94/9/EC Directive and to IEC Ex Certification Scheme

Inserted in the following document: **M19/e general instructions (leaflet inserted in every package)**



Terminal blocks approved in conformity to the ATEX 94/9/EC Directive and the IEC Ex Certification Scheme

Terminal blocks “at increased safety” (Ex eb) are manufactured according to IEC / EN 60079-0, IEC / EN 60079-7, IEC / EN 61241-0 Stds. and bear, on the insulating body, the name of the product and the electrical characteristics.

ATEX Marking: **0722**  **I M2/ II 2 G**

0722 = number of Notifying Body (CESI) for the ATEX surveillance

I M2 = group **I** (mines), category **M2**

II 2 G = group **II** (surface) category **2 G** (gas)

Ex eb = “increased safety” protection mode and EPL

V = rated voltage

IEC Ex Marking:

Ex eb = “increased safety” protection mode and EPL



II = group **II** (surface)

For the mounting of terminal blocks type BPL.4 - TPL.4 - BPL/R, IT IS NECESSARY TO USE FIXING SCREWS OF INSULATING MATERIAL

The CE Marking indicates the Conformity to the 2006/95/EC Low Voltage Directive.

Terminal blocks must be installed in enclosures “at increased safety”; the enclosure / terminal blocks assembly must be subjected to separate certification


The Legal Representative


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CBD Series "increased safety" terminal blocks, are manufactured according to the prescriptions given by IEC / EN 60079-0, IEC / EN 60079-7, IEC / EN 61241-0 Standards and are in compliance with the ATEX 94/9/CE Directive and the IEC Ex Certification Scheme.

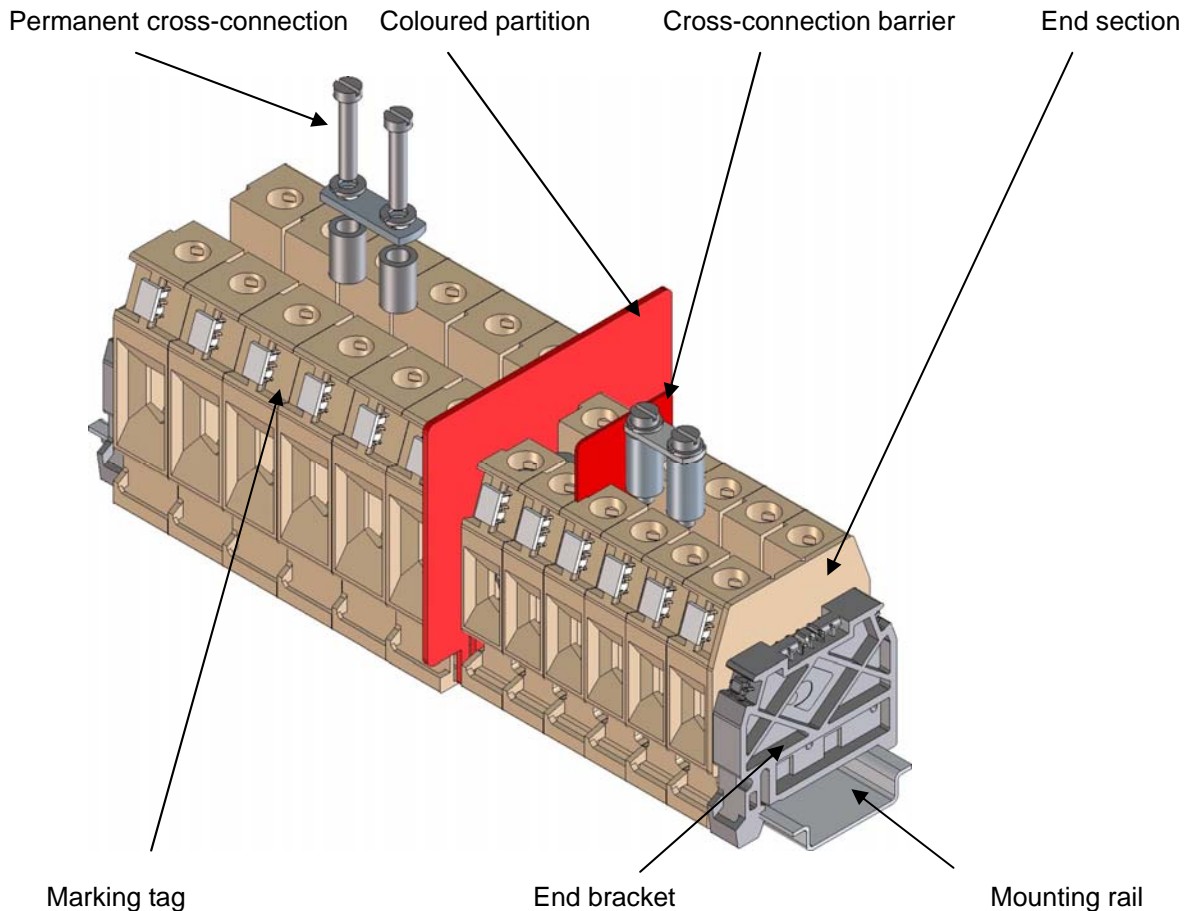
CBD Series terminal blocks are also designed and manufactured in compliance with IEC / EN 60947-1 and IEC / EN 60947-7-1 reference product standards.

Terminal blocks (components) must be inserted in Ex e enclosures. The terminal blocks + enclosure assembly must be subjected to separate certification.

CBD Series terminal blocks are suited for a temperature range between - 40 and + 80 °C

Ambient temperature range shall be between - 40 and + 40 °C

Rail assembly composition in potentially explosive (Ex e) environments



Each rail assembly is formed by two or more adjoining terminal blocks and by END BRACKETS, that are located at the ends of the assembly, in a way to obtain a compact and single arrangement.

As the back of each terminal block performs the function of insulating wall of the adjoining terminal block, an END SECTION is necessary in order to close and provide appropriate insulation to the first terminal block, forming the assembly.

Rail assemblies can be subdivided into groups by interposing COLOURED PARTITIONS, in order to ease the location of different circuits




Each terminal block can be connected to adjoining elements by means of CROSS CONNECTION of the fixed type, which are anti-loosening thanks to an elastic washer located under the head of each screw forming the cross connection itself.

For permanent cross-connections, it is necessary to separate adjoining different phases by interposing a COLOURED PARTITION, having a thickness of 1,5 mm, between adjoining jumpers and between jumpers and adjoining terminal blocks

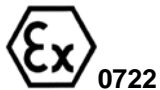
Multiple cross connections can be performed between terminal blocks, by means of a multiple commoning bar

For permanent cross-connections, it is necessary to separate adjoining different phases by interposing a COLOURED PARTITION, having a thickness of 1,5 mm, between adjoining jumpers and between jumpers and adjoining terminal blocks

Multiple cross connections can be performed between terminal blocks, by means of a multiple commoning bar

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ATEX Marking:



I M 2 / II 2 GD

Ex e

0722 = number of the ATEX surveillance Notifying Body (CESI)

I M 2 = group **I** (mines), category **M 2**

II 2 = group **II** (surface), category **2**

G = explosive atmosphere with presence of **GAS**

D = explosive atmosphere with presence of **DUST**

Ex e = “increased safety” protection mode

CBD = terminal block series or type

(es) 4 = rated cross-section of terminal block

\sqcup ... / \sqcup ... **V** = rated **Ex e** voltage

IEC Ex Marking



Ex e = “increased safety” protection mode

II = group **II** (surface)

CBD Series feed-through terminal blocks - Ex e rated values

Terminal block	Rated cross section [mm ²]	Minimum / maximum flexible and rigid conductor [mm ²]	Rated current [A] (****)	Resistance of the terminal block [Ω] (*)	Rated Ex e voltage [Vac] (**) (on rail type):		Jumper	Multiple commoning bar	Screw and sleeve	Tightening torque of the jumper screw [Nm] (***)	Current of the jumper [A] (****)
					IEC 60715 "G32"	IEC 60715 TH/35 "top hat"					
CBD.2	2,5	0,5 / 4	24	5,03 x 10 ⁻⁴	400	630	PM/20/...	PMP/01	CPX/21	0,4	24
CBD.4	4	0,5 / 6	32	5,68 x 10 ⁻⁴	500	630	PM/40/...	PMP/42	CPX/12	0,5	32
CBD.6	6	0,5 / 10	41	1,63 x 10 ⁻⁴	500	630	PM/60/...	PMP/13	CPX/83	0,8	41
CBD.10	10	0,5 / 16	57	1,04 x 10 ⁻⁴	500	630	PM/10/...	PMP/04	CPX/03	1,2	57
CBD.16	16	0,5 / 25	76	1,54 x 10 ⁻⁴	630	630	PFX/44	PMP/05	CPX/44	1,8	76
CBD.35	35	0,5 / 35	125	2,21 x 10 ⁻⁴	630	630	PFX/06	PMP/06	CPX/06	2	125
CBD.50	50	1,5 / 50	150	9,04 x 10 ⁻⁵	630	630	PFX/07	PMP/07	CPX/07	2,5	150
CBD.70	70	1,5 / 95	173	1 x 10 ⁻⁴	630	800	PFX/08	PMP/08	CPX/08	3	155

Notes (*) : Values calculated from the results of the voltage drop test according to paragraph 8.4.4 of IEC 60947-7-1 Std.
 (**): Rated voltage values can be subjected to a ± 10 % tolerance as listed in Table 1 of IEC 60079-7 Std.
 (***) : Values taken from Table 4 of IEC 60947-1 Std.
 (****) : Ambient temperature according to paragraph 8.3.3.3.1 of IEC 60947-1 Std.

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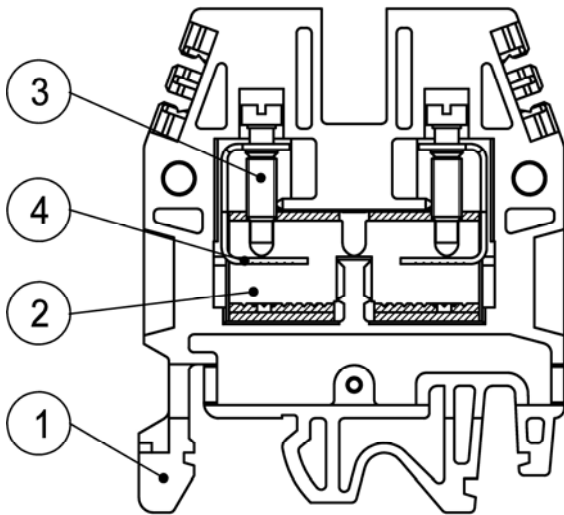


Figure A

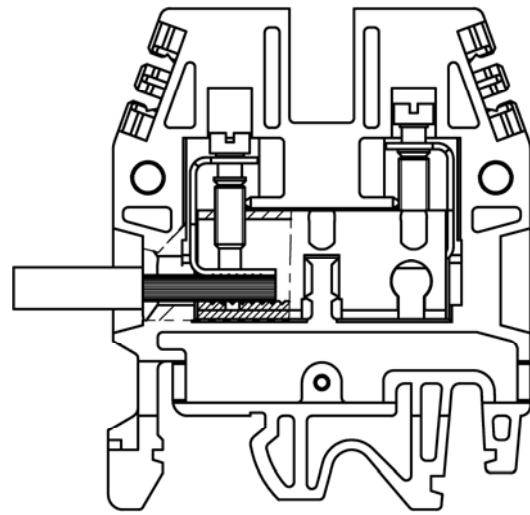


Figure B

POSITION	COMPONENT
1	Insulating body
2	Conducting body
3	Tightening screw
4	Pressure plate

TERMINAL BLOCK	INSULATION STRIPPING LENGTH [mm]	TIGHTENING TORQUE VALUES [Nm] (*)
CBD.2	13	0,4
CBD.4	14	0,5
CBD.6	14	0,8
CBD.10	14	1,2
CBD.16	18	1,8
CBD.35	20	2
CBD.50	22	2,5
CBD.70	26	3


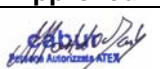
Note(*): values taken from Table 4 of IEC 60947-1 Std.

CBD Series Cabur terminal blocks are designed in order to enable the operator to perform a quick and safe connection of electrical conductors.

Each clamping unit can house only one conductor

For the connection of the conductors it is necessary to:

- 1) Unloosen the screw (Position 3 - Fig. A) until it reaches its maximum height; in this position the screw is kept captive as the pressure plate (Position 4 - Fig. A) obliges the screw to remain in its housing.
Once this operation is performed, the conductor insertion hole is widely open to its maximum receiving capability.
- 2) Prepare the conductor, by stripping its end from the insulating protection (Fig. B) and according to the stripping length given in the table.
Then introduce it in the terminal block, until it reaches the separating wall; at this stage, whilst keeping the conductor in place with one hand, the screw must be tightened, by applying the torque values given in the table and the connection secured.
In this position, the pressure plate acts as a spring, avoiding the screw to unloosen itself

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Declaration of Conformity to ATEX 94/9/EC Directive

Inserted in the following document: **M19/e general instructions (leaflet inserted in every package)**



Terminal blocks approved in conformity to ATEX 94/9/CE Directive
Terminal blocks "at increased safety" (Ex e) are manufactured according to EN 60079-0 / EN 60079-7 / EN 61241-0 Stds. and bear, on the insulating body, the name of the product and the electrical characteristics.

Marking: **0722**  **I M2/ II 2 G D**

0722 = number of Notifying Body (CESI) for the ATEX surveillance

I M2 = group **I** (mines), category **M2**

II 2 G D = group **II** (surface) category **2 G** (gas) **D** (dusts)

Ex e = type of protection


V = rated voltage

For the mounting of terminal blocks type BPL.4 - TPL.4 - BPL/R, IT IS NECESSARY TO USE FIXING SCREWS OF INSULATING MATERIAL

The CE Marking indicates the Conformity to 73/23 Low Voltage Directive.

Terminal blocks must be installed in enclosures "at increased safety"; the enclosure / terminal blocks assembly must be subjected to separate certification


The Legal Representative


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