



PETROCHEMICAL SOLUTIONS

CRITICAL CONNECTIONS FOR
MISSION-CRITICAL ENVIRONMENTS

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Total Solution
for Tough
Applications





Chapter I

Company Overview

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OUR CONNECTED WORLD

TE IS THE WORLD LEADER IN CONNECTIVITY & SENSOR SOLUTIONS

TE's connectivity and sensor solutions are key enablers in our increasingly connected world. Smarter factories, connected vehicles, safer and more advanced medical devices, and data everywhere are underlying market trends creating significant opportunities for TE. Our dedication to innovation, focus on solutions for harsh environments, and commitment to delivering extraordinary customer experiences enable us to capitalize on these opportunities and more.

\$170 BILLION
Connectivity and Sensor Market



GROWING
6%*
ANNUALLY



80% REVENUE FROM HARSH ENVIRONMENT APPLICATIONS

TE's **highly engineered** products and integrated solutions perform in harsh environments where failure is not an option, meeting customers' highest demands for excellence in quality and performance.

LEADER IN HARSH ENVIRONMENT CONNECTIVITY

High Pressure
Vibration
High Voltage
Moisture
Temperature

INNOVATION LEADERSHIP

ENGINEERING CLOSE TO OUR CUSTOMERS



2015 THOMSON REUTERS
TOP 100
GLOBAL INNOVATORS

5 YEARS
IN A ROW

2015 BEST INNOVATION PRACTICES
FROM A MULTINATIONAL COMPANY
Recognition from the Shanghai government



13,500
PATENTS
granted or pending

\$625M
invested in R&D
and Engineering
FY 15

7,000+
ENGINEERS
globally

*6% estimated annual market growth rate over the next 5 years

ENERGY /// SOLUTIONS FOR PETROCHEMICAL



TE ENERGY

A LEGACY OF TRUSTED BRANDS

Company
Overview

Raychem
from TE Connectivity

TE Connectivity, offers a wide range of reliable and cost-effective products for the electrical power industry. Our position as a leading supplier of electrical components enables us to design next-generation products.

For over 60 years, we have worked closely with our customers around the globe to develop innovative solutions to ever-changing challenges, known under names such as

Axicom

TE's Axicom product line composite technology is found in a broad range of products including tubes, electromechanical relays, hollow insulators, and station post insulators.

Raychem

Founded in 1957 by electrical engineer Paul Cook, TE's Raychem family of products has been a global leader in material science, engineering, and manufacturing for more than 60 years. These products include: Cable Accessories, Connectors and Fittings, and Insulation and Protection.

Bowthorpe EMP

TE's Bowthorpe EMP pioneered the development of polymeric composite housed surge arresters in the early 1980's and since then has a proven service experience across the globe, operating in the world's toughest environments.

Simel

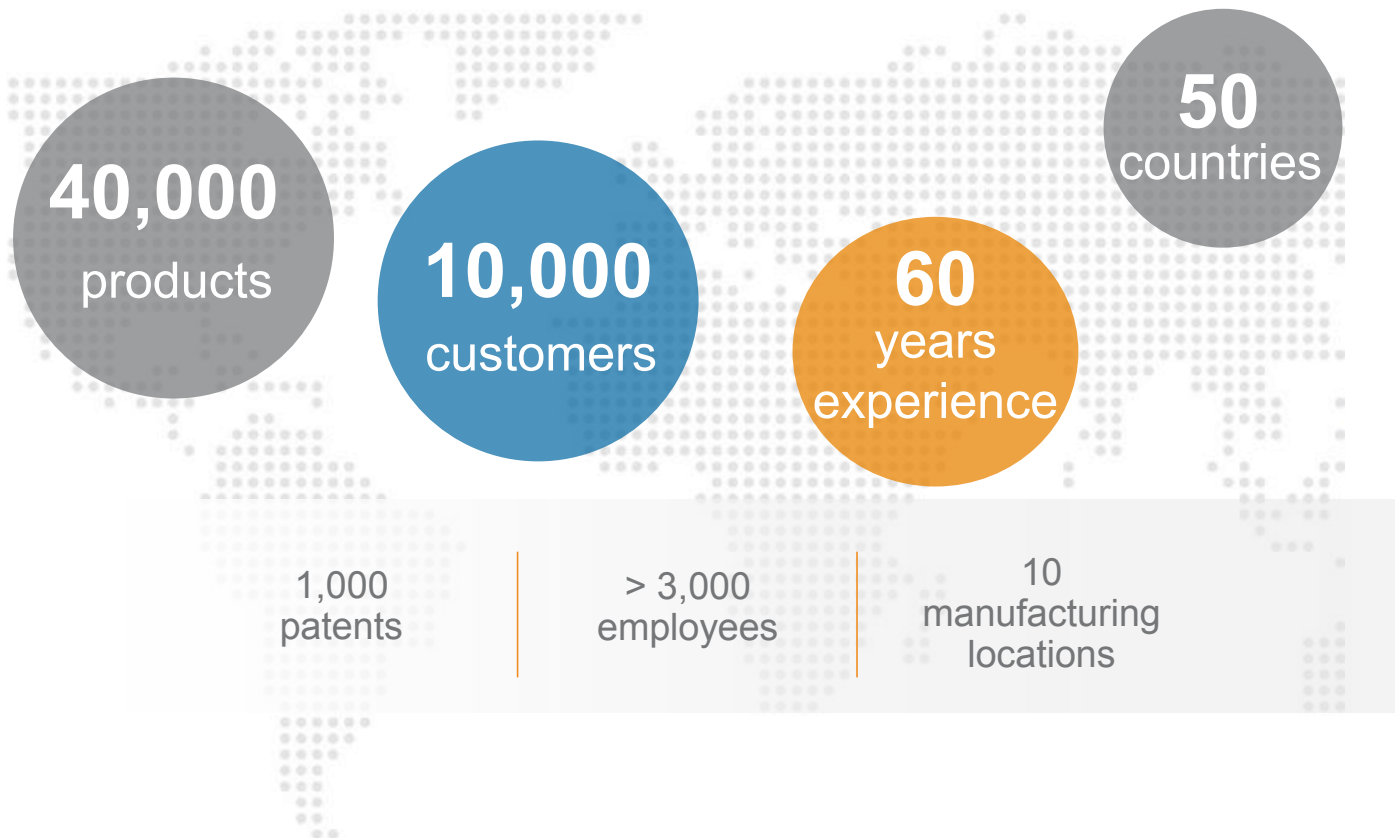
TE's Simel is the first designer of shear-bolt technology and insulation piercing technology from 1970s. TE's Simel product is the leading brand of electric connection world.

Crompton Instruments

Offering an extensive portfolio, TE's Crompton Instruments product range is designed for the measurement, control, protection and communication of power and energy consumption, and power quality data. These products have earned a worldwide reputation for quality, and offer proven reliability across a diverse array of applications.

TE ENERGY

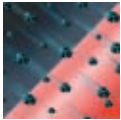
We have sales representatives in more than 50 countries and manufacturing sites in five continents.



A CULTURE OF INNOVATION

Systematic research into new materials has resulted in a wide range of products with enhanced properties to meet the changing needs of the electrical power industry:

Company
Overview



Non-tracking and UV stable materials

Resist tracking or erosion occur when leakage currents are developed in wet conditions on contaminated material.



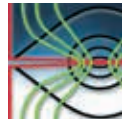
Moisture blocking

Avoid water accumulation on surface of materials and moisture ingress into products, which may cause risk of failure.



UHV composite material

Provide extraordinary insulation performance in a more compact dimension and less weight.



Reduced contact resistance

Lower contact resistance of connectors will cause less power loss and temperature rising.



Surge suppression systems

Reliable surge suppression system keeps power lines and facilities free from damage of electrical surge.



Resin technology

Advanced resin materials employed in joints and connectors for insulation and sealing.



PowerGel

Easy and clean installed gel materials for reliable protection against humidity and water.



Shearbolt technology

Unique shear-bolt design, no specific installation tools needed, easy and fast installed to obtain reliable connection.



High performance heatshrinkable multi-layer materials

High performance heatshrinkable multi-layer materials for MV joints, faster installed and extraordinary electrical performance achieved.



Electrical stress control

Effective electrical stress control materials and designs employed, to get high performance of cable accessories and connectors.

Our extensive breadth of technology is represented through our portfolio of globally recognized TE's product brands: Raychem, Simel, ALR, Utilux, Bowthorpe EMP, B&H, Crompton Instruments.





Chapter II Comprehensive Product Portfolio

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Stable connectivity is critical to the safety and efficiency of petrochemical, oil, and gas operations. TE Connectivity (TE) is qualified to serve these industries by offering High, Medium, and Low Voltage components designed to perform reliably in the most challenging environments.

A COMPREHENSIVE PORTFOLIO FOR THE PETROCHEMICAL INDUSTRY

From erosion and abrasion to UV damage, connectivity solutions for petrochemical plants are expected to perform reliably in some of the harshest environments imaginable. The industry as a whole is also challenged with meeting ever-increasing global demand, while maximizing efficiency, safety, and stability in applications where failure truly isn't an option.

TE is a trusted partner for the petrochemical, oil and gas industries, developing high performance solutions that are approved for global use and comply with rigorous international standards, including GB, IEC, and IEEE. Our High, Medium, and Low Voltage power connection, insulation, and protection materials are also engineered to withstand electrical and environmental stress for decades of maintenance-free operation.

Comprehensive Product
Portfolio

Capabilities

With over 40 years of materials science expertise, TE has a rich history of creating innovative solutions that meet extremely tough challenges. Other benefits of partnering with TE include:

- A wide range of cost efficient products
- Broad product portfolio that resists age, chemical erosion, and constant exposure to elements
- Research and development is carried out at 13 outstanding scientific and engineering research facilities around the world, ensuring product conformity to different international standards
- With 10 manufacturing facilities across the globe, we react promptly to customer requirements and keep lead times and shipping distances to a minimum
- Sales representatives in more than 50 countries and manufacturing sites in five continents

DELIVERING EXTRAORDINARY CUSTOMER EXPERIENCES

When you partner with TE, you are getting more than reliable products and safety operations. You are getting local support, backed by the combined wisdom and global experience of more than 7,000 engineers.



The Power of TE's Raychem Reliability

TE's Raychem family of products is synonymous with reliable performance in extreme environments. For the past 40 years, These products have been at the forefront of advancements in materials science, engineering, and manufacturing. They withstand harsh conditions – and the test of time – by resisting weathering processes like pollution and contamination and salt fog.



The TE Advantage

Design Assistance: We support your team from start to finish, offering everything from solutions to challenging design problems to hands-on field support for stress-free installation. This includes matching components to environmental demands and assistance in calculating electrical and mechanical requirements.

Installation Training and Supervision: Our engineers and product teams provide the best expertise and support in the industry. We can assist with installation training, including on-site visits to supervise the installation of our products.

Deep Resources of a Global Company: As a global leader in connectivity solutions, TE has more than 60 years of experience in the most diverse industries across the world, and provides customers with tried and proven technologies projects to ensure safe and efficient power connectivity. .







Chapter III

Total Solution for Tough Applications

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A TOTAL SOLUTION FOR TOUGH APPLICATIONS

Our High, Medium, and Low Voltage products provide a complete connectivity solution for petrochemical applications, which includes accessories for transformers, panels, generators and motors.

- TE's Axicom Composite Hollow Core Insulators
- Connectors and fittings
- High Voltage cable accessories
- Insulating and protection
- Cold and heat shrink cable accessories



TE'S AXICOM COMPOSITE HOLLOW CORE INSULATORS

TE's Axicom Composite Hollow Core Insulators are widely used in GIS Bushings, Transformer Bushings, Surge Arresters, Station Post Insulators, Live & Dead Tank Circuit Breakers as well as High Voltage Terminations. They perform a vital function in ensuring the reliability of power systems across all voltage ratings up to Extra High Voltage.

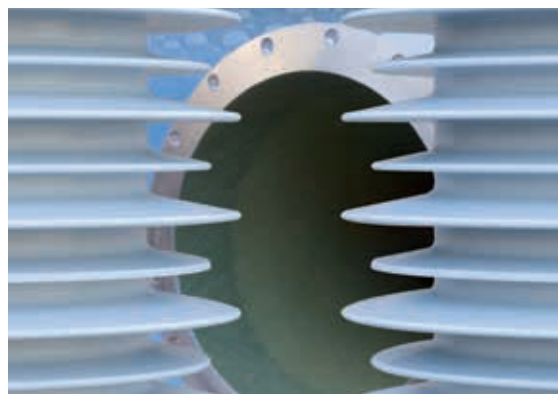


KEY BENEFITS

- Advanced Materials Technology
- Lean Design Advantage
- State of the Art Manufacturing Process

TE'S AXICOM COMPOSITE HOLLOW CORE INSULATORS

- More than 25 years' experience in the global market
- Technical leadership – 'Press Fit' flanges, Mechanical, Electrical, Chemical and Environmental properties, superior HTV silicone material and developed flange design using minimal material.
- Over 260,000 TE's Axicom hollow core insulators installed globally
- In compliance with IEC, IEEE and GB Design and Test Standards.
- State of the art Manufacturing Facilities in China and Switzerland offering superior products that are competitive in today's market.
- Voltage level from 66kV to 1100kV.



Electrical Performance

Rated Voltage (kV)	72.5-1100
Inner Diameter(mm)	130, 158, 198, 248, 300, 358, 486, 586
Length (mm)	500-12000
Material	A2313/A2314, A2315/A2316, A2317/A2318

Selection Table

Inner Diameter (mm)	Outer Diameter (mm)	Length (mm)	MML (kN.m)	MSP (Mpa)
130	142	customized	2.5-4.4	1.9-2.6
154	166	customized	3.5-6.0	1.6-2.2
198	206	customized	3.7-6.4	0.8-1.1
248	257	customized	6.8-11.2	0.7-1.0
300	312	customized	13-22	0.8-1.1
358	374	customized	25-42	0.9-1.2
486	510	customized	68-116	1.0-1.4
586	610	customized	99-168	0.8-1.1

HIGH VOLTAGE CABLE ACCESSORIES

Using its knowledge and experience accumulated from more than 40 years in the field of material science, TE's Raychem has pioneered some of the most important technical advances in cable accessory technology. Based on this fact our high-voltage cable accessories are well accepted for distribution & transmission by utilities, equipment manufacturers and industrial users throughout the world. We offer a broad range of reliable and cost-effective, high-performance solutions for all applications in the field of high-voltage engineering up to 245 kV, outdoor terminations (OHVT), dry type transformer/switchgear terminations (PHVT/PHVS) and joints (EHVS) ect on.

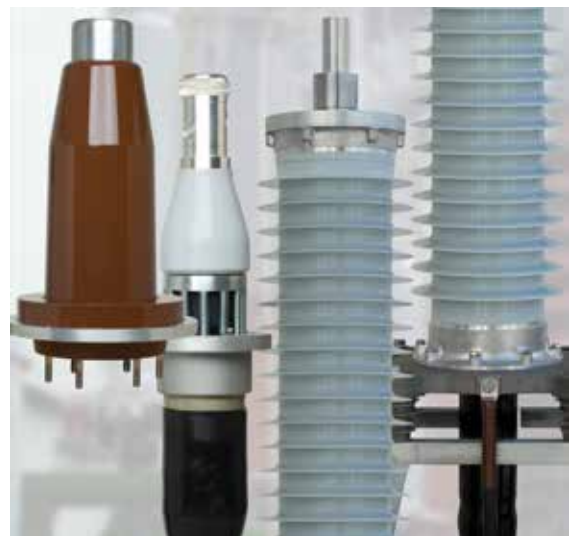


KEY BENEFITS

- Customer-focused organization
- Driven by innovation and technology
- Extensive product range
- Multiple market-segment presence
- Industrial leadership and expertise

CABLE SEALING ENDS

- Pre-fabricated and factory-tested stress cone, made of high-quality silicone
- Torque-controlled connector
- No special tools required to complete the installation
- Solderless grounding connection ensures the effective current carrying and avoids the heat damage on the cable insulation
- Type tested according to IEC60840 & GB/T11017, IEC62067 & GB/Z18890



OHVT OUTDOOR TERMINATION

- Silicone oil filling without preheating
- Isolated base plate for sectionalization
- Fittings made of corrosion-resistant alloy



Electrical Performance

Type			OHVT-72P	OHVT-126P	OHVT-145P	OHVT-145C	OHVT-245P	OHVT-245C
Description			Porcelain outdoor termination	Porcelain outdoor termination	Porcelain outdoor termination	Composite outdoor termination	Porcelain outdoor termination	Composite outdoor termination
Max. operation voltage		Um(kV)	72	126	145	145	252	252
Basic impulse level (BIL)		1.2/50 μ s(kV)	350	550	650	650	1050	1050
Flashover distance		mm	835	1350	1350	1360	2670	2323
Creepage		mm	2250	4495	≥ 3625	5456	9100	7930
Application range	Max. cable conductor size	mm ²	Max.1200	Max.1600	Max.1600	Max.1600	Max.2500	Max.2500
	Max. diameter over cable insulation	mm	Max.76	Max.86	Max.86	Max.86	Max.119	Max.119

PHVS & PHVT DRY COMPACT SWITCHGEAR/ TRANSFORMER TERMINATION

- Dry interfaces, no oil-filling
- Dimensions comply with IEC62271-209
- Operates in SF6 and insulating liquids
- Torque-controlled multi-contact conductor bolt
- Isolated cable gland for sectionalization



Electrical Performance

Type			PHVS-72	PHVT-72	PHVS-145/170	PHVT-145/170	PHVS-245	PHVT-245
Description			Dry compact plug-in GIS termination	Dry compact plug-in Transformer termination	Dry compact plug-in GIS termination	Dry compact plug-in Transformer termination	Dry compact plug-in GIS termination	Dry compact plug-in Transformer termination
Max. operation voltage		Um(kV)	72	72	170	170	252	252
Basic impulse level (BIL)		1.2/50 μ s(kV)	450	450	750	750	1050	1050
Length (with extension adapter)		mm	310(583)	310(583)	470(757)	470(757)	620(960)	620(960)
Application range	Max. cable conductor size	mm ²	Max.1600	Max.1600	Max.2500	Max.2500	Max.2500	Max.2500
	Max. diameter over cable insulation	mm	Max.78	Max.78	Max.108	Max.108	Max.119	Max.119

EHVS ONE PIECE HV JOINT

- Premoulded one-piece joint body, made of high-quality silicone
- Torque-controlled connector
- Alternative solutions of outer sealing and protection
- Special silicone rubber provides excellent compression force for optimized electrical performance
- Solderless grounding connection ensures the effective current-carrying and avoids the heat damage on the cable insulation
- Type tested according to IEC60840 & GB/T11017, IEC62067 & GB/Z18890



Electrical Performance

Type			EHVS-126SC EHVS-126IC	EHVS-126SCB EHVS-126ICB	EHVS-145/170SC EHVS-145/170IC	EHVS-145/170SCB EHVS-145/170ICB	EHVS-245SC EHVS-245IC	EHVS-245SCB EHVS-245ICB
Description			Shield break/inline joint with copper casing	Shield break/inline joint with copper casing plus coffin box	Shield break/inline joint with copper casing	Shield break/inline joint with copper casing plus coffin box	Shield break/inline joint with copper casing	Shield break/inline joint with copper casing plus coffin box
Max. operation voltage		Um(kV)	126	126	170	170	252	252
Basic impulse level (BIL)		1.2/50 μ s(kV)	550	550	750	750	1050	1050
Application range	Max. cable conductor size	mm ²	Max.1600	Max.1600	Max.2500	Max.2500	Max.2500	Max.2500
	Max. diameter over cable insulation	mm	Max.85	Max.85	Max.108	Max.108	Max.119	Max.119

HEAT-SHRINKABLE TERMINATIONS (OHVT-H)

- Compact and modular design with light weight components
- Heat-shrinkable stress control sleeves
- Non-tracking, heat-shrinkable outer insulation
- Water and corrosion-resistant
- Different creepage distances available
- Suitable for compression and mechanical lugs
- Easy to install without special or expensive tools required
- Unlimited shelf life under normal storage conditions
- Solderless grounding connection ensures the effective currency but avoids the heat damage on the cable insulation
- Tested in accordance with IEC 60840



Electrical Performance

Type			OHVT-72H
Description			Heat shrink outdoor termination
Max. operation voltage		Um(kV)	72
Basic impulse level (BIL)		1.2/50 μ s(kV)	350/450
Creepage		mm	2300
Application range	Max. cable conductor size	mm ²	Max.2500
	Max. diameter over cable insulation	mm	Max.86

HEAT-SHRINKABLE JOINTS (EHVS-H)

- Compact and modular design with light weight components
- Heat-shrinkable stress control sleeves
- Proven shield continuity concept
- Joint fits on all polymeric cable constructions
- Cable size transition possible
- Torque-controlled connector
- Short cut-back dimension
- Water and corrosion-resistant
- Easy to install without special or expensive tools required
- Unlimited storage life-time under normal conditions
- Solderless grounding connection ensures the effective currency but avoids the heat damage on the cable insulation
- Tested in accordance with IEC 60840



Electrical Performance

Type			EHVS-72H-S EHVS-72H-I
Description			Heat shrink shield break/inline joint
Max. operation voltage		Um(kV)	72
Basic impulse level (BIL)		1.2/50 μ s(kV)	350/450
Application range	Max. cable conductor size	mm ²	Max.2500
	Max. diameter over cable insulation	mm	Max.86

HIGH VOLTAGE TESTING LABORATORY

An essential part of any class-leading high voltage manufacturers capability is a world-class high voltage test laboratory. Located in our Kunshan facility in China is our 1,600m² fully-shielded high voltage test laboratory capable of testing HCl's up to 1,000kV and bushings up to 550kV. The laboratory can perform up to 1,350kV AC and PD tests with a background noise of less than 1.30 pC plus a 3600kV Impulse Generator.



- In-house testing provides a fast and reliable reference point for testing our Axicom Composite HCl and Equipment Bushings.
- Fully equipped and accredited laboratory to meet today's global testing standard

TESTING CAPABILITY

- Testing HCl's up to 1,000kV to meet GB and IEC standards.
- Testing Equipment Bushings up to 550kV to meet GB and IEC standards.
- Testing HVCA products using Axicom HCl insulators from 10kV to 500kV and margin study test.

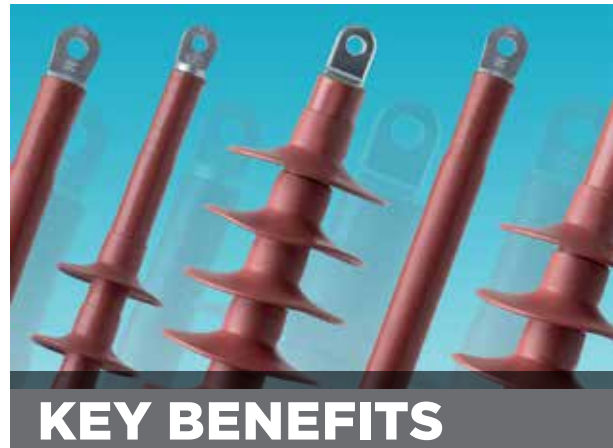


MEDIUM VOLTAGE HEAT SHRINK CABLE ACCESSORIES

Millions of TE's Raychem medium voltage heat-shrink cable accessories up to 42kV have been installed worldwide, for more than four decades, in extremely severe service conditions, and under high electrical, thermal, technical and environmental stress.

The reliability of the technologies is proven and the heat-shrink technology has the versatility to joint most cable types.

Proven anti-tracking, erosion- and UV resistant insulating material have been employed in TE's Raychem heat-shrink termination, for indoor and outdoor applications.



KEY BENEFITS

- Wide applications for polymeric and MIND paper insulated cables up to 40.5kV(GB)/42kV(IEC).
- Enhanced range-taking ability
- Unlimited shelf life, allows stocking of economic quantities without spoilage
- Excellent performance in polluted and harsh environments
- Proven excellent performance, with 40 years experience and reputation

APKT HEAT SHRINK TERMINATION

- Red non-tracking HVOT tubing provides excellent environmental protection
- Fully sealed by hot melt sealant, against moisture ingress from environment
- Rain skirts can be installed to allow either top or bottom feed
- Extendible tail length and number of skirts for special industrial application
- Full tested according to IEC 60502.4 and GB/T 12706.4



Electrical Performance

Voltage (kV)		8.7/15(17.5)	26/35(40.5)
Application Range	Cross Section (mm ²)	25-1000	50-1000
	Insulation Diameter	16-49	30-60
AC Test/5 min (kV)		39	117
BIL Test/±10 Times(kV)		95	200
PD <5pC (1.73U ₀ , kV)		15	45

Selection Table

Voltage	Cores	Application	Cross Section(mm ²)	Description	Note
8.7/10(17.5)kV	Three-Core	Indoor	25-70	APKT-10I-2570L	Tail Length: 800mm
			95-240	APKT-10I-9524L	
			300-400	APKT-10I-3040L	
			500-630	APKT-10I-5063L	
		Outdoor	25-70	APKT-10O-2570L	Tail Length: 1200mm
			95-240	APKT-10O-9524L	
			300-400	APKT-10O-3040L	
			500-630	APKT-10O-5063L	
	Single-Core	Indoor	35-70	APKT-10B1XI	
			95-240	APKT-10C1XI	
			300-400	APKT-10D1XI	
			500-800	APKT-10E1XI	
			1000	APKT-10F1XI	
		Outdoor	35-70	APKT-10B1XO	
			95-240	APKT-10C1XO	
			300-400	APKT-10D1XO	
26/35(40.5)kV	Three-Core	Indoor	50-95	APKT-35C3XI-(L)	Long Type
			120-185	APKT-35D3XI-(L)	
			240-500	APKT-35E3XI-(L)	
		Outdoor	50-95	APKT-35C3XO-(L)	Long Type
			120-185	APKT-35D3XO-(L)	
			240-500	APKT-35E3XO-(L)	
	Single-Core	Indoor	50-95	APKT-35C1XI	
			120-185	APKT-35D1XI	
			240-500	APKT-35E1XI	
			630-1000	APKT-35F1XI	
		Outdoor	50-95	APKT-35C1XO	
			120-185	APKT-35D1XO	
			240-500	APKT-35E1XO	
			630-1000	APKT-35F1XO	

APKJ HEAT SHRINK JOINT

- Triple-extruded body provides a pre-engineered joint with fewer kit components, easier and faster for installation
- Higher recovery force and interface pressure improve electrical performance and reliability
- Unique low viscosity void filler flows to create a smooth profile
- Specific thick-wall heat-shrinkable sleeves, with hot melt adhesive to ensure an effective moisture sealing and corrosion protection of the joint.
- Full tested according to IEC 60502.4 and GB/T 12706.4



Electrical Performance

Voltage (kV)		8.7/15(17.5)	26/35(40.5)
Application Range	Cross Section (mm ²)	25-1000	50-1000
	Insulation Diameter	16-49	30-60
AC Test/5 min (kV)		39	117
BIL Test/±10 Times(kV)		95	200
PD <5pC (1.73U ₀ , kV)		15	45

Selection Table

Voltage	Cores	Cross Section(mm ²)	Description	Note
8.7/10(17.5)kV	Three-Core	25-50	APKJ-10-2550	For armored cable
		70-150	APKJ-10-7015	
		185-300	APKJ-10-1830	
		400-500	APKJ-10-4050	
		25-50	APKJ-10-2550-U	For unarmored cable
		70-150	APKJ-10-7015-U	
		185-300	APKJ-10-1830-U	
		400-500	APKJ-10-4050-U	
26/35(40.5)kV	Three-Core	50-185	APKJ-35-5018	For armored cable
		240-400	APKJ-35-2440	
	Single-Core	50-185	APKJ-35-5018-SC	For armored cable
		240-630	APKJ-35-2463-SC	
		50-150	APKJ-35-5015-SC-LSF	Low Smoke Zero Halogen joints
		185-400	APKJ-35-1840-SC-LSF	

* Note: For other applications and more details, please contact your local sales representative.

MEDIUM VOLTAGE COLD APPLIED CABLE ACCESSORIES

TE's Raychem cold shrink terminations is made from a high performance, liquid silicone material. They are specially formulated for excellent anti tracking properties, split resistance and superior electrical properties delivering long, trouble-free service.

The extra long, silicone stress cone is integrated with the body and eliminates positioning issues common with normal cold shrink cable accessories.

Easy release spiral hold out ensures one-step installation.

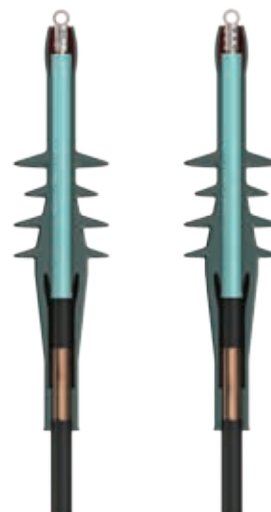


KEY BENEFITS

- Designed to provide reliable connection of a wide range of cable types
- Made from a high-performance silicone material, specially-formulated for split resistance.
- Designed to accommodate the variety of cable and connector types used in today's networks
- Easy to installation without any heavy tools

CSTO/I COLD SHRINK TERMINATION

- One-piece termination
- Pre-expanded termination body with integrated stress control deflector
- Improving on non-tracking performance to be excellent in duty environmental
- Pre-expansion on a well-known and easy-to-install holdout system
- Full test according to different area standard such as HD 629, GB 12706, IEC 60502, IEEE 404



Electrical Performance

Voltage (kV)	8.7/15(17.5)	26/35(40.5)	52
Cross Section (mm ²)	25-630	50-800	150-400
Insulation Diameter	16-42	30-47	40-48
AC Test/5 min (kV)	39	117	124
BIL Test/±10 Times(kV)	95	200	250
PD <10pC (1.73U ₀ , kV)	15	45	48 (<5pC)

Selection Table

Voltage	Cores	Indoor/Outdoor	Cross Section(mm ²)	Description
8.7/10(17.5)kV	Three-Core	Indoor	25-35	CSTI-10-2535-T
			50-150	CSTI-10-5015-T
			185-400	CSTI-10-1840-T
			500	CSTI-10-4050-T
		Outdoor	25-35	CSTO-10-2535-T
			50-150	CSTO-10-5015-T
	Single-Core	Indoor	185-400	CSTO-10-1840-T
			500	CSTO-10-4050-T
			50-150	CSTI-10-5015-SC
		Outdoor	185-400	CSTI-10-1840-SC
			500-630	CSTI-10-4063-SC
			50-150	CSTO-10-5015-SC
26/35(40.5)kV	Three-Core	Indoor	185-400	CSTO-10-1840-SC
			500-630	CSTO-10-4063-SC
			50-70	CSTI-35-5070-CN
		Outdoor	95-300	CSTI-35-9530-CN
			400	CSTI-35-400-CN
			50-70	CSTO-35-5070-CN
	Single-Core	Indoor	95-300	CSTO-35-9530-CN
			400	CSTO-35-400-CN
			50-70	CSTI-35-5070-CN
		Outdoor	95-300	CSTI-35-9530-CN
			400-800	CSTI-35-4080-SC-CN
			50-70	CSTO-35-5070-SC-CN
52kV	Single-Core	Outdoor	95-300	CSTO-35-9530-SC-CN
			400-800	CSTO-35-4080-SC-CN
			150	CSTO-27.5-150-SC
			185	CSTO-27.5-185-SC
			240	CSTO-27.5-240-SC
		Indoor	300	CSTO-27.5-300-SC
			400	CSTO-27.5-400-SC
			150	CSTI-27.5-150-SC
			185	CSTI-27.5-185-SC
			240	CSTI-27.5-240-SC
			300	CSTI-27.5-300-SC
			400	CSTI-27.5-400-SC

* Note: Single-core termination suit for unarmored cable. For other applications and more details, please contact your local sales representative.

If 26/35(40.5)kV and 52kV CST is please consult TE office first.

CSJT COLD SHRINK JOINT

- Pre-expanded, single piece silicone rubber joint body with high mechanical expansion capability allows a wide application range
- Electrical stress control of the screen cut area by integrated conductive geometrical stress cones
- Electrical stress control of the connector area by an integrated screened connection area (Faraday cage)
- Pre-expansion on a well-known and easy-to-install holdout system
- Proven shield continuity concept



Electrical Performance

Voltage (kV)	8.7/15(17.5)	26/35(40.5)	52
Cross Section (mm ²)	25-630	35-630	150-400
Insulation Diameter	16-42	28-54	40-48
AC Test/5 min (kV)	39	124	124
BIL Test/±10 Times(kV)	95	250	250
PD <10pC (1.73U ₀ , kV)	15	45	48 (<5pC)

Selection Table

Voltage(kV)	Cores	Cross Section(mm ²)	Description
8.7/10(17.5) kV	Three-Core	25-35	CSJT-10-2535
		50	CSJT-10-50M
		70	CSJT-10-70M
		95	CSJT-10-95M
		120-150	CSJT-10-5015
		185-300	CSJT-10-1830
		400	CSJT-10-400
		500	CSJT-10-500
	Single-Core	50-95	CSJT-10-5070M-SC
		120-150	CSJT-10-5015-SC
26/35(40.5) kV	Three-Core	185-300	CSJT-10-1830-SC
		400-630	CSJT-10-4063-SC
	Single-Core	50-95	CSJT-10-5070M-SC
		120-150	CSJT-10-5015-SC
		185-300	CSJT-10-1830-SC
		400-630	CSJT-10-4063-SC
		35-70	CSJT-35-3570-CN
		95-150	CSJT-35-9515-CN
	Three-Core	185-300	CSJT-35-1830-CN
		400	CSJT-35-400-CN
		500	CSJT-35-500-CN
52kV	Single-Core	35-70	CSJT-35-3570-SC-CN
		95-150	CSJT-35-9515-SC-CN
		185-300	CSJT-35-1830-SC-CN
		400	CSJT-35-400-SC-C
		500	CSJT-35-500-SC-CN
		630	CSJT-35-630-SC-CN
		150	CSJT-27.5-150-SC
		185	CSJT-27.5-185-SC
	Single-Core	240	CSJT-27.5-240-SC
		300	CSJT-27.5-300-SC
		400	CSJT-27.5-400-SC

* Note: For other applications and more details, please contact your local sales representative.

MEDIUM VOLTAGE SWITCHGEAR CONNECTORS

TE's Raychem separable connectors are designed to connect a wide range of cables to electrical equipment. These connectors are fully screened and submersible, suitable for indoor and outdoor installation. The separable connector is easily connected and is user friendly requiring only a standard socket spanner.



KEY BENEFITS

- Designed to connect a wide range of cables to electrical equipment.
- Fully screened and touchable, well sealed and submersible, suitable for indoor and outdoor installation.
- Compact design requiring only little installation space.
- Unparalleled customer service, design assistance and field support.
- Special solutions for products made to withstand harsh environments.

RSTI-58 SCREENED SEPARABLE CONNECTOR

- For connecting polymeric cables to medium-voltage gas insulated switchgear and other equipment using bushings type “C” (EN50180/50181) specified for 630A/1250A up to 24kV.
- The insulation made of highly modified silicone rubber.
- Thin-walled screen protects the connection system.
- Easily accessible rear plug with capacitive test point.
- Few accessories required for system set.
- Complete kit including lugs facilitates installation and storage.



Electrical Performance

Voltage (kV)	24
Cross-section (mm ²)	25 - 300
Insulation diameter	12.7 - 34.6 mm
Continuous current rating	800 A
Basic impulse level	150 kV
Partial discharge at 2U ₀	< 2 pC
AC voltage withstand, 1 min	57 kV
DC voltage withstand, 15min	76 kV
Thermal short circuit, 1s	54 kA
Dynamic short circuit	125 kA

Selection Table

Voltage	Cross section (mm ²)	Diameter over insulation (mm)	Description
12 (kV)	35 - 95	12.7 - 23.4	RSTI-5851
	95 - 120	12.7 - 23.4	RSTI-5852
	95 - 240	17.0 - 30.1	RSTI-5853
	150 - 240	21.2 - 34.6	RSTI-5854
	185 - 300	21.2 - 34.6	RSTI-5855
	240 - 400	21.2 - 34.6	RSTI-5856
24 (kV)	35 - 70	12.7 - 23.4	RSTI-5851
	95 - 185	17.0 - 30.1	RSTI-5853
	95 - 240	21.2 - 34.6	RSTI-5854
	185 - 300	21.2 - 34.6	RSTI-5855

RPIT INNER CONE PLUG-IN TERMINATION

- Shielded inline connection for gas insulated switchgear and transformers up to 52kV.
- Metal-enclosed, hermetically insulated and suitable outdoor use.
- Compatible with inner cone bushings size 2 (800A) and size 3 (1250A) as per EN50180/EN50181.
- Simple installation and plug-in of inner cone termination by using silicone component and offering an easy-to-handle installation tool.
- Special designs and offshore applications with bronze protection cover.
- Optional voltage detection point.



Electrical Performance

Item	Size 2	Size 2 (China)	Size 3	Size 3 (China)
U_0/U	20.8/36	26/35	20.8/36	26/35
U_m	42	40.5	42	40.5
DC withstand voltage 15min (kV)	125	104	125	104
AC withstand voltage 5min (kV)	93.5	117	93.5	117
PD at ambient temp (kV)	< 2pC	< 2pC	< 2pC	< 2pC
Impulse voltage at elevated temp (kV)	200	200	200	200
Heating cycle voltage in air (kV)	52	65	52	65
Heating cycle voltage in water (kV)	52	65	52	65
Thermal short circuit conductor (kA)	31.8 / 2.9sec	31.5 / 3sec	34.9 / 4.8sec	38.9 / 3sec
Dynamic short circuit (kA)	125	125	125	125
Disconnection / connection	5 x pass	5 x pass	5 x pass	5 x pass
PD at elevated and ambient temp (kV)	< 2pC	< 2pC	< 2pC	< 2pC
Impulse voltage at ambient temp (kV)	200	200	200	200
AC withstand voltage 15min (kV)	52	65	52	65

Selection Table

System voltage	Size	Norminal current (A)	Cross section (mm ²)	Diameter over insulation (mm)	Description
12 (kV)	2	800	120 - 400	21.0 - 33.0	RPIT-32xx
	3	1250	240 - 630	26.0 - 40.0	RPIT-33xx
24(kV)	2	800	50 - 400	21.0 - 39.0	RPIT-52xx
	3	1250	150 - 630	26.0 - 42.5	RPIT-53xx
36 / 42 (kV)	2	800	50 - 400	23.5 - 42.0	RPIT-62xx
	3	1250	70 - 630	26.0 - 50.0	RPIT-63xx
40.5 (kV)	2	800	50 - 240	30.0 - 42.0	RPIT-1-72xx*
	3	1250	50 - 630	26.0 - 55.0	RPIT-1-73xx*
52 (kV)	3	1250	50 - 500	26.0 - 55.0	RPIT-83xx**

RPIT terminations are available with and without test point.

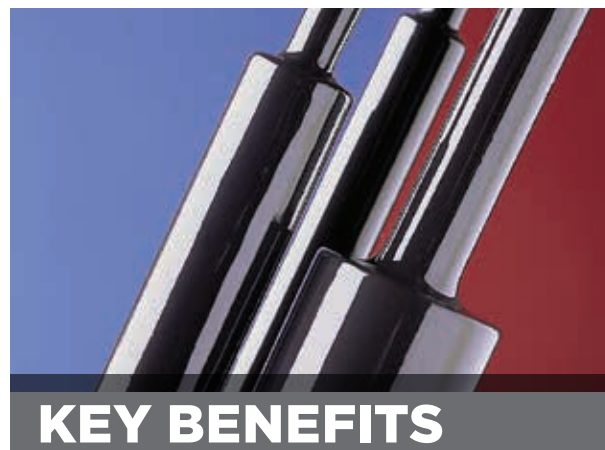
* Kits for China in accordance with GB/T 12706.4. One kit contains 1 piece of plug-in termination.

** 52kV termination tested according to IEC 60840.

LOW VOLTAGE TUBINGS & SLEEVES

TE's Raychem provide wide range of products on LV cable joints and terminations, and kinds of tubings/sleeves for specific purposes.

Consistent performance in harsh environments, such as extreme temperatures, atmospheric pollution, and ultraviolet light has proved the reliability of TE's Raychem LV kits and tubings.

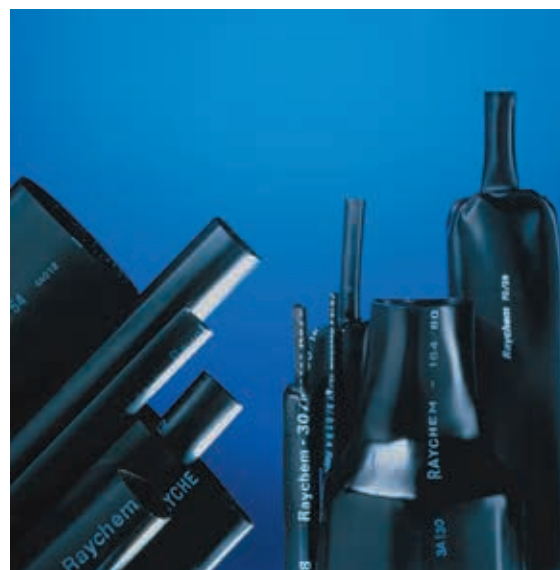


KEY BENEFITS

- Full range of tubings and sleeves with specific features, for LV insulation, mechanical strength and protection against external damage and moisture ingress.
- Advanced materials compliant to RoHS and REACH regulations.
- Excellent performance on weathering and harsh environments resistance.
- Unlimited shelf life, allows stocking of economic quantities without spoilage
- With more than 40 years experience and reputation, for different industries all over the world.

HEAT SHRINK TUBINGS

- Widely used as insulation tubing of LV application, and sheath of MV cable joints.
 - Different tubings with special features for certain purposes.
- > MWTM medium-wall halogen-free insulation tubing for general purpose
- > WCSM heavy-wall insulation and outer sealing tubing
- > FCSM heavy-wall, flame-retarded tubing for heavy duty application
- > ZCSM halogen-free, heavy-wall tubing for low fire hazard areas



HEAT SHRINK WRAPAROUND SLEEVES

- Wraparound design and easy for installation
 - Employed as cable joint sheath, or fast repairing system of damaged cable sheath.
- > CRSM medium wall, semi-rigid for common cable sheath and repairing
- > MRSM medium wall, semi-flexible for flexible cable joints and repairing
- > CNSM/RFSM thick wall, fibre-reinforced for cable repair and joint outer re-jacketing



INSULATION & PROTECTION

TE's Raychem insulating tube, covers and material have been successfully eliminating outages from all types of environment application for years especial for Oil & Gas application.



KEY BENEFITS

- Complete system of products for round and rectangular busbars, connections and complex shapes
- Reduced inventory and simplified product selection
- Easy installation and removal
- System current rating is unaffected
- Resistant to solvents, mechanical impact and weathering
- Compatible with conventional insulation
- Based on non-tracking, non-halogen, flame-retardant materials
- Over 40 years of successful operating experience
- Products can be custom made to meet specific requirements.

Total Solution
for Tough
Applications

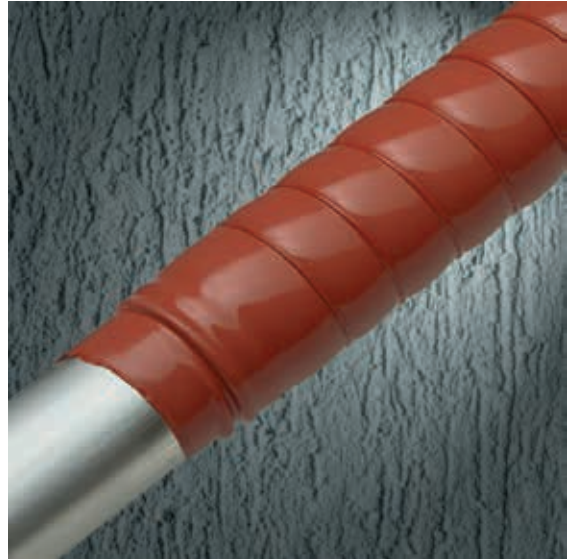
BBIT/BPTM

- Insulation enhancement and flashover protection.
- Both products can be used on aluminium and copper busbars of circular or rectangular cross-section.
- Wall thickness is controlled by the heat-shrink process.
- BPTM provides flashover protection up to 25 kV, whilst the thicker walled BBIT will protect up to 36 kV.



HVBT

- HVBT is wrap-around product.
- HVBT tape is easily applied and is especially useful for irregular shapes and where accessibility is restricted.
- HVBT provides flashover protection to 17.5 kV in a single layer and 25 kV in a double layer.
- HVBT also allows reductions in clearances to the same level as BPTM tubing.



RESIN & GEL FILLED LV JOINTS

TE Energy has developed filled joints for LV cable connection and branch applications with possibility of underground, direct buried or immersion in water. Protect all electrical components against moisture and dirt, to ensure its operation stability.

GUROFLEX casting material of epoxy resin, elastic and have good adhesion properties to most cable materials.

PowerGel silicone gel with excellent insulation properties, thermal and UV stability, halogen-free features.

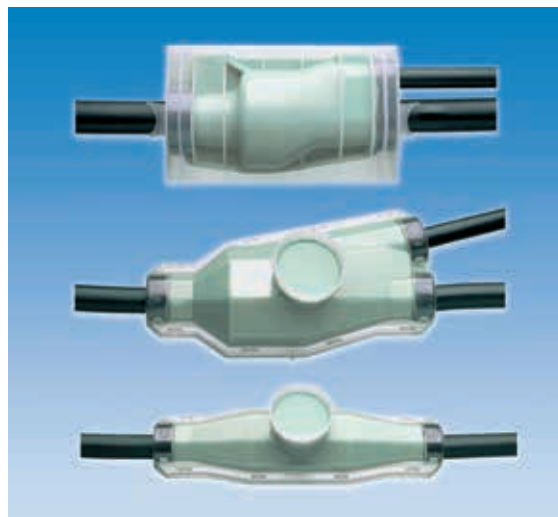


KEY BENEFITS

- Excellent insulation properties and moisture sealing performance
- Easy for installation, no special tool needed
- Environmentally friendly, non-toxic and non-hazardous, safety in use, transportation and disposal
- Applications with possibility of underground, direct buried or immersion in water

RESIN FILLED BRANCH JOINTS FOR 1KV POLYMERIC CABLES

- Employ environmentally friendly casting material, easy to handle, two-component, cold casting based on hydrocarbons
- Stays elastic, accommodates thermal expansions of cables
- Robust housing is easy and quick to assemble, cutting to the cable diameter is no longer needed
- Installation at -10 °C and service at -20 °C



RAYGEL FILLED CABLE JOINTS FOR 1KV POLYMERIC CABLES

- Quick, easy and clean installation
- Reliable protection against humidity and water
- Full branch capabilities without cutting of main cables
- Optimized joint design with integrated strain relief
- Suitable for outdoor and direct-buried applications (IP68)
- Halogen-free and UV-resistant
- Unlimited shelf life



CONNECTORS & FITTINGS

TE's mechanical connectors and repair sleeves are designed for use in low and medium voltage applications. Only three sizes cover conductor sizes from 25 mm² to 400 mm². All products consist of a tin-plated body, shear-head bolts and inserts for small conductor sizes.



KEY BENEFITS

- Wide application range
- Compact design
- Can be used with almost every type of conductor and material
- Torque-controlled shear-head bolts guarantee a good electrical contact
- Easy installation with standard socket spanner
- Pre-engineered design for perfect fit in medium voltage cable accessories up to 42 kV
- Tested according to IEC 61238-1 class A

MECHANICAL CONNECTORS & LUGS

- Connection between copper and aluminium conductors is possible
- Conductor connection hole with crosswise and lengthwise grooves
- Lubricated bolts
- No elongation during installation
- Available with and without oil barrier
- Chamfered edges, Suitable for up to 42 kV and adaptable to existing joint designs
- Shear bolts with predetermined shear torque, hexagon head and specially shaped contact ring



SELECTION TABLE

Mechanical Connectors

Description	Cross Section (mm ²)	Palm Hole Diameter(mm)	Dimention (mm)				Numbers of Bolts	Bolts AF (mm)
			L1	L2	D1	D2		
BLMT-25/95-13	25-95	13	60	30	24	12.8	1	13
BLMT-25/95-17	25-95	17	60	30	24	12.8	1	13
BLMT-35/150-13	35-150	13	86	35	28	15.8	1	16
BLMT-35/150-17	35-150	17	86	35	28	15.8	1	16
BLMT-95/240-13	95-240	13	112	60	33	20	2	19
BLMT-95/240-17	95-240	17	112	60	33	20	2	19
BLMT-95/240-21	95-240	21	112	60	33	20	2	19
BLMT-120/300-13	120-300	13	115	65	37	24	2	24
BLMT-120/300-17	120-300	17	115	65	37	24	2	24
BLMT-185/400-13	185-400	13	137	80	42	25.5	3	22
BLMT-185/400-17	185-400	17	137	80	42	25.5	3	22
BLMT-185/400-21	185-400	21	137	80	42	25.5	3	22
BLMT-500/630-13	500-630	13	150	95	50	33	3	27
BLMT-500/630-17	500-630	17	150	95	50	33	3	27
BLMT-500/630-21	500-630	21	150	95	50	33	3	27

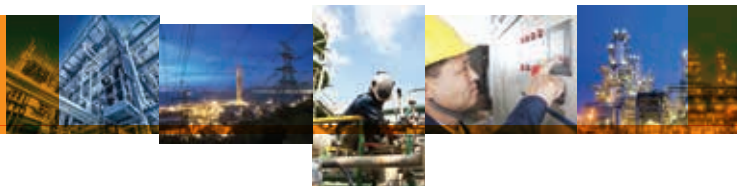
Mechanical Lugs

Description	Cross Section (mm ²)	Block (Yes/No)	Dimention (mm)				Numbers of Bolts	Bolts AF (mm)
			L1	L2	D1	D2		
BSMB-10/35	10-35	Yes	45	20	19	8.5	2	10
BSM-25/95	25-95	Yes	65	30	24	12.8	2	13
BSM-25/95-U	25-95	No	65		24	12.8	2	13
BSMB-35/150	35-150	Yes	80	35	28	15.8	2	16
BSMU-35/150	35-150	No	80		28	15.8	2	17
BSM-95/240	95-240	Yes	125	60	33	20	4	19
BSM-95/240-U	95-240	No	125		33	20	4	19
BSMB-95/240-34	95-240	Yes	125	60	34	22	4	19
BSMB-120/300	120-300	Yes	140	65	37	24	4	24
BSMU-120/300	120-300	No	140		37	24	4	22
BSM-185/400	185-400	Yes	170	80	42	25.5	6	24
BSM-185/400-U	185-400	No	170		42	25.5	6	22
BSMB-500	500	Yes	190	90	46	30	6	27
BSMU-500	500	No	190	90	46	30	6	27
BSMB-630	630	Yes	200	95	50	33	6	27
BSMB-800	800	Yes	270	130	56	36	8	27

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