



Complete solution in connections for overhead electrical distribution network

INNOVATING IN ELECTRICAL CONNECTIONS



KARP



KLOK



KATRO



KBEX



KMED



KATIL



KBEX - Piercing connector for flexible cable to connecting input consumer

Solution for connecting
extra-flexible/flexible cables with
multiplexed cables.

13,8 kV



AES Eletropaulo unesp ANEEL

KMED - Connector to connecting the power meter

Solution for
connecting extra
flexible / flexible
cables in
power meters.



KARP - Piercing Connector for Overhead Protected Distribution Network in Medium Voltage

Whithout remove and reconstitution
insulation of cable. Allows install it in
hot line. Piercing connector for 15kV,
25kV and 35kV.

KLOK



KLOK

Bimetalic terminal with
spring effect for output
transformers without the
need for special tool for
application.



KMED

KATIL



KATRO - Piercing connector for secondary network with 4 outputs

Definitive and reusable connection plus
grounding protective point.



KATIL - Connection for street lighting

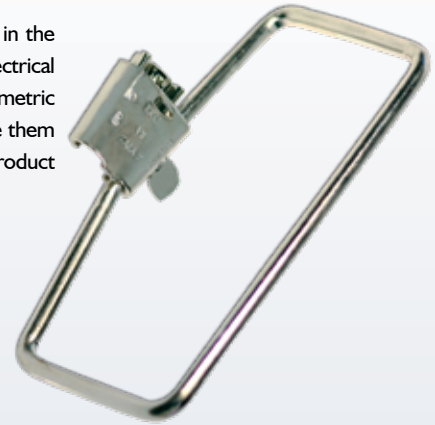
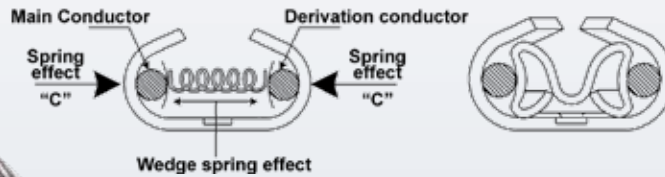
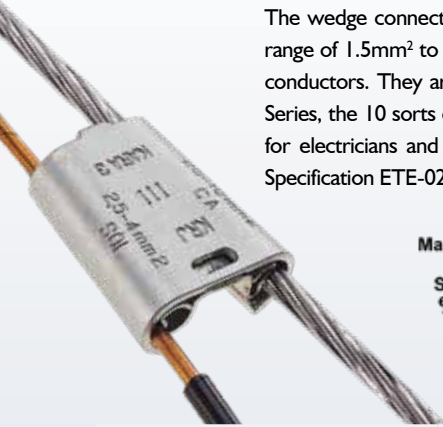
Connect lamps used in street lighting to
electrical distribution network.



KARA

WEDGE CONNECTORS FOR CONNECTING INPUT CONSUMER – SYMMETRIC AND ASYMMETRIC SERIES

The wedge connectors **KARA** family are manufactured in alloy tinned copper; for applications in the range of 1.5mm² to 120mm² (14 AWG to 3/0 AWG) in copper or aluminum, solid or corded electrical conductors. They are available in 10 sorts, being 6 of the Symmetric series and 4 of the Asymmetric Series, the 10 sorts of connectors are identified by their respective color codes that characterize them for electricians and general users. Additional information is available through our Technical Product Specification ETE-028.



CABLES/WIRES CU/AL (mm ²)		SELECTION TABLE TO DIAMETERS / SQUARE MILIMETERS OF CONDUCTORS													
		MULTIPLEXED INSULATED PHASE AAC CABLE - mm ²								BARE NEUTRAL CABLE - mm ²					
		FIO 6	FIO 10	16	25	35	50	70	95	10 CA	16 CA	25 CAL	35 CAL	50 CAL	70 CAL
AAC INSULATED CABLE	1,5		III	III	III/A	A	A	B		III	III	III/A	A	A	B
	2,5		III	III	III/A	A	A	B	C	III	III	III/A	A	A	B
	4	III	III	III	III/A	A	A	B	C	III	III	III/A	A	B	B
	6	III	III	III	III/A	A	B	B	C	III	III	III/A	A	B	C
	10	III	III	III	II/A	II/A	I/B	C	C	III	III	II/A	I/B	B	C
	16	III	III	II	II/A	I/B	B	VII/C	C	III	II	II/A	I/B	C	VII/C
	25	III/A	II/A	II/A	I	I	I	VII		II/A	II	I	I	VII	VII
	35	A	II/A	I/B	I	I	VII	VII		II/B	I/B	I	VII	VII	VI
	50	A	I/B	I/B	I	VII	VII	VI		I/B	I	VII	VII	VI	VI
INSULATED WIRE	1,5		III	III	III/A	A	A	B		III	III	III/A	A	A	B
	2,5		III	III	III/A	A	A	B	C	III	III	III/A	A	A	B
	4	III	III	III	III/A	A	A	B	C	III	III	III/A	A	B	B
	6	III	III	III	III/A	A	A	B	C	III	III	III/A	A	B	B
	10	III	III	III	III/A	II/A	I/B	C	C	III	III	II/A	II/B	B	C
	16	III	III	III	II/A	I/B	I/B	C	C	III	II	II/A	I/B	C	C

KARA-T

WEDGE CONNECTORS FOR PROTECTING GROUNDING NETWORK SYSTEMS - SYMMETRIC AND ASYMMETRIC SERIES

The wedge connectors **KARA-T** family of symmetric and asymmetric series are applicable in protection grounding systems with circle stem x cables or cables x cables. They are available in 5 types, ranging from 1/2 to 5/8 inches stem with cables ranging from 10mm² to 35mm² (8 AWG to 2 AWG). The table indicates the types in the main combination with stem and cables of the derivation. Additional information is available through our Technical Product Specification.



		MAIN							
		CABLE						STEM (mm)	
		10 (mm ²)	16 (mm ²)	25 (mm ²)	35 (mm ²)	95 (mm ²)	120 (mm ²)	1/2" Ø12,5-12,8	5/8" Ø14-16
DERIVATION CABLE Cu (mm ²)	10	2T	2T	2T	2T	-	LT	LT	ST
	16	2T	2T	2T	1T	LT	LT	LT	ST
	25	-	-	-	1T	LT	-	ST	NT
	35	-	-	-	7T	-	-	ST	NT

ALIKARA

APPLICATION AND REMOVAL OF THE WEDGE CONNECTORS TO INPUT CONSUMER AND PROTECTION GROUNDING SYSTEMS

Looking for simplify the work of the electrician, in applying the wedge connectors KARA and KARA T family, KRJ developed the **ALIKARA**. With an angle of handhold differentiated and adapted teeth, making the operation easiest and allows extraction of connector, without an extra conventional extractor needs. Made only in the version of 12" inch (30cm minimum length), thickness 8mm head and 1kV insulation. Perfect tool for application of all sorts of wedge connector family KARA and KARA T. Additional information's about the application of connectors using **ALIKARA** you should consult the Instruction Manual.



Alikara
Design: 580.950



WEDGE CONNECTORS FOR ELECTRICAL POWER DISTRIBUTION AND TRANSMISSION SYSTEM - FAMILY PT

The wedge connectors aluminum alloy, PT family, are indicated for application in power network low, medium and high voltage and are available in red, blue and yellow series, indicating the respective application cartridges. Your electromechanical design, features large electrical reliability for to the concept of connection spring effect. Application in conductors ranging from 13mm² to 470mm² (6 AWG to 795 MCM), solid or corded, and can be supplied with the respective packing cartridge connector. Additional information is available through our Technical Product Specification.



MCM/AWG X MCM/ AWG				MAIN CONDUCTOR MCM/AWG - AAC/AAAC/ACSR - BARE CABLES														
		795	636	556,5	477	397,5 CAA	397,5 CA	336,4 CAA	336,4 CAA***	336,4 CA	266,8	4/0	3/0	2/0	1/0	2	4	6
MAIN CONDUCTOR MCM/AWG - AAC/AAAC/ACSR - BARE CABLES	6	-	-	PT-55A	PT-55A	PT-33A	PT-33A	PT-33A	PT-35H	PT-35A	PT-35A	PT-40B	PT-40B	PT-40A	PT-1002	PT-1005	PT-1004	PT-1004
	4	-	-	PT-55A	PT-55A	PT-33B	PT-33B	PT-33B	PT-35G	PT-35B	PT-35A	PT-40B	PT-40B	PT-40B	PT-1003	PT-1002	PT-1005	
	2	-	-	PT-55B	PT-55A	PT-33B	PT-33B	PT-33B	PT-35G	PT-35B	PT-35B	PT-40C	PT-40B	PT-40B	PT-1001**	PT-1003		
	1/0	-	-	PT-55B	PT-55B	PT-33B	PT-33B	PT-33B	PT-35G	PT-35B	PT-35B	PT-40C	PT-40C	PT-40B	PT-40B			
	2/0	-	-	PT-55C	PT-55B	PT-33C	PT-33C	PT-33B	PT-35G	PT-35C	PT-35B	PT-40C	PT-40C	PT-40C				
	3/0	-	-	PT-55C	PT-55C	PT-33C	PT-33C	PT-33C	PT-35F	PT-35C	PT-35B	PT-40D	PT-40C					
	4/0	-	-	PT-55C	PT-55C	PT-33C	PT-33C	PT-33C	PT-35F	PT-35C	PT-35C	PT-40D						
	266,8	PT-79G	PT-63F	PT-55C	PT-55C	PT-33D	PT-33D	PT-33D	PT-35E	PT-35D	PT-35C							
	336,4 CA	PT-79F	PT-63E	PT-55D	PT-55C	PT-33D	PT-33D	PT-33D	PT-35E	PT-35D								
	336,4 CAA	PT-79F	PT-63E	PT-55D	PT-55D	PT-33D	PT-33D	PT-33D	PT-35E									
	397,5 CA	PT-79E	PT-63D	PT-55D	PT-55D	PT-33D	PT-33D											
	397,5 CAA	PT-79E	PT-63D	PT-55D	PT-55D	PT-33D	PT-33D											
	477	PT-79D	PT-63C	PT-55D	PT-55D													
	556,5	PT-79C	PT-63B	PT-55D/E*														
	636	PT-79B	PT-63A															
	795	PT-79A																

Red: PT10

Blue: PT40 and PT35

Yellow: PT33, PT55 and PT79

Red: PT10

Blue: PT40 and PT35

Yellow: PT33, PT55 and PT79



WEDGE CONNECTORS ALUMINUM ALLOY WITH SUPERFICIAL FINISHING FOR ELECTRICAL POWER DISTRIBUTION SYSTEM - FAMILY PTB

The Wedge connectors Family PTB, are manufactured in aluminum alloy with a superficial finishing inhibiting galvanic corrosion and action of maresia developed by KRJ, which allows connections to copper or aluminum and are a technical choice and economical where the need to use copper wedge connector. Indicated for application in bimetallic connections in the network derivation at low, medium and high voltage, are available in red and blue series indicating the respective application cartridges. Application in the range of 13mm² to 185mm² (6 AWG to 336,4 MCM), solid or corded, aluminum or copper, may be supplied with the respective cartridge in the packaging of the connector. Additional information is available through our Technical Product Specification.



**Red:
PTB10**

**Blue:
PTB40 and
PTB350**

mm ² X mm ²		MAIN CONDUCTOR - mm ²								
		185	150	120	95	70	50	35	25	16
DERIVATION CONDUCTOR - mm ²	16	-	-	PTB-4006	PTB-4003	PTB-4003	PTB-1002	PTB-1005	PTB-1004	PTB-1004
	25	PTB-35009	PTB-35000	PTB-4007	PTB-4004	PTB-4003	PTB-1002	PTB-1005	PTB-1005	
	35	PTB-35009	PTB-35001	PTB-4002	PTB-4001	PTB-4001	PTB-1003	PTB-1003		
	50	PTB-35010	PTB-35002	PTB-4008	PTB-4005	PTB-4001	PTB-4001			
	70	PTB-35010	PTB-35003	PTB-4009	PTB-4002	PTB-4005				
	95	PTB-35011	PTB-35004	PTB-4010	PTB-4009					
	120	PTB-35012	PTB-35005	PTB-4011						
	150	PTB-35013	PTB-35006							
	185	PTB-35014								

TOOLS FOR APPLICATION AND REMOVAL OF WEDGE CONNECTORS - FAMILY PT / PTB

BASIC COMPOSITION OF TOOL KF-002/BIG

- Power Unit
- Shooting Unit
- Metallic shell case blue-red
- Metallic shell case yellow (visually equal to blue-red, but with different hole and outer ring identifier).



For detailed information about the available models and their components, consult ETE-031. Additional information on the application of the connectors may be achieved through the Instruction Manual ETE-029.

KATRO PIERCING CONNECTOR FOR CONNECTING CONSUMERS

Developed by KRJ, the piercing connector 4 outputs, **KATRO** model, allows connection of 4 clients per phase and can be installed in the middle (between) of electrical poles. Formed by two polymeric bodies, has a copper alloy tinned busbar, with piercing teeth, that connect **KATRO** to overhead electrical distribution network through screw with fuse head, has 4 outputs for customers connections those have pistons with connection system by spring effect, that ensures reliability on eventual disconnection and connection of the customer. The connections are made in the derivation with the **ALIKATRO** pliers, developed specifically for katro's connectors. The connector offers option to be provide with one hole, with in bussbar for using the stirrup in the protective temporary grounding, being the stirrup an optional item. Supplied for connection at main network cable of 25mm² to 240mm² (4 AWG to 397,5 AWG) and derivation (customer connection) the range of application is from 1.5mm² to 35mm² (14 AWG to 2 AWG). Complementary informations may be obtained from our Technical Product Specification ETE-32. Used against energy theft.

CONNECTOR	MAIN CABLE	TAP CABLE	TORQUE (Nm)
KATRO	CA/Cu - 25-185mm ² CA/Cu 4 AWG – 336,4 MCM	CA-CAA-CU 1,5 - 35mm ²	7-9
	*For use in 240mm ² conductors - Under Consult		



OPTIONAL:

Stirrup for safety grounding, available in models with M6 and M10 thread.

KBEX PIERCING CONNECTOR FOR FLEXIBLE CABLE TO CONNECTING INPUT CONSUMER

The piercing connectors **KBEX** family were designed and developed to solve the connection problems in flexible and extra-flexible cables in residential, commercial and industrial electrical installations. They consist of two main polymeric components, base and lid, the first serving as accommodation for two compensating springs in stainless steel with two metallics busbar in alloy tinned copper and the second with screw head-fuse torque controlled. The busbar electrical contact are constructed so that the product can accept aluminum or copper conductors insulated of class 2, 4 and 5, existing in the connections with multiplexed cables, ranging from 6mm² to 240mm² (10 AWG to 477 MCM). Under the busbar exist the innovative concept to piercing connector a spring compensating stainless steel which ensures the permanent force of tooth contact of the busbar on conductors. Additional information may be obtained from our Technical Product Specification.



Cross section image

TYPE	MAIN CABLE AL/CU CLASS 2,4 (mm ²)	TAP CABLE AL/CU CLASS 2,4,5 E 6	COLOR CODE
2	6 - 16 mm ²	6 - 16 mm ²	GREEN
3	10 - 25 mm ²	16 - 25 mm ²	RED
4	10 - 35 mm ²	25 - 35 mm ²	BLUE
5	10 - 50 mm ²	25 - 50 mm ²	YELLOW
6	25 - 70 mm ²	50 - 70 mm ²	BLUE/WHITE
7	25 - 70 mm ²	95 - 120 mm ²	RED/WHITE
8	95 - 120 mm ²	50 - 70 mm ²	GREEN/WHITE
10	50 - 120 mm ²	95 - 150 mm ²	WHITE
11	50 - 120 mm ²	185 - 240 mm ²	VIOLET

Piercing connector with 4 outputs, model KTE made of KRJ, is an economic model for connection of 4 customers per phase. Made of polymeric body and copper alloy tinned busbar, with piercing teeth, that realizes connection through of injected crowbar with a screw with fuse head, it has 4 outputs for connect the customers those are realized through of its connection system by spring effect, that ensures reliability on eventual disconnection and connection of the customer.

The connections in derivation are realized using Allen tool – 6mm. The connector is supplied with a hole, in its busbar for using stirrup on protective temporary grounding, being stirrup as an optional item. Available for connection at main network energy cable, in the range of 35mm² to 120mm² and at derivation (connection of customers), in the range of 1,5 to 35mm². Complementary informations may be obtained from our Technical Product Specification ETE-053.



OPTIONAL:
Stirrup for safety
grounding, M10 thread.

CONDUCTORS		TORQUE (N.m)	
MAIN (mm ²)	TAP (mm ²)	MINIMUM	MAXIMUM
35 – 120	1,5 – 35	7,5	9,5



The connectors **KMED** family are designed for connections on the power meter without the need for stripping wires. They consist of two polymeric components denominated cap and base. The base has a housing for accommodating a compensating spring and a tinned busbar copper electrolytic with two piercing teeth, which is supported on the first, thus ensuring the permanent strength of electrical contact after product application. Easy to install, can be applied with a universal pliers or a similar tool, which pressing the cap with the base and performs the application of locking protrusions external. The KMED family is provided in five models for conductors connections in classes 2,4,5 and 6 ranging from 6mm² to 35mm² (10 AWG to 2 AWG). Additional information may be obtained from our Technical Product Specification.

TYPE	CABLE
KMED-1	6 mm ²
KMED-2	10 mm ²
KMED-3	16 mm ²
KMED-4	25 mm ²
KMED-5	35 mm ²



KAT-N PIERCING CONNECTOR FOR SAFETY GROUNDING IN LOW VOLTAGE POWER NETWORK

The **KAT-N** connector was designed and developed with objective to allow the temporary safety grounding in low voltage Power Distribution System, in application in multiplexed power network. The connector consists of a body with two base polymeric accommodation, composed by screws fuse heads with controlled torque, four busbar tinned copper alloy with piercing teeth + latch key to grounding.

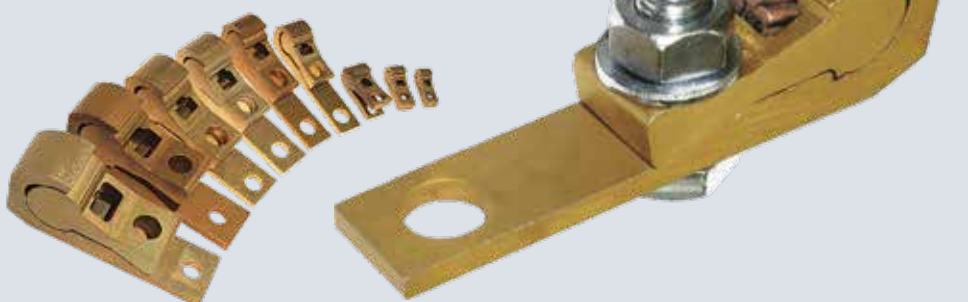
With the **KAT-N** connector connected to the power network, the user will assembly anytime the protective grounding in reliable and safety way, through the hot stick, performing connection of the latch key, connecting the latch key that rotating it until turn it locked, performs the grounding of the phases in the neutral.

CONNECTOR	KAT-N A	KAT-N B
MAIN CABLE (mm ²)	16	70
MAIN CABLE (mm ²)	95	185
TORQUE (N.m)	8-12	8-12



KLOK TERMINAL ALUMINUM ALLOY WITH SUPERFICIAL FINISHING

The terminals **KLOK** family are manufactured in aluminum alloy with a surface finishing inhibitor of galvanic corrosion and action of maresia developed by KRJ, allowing connections with copper or aluminum, not needing special tools for application. It has a variety of applications in the industrial and electrical connections in networks having as one of its main features is reusable. The **KLOK** terminals are supplied with 9 models ranging from 16mm² to 400mm² (6 AWG to 750MCM) Can be supplied with 1 or 2 holes. Additional information is available through our Technical Product Specification.



CABLE CLASSIFICATION TABLE

MODEL	DIAMETER RANGE (mm)		BARE CABLES (AWG/MCM)		BARE CABLES (mm ²)		INSULATED CABLES (mm ²)		SCREW 1	SCREW 2
	SIDE FOR SMALLER CABLE (P)	SIDE FOR BIGGER CABLE (G)	SIDE FOR SMALLER CABLE (P)	SIDE FOR BIGGER CABLE (G)	SIDE FOR SMALLER CABLE (P)	SIDE FOR BIGGER CABLE (G)	SIDE FOR SMALLER CABLE (P)	SIDE FOR BIGGER CABLE (G)		
KL-1	4,6 - 4,8	5,0 - 5,1	6 AAC/Cu	6 ACSR	-----	16 AAC/Cu	16 COMP AAC/Cu	-----	M5 X 30	-----
KL-2	5,8 - 6,0	6,2 - 6,4	4 AAC/Cu	4 ACSR	-----	25 AAC/Cu	25 COMP AAC/Cu	-----	M5 X 30	-----
KL-3	6,7 - 7,3	7,3 - 8,1	-----	2 AAC/Cu 2 CAA	-----	35 AAC/Cu	35 COMP AAC/Cu	50 COMP AAC/Cu	M8 X 45	-----
KL-4	9,0 - 9,7	10,0 - 10,6	1/0 AAC/Cu	2/0 AAC/Cu 1/0 ACSR	50 AAC/Cu	70 AAC/Cu	70 COMP AAC/Cu	-----	M10 X 60	M10 X 30
KL-5	11,2 - 12,3	12,7 - 13,3	3/0 AAC/Cu 2/0 ACSR	4/0 AAC/Cu 3/0 ACSR	95 AAC/Cu	-----	95 COMP AAC/Cu	120 COMP AAC/Cu	M12 X 75	M12 X 35
KL-6	14,2 - 14,5	14,5 - 15,1	4/0 ACSR	266,8 AAC/Cu	-----	120 AAC/Cu	150 COMP AAC/Cu	-----	M12 X 75	M12 X 35
KL-7	15,4 - 17,0	17,3 - 18,9	266,8 ACSR 366,4 AAC/Cu	397,5 AAC/Cu 336,4 ACSR	150 AAC/Cu	185 AAC/Cu	185 COMP AAC/Cu	240 COMP AAC/Cu	M12 X 75	M12 X 35
KL-8	20,0 - 20,8	21,7 - 22,5	477 AAC/Cu 397,5 ACSR	556,5 AAC/Cu 477 ACSR	240 AAC/Cu	300 AAC/Cu	300 COMP AAC/Cu	350 COMP AAC/Cu	M12 X 75	M12 X 35
KL-9	22,3 - 23,7	23,8 - 25,4	636 AAC/Cu 556,5 ACSR	750 AAC/Cu 636 ACSR	-----	350 AAC/Cu	400 COMP AAC/Cu	-----	M14 X 90	M14 X 40

NOTE **AAC** - All aluminium conductor
Cu - Bare copper cable
ACSR - Aluminium conductor steel reinforced
COMP - Compacted or insulated copper or aluminum cables

Dimensions and tolerances follow our design number 580.976
 Further information at our product specification ETE-005.

KARP PIERCING CONNECTOR FOR SPACER CABLES DERIVATION IN MEDIUM VOLTAGE

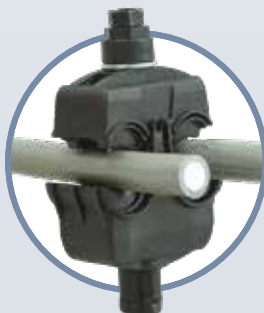
KARP piercing connectors family, were developed in order to attend a need connecting Spacer Cable derivations in medium voltage of 15, 25 and 35kV without the need for stripping or reconstitution of the insulation coverage and can be installed on connections hot line. The connector is compose of two main polymeric components, cap and base. To fix cables and electrical conduction are used busbars metallics in tinned copper alloy, piercing type. Under the busbars, the compensation spring keeps a constant contact pressure of the teeth of the busbars on the wire in the conductors.

TYPE	RANGING mm ²	RANGING mm ²	VOLTAGE kV	INSULATION COVER	TORQUE	NUMBER OF SCREWS
1	35 – 95	35 – 95	15/25	3 / 4 mm	42-46 Nm	1
2	50 – 185	50 – 185	15/25	3 / 4 mm		
3	120 – 300	120 – 300	15/25	3 / 4 mm		
4	240 – 300	70 – 95/120	15/25	3 / 4 mm		
5	70 – 185	70 – 185	35	7,6 mm		2
6	120 – 300	120 – 300	35	7,6 mm		

AES Eletropaulo unesp



**Insulation Piercing +
Spring Effect**



OPTIONAL:
Stirrups to safety
ground, available in
version 8.20 mm
diameter.



KATIL CONNECTOR FOR STREET LIGHTING

Developed for the necessity to connect lamps, it used in street lighting to the overhead electrical distribution network without occurrence of damages, the KRJ idealized the connector model **KATIL**. With innovative concept of a reuse strips for the derivation cable (lamps) allowing that lamps could turn on and turn off without interferences to the multiplexed of overhead electrical distribution network, the connector **KATIL** is indicated for using in cables without insulation or multiplexed insulated cables ranged of 16mm² to 120mm², and cables of lamps ranged of 1,0mm² to 2,5mm² in classes 2, 4, 5 and 6, could be assembly any position along the overhead electrical distribution network. Using **KATIL** the companies of electrical distribution of energy can assembly the connector to the mutilplexed network and provide a point of connection (strip), with resort effect, for the cities hall connect their lamps.

CONNECTOR FOR STREET LIGHTING

MAIN CABLE CLASS 2	6 AWG - 336,4 MCM CA/Cu
	16 - 120 mm ² CA/Cu
TAP CABLE CLASSES 2,4,5 AND 6	16 - 14 AWG Cu
	1,0 - 2,5 mm ² Cu

APPLICATION TORQUE: 4 A 5 N.m



Specific for street lighting, the **KATIL** is indicated in applications for bare or multiplexed (isolated) network and can be connected in any position.



Mission KRJ

Offer differentiated solutions that reunite products, accessories, tools dedicated, strong technical and operational field training in order to improve the electrical connection systems, the technical and economic to meeting the needs of the market.



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Winner on materials category, best materials locals suppliers of infrastructure at Enel Brasil 2016.

