



CONTIPOWER
CONTINENTAL AFRICA POWER SUPPLIES (PTY) LTD

COMPANY PROFILE

Bringing
power
to **light**

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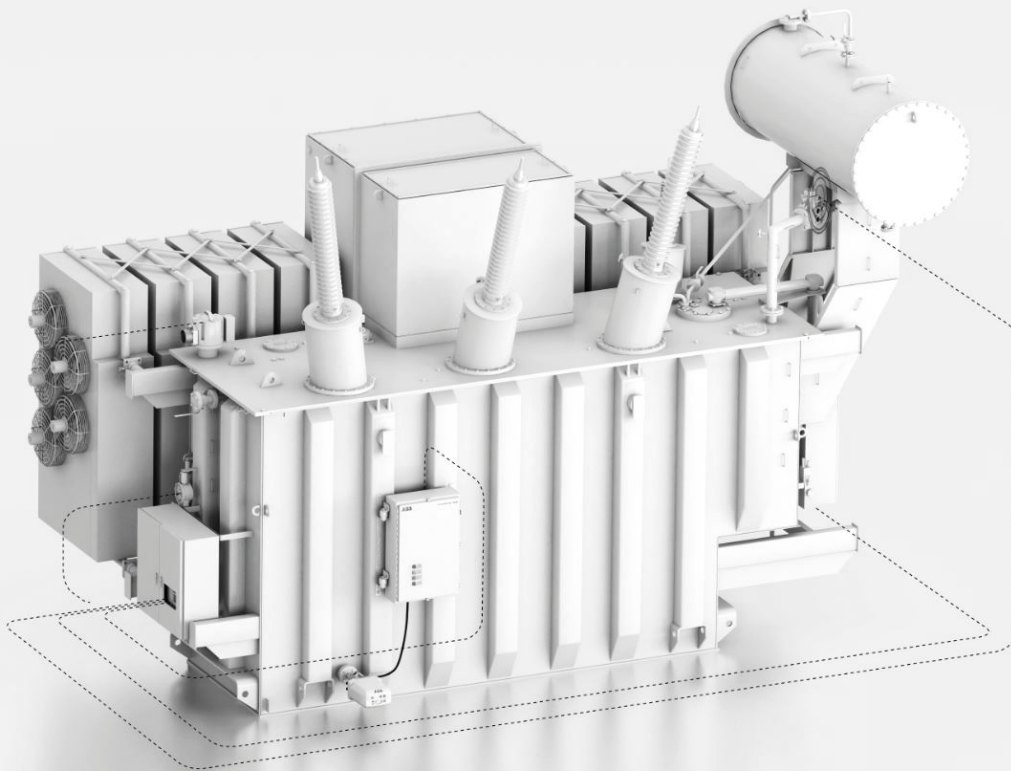
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SABS
ISO 9001



01 INTRODUCTION

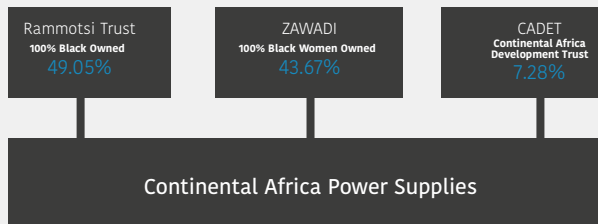
Company Overview

Established in 2006, ContiPower continues to build on its strong reputation in the power and energy sector - rivalling local and international industry players.

Our management and staff work relentlessly to maintain our status as the preferred supplier for key stakeholders in the industry, while growing the company's market share and customer base.

We are a supplier of diversified high, medium and low voltage electrical equipment, Turnkey Solutions and energy projects. ContiPower is the leading supplier for Utilities and Industries including Eskom amongst others. Highly skilled black professionals founded (and still run) ContiPower and we are a Level 1 BBBEE contributor. The company is ISO: 9001 accredited and our product offerings are designed, manufactured and tested in accordance with the highest international standards: IEC, SANS, ANSI and ISO.

We pride ourselves in being able to meet tight delivery schedules, providing competitively priced solutions and offering professional, responsive engineering services and after sales support. We have been able to identify and partner with some of the most innovative industry leading manufacturers, such as Moser Glaser (Bushings and Busbars), Koncar AP (Ring Main Units), ALPHA- ET (Switch Disconnectors) and Tridelta (Surge Arrestors) among others.



BOARD OF DIRECTORS

- Mrs. Sheila Sisulu (Chair)
- Mr. Jokhomo Rammotsi (MD)
- Dr. Talane Lesoli (Director)

02 BUSHINGS



Bushings

We are the exclusive agents for Moser-Glaser (MGC) who are part of the Pfiffner Holding AG Group. MGC is a Swiss based company and was founded in 1914 boasting over 100 years of experience. ContiPower supplies bushings and busbar systems, which are designed, manufactured and tested by MGC. All the products are manufactured in accordance with leading international standards. In addition to a standard range, the design and production processes allow for stretched flexibility and adaptability. This means we are able to provide tailor-made solution.

Competitive Advantages of Products

- ISO: 9001, ISO: 14001 and OHSAS:
- 18001 certified.
- Excellent mechanical properties Our complete range complies with the class, Heavy Load (level II) in accordance with the IEC 60137- 2008.
- Additional moisture barrier Moser-Glaser performs special long duration tests on its bushings to prove their excellent behaviour under wet conditions.
- The supply chain is simplified as the direct moulding operation is done in-house. The need to supply an external component is thus negated. Moser Glaser can offer short delivery times for its standard range of product.



02 BUSHINGS



Bushings

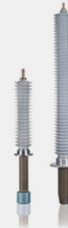
TRAVESCA® have a dry insulation of RIP (Resin Impregnated Paper) or RIS (Resin Impregnated Synthetic). The insulation lays directly on the conductor or tube and consists of wrapped Paper directly impregnated under vacuum with epoxy resin. Conductive grading Layers are embedded during the wrapping in the insulation for the best field control. This guarantees the highest operational and human safety.

TRANSFORMER-OUTDOOR DIOI TYPE – RIP

Application:	Oil Insulated Transformers
Type:	Transformer - Outdoor
Construction:	Dry fine graded condenser RIP Insulation with Silicone Insulator
Standard:	IEC 60137-2008
Voltage (Um):	36 to 300kV
Current (Ir):	Up to 3150A

ADVANTAGES

- Partial discharge free operation
- Maintenance free operation
- Pollution resistant
- Easy installation

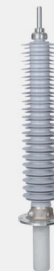


TRANSFORMER-OUTDOOR DIOIS TYPE – RIS

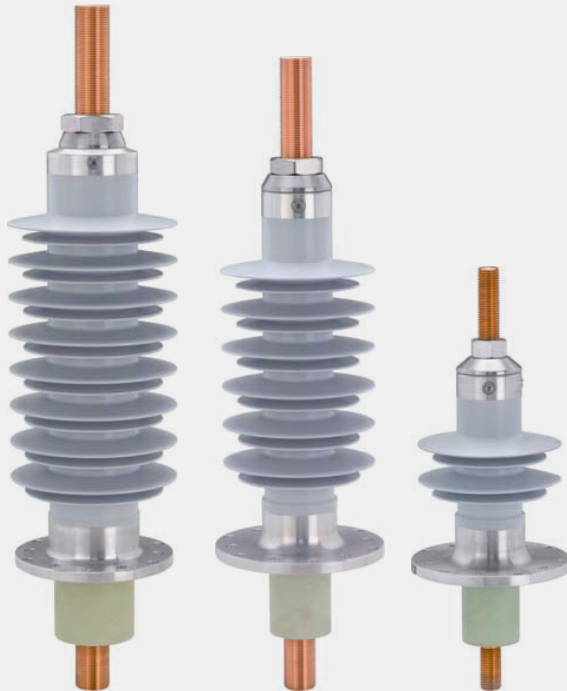
Application:	Oil Insulated Transformers
Type:	Transformer - Outdoor
Construction:	Dry fine graded condenser RIS Insulation with Silicone Insulator
Standard:	IEC 60137-2008
Voltage (Um):	36 to 300kV
Current (Ir):	Up to 3150A

ADVANTAGES

- Directly moulded bushing
- Paper free bushing
- Light weight Design
- Self-Extinguishing
- Unbreakable silicone rubber insulators have hydrophobic characteristics and a surface with self- cleaning properties.



02 BUSHINGS



TRANSFORMER-OUTDOOR GTOI TYPE (NON CAPACITIVE BUSHINGS)

Application:	Oil Insulated Transformers
Type:	Transformer - Outdoor
Construction:	Solid copper Conductor with Silicone Insulator
Standard:	Manufacturing Standard DIN EN 50180-2010, Type tested according to the IEC 60137-2008
Voltage (Um):	12, 24 and 36kV
Current (Ir):	1250, 2000 and 3150A

ADVANTAGES

- GTOI bushings are non-capacitive graded and suitable for oil-filled transformers.
- Simple design and strong construction provides the longest lifetime possible.
- Maintenance Free.
- Non-porcelain bushing is constructed from a fiberglass tube with a copper conductor.
- Reliable and short delivery times because the silicone insulator is directly moulded in-house around the body.
- Unbreakable silicone rubber insulators have hydrophobic characteristics and a surface with self-cleaning properties.

02 BUSHINGS



TRANSFORMER - OIL DTO (OIL TO OIL BUSHINGS)

Application:	Oil Insulated Transformers
Type:	Transformer - Oil
Construction:	Dry fine graded condenser RIP Insulation
Standard:	IEC 60137-200872 to 245kV
Voltage (Um):	72 to 245kV
Current (Ir):	Up to 3150A

ADVANTAGES

- Dry type insulation suitable for installation in position 0 to 90° from the vertical.
- No specific requirements during transport.
- Maintenance free and no oil leakage.
- High thermal stability up to 120°C. Reliable during overload periods.
- In addition to standard range, design and production process allows a wide flexibility and adaptability in order to provide tailor-made solution.

02 BUSHINGS



DURESCA® / Wall Bushings

DURESCA® wall bushings have a dry insulation of RIP (Resin Impregnated Paper) or RIS (Resin Impregnated Synthetic). The insulation lays directly on the conductor or tube and consists of wrapped paper direct under vacuum impregnated with epoxy resin. Conductive grading layers are embedded during the wrapping in the insulation for the best field control. This guarantees the highest operational and human safety.

Application: Outdoor – Outdoor /
Indoor – Outdoor /
Indoor – Indoor

Construction: Dry fine graded condenser
RIP Insulation

Standard: IEC 60137-2008

Voltage (Um): 24 to 245kV

Current (Ir): Up to 6300A

ADVANTAGES

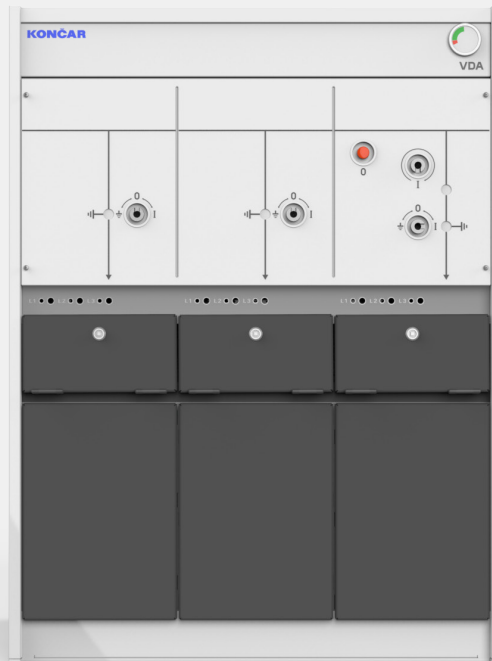
- No oil leakage; no risk of fire, all mounting angles are possible, suitable for roof and wall mounting.
- Maintenance free.
- Short delivery times.
- Reduced weight and flexible sheds, no risk of porcelain break during shipping or handling.
- Wall bushings equipped with current transformers on request.

ADVANTAGES

- Dry type insulation suitable for installation in position 0 to 90° from the vertical.
- No specific requirements during transport.
- Maintenance free and no oil leakage.
- High thermal stability up to 120°C. Reliable during overload periods.
- In addition to standard range, design and production process allows a wide flexibility and adaptability in order to provide tailor-made solution.

 **MOSER GLASER**
Current and voltage – our passion

03 RING MAIN UNITS



KONČAR is a leading producer of equipment and plants for the generation, transmission and distribution of electricity; exporting to over 100 countries worldwide. KONČAR marks 100 years of doing business in 130 markets.

SERIES VDA

Due to modularity any of the following functions may be included in the system:

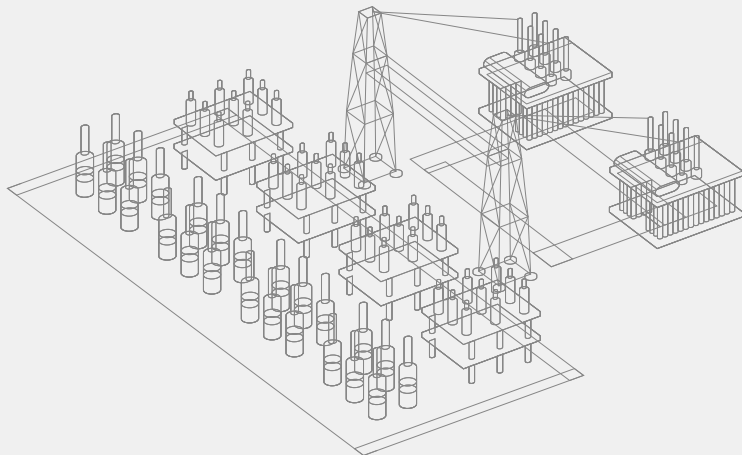
BASIC CHARACTERISTICS

- Compact design
- Simplicity
- Vacuum circuit breaker in transformer feeder
- Vacuum load break switches in ring main feeders
- SF6 gas - insulation between live parts
- Insulation barriers between cable connectors of the ring main feeders
- Possibility of remote control for each apparatus
- Microprocessor protection relay for power transformer protection, up to 2,5 MVA Cable connectors in accordance with IEC 60502 / DIN 47363

BASIC TECHNICAL DATA		Three-positional vacuum load break switch		Vacuum circuit breaker	
		12	24	12	24
Rated voltage	kV	12	24	12	24
Rated power frequency withstand voltage 50Hz/1min	kV	28	50	28	50
Rated lightning impulse voltage	kV	75	125	75	125
Rated power frequency withstand voltage 50Hz/1min	kA	28	50	28	50
Rated current	kA	630	630	250	630
Rated making capacity of the circuit breaker	kA	50	40	50	40
Rated short-time withstand current, 3 s	kA	20	16	20	16
Switch-off time (short circuit)	ms	-	-	45	45

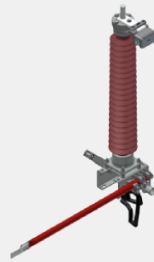
KONČAR
SWITCHGEAR

04 SWITCH DISCONNECTORS



The main goal of the development project for the new centre break disconnectors and earthing switches is to provide our customers more economical solutions. This is achieved both through a high level of standardisation of the design for the whole voltage range 72.5 - 170 kV and by featuring state-of-the-art manufacturing techniques for the individual parts. The open design of the bended current carrying arms ensures high heat dissipation while using reduced amount of aluminium. The contacts of the disconnector and earthing switches are maintenance free up to 10'000 operating cycles which contributes to decreased life cycle costs. Additionally, the new design allows easy assembly and adjustment of the switchgear.

High-Voltage Disconnectors: **OUTDOORS**



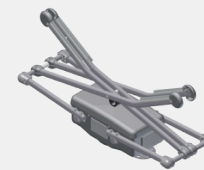
EF (24-550) KV

- Earthing switch
- Outdoor
- IK: 80/31.5 - 160/63 kA



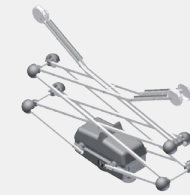
TFPK (72.5-170) KV

- Pantograph disconnector
- Single scissor design
- Outdoor
- IN: 1600-3150 A
- IK: 100/40 kA



TFPA (170-245) KV

- Pantograph disconnector
- Single scissor design Outdoor
- IN: 2000-4000 A
- IK: 100/40 kA-160/63 kA



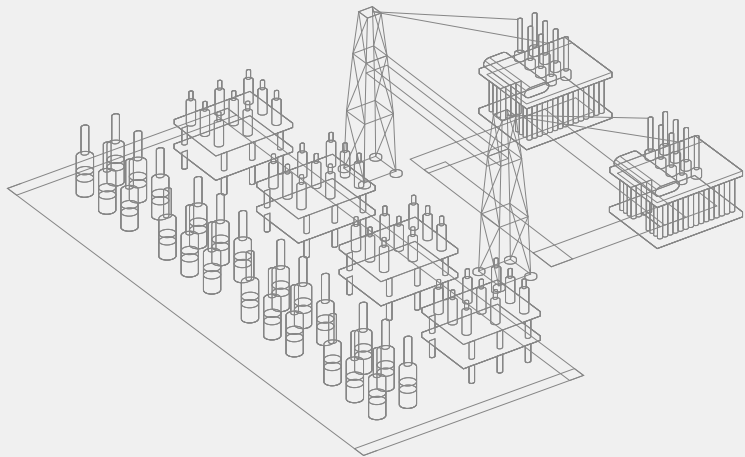
TFP (245-550) KV

- Pantograph disconnector
- Double scissor design
- Outdoor
- IN: 2000-4000 A
- IK: 100/40 kA-160/63 kA



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04 SWITCH DISCONNECTORS



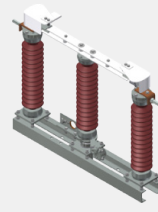
High-voltage Disconnectors/Drives

INDOOR & OUTDOOR



CBD (72.5–550) KV

- Center break disconnector
- Outdoor
- With or without integrated earthing switch (CBDE/CBDEE)
- IN: 1600–4000 A
- IK: 80/31.5 kA–160/63 kA



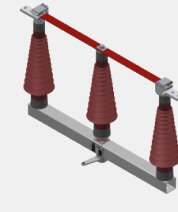
TFD (72.5–245) KV

- Double break disconnector
- Outdoor
- With or without integrated earthing switch (TFDE/TFDEE)
- IN: 1250–2800 A
- IK: 80/31.5 kA–125/50 kA



TFX (170–420) KV

- Double break disconnector
- Outdoor
- With or without integrated earthing switch (TFXE/TFXEE)
- IN: 3150–4000 A
- IK: 100/40 kA–160/63 kA



TID (72.5–123) KV

- Double break disconnector
- Indoor
- With or without integrated earthing switch (TIDE/TIDEE)
- IN: 630–3150 A
- IK: 80/31.5 kA–100/40 kA



MD

- Motor drive
- DC: 110–220 VDC
- AC: 230–400 VAC
- 70° or 90°



HD

- Hand drive
- Electromechanical locking mechanism with 110–220 VDC
- 70° or 90°

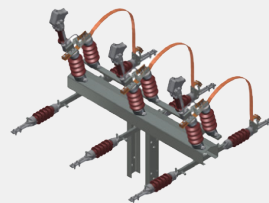


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04 SWITCH DISCONNECTORS

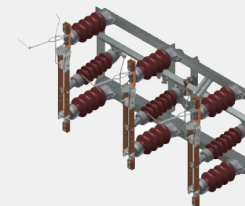
Medium-Voltage Disconnectors

INDOOR & OUTDOOR



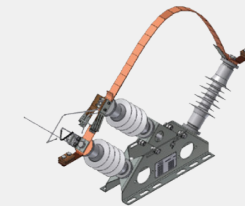
TFD (72.5-245) KV

- Over head line (OHL) switch with arcing horns, arc quenching chamber or forced earthing
- Outdoor
- IN: 630 A
- IK: 60/24 kA



FSU (24-36) KV

- Branch switch with arcing horns, arc quenching chamber or forced earthing
- Outdoor
- IN: 630 A
- IK: 60/24 kA



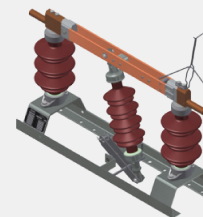
FSU (24-36) KV

- Over head line (OHL) or branch switch with arcing horns or arc quenching chamber
- Outdoor
- IN: 630 A
- IK: 60/24 kA



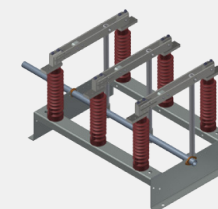
EI (24-72.5) KV

- Earthing switch
- Indoor
- IK: 80/31.5 kA-100/40 kA



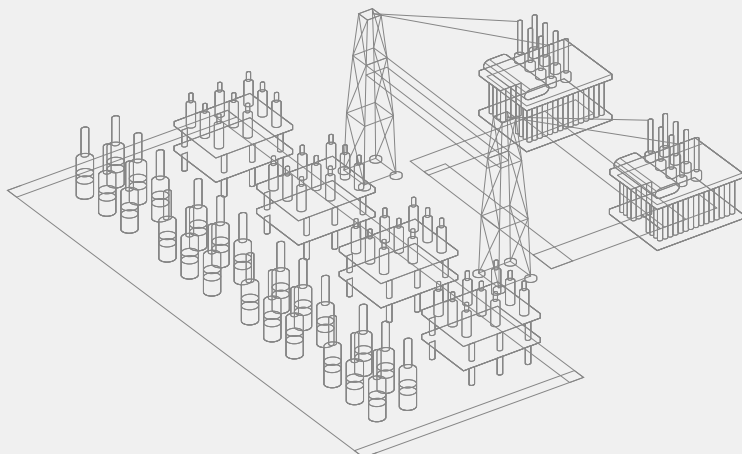
TFS (12-52) KV

- Vertical disconnector for railway applications with spark conductor
- Outdoor
- IN: 630-3400 A
- IK: 80/31.5 kA-100/40 kA



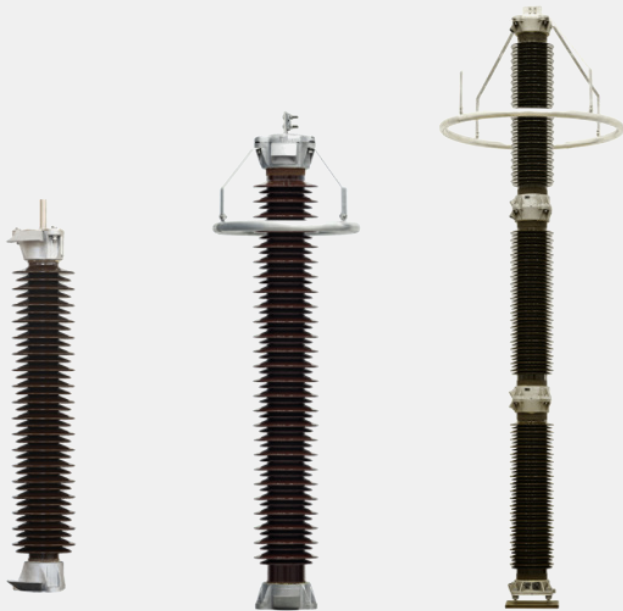
TIS (24-52) KV

- Vertical disconnector with or without integrated earthing switch
- Indoor
- IN: 600-3400 A
- IK: 80/31.5 kA-100/40 kA



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05 SURGE ARRESTORS



Porcelain Arrestors

Technical Data

Product		SB size 0	SB size I	SB size II
Highest System Voltage Us	kV	420	550	800
max. Rated Voltage	kV	396	468	612
max. Nominal Discharge Current In (at 8/20 μ s waveshape)	kA	20	20	20
max. Thermal Energy Absorption Capability kJ per kV of Ur		13	13	13
max. Line Discharge Class		5	5	5
Qrs (accord. IEC 60099-4 Edt. 3.0)		3,6	3,6	4,0
High Current Withstand Strength 4/10 μ s	kA	100	100	100
max. Low Current Withstand Strength 2ms	A	2.000	2.000	2.000
max. Short Circuit/Pressure Relief Capability kA - 0,2s		65	63	63
Mechanical Strength: Specific short-term load SSL	Nm	10.000	23.000	35.000

05 SURGE ARRESTORS



Silicone - Cage Design

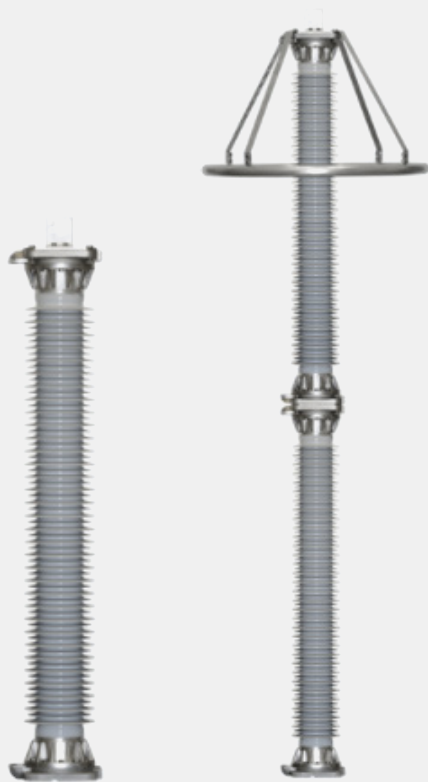


With over 100 years in business, Tridelta has manufactures top quality surge arresters for over 50 years with the highest reliability and free of maintenance over their whole service life. Tridelta surge arresters are in reliable service in more than 120 countries worldwide even under the most severe climatic conditions.

Technical Data

Product		SBKC size 0	SBKC size II	
Highest System Voltage Us	kV	170	420*	
max. Rated Voltage	kV	144	360*	
max. Norminal Discharge Current In (at 8/20 μ s waveshape)	kA	10	10	
max. Thermal Energy Absorption Capability	kJ per kV of Ur	4,5	9,2	
max. Line Discharge Class		2	4	
Qrs (accord. IEC 60099-4 Edt. 3.0)		1,2	2,8	
High Current Withstand Strength 4/10 μ s	kA	100	100	
max. Low Current Withstand Strength 2ms	A	500	1.500	
max. Short Circuit/Pressure Relief Capability	kA - 0,2s	40	63	
Mechanical Strength: Specific short-term load SSL	Nm	1.200	4.000	

05 SURGE ARRESTORS



Silicone - Tube Design

Technical Data

Product		SBKT size L	SBKT size ll	
Highest System Voltage U_s	kV	550	800	
max. Rated Voltage U_r	kV	144	624	
max. Norminal Discharge Current I_n (at 8/20 μ s waveshape)	kA	20	20	
max. Thermal Energy Absorption Capability	kJ per kV of U_r	10	18	
max. Line Discharge Class		4	5	
Arrester classification		SM, SH	SM, SH	
Qrs (accord. IEC 60099-4 Edt. 3.0)		3,6	4,4	
High Current Withstand Strength 4/10 μ s	kA	100	100	
max. Low Current Withstand Strength 2ms	A	1.700	2.600	
max. Short Circuit/Pressure Relief Capability	kA - 0,2s	65	80	
Mechanical Strength: Specific short-term load SSL	Nm	12.000	23.000	

06 BUSBARS



Busbar system | DURESCA®

Fully insulated busbars are used to ensure connections between medium and High Voltage equipment such as generator, switchgear or transformer.

The DURESCA® busbar have their field of application from 12 to 170kV and up to 7000A. The DURESCA® busbar system provides a compact and a fully electrically shielded solution for power plants, substations, offshore windfarms. The reduced bending radius allows the application in limited spaces. The individually insulated busbars are simple and quick to install and guarantee a long service life, maintenance and partial discharge free operation. The DURESCA® busbars also withstand extreme conditions on offshore platforms, in petrochemical industries, and also in the desert with high sun exposure and temperatures above 50°C.

The DURESCA busbar system is available in two versions:

- DE type with polyamide protection tube in IP67
- DG type with metallic protection tube in IP67



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Technical Specifications

- Same type of busbar for indoor and outdoor application, no need of additional wall crossing bushing
- Solid, separate and fully insulated single phase bus
- Excellent mechanical protection
- High stability against UV radiation
- Earth screen in copper, embedded in the insulation and designed for an exceptional fault current of 8 kA /1s
- Resistant to humidity and moisture ingress, no risk of corrosion
- Connections to all types of air and gas insulated switchgears with conventional or plug-in types, like 8DB10, NX plus, ZX2, GHA or Connex 3 and 4 size

DE & DG Type Busbars

- The insulated body is protected by a high-quality corrugated polyamide tube or metallic tube.
- The good behavior in severe climatic conditions has been tested according to the ASTM D-2565 standard in an independent laboratory.
- Moser-Glaser has been using this type of protection jacket for more than 30 years.
- This solution can be used for projects with higher mechanical requirements, e.g. aluminum or stainless steel tube.

Standards & Tests for DURESCA® Busbar Systems

- Every busbar is routine tested according to IEC 60137 standard, clause 9.1, 9.3, 9.4.
- Power frequency withstand voltage
- Partial discharge
- Capacitance and tangent delta

06 BUSBARS



Busbar system | GASLINK®

- Modular and compact desing
- Protection against electrical shock hazards
- Self-recombining gas insulation
- No aging effects on insulating material

MGC Moser-Glaser has developed a totally enclosed medium voltage SF6 gas insulated busbar system for connections between GIS - switchgears and between GIS and transformers.

The copper conductors are centered with special high voltage epoxy insulators inside the outer aluminum protection tubes. A separate control panel allows an accurate pressure control of the GASLINK® busbar system. The excellent sealing between the compartments guarantee a maximum leakage rate of no more than 0,5% per year.

High quality DURESCA® bushings are being used for the connections to transformers, coils, capacitors and other apparatus.

Technical Specifications

- Rated voltage: up to 40,5 kV
- Rated current: up to 3150 A
- Rated thermal short time current: 40 kA / 3 sec
- Rated operating pressure: 0,15 MPa / 0,25 MPa absolute
- Max. leakage rate per year: less than 0,5 %
- Min. phase distance: 200 mm

Features

- Protection against electrical shock hazards
- Self-recombining gas insulation
- No aging effects on insulating material
- No additional fire protection needed



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06 BUSBARS



Busbar system | TIRESCA®

The TIRESCA® busbars are fully insulated for low voltage up to 3.6 kV and partially insulated up to 36 kV with cast epoxy resin.

The partially insulated busbars are mainly used in outdoor switchyards such as transformers and cable distribution to protect the system against shorts caused by small animals and birds. TEL type is fully insulated up to 3.6 kV / 8000 A TE type is partially insulated for MV applications up to 36 kV / 4000 A in outdoor switchyards and mounted on supporting insulators using clamps. TIRESCA busbar systems have a polyamide protection jacket.

The main feature is the reduction of the distances between the phases compared to blank, non-insulated busbars. TIRESCA busbars are simply and quickly installed and guarantee a long and maintenance-free operation.

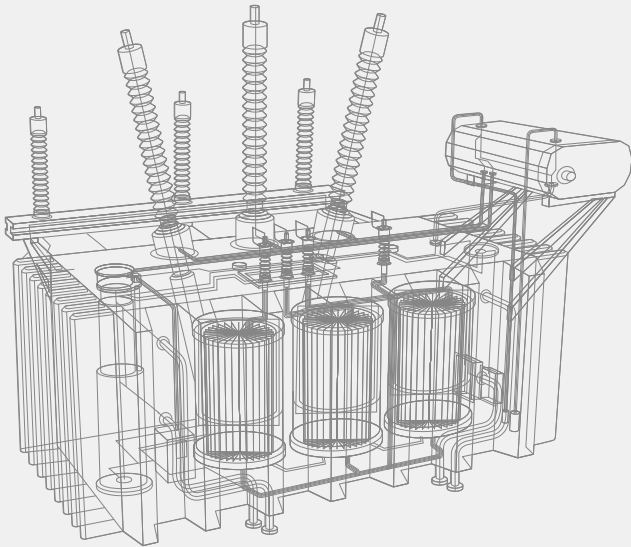
Technical Specifications

- Conductor in aluminium or copper
- Busbar protection class: IP67, connecting sleeves: IP 54 as standard or IP 68 as an option
- Resistant to humidity and moisture ingress, no risk of corrosion
- Easy and fast assembling
- Maintenance free
- Excellent barrier against humidity and moisture ingress
- Excellent mechanical protection
- High stability against UV radiation
- Moser-Glaser has been using this type of protection envelop for more than 30 years.



Current and voltage – our passion

07 TRANSFORMERS



Based on leading technology and integrated with innovation to suit extreme climate environments such as high humidity. We supply transformers from various reputable local and global Original Equipment Manufacturers, designed, manufactured and tested according to the latest IEC, SANS, ANSI and ISO standards. Fully computerized design process utilizing up to date software for design and calculation combined with years of experience.

Generator Step Up Transformers

- Rated capacity: up to 500 MVA
- Rated Voltage: up to 420 KV

Power Transformers

- Rated capacity: up to 500 MVA
- Rated Voltage: up to 420 KV
- Single-phase & three-phase transformers
- Substation transformers & autotransformers
- Earthing transformer
- Dual voltage transformers

Distribution Transformers

- Rated Capacity: Up to 1 MVA
- Rated Voltage: Up to 36 KV

CAST RESIN DRY-TYPE TRANSFORMERS

- Rated Capacity: Up to 3150 MVA
- Rated Voltage: Up to 36 KV

ADVANTAGES

- No fire hazard
- No Partial discharge
- Maintenance free Can be installed in restricted space
- Low load losses
- Excellent resistance to short circuits
- Installation as close as possible to the center of load and consumption
- No toxic substances
- Low noise level
- Humidity resistant
- Self-extinguishing

07

TRANSFORMERS



Special Transformers

FURNACE TRANSFORMERS

- Rated capacity: up to 50 MVA
- Voltage regulation could either be direct or through a booster transformer. Due to the extreme heat levels generated in the transformer, OFWF cooling systems are normally used.

Applications

- Mines
- Oil & Gas industries
- Mines Oil & Gas Industries
 - = Offshore platforms
 - = Petrochemical plants
- Construction and Cement industries
- Industrial factories
- Rail
- Airports
- Mobile substations
- Marine & Shipping

Reactors

SHUNT REACTORS

- Rated capacity: up to 50 MVA (three phase)
- Rated voltage: up to 420 KV

Mobile Transformers

- Rated capacity: up to 50 MVA
- Multi-ratio Voltages (Primary & Secondary)

Rectifier Transformers

We can supply different types of Rectifier transformers used in six-phase, 12 pulse or any other complex arrangement rectifiers.

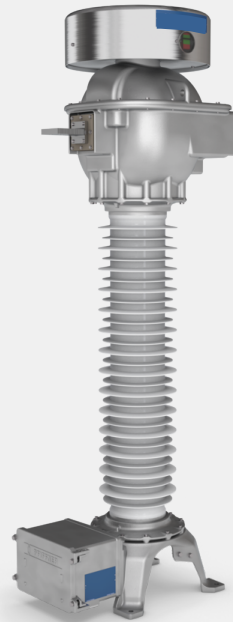
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INSTRUMENT TRANSFORMERS



PERFORMANCE

- Um: 36 to 800kV
- In: up to 6000A
- Short circuit: up to 100 kA (Idyn: 250 kA peak)
- Secondary cores: up to 10



KEY FEATURES

- Top core design (low primary winding losses)
- Low leakage reactance
- Partial discharge free on power-frequency withstand voltage
- Stainless steel bellows oil expansion system
- Extreme temperature range available (-60 to +60°C)
- Extensive experience in seismically active regions
- Minimum oil design
- Explosion-safe
- Maintenance free

07b

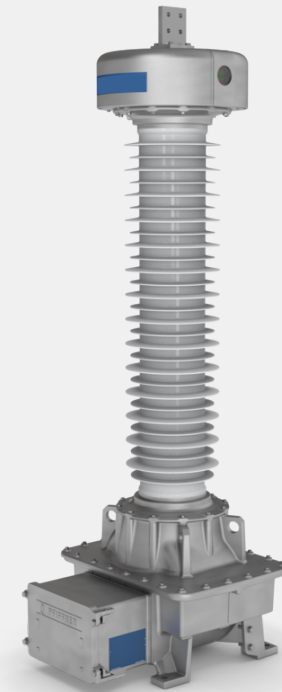
INSTRUMENT TRANSFORMERS



The open core concept, with its significant advantages, is incorporated in these units and distinguishes them from solutions available on the market today. The voltage transformers are designed with exceptional longevity and reliability, aiming for at least 50 years of service life.

PERFORMANCE & KEY FEATURES

- Um: from 72,5 kV up to 550 kV
- Up to 6 secondary windings
- Partial discharge free on power-frequency withstand voltage
- Unique ferroresonance immune design (open type magnetic core)
- Explosion safety - Internal arc resistant
- Stainless steel bellows oil expansion system
- Extreme temperature range available (-60 to +60°C)
- Extensive experience in seismically active regions
- Minimum oil design
- Maintenance free



07b

INSTRUMENT TRANSFORMERS



Combined Instrument Transformers - Type VAU

The unique and original single insulation design makes these units stand out in comparison to conventional solutions present on the market today. The combined transformers are designed with exceptional longevity and reliability, aiming for at least 50 years of service life.

PERFORMANCE

- Um: 72,5 to 550 kV
- In: up to 6000 A
- Short circuit: up to 100 kA (Idyn: 250 kA peak)
- Secondary cores: up to 10
- Secondary windings: up to 6

KEY FEATURES

- Top core design (low primary winding losses)
- Low leakage reactance type
- Unique ferroresonance immune design (open type voltage transformer magnetic core)
- Explosion-safe - internal arc resistant
- Partial discharge free on power-frequency withstand voltage
- Stainless steel bellows oil expansion system
- Extreme temperature range available (-60 to +60°C)
- Extensive experience in seismically active regions
- Minimum oil design
- Maintenance free
- Space and cost savings



07c

TRANSFORMER MONITORING SYSTEM



Transformer Monitoring System

Transformers are one of the key and most valuable components in a power system. Equipping them with an on-line monitoring system is essential for information gathering, condition assessment, better management and decision making. Decades of experience in transformer design, production and on-site diagnostics as well as a field-proven hardware platform are built into a state-of-the-art monitoring and diagnostic systems.

BENEFITS

- Detects incipient faults and assists in preventing failures and unplanned outages
- Enables the condition based maintenance
- Improves staff safety and environmental protection
- Provides valuable data for a root cause analysis and an investigation in cause of a failure event
- Helps in optimizing transformer performance and enables better asset management (overloading, lifetime expectancy estimations)
- Makes your transformer ready for the 'Smart Grid'

KEY FEATURES

- Comprehensive on-line monitoring system for all types of power and shunt reactors
- Modular and expandable system for a new or an existing transformer (retrofitting), open to any transformer manufacturer
- Provides monitoring and diagnostic for all vital transformer parts by integrating the available sensors and supporting various IED communication protocols
- Built-in models for transformer condition assessment (bushings, thermal model, insulation ageing, cooling efficiency, OLTC)
- Advanced trending analysis tools
- Interpretation methods of fault gas analysis according to the relevant IEC and IEEE standards
- User defined alarm limit and gradient setting
- Long term archival of data and event logging
- Periodic automatic report generation
- Various remote access options

07c

TRANSFORMER MONITORING SYSTEM



Monitoring Functions

Due to modularity any of the following functions may be included in the system:

BUSHINGS

- Operating voltages
- Over-voltages
- Change of bushing capacitance
- Tan delta /power factor
- Loading current (single or three phase)

ACTIVE PART

- Power (apparent, active, reactive)
- Losses
- Oil temperature (top, bottom)
- Ambient temperature
- Hot-spot temperature (calculation or fibre optic measurement)
- Gas in oil (single or multi gas sensors)
- Moisture in oil and paper
- Paper insulation ageing and lifetime

PARTIAL DISCHARGES

- Electrical, acoustic and UHF methods available

ON-LOAD TAP CHANGER

- Tap position
- Number of switching operations
- Switching time
- Power consumption of the OLTC motor drive
- OLTC oil temperature and differential
- Sum of switched current
- Contact wear

COOLING SYSTEM

- Oil temperatures at the cooler inlets & outlets
- Cooling efficiency
- Running hours of pumps and fans
- Content of gas in the Buchholz relay
- Oil level in the conservator
- Intelligent cooling control
- Auxiliary equipment statuses and alarms (pressure relief device, OTI, WTI, Buchholz relay, etc.)

TOOLS

- Trend analysis
- Alarms and events logging
- Loading forecast
- Data export to text and Microsoft Excel
- Automatic report generation

08 INSULATORS



BIL	System Voltage (kV)	BIL	System Voltage (kV)	BIL	System Voltage (kV)
95	7.5	350	69	1300	345
110	15	550	115	1300	345
150	25	550	115	1300	345
200	35	550	115	1300	345
250	46	650	138	1470	500
350	69	650	138	1470	500
95	7.5	650	138	1470	500
110	15	750	161	1550	500
110	15	750	161	1800	500
150	25	900	230		
150	25	900	230		
200	25	1050	345		
200	25	1050	345		
250	46	1300	345		
250	46	1470	500		
350	69	1050	345		



09

TAP CHANGERS & BUCHHOLZ RELAY

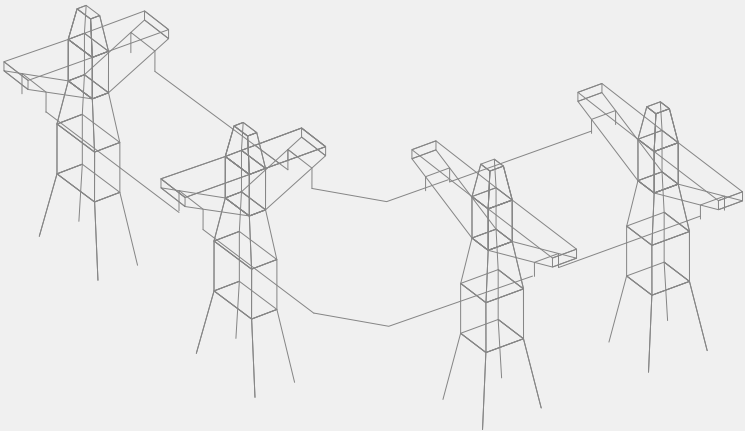


- > VACUTAP® VV®
- > VACUTAP® VVS®
- > VACUTAP® VM®
- > VACUTAP® VR®
- > VACUTAP® VT®
- > VACUTAP® AVT
- > VACUTAP® RMV
- > VACUTAP® Retrofit
- > OILTAP® V
- > OILTAP® R
- > OILTAP® G



Buchholz Relay

10 ELECTRICAL SERVICES



ContiPower Electrical Services:

Engineering Project Management

As a 8EP CIDB electrical contractor we understand how strenuous it can be to ensure the success of a project. Therefore we offer engineering project manager for all your electrical engineering needs. With a diverse project management team, that is made up with Subject matter experts, Electrical engineers and Strong project managements with endeavor to close projects on time and in budget.

Our strong global alliances with top tier OEM's , give us the best possibility of meeting all your project needs.

11 PRODUCT LIST

Product	Product Range	Characteristics & Specifications	Limitations
HV AND MV EQUIPMENT			
Transformers	Cast Resin Dry Type Transformers	IEC 60726	≤ 3,15 MVA, 36kV
	Distribution Transformers	IEC 60076	≤ 5 MVA
	Power Transformers		≤ 500 MVA
	Auto Transformers		
	Generator Step Up Transformers		
	Furnace Transformers	Industrial Application - IEC 60076	≤ 50 MVA
	Mobile Transformers	Mobile Substation - IEC 60076	≤ 50 MVA, 245kV
	Shunt Reactors	Line Compensation - IEC 60289	≤ 50 MVA, 420kV
Mini Substation	IEC/SANS 780	≤ 3,15 MVA	
Instrument Transformers	Current Transformers	Type AGU	36kV - 800kV
	Voltage Transformers	Type VPU	72,5kV - 550kV
	Combined Instrument Transformers	Type VAU	72,5 - 550kV
Transformer Monitoring System	Koncar TMS	On-Line Transformer Monitoring System	As Per Customer's Requirement
Ring Main Units	VDAΣ 24 - 2VT	Ring Main Unit SF6 / SF6 Free IEC62271 - 200 SANS 1847	12kV - 24kV (Dual Voltage) 630A
	VDAΣ 24 - 3VT		
	VDAΣ 24 - 4VT		
	VDAΣ 24 - 2V2T		
	VDAΣ 24 - 3V2T		
Switch Disconnectors <i>Switch Disconnectors</i>	FSO (24-36) kV - Outdoor	Overhead line switch with arcing horns	24kV - 36kV
	FSU (24-36) kV - Outdoor	Branch switch with arcing horns	
	FSM (24-36) kV - Outdoor	Overhead line switch with arcing horns	
	TFS (12-52) kV - Outdoor	Vertical Disconnecter for railway	12kV - 52kV
	TIS (24-52) kV - Indoor	Vertical Disconnecter with or without intergrated earthing switch	24kV - 52kV
	EI (24-72,5) kV - Indoor	Earthing Switch	24kV - 72.5kV
<i>HV Disconnectors</i>	EI (24-550) kV - Outdoor	Earthing Switch	24kV - 550kV
	CBD (72.5-550) kV - Outdoor	Central Break Disconnecter	72.5kV - 550kV
	TFD (72.5-245) kV - Outdoor	Double Break Disconnecter	72.5kV - 245kV
	TFX (170-420) kV - Outdoor	Double Break Disconnecter	170kV - 420kV
	TID (72.5-123) kV - Indoor	Double Break Disconnecter	72.5kV - 123kV
	TFPK (72.5-170) kV - Outdoor	Pantograph - Single Scissor	72.5kV - 170kV
	TFPA (170-245) kV - Outdoor	Pantograph - Single Scissor	170kV - 245kV
	TFP (245-550) kV - Outdoor	Pantograph - Double Scissor	245kV - 550kV

11 PRODUCT LIST

Product	Product Range	Characteristics & Specifications	Limitations
HV AND MV EQUIPMENT			
Transformer Bushings			Highest Voltage Um (kV) Rated Current Ir (A)
DM - Wall Bushings	DM / DMI / DM2I	Wall Bushings - RIP / RIS	36-300 630-6300
DTO - OIL to OIL	DTO	Oil to Oil Bushings - RIP/RIS	52-300 800-3150
High Current Bushings	LVHC	Low Voltage High Current Bushings OIP/RIP/RIS	12-52 <21000
DURESCA Busbar System	DURESCA Busbar System Type DE & DG	Indoor & Outdoor Application	12kV - 170kV
Surge Arrestors			
HV Surge Arrestors	SB Series	Porcelain Housing - IEC60099 - 4	Up to 800kV
	SBK Series	Solid Core Design - IEC60099 - 4	Up to 170kV
	SBKC Series	Cage Design with Silicon Housing - IEC60099	Up to 420kV
	SBKT Series	Hollow Core (Tube) Design with Silicon Housing - IEC60099	Up to 800kV
MV Surge Arrestors	SBK LDC1 & 2 Series	MV Metal Oxide Surge Arrestors - IEC60099	Up to 72kV
	SBK-0 Series	MV Indoor Application Surge Arrestors - Switchgears	Up to 52kV
Transmission Line Arrestors	SBKL Series	Transmission Line Arrestors - IEC60099	Up to 550kV
Surge Arrestor Monitoring Device	SmartCOUNT	Intelligent Surge Arrestor Monitoring Device	
Insulators			
Porcelain	Post Insulator	IEC60273 & IEC60815	11kV - 800kV
Composite / Glass / Porcelain	Suspended Insulator		11kV - 765kV
Buchholz Relay	25"/50"/80"	As per customer requirement	
Tap-Changer	Oil & Vacuum Tap Changers		
MV / LV Panels	Motor Control Centres		VacuTap 72.5 - 420kV
	Low Voltage Switchboards		OilTap 72.5 - 362kV.
	Medium & Low Voltage Switchgear		
	Low Voltage High Risk Enclosures		
	Metering Enclosures		
	Smart Metering		

11 PRODUCT LIST

Product	Product Range	Characteristics & Specifications	Limitations		
HV AND MV EQUIPMENT					
Wall Bushings	Legend				
	DEM	With corrugated protection tube in polyimid			
	I	Silicone rubber insulator			
	DM	Protected with varnish			
	P	Porcelain Insulator			
	Programme				
	DEM2I/DM2I	Outdoor-Outdoor Operation			
	DEMI/DMI	Outdoor-Indoor Operation			
	DEM	Indoor-Indoor Operation			
	DM	Indoor-Indoor Operation			
	DEM2P/DM2P	Outdoor-Outdoor Operation			
	DEMP/DMP	Outdoor-Indoor Operation			
	Type				
	DEM/DEMI/DEM2I	Aluminium Conductors	Highest Volatge	Rated Current	
			Um (kV)	Ir (A)	
			24	630-2500	
			36	630-2500	
			52	630-2000	
			72,5	630-2000	
			100	630-2000	
123			630-1600		
DM/DMI/DM2I	Aluminium Conductors	24	3150-6300		
		36	3150-6300		
		52	2500-3150		
		72,5	2500-310		
		100	2000-3150		
		123	2000-3150		
		145	1600-2500		
		170	1250-2500		
DEM/DEMI/DEM2I	Copper Conductor	245	630-1600		
		24	630-4000		
		36	630-3150		
		52	630-2500		
		72,5	630-2000		
		100	630-2000		
		123	630-2000		
		145	630-1250		
170	630-1250				



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