TKS COMPACT KIOSK SUBSTATION

Up to 36kV, 2500kVA

Designed and manufactured for Australia

TGE

TKS COMPACT KIOSK SUBSTATION: ENGINEERED FOR AUSTRALIA'S EXACTING ELECTRICAL DEMANDS

To meet Australia's infrastructure demands for safety, faster Time-To-Delivery and customisation, the TKS Compact Kiosk Substation represents global engineering collaboration, specifically designed for Australian conditions. This includes the MV compartment, which is compatible with leading brands like Schneider and ABB, offering versatility for integration

Developed by a team of world-class Australian-based electrical engineers, this fully proven substation is locally designed and incorporates agile manufacturing to adapt to your footprint, especially in urban environments.

Incorporated into the design and delivery, is over 25 years of Australian utility and infrastructure electrical engineering to meet Australian standards. The TKS Compact Kiosk Substation is engineered for up to 36kV and 2500kVA, seamlessly integrating into diverse environments from bustling urban centres to remote industrial sites. Our engineers have tailored every aspect of the substation to ensure robust performance, exceptional safety, and unparalleled reliability, specifically for Australia's most challenging climates.

Collaboration with leading Australian utilities has been pivotal in the development of the TKS Compact Kiosk Substation. This partnership has enabled us to incorporate real-world feedback and operational insights directly into the design process, ensuring that our substations not only meet but exceed the operational needs and expectations of the industry.

With a focus on compact efficiency, the TKS Compact Kiosk Substation embodies a 'less is more' philosophy, delivering maximum functionality in a minimal footprint. This approach is not only space-efficient but also aligns with sustainable practices, reducing environmental impact while enhancing installation and maintenance ease.

FEATURES

Robust Construction

Enclosure crafted from Alu-zinc steel (2-2.5mm thickness), painted for outstanding corrosion resistance, ideal for outdoor settings.

Foundation built with hot-dip galvanised steel (3-4mm thickness), ensuring durability and strength.

Technical Excellence for Uninterrupted Service

The TKS offers unparalleled service continuity, backed by rigorous technical specifications.

Adaptive Ventilation System

Customisable ventilation to match the substation's capacity. Options include natural air ventilation or fan-forced systems, tailored to your needs.

Enhanced Protection

Dual-layered doors with gasket sealing provide superior protection against water and dust ingress.

Versatile Capacity Range

Available in a wide capacity spectrum, up to 2500KVA. The design incorporates separate compartments for MV, transformer, and LV.

Safety Assurance

Designed with safety at the forefront, the system directs hot gases generated during internal arcs downwards, safeguarding the surrounding environment.

Compatibility and Flexibility

The MV compartment is compatible with a range of products from leading brands like Schneider and ABB, offering versatility in integration.

Suitability for Challenging Environments

Ideal for tropical climates and coastal installations. For seaside locations, the enclosure is available in stainless steel SUS 304 or 316, providing enhanced resistance to harsh conditions.

Optimal for Compact and Outdoor Applications

TKS is primarily used in compact and outdoor settings. Optional air conditioning can be installed to maintain optimal internal temperatures.

STANDARDS

TKS		IEC STANDARD
Standard	TKS Substation	IEC 62271-202 (replacing for IEC61330)
	MV Switchgear	IEC 62271-200
	Transfomer	IEC 60076
	LV Switchgear	IEC 61439
Devices	Circuit breaker	IEC 62271-100
	Vacuum contactor	IEC 60470
	Earthing switch	IEC 62271-102
	HV, HRC fuses	IEC 60282
	Voltage detecting systems	IEC 61243-5
	Disconnector	IEC 60265-1
	Relay	IEC 60255
Degree of protection		IEC 60529
Insulation		IEC 60071
Instrument transformer	Current transformer	IEC 60044-1 (IEC 61869-2)
	Voltage transformer	IEC 60044-2 (IEC 61869-3)

TECHNICAL DATA

GENERAL CONDITION		
Max ambient temperature	°C	55°C
Max ambient temperature	°C	0°C
Yearly average ambient temperature	°C	25°C
Climate		Tropical region
Max humidity	%	100%
Average humidity	%	85%
Sea level installation	m	Up to 1000
Rated voltage of MV compartment	kV	33
Maximum voltage of MV compartment	kV	36
Rated voltage o f LV compartment	VAC	Up to 440
Transformer type		Oil / Dry
Capacity of transformer		Up to 2500kVA
Ventilation		Air ventilation / Fan-forced
Air conditioner		Optional
MV COMPARTMENT		
Type		Air/SF6 Insulated Ring Main Unit
Power frequency withstand voltage 50Hz; 1min	kV	70
Impulse withstand voltage 1,2/50μs (BIL):	kV	170
Rated current	A	400/630/1250
Short time current	kA	25kA/1s or 20kA/3s or other rating up to short time current of MV components.
Rated peak current	kA	62.5
TRANSFORMER COMPARTMENT		
Rated capacity – oil type	kVA	Up to 2500
Rated capacity – dry type	kVA	Up to 2500
High/ low voltage	kV/ VAC	22/380-440
Vector group		Dyn11
Tapping range	kV	+- 5% steps X 2.5%
LOW VOLTAGE COMPARTMENT		
Rated current	A	Up to 4000
Rated short circuit breaking capacity	kA	200

ENCLOSURE FEATURES FOR PRACTICALITY AND SAFETY

- Designed as a non-walk-in, the substation is specifically engineered for outdoor installation.
- Features a removable roof, facilitating easy lifting in and out of the transformer.
- The substation is securely installed on a robust concrete foundation, ensuring stability and durability.
- Equipped with an earthed conductor boasting a cross-section of 250mm² for enhanced safety and grounding efficiency.
- Each compartment is fitted with internal lighting, activated automatically by a door limit switch, for improved visibility and safety.
- Comes with clearly visible warning labels and signs to ensure compliance with safety standards and to alert personnel to potential hazards.
- The doors are fitted with locking devices to prevent unauthorised access and to ensure the security of the substation's internal components.

STRUCTURE

The TKS Compact substation is made of three parts, to offer flexibility and choice.

1 The MV compartment is compatible with:

RM6/FBX – Schneider | Safeplus – ABB

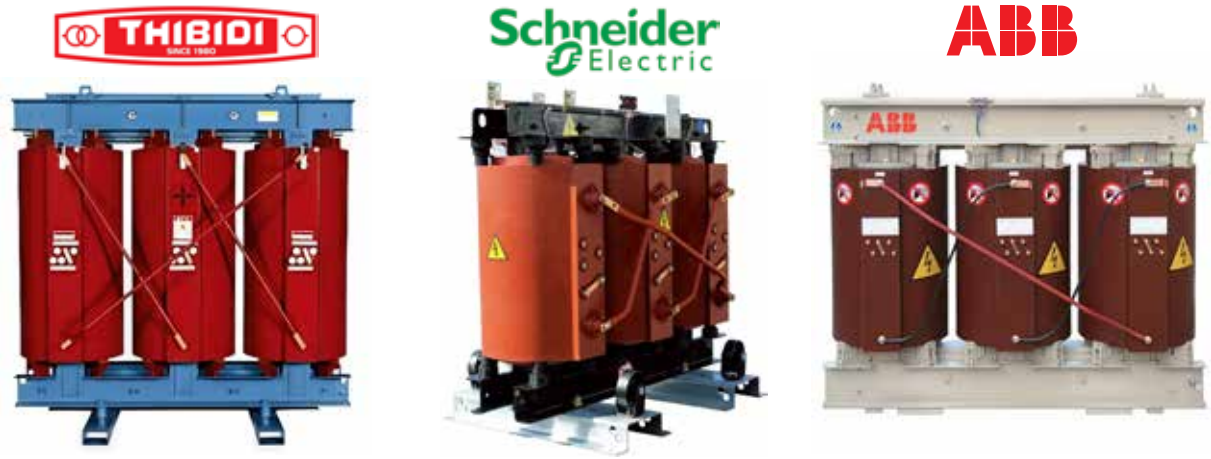
- MV switchgear can accommodate either air-insulated or SF6 gas-insulated Ring Main Units.
- Commonly utilised ring main units include models such as RM6, SM6, TMS1, among others.
- Typically, three MV functional units are installed:
  - One Incoming unit
  - One Outgoing unit with protection for the Transformer
  - One Outgoing unit for the network
- A mechanical interlocking system is implemented to prevent access to the operating shaft. This is designed to eliminate operator errors, such as closing the earthed switch while the main switch is closed.

2 Transformer compartment is compatible with:

THIBIDI | Schneider | ABB | EEMC

- Transformer options include either Oil or Dry type.
- Power connections between the MV switchgear and Transformer are facilitated via cable.
- Power connections between the LV switchgear and Transformer can be made either by cable or busbar.
- Various connector types, such as Elbow connectors, Tee connectors, and Straight connectors, are available for connections between the MV switchgear and Transformer.
- Transformer access is provided through doors on two sides (front and rear) or three sides (front and lateral).

Dry transformer type

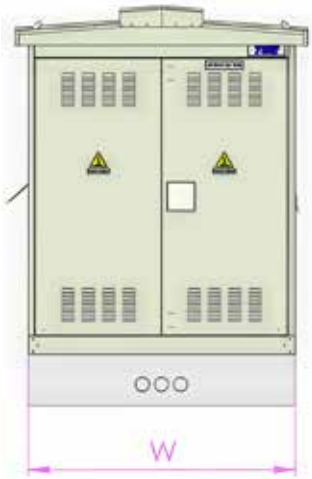


Oil transformer type

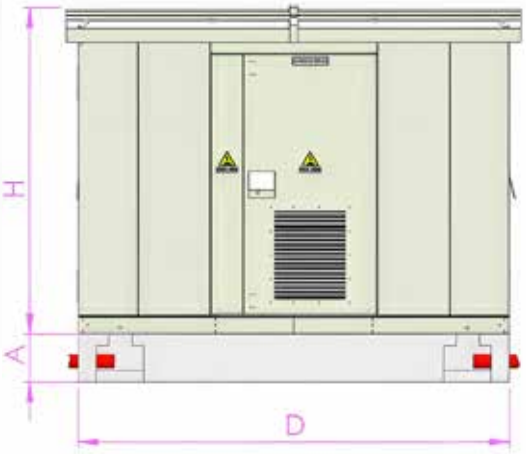
3 LV compartment

- TKS LV switchgear can be custom-designed in various arrangements and configurations to meet specific application requirements.
- It can be equipped with an Air Circuit Breaker (ACB) for effective high-power circuit protection.
- Moulded Case Circuit Breaker (MCCB) options are available for diverse operational needs.
- Capacitor banks are offered in two types, catering to different power correction and quality needs.
- It includes Active energy meters, contactors, and time switches specifically for the public lighting section.
- Automatic Transfer Schemes (ATS) are incorporated for seamless power source transitions.
- The design also features comprehensive lighting systems suitable for a variety of applications.

INSTALLATION – TYPE 1

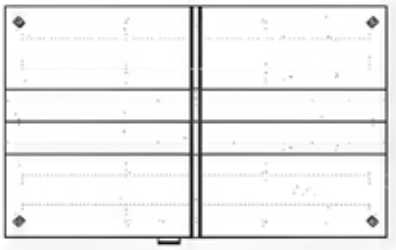


Medium voltage
Front view

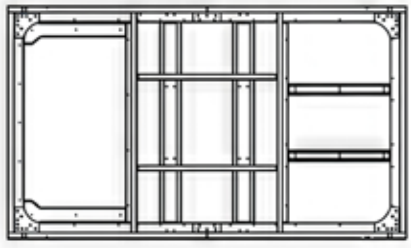


Side view

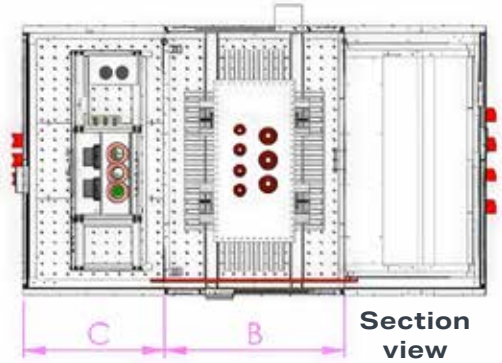
Low voltage
Front view



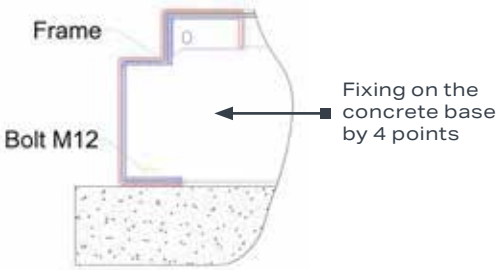
Top view



Base frame



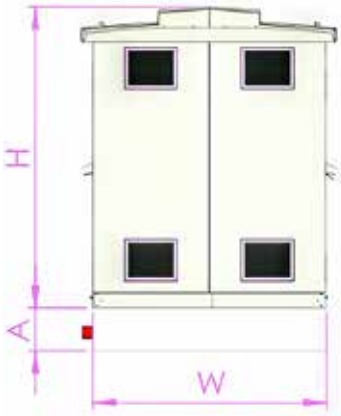
Section
view



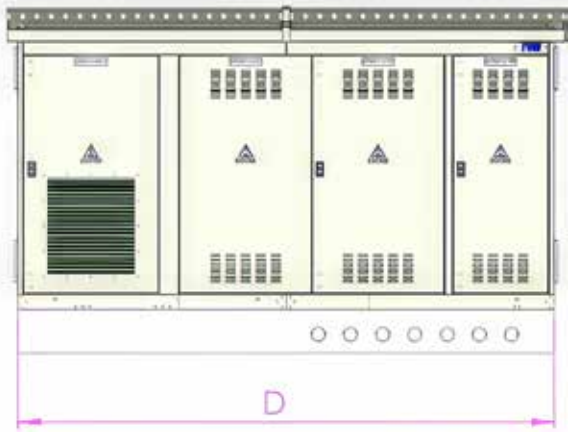
Fixed base

DRY TRANS.	DIMENSION					
Capacity (kVA)	**W**	**H**	**A**	**B**	**C**	**D**
400 -> 630	2200	2800	> 500	1400	500 to 1000	2990 to 3490
800 ->1600	2200	3000	> 600	1600	500 to 1000	3190 to 3690
2000 -> 2500	2500	3200	> 700	1800	500 to 1000	3390 to 3890
OIL TRANS.	**DIMENSION**					
Capacity (kVA)	**W**	**H**	**A**	**B**	**C**	**D**
400 -> 630	2200	2800	> 500	1400	500 to 1000	2990 to 3490
800 ->1600	2300	3050	> 600	1600	500 to 1000	3190 to 3690
2000 -> 2500	2500	3350	> 700	1800	500 to 1000	3390 to 3890

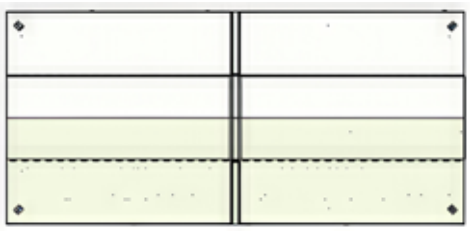
INSTALLATION – TYPE 2



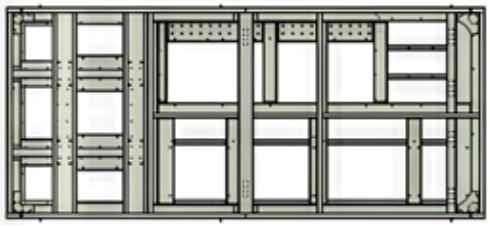
Transformer
Front view



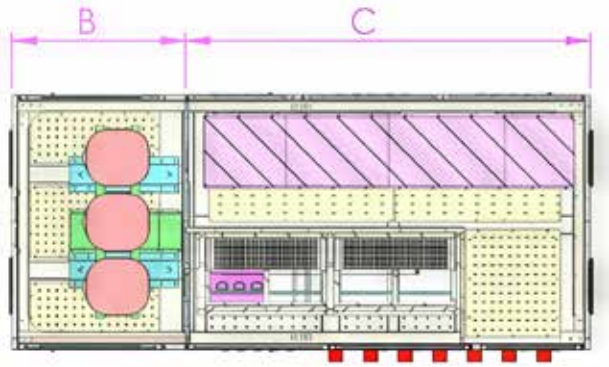
Side view



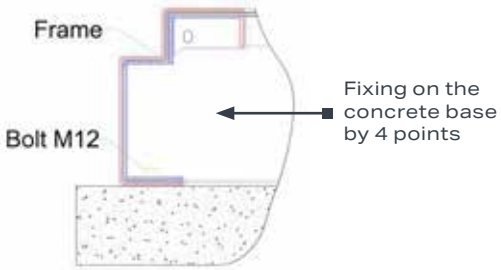
Top view



Base frame



Section view



Fixed base

DRY TRANS.	DIMENSION					
Capacity (kVA)	**W**	**H**	**A**	**B**	**C**	**D**
400 -> 630	2200	2800	> 500	1500	2000 to 5000	3500 to 6500
800 ->1600	2200	3000	> 600	1500	2000 to 5000	3500 to 6500
2000 -> 2500	2500	3200	> 700	1800	2000 to 5000	3800 to 6800
OIL TRANS.	**DIMENSION**					
Capacity (kVA)	**W**	**H**	**A**	**B**	**C**	**D**
400 -> 630	2200	2800	> 500	1400	2000 to 5000	3400 to 3490
800 ->1600	2300	3050	> 600	1600	2000 to 5000	3660 to 6600
2000 -> 2500	2500	3350	> 700	1800	2000 to 5000	3800 to 6800

HELLO AUSTRALIA.

Since the year 2000, TGE has been the dependable name in electrical infrastructure. In service for over 1 billion people.

TGE is a leading manufacturer committed to designing and manufacturing products that provide a safe operating environment for our clients invested in critical electrical infrastructure.

As Asian markets expand, TGE is delivering the innovation and products for industries to expand and prosper. This includes investing into being the first choice for safety and innovation, to compete with established European brands.

In the Australian market, we are committed to local partners for bespoke design, compliance and safety standards to be the viable alternative for MV/LV switchboards, Substations and cable support systems.

TGE provide products and services related to electrical systems, such as medium voltage cabinets, low-voltage cabinets, vacuum circuit breakers, kiosk stations, protective control cabinets, and consulting, installation, repair, maintenance, renovation and upgrade services.

ISO 9001:2015 Cert. No.: 720312 | ISO 14001:2015 Cert. No.: 746979 | ISO 45001:2018 Cert. No.: 754744

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