

COTRAN



COTRAN

WATERPROOF PRODUCTS &
SOLUTIONS FOR TELECOM



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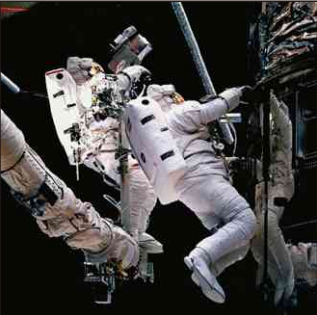
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ABOUT COTRAN

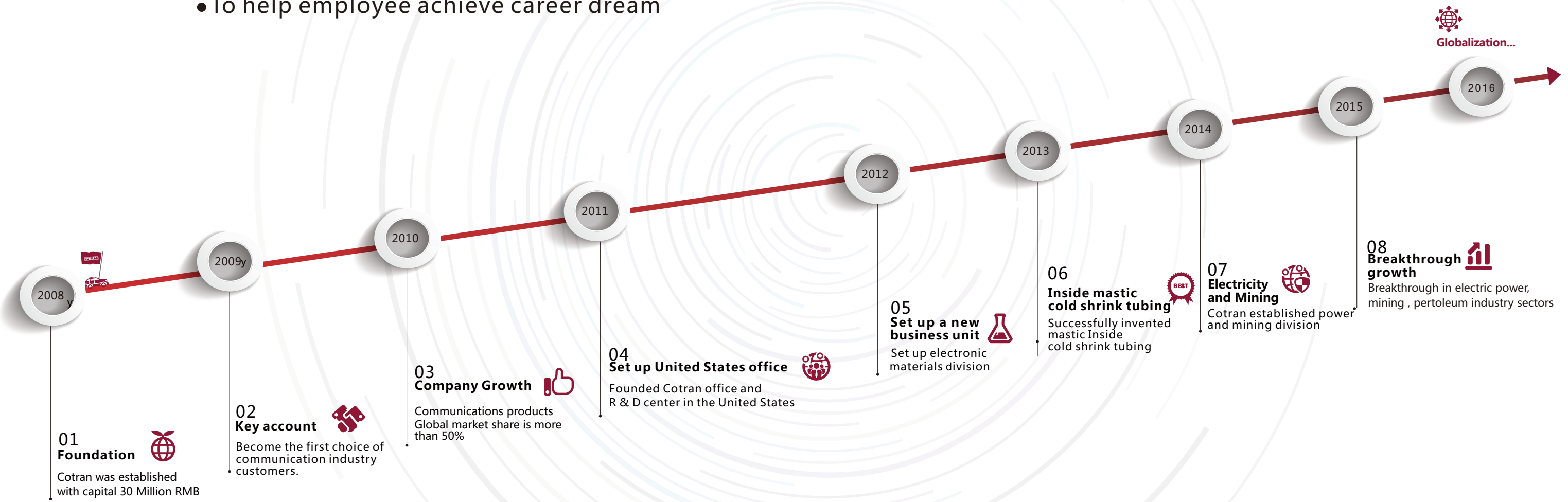


COTRAN Vision

- To be the world leader of rubber material applications & development.

COTRAN Mission

- High performance for waterproof, fireproof, sealing insulation and other applications .
- To help customer success
- To help employee achieve career dream





Stability is very important for the antenna feeder in wireless transportation systems and the whole system.

Frequently problems, such as signal decay, standing-wave ratio alarm, outdoor devices water penetration alarm, are arising due to the failure of sealing of connection of antenna feeder and the connector.

Hence, signal transportation is affected, resulting in customer complaints and increased maintenance cost.

Waterproof schematic diagram and failure



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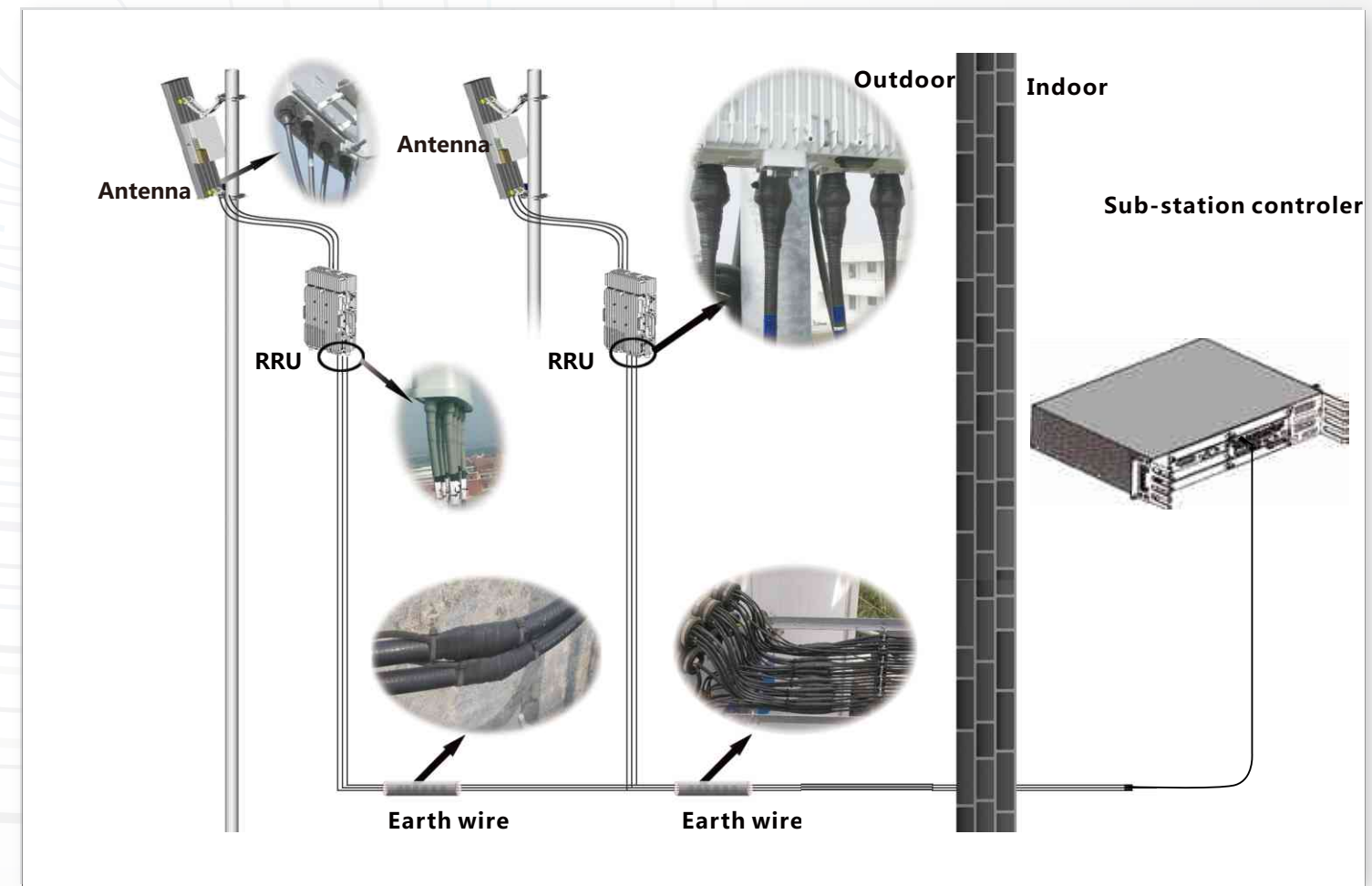
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Product Introduction

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Base station waterproof schematic diagram





Waterproof tape(Mastic) + PVC Tape

Indoor only



- Suitable for indoor connector
- Not suitable for outdoor
- The 9166 (KC86)waterseal tapewill melt and overflow easily under high temperature
- The tape is too sticky during installation

General Climate



- Suitable for outdoor connector
- Anti-UV (5 years)
- Heat-resistance
- Not recommended under extreme weather

All - Weather



- Suitable for outdoor connector (long service time)
- Anti-UV (15 years)
- Heat-resistant
- Low-temperature resistant

Prompt : There are big differences between waterseal tape 9166 (KC86) and waterproof tape T28 (KC80) prohibition of use waterseal tape 9166 (KC86) for outdoor(refer to page 25)



NEW

T28 ultra thin (C188)

Ultra thin Waterproof tape

Easy operation

- New formula
- Different widths are available



Installation Steps

Step1

1 Layer
PVC Tape



Step2

3 Layers
Waterproof Tape



Step3

3 Layers
PVC Tape



KC97 Mastic inside cold Shrink Tube

KC97 Mastic Inside Cold Shrink Tube



90% Installation Labor cost Saved

KC92 Cold Shrink Tube With Foam



90% Installation Labor cost Saved

VS

Comparison for solutions

Comparison Solution	Mastic inside	Cold shrinkable tubing+foam solution
Operating space	Small	Large
Convenience of operation	Easy	Difficult
Sealing performance	Long-term liquidity sealing	General Sealing
Shape retention	Excellent	Poor
Product cost + Labor cost	Low	High

Recommended

Not Recommended



NEW

KC97

Mastic Inside Cold Shrink Tube

Ultra-high Shrink Ratio
7/8 Feeder match 1/2 Feeder

One-step installation only



Installation Steps for KC97

Clean connector



Put on shrink tube



Installation connector



Taking off support core



End of Installation





T28(KC80)

All weather
Waterproof tape



Product Descriptions

T28(KC80) is a shapeable, adhesive and waterproof tape designed for communication connectors and made from EPR and butyl rubber. It has no corrosion to copper and other cable cover material. And it can be applied in a wide temperature. It's rated operating temperature is 90 °C and it's emergency overload is 130 °C. It has the best performance in waterproofing and sealing, which is suitable for all sorts of communication equipment connectors and cable connectors.

COTRAN Advantages

Feature	Advantages	Benefit
Great tensile strength	Good covering	Low failure rate
High elongation	Good shape retention	Reliable sealing
Imported materials	Anti-aging	Low maintenance costs
Unique formula	Heat resistance	UV
Self-melt material	Strong adhesive	Reliable Waterproof

Specifications

Property	Value	Test Method
Tensile Strength	1.16MPa	ASTM D 4325
Elongation at break	900%	ASTM D 4325
Dielectric Strength	21KV/mm	ASTM D 4325
Adhesion to steel	32N/50mm	ASTM D 1000
Ozone Resistance	Pass	ASTM D 4388
UV Resistance	Pass	ASTM D 4388
Xenon-arc Exposure	Pass	ASTM D 4388

Package Information

Model	Dimensions	Color	Packing
T28(KC80)	51mm×1.65mm×3m	Black	20pcs/CTN
T28 mini (KC80mini)	51mm×1.65mm×0.5m	Black	100pcs/CTN

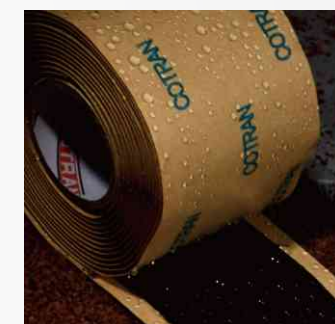
Instruction manual

1. Clean up the cable
2. 200% stretched to the original length of the tape
3. 50% Overlap wrapped on the cable with the mastic side
4. Beyond both ends of the connector 30-50mm when wrapped the tape
5. Recommend to use COTRAN PVC tape together



T28thin (C188)

Thin all weather
Waterproof tape



Product Descriptions

T28Ultra thin(C188) is a waterproof communication tape of a new generation made from EPR and Butyl rubber. T28thin is produced according to a new improved formula of COTRAN, Which is a fusion of all advice from the base station staff. It's inherits all T28 good features, and also has the new characteristics of being light&thin and easy to be operated.

COTRAN Advantages

Feature	Advantages	Benefit
Good tensile strength	Easy operate	Saving time
Ultra thin	Small place	Working efficient
Imported materials	Anti-aging	Low maintenance costs
Unique formula	Heat resistance	UV
Self-melt materia	Strong adhesive	Reliable waterproof

Specifications

Property	Value	Test Method
Tensile Strength	1.25 MPa	ASTM D 4325
Elongation at break	906%	ASTM D 4325
Dielectric Strength	20KV/mm	ASTM D 4325
Adhesion to steel	25N/38mm	ASTM D 1000
Ozone Resistance	Pass	ASTM D 4388
UV Resistance	Pass	ASTM D 4388
Xenon-arc Exposure	Pass	ASTM D 4388

Package Information

Model	Dimensions	Color	Packing
T28Ultra thin light(C188)light	51mm×1mm×3m	Black	20pcs/CTN
T28Ultra thin slim(C188)slim	38mm×1mm×3m	Black	30pcs/CTN

Instruction manual

1. Clean up the cable
2. 200% stretched to the original length of the tape
3. 50% Overlap wrapped on the cable with the mastic side
4. Beyond both ends of the connector 30-50mm when wrapped the tape
5. Recommend to use COTRAN PVC tape together



9166(KC86)
Water Seal MasticTape



Product Descriptions

9166(KC86) is a shapable, adhesive and waterproof tape made from single-layer butyl rubber. Applicable for indoor connectors, buried cables, and waterproofing for communication cable.

COTRAN Advantages

Feature	Advantages	Benefit
Great tensile strength	Good covering	Low failure rate
High elongation	Good shape retention	Reliable sealing
Imported material	Pro-environment	Low maintenance costs

Specifications

Property	Value	Test Method
Ozone	Crack Free	ASTM D 518
UV	No obvious change	ASTM G 154-2

Package Information

Model	Dimensions	Color	Packing
9166(KC86)	63mm×3.18mm×0.6m	Black	50pcs/CTN

Instruction manual

1. Clean connector dust and contaminated part
2. Remove separator paper, warp&paste tape to connector.
3. Beyond both ends of the connector 30-50mm when wrapped the tape.
4. Recommend to use COTRAN PVC tape together

Product Descriptions

KC78 is a self-amalgamating butyl rubber tape used on soild dielectric low voltage cable for electrial insulation amd filling in around irregular shaped connectors.

COTRAN Advantages

Feature	Advantages	Benefit
Electrical tape	Good covering	Low failure rate
Good electrical insulation	Good shape retention	Reliable sealing
Imported material	Pro-environment	Low maintenance costs

Specifications

Property	Value	Test Method
Tensile strength	3.72N/10mm	ASTM D 1000
Elongation	>602%	ASTM D 1000
Dielectric strength	36.1KV/mm	ASTM D 1000
Insulation resistance	1.53x10 ¹³ Ω	ASTM D 1000
Copper corrosion	None	ASTM D 69

Package Information

Model	Dimensions	Color	Packing
KC78	38mmx3.175mmx1.5m	Black	40pcs/CTN

Instruction manual

1. Perform normal cable preparation
2. Remove separator from tape
3. 100% stretched to the original length of the tape
4. 60% Overlap wrapped on the cable
5. Recommend to use COTRAN PVC tape together

KC78
Electrical insulation filler tape





833(KC63)

All-weather
Electrical tape



Product Descriptions

833(KC63) is a professional grade pressure sensitive PVC tape. It's made by the high elastic base material and coating rubber, excellent electrical insulation and shape. Apply from -18 °C to 105°C temperature range. Widely used in all kinds of mechanical and electrical joint process apply to wire and cable connector of main insulation voltage 600V and below.

COTRAN Advantages

Feature	Advantages	Benefit
Great tensile strength	Good covering	Low failure rate
High elongation	Good shape retention	Reliable sealing
Resistance low and high temp	wide range of application	Low maintenance costs

Specifications

Property	Value	Test method
Tensile strength	57.2N/19mm	ASTM D 1000
Elongation	272%	ASTM D 1000
Dielectric strength	53.2KV/mm	ASTM D 4325
Adhesion(steel)	4.41N/19mm	ASTM D 1000
Insulation resistance	$5.26 \times 10^{12} \Omega$	ASTM D 1000
Anti-Ozone	Pass	ASTM D 4388
anti UV aging	Pass	ASTM D 4388
Xenon lamp aging resistance	Pass	ASTM D 4388
Temperature rating	-18°C to 105°C	

Package Information

Model	Dimensions	Color	Packing
833(KC63)	19mm x 0.18mm x 20m	Black	100pcs/CTN

Instruction manual

1. Clean up the cable connector
2. 50% Overlap wrapped on the cable
3. PVC tape must be at the state without ant tension when using COTRAN waterproof jointy.



8712(KC62)

Quality
Electrical tape



Product Descriptions

8712(KC62) is a high-quality pressure-sensitive PVC insulation tape. It consists of substrate and coated rubber and has an excellent performance in shaping and electrical insulation. It is widely applied to all kinds of mechanical and electrical connector processing. Its temperature range is from 0°C to 80°C. Apply to wire and cable connector of main insulation voltage 600V and below.

COTRAN Advantages

Feature	Advantages	Benefit
Great tensile strength	Good covering	Good covering
High elongation	Good shape retention	Good shape retention

Specifications

Property	Value	Test method
Tensile strength	56.2N/18mm	ASTM D 1000
Elongation	222%	ASTM D 1000
Dielectric strength	46KV/mm	ASTM D 4325
Adhesion(steel)	4.24N/18m	ASTM D 1000
Anti-Ozone	Pas	ASTM D 4388
anti UV aging	Pass	ASTM D 4388
Xenon lamp aging resistance	Pass	ASTM D 4388
Temperature rating	0°C to 80°C	

Package Information

Model	Dimensions	Color	Packing
8712(KC62)	18mm x 0.18mm x 20m	Black	100pcs/CTN

Instruction manual

1. Clean up the cable connector
2. 50% Overlap wrapped on the cable
3. PVC tape must be at the state without ant tension when using cotran waterproof jointy.



KC65

Color Insulation tape



Product Descriptions

Kc65 is an adhesive, shapable, and pressure-sensitive PVC insulation tape with many colors which are not easy to fade. It has great performances in anti-friction, anti-ultraviolet antiseptic, chemical-resistance and electrical insulation. It can be used in a wide temp range.

COTRAN Advantages

Feature	Advantages	Benefit
Great tensile strength	Good covering	Low failure rate
High elongation	Good shape retention	Reliable sealing
Resistance low and high temp	wide range of application	Low maintenance costs
High fade performance	Not easy fade	Maintainable

Specifications

Property	Value	Test Method
Thickness	0.18mm	
Tensile strength	6.7N/19mm	ASTM D 1000
Temperature rating	-55°C to105°C	ASTM D 1000
Adhesion(steel)	3.42N/19mm	ASTM D 1000
Insulation strength	60KV/mm	ASTM D 4325
Insulation resistance	$2.05 \times 10^{12} \Omega$	ASTM D 1000

Package Information

Model	Dimensions	Color	Packing
KC65	19mm ×0.18mm×20m	Red	100pcs/CTN

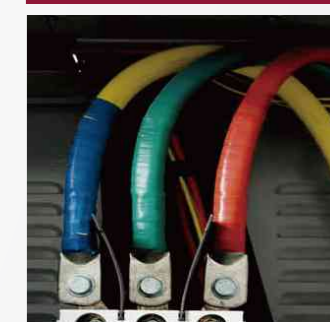
Instruction manual

1. Clean up the cable connector
2. 50% Overlap wrapped on the cable
3. Work with COTRAN waterproof tape, With the forces of nature, do not stretch.



8600(KC60)

Color electrical Insulation tape



Product Descriptions

8600(KC60) is a leadless pressure-sensitive electrical PVC insulation tape with color coding for cable identification. It has great performances in inflaming retarding, and color retention. Apply to wire and cable connector of main insulation voltage 600V and below.

COTRAN Advantages

Feature	Advantages	Benefit
Great tensile strength	Good covering	Low failure rate
High elongation	Good shape retention	Reliable sealing
High fade performance	Not easy fade	Maintainable

Specifications

Property	Value	Test Method
Tensile strength	34.8N/19mm	ASTM D 1000
Adhesion(steel)	3.34N/19mm	ASTM D 1000
Elongation	190%	ASTM D 1000
Insulation strength	61.3KV/mm	ASTM D 4325
Dielectric constant	3.06	ASTM D 4325
Insulation resistance	$2.33 \times 10^{12} \Omega$	ASTM D 1000
Fade level	4	GBT250

Package Information

Model	Dimensions	Color	Packing
8600(KC60)	19mm ×0.13mm×10m	Red	200pcs/CTN

Instruction manual

1. Clean up the cable connector
2. 50% Overlap wrapped on the cable
3. Work with COTRAN waterproof tape, With the forces of nature, do not stretch.



KC97

Mastic inside
Cold shrink tube



Product Descriptions

KC97 The cold shrink tube with mastic inside, is a new base station waterproof product by increasing mastic at silicone tube's ends and forming strict structure between cold shrink tubes and cables under the effect of casing pipe's permanent radial pressure. It fits well for dense-joint c-connectors processing in small space. It is the idealest, maturest and most reliable.

Applications

1. RRU (Outdoor equipment) connector
2. Antenna terminal
3. Feeder connector
4. Indoor system connector

COTRAN Advantages

Feature	Advantages	Benefit
Silicone Secret formula	Tube hold strength Great tensile strength	Reliable sealing Long service life
Mastic Secret formula	Good shape retention High&Low temp non-congealable Good compatibility	Flow waterproof seal Free maintenance
Support core High strength	No collapse	Long storage life

Specifications

Property	Value	Test Method
IP Grade	IPX8	IEC 60529
Tensile strength	10.3MPa	ASTM D 421
Elongation	990%	ASTM D 412
Tear strength	48.6N/mm	ASTM D 624
Brittle temperature	< -40°C	ISO 812
Electric strength	23KV/mm	ASTM D 4325
Volume resistivity	$1.3 \times 10^{17} \Omega \cdot \text{cm}$	ASTM D 4325
Flame resistance	V-0	UL94
Thermal ageing	Pass	ASTM D 412
Ozone aging	Pass	ASTM D 1149
UV aging	Pass	ASTM G 154

Package Information

Model	Dimensions	Color	Packing
KC97S	Φ28×110mm	Grey	50pcs/CTN
KC97SG	Φ35×120mm	Grey	50pcs/CTN
KC97M	Φ40×140mm	Grey	50pcs/CTN
KC97L	Φ40×180mm	Grey	50pcs/CTN



Product Descriptions

Kc92 cold shrink tube (without mastic inside) with an accordant and beautiful appearance, has perfect resilience to various sizes which is very suitable for operating dense-joint connectors in small space and easy to operate. And it can satisfy all sorts of waterproof & sealing requirements of all indoor connectors.



COTRAN Advantages

Feature	Advantages	Benefit
Great tensile strength	Tube hold strength	Reliable sealing
High elongation	Durable anti-aging	Long service life
High tear strength	Wear and friction	Low maintenance costs
Unique Formula	Wide application cable	Reduce the inventory cost

Specifications

Property	Value	Test Method
IP Grade	IP67	IEC 60529
Tensile strength	10.3MPa	ASTM D 421
Elongation	990%	ASTM D 412
Tear strength	48.6N/mm	ASTM D 624
Brittle temperature	< -40°C	ISO 812
Electric strength	23KV/mm	ASTM D 4325
Volume resistivity	$1.3 \times 10^{17} \Omega \cdot \text{cm}$	ASTM D 4325
Flame resistance	V-0	UL94
Thermal ageing	Pass	ASTM D 412
Ozone aging	Pass	ASTM D 1149
UV aging	Pass	ASTM G 154

Package Information

Model	Dimensions	Color	Packing
KC92S	Φ28×100mm	Grey	150pcs/CTN
KC92L	Φ35×100mm	Grey	150pcs/CTN

* Consult us for other sizes and colors

KC92

Silicone
Cold shrink tube

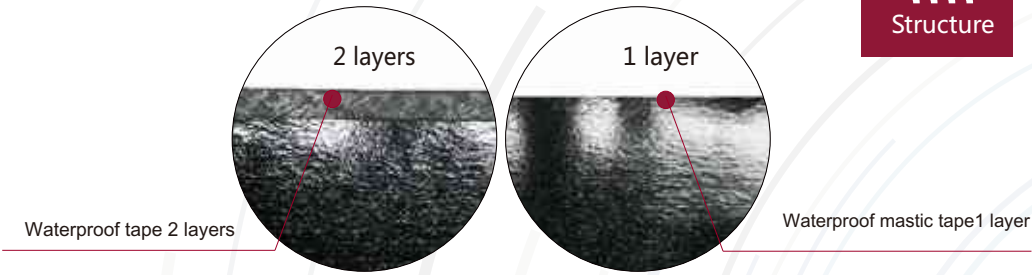


The different between waterproof tape and waterproof mastic tape



Waterproof tape VS Waterproof mastic tape

01



Not gule on hand
High efficiency



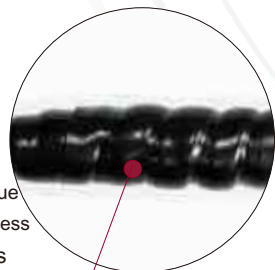
Easy stick on hand, not easy to clean
Affect the installation efficiency

02



03

High TEMP doesn't glue
Low TEMP has toughness
Anti-aging properties
Can be used in all weather



Glue overflow when high TEMP
Affecting the joint waterproof sealing effect
Suggested that indoor use only

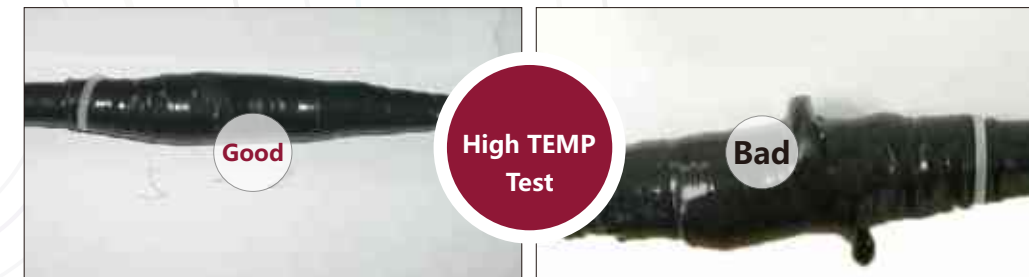
How to identify the merits of waterproof tape

Excellent VS Inferior



Excellent waterproof tape at normal temperature without any odor

Inferior tape has terrible odor, generally as inferior or recycled. It has a great influence on the sealing effect after use and life. rubber. It's composition is unstable. poor performance. low reliability.



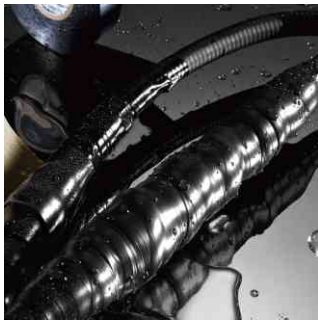
Wrapping waterproof tape on communication connectors, Quality waterproof tape without any change after test 168hours at 80°C high temperature.

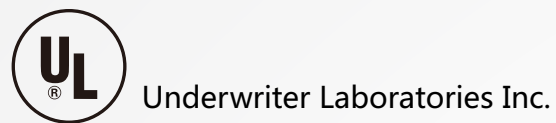
Inferior tape will be significant excess glue and affect waterproof effect.



High quality tape has no any changes after test xenon lamp and UV aging in 1000 hours

Inferior tape through the xenon lamp and UV aging obvious cracks appeared after 1000 hours. Short service life of the product.



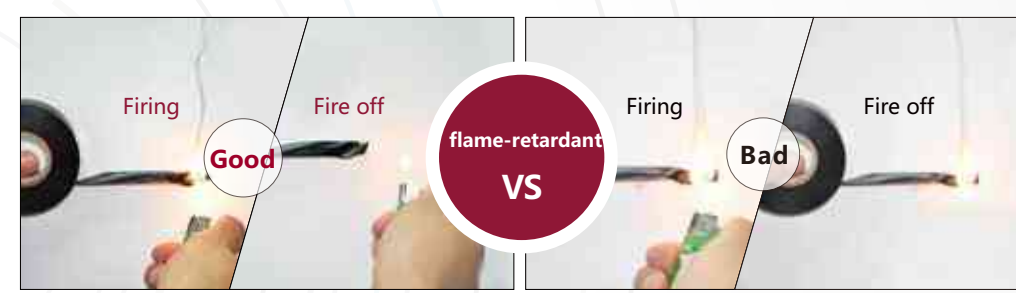


How to identify the merits of PVC tape

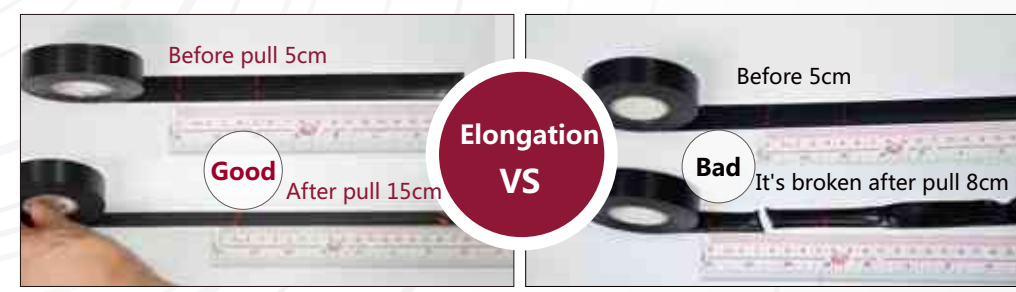
Excellent VS Inferior



With CSA, UL Certificates VS No Certificates, no reports



When left the fire, the tape has no longer firing and Self-extinguish. It is flame-retardant function VS When the fire left, the inferior tape still firing. It is not any flame-retardant function



After elongation test, the specimen is pulled off The elongation is bigger, the quality is better VS Lower elongation, worse quality of the product

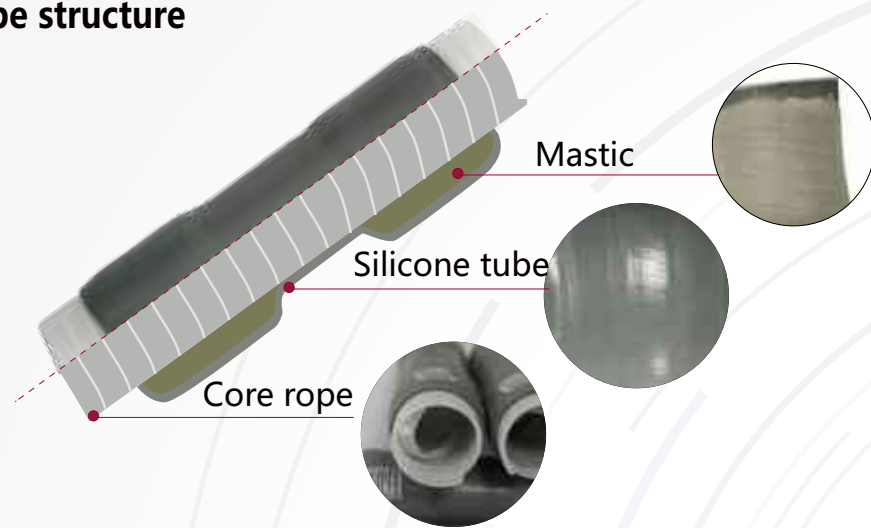


Quality color coding tape after xenon lamp exposure, after 1000 hours , product has no obvious color fading VS Inferior color coding tape after xenon lamp exposure after 1000h will has serious color fading



How to choose the mastic inside cold shrink tube

Tube structure



Silicone tube

Requirement	Property	Benefit
Strong hold force	Strong tensile strength(Index 1) High expansion rate(Index 2) Low permanent distortion(Index 3)	Excellent waterproof performance Reliably Sealing Long service life
Long life time	High elongation at break	more durable life
Resistance external damage	High tear strength	Continuous waterproof

* Hold force is the joint effect of Index 1, 2, 3

Mastic

Requirement	Property	Benefit
Non-congealable	Does not coagulate at high or low temperature	Floating seal, high reliability
Easy stereotypes	Mastic can be completely wrapped connector metal parts	Inside tube wall, sealing effect is good
No excess glue	Mastic can't be too soft it has compatibility with the tube	High reliability and long life
Buffer design	Reserving 3 mm buffer on both ends	Good weather resistance long service life

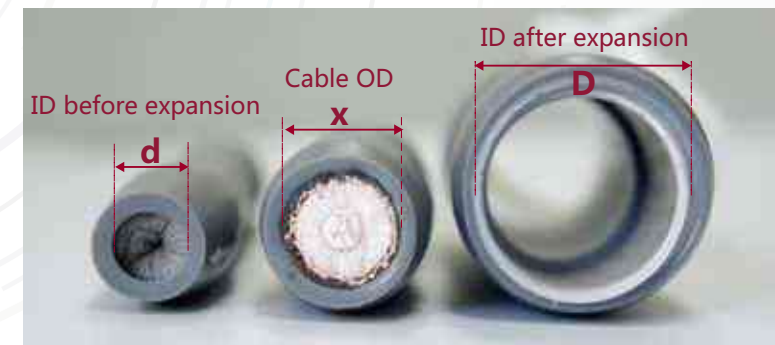
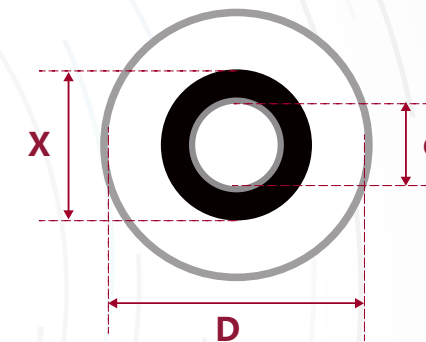
Conductor cord

Requirement	Property	Benefit
Not easy to collapse	Strong compression capability	Reduce transportation and unexpected loss
Smooth surface inside and outside	Spare mastic and shrink tube	Not effect waterseal performance
Extraction at constant speed	Hasp + ultrasonic welding	Good positioning, high accuracy during construction

COTRAN Advantage of cold shrink tube with mastic



Tube expansion rate



The expansion rate of the core rope tube = $(D-d)/d \times 100\%$

The bigger the better

The expansion rate on core rope is bigger, Silicone tube has more application. Better sealing performance during the long - run operation

The expansion rate of the cable = $(X-d)/d \times 100\%$

The bigger the better

The expansion rate on cable is bigger the silicone tube has bigger hold force to the radial of the cable and better sealing performance

COTRAN Customers

Cotran currently serves Ericsson, Huawei, Alcatel - Lucent, ZTE, Datang etc. And China Mobile, China Unicom, China Telecom. We achieved breakthrough at international market due to superior qualities of products and solutions.

We will continue to invest R & D
Continuous Innovation
Expand wider application fields
Constantly enrich products and solutions
To become the best partner for customers



- National high-tech enterprises
- ISO9001:2008
- ISO 14001:2004
- SGS · CSA · UL

