ONA Electric Industries

TRIONA

ONA COMPACT SUBSTATION

ON Series

TABEL OF **CONTENT**

DESCRIPTION 5

ONA CSS FEATURES 7

STANDARDS AND CERTIFICATIONS 9

APPLICATIONS 12

SPECIFICATION 15

TYPES OF CSS LAYOUTS 18

MAIN COMPONENT 22

CSS DESIGN 26


HONA
Electric Industries
ELECTRICAL HAZARD

Description

01

ONA CSS Description

The Compact Secondary Substation (CSS), commonly known as a kiosk, is an enclosed unit designed for the transformation and distribution of electrical power in medium and low voltage networks. These substations are utilized in urban, industrial, and rural areas to ensure efficient and reliable power distribution. The prefabricated design of the compact substation makes it suitable for outdoor applications, offering benefits such as a compact footprint, flexible configuration, and dependable technology. It accommodates primary voltage inputs of 11kV or 22kV and converts them to lower voltages, such as 400V or 380V

Features

02

COMPACT DESIGN:

CSS units are engineered for space efficiency and compactness, making them particularly well-suited for installation in confined areas.

FLEXIBILITY:

CSS units can be customized to meet specific needs, including different configurations for different applications.

PRE-FABRICATED:

These substations are usually prefabricated and pre-tested, allowing for quick and easy installation on-site.

COST-EFFECTIVE:

Due to their standardized design and prefabrication, CSS units can be more cost-effective compared to traditional substations.

Safety:

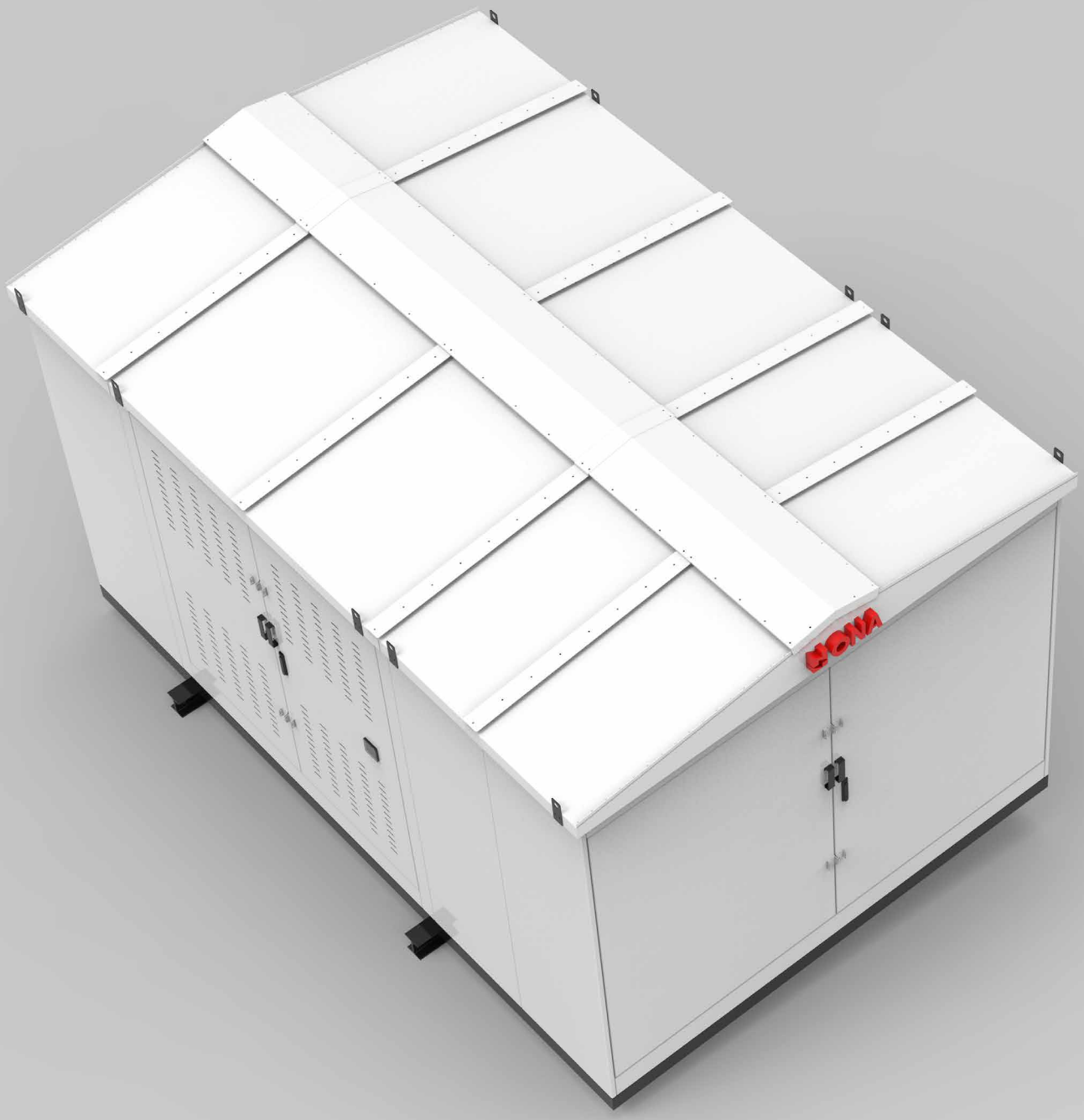
Enclosed in robust, weatherproof housing, CSS units ensure safety by protecting internal equipment from environmental factors and unauthorized access.

Advantages:

- Reduced Installation Time: Pre-fabrication and testing allow for rapid deployment.
- Enhanced Safety: Enclosures protect equipment and personnel from hazards.
- Minimal Maintenance: Designed for reliability and low maintenance Safety Features

Standards and Certifications

- IEC 62271-102: High-voltage switchgear and control gear.



Applications

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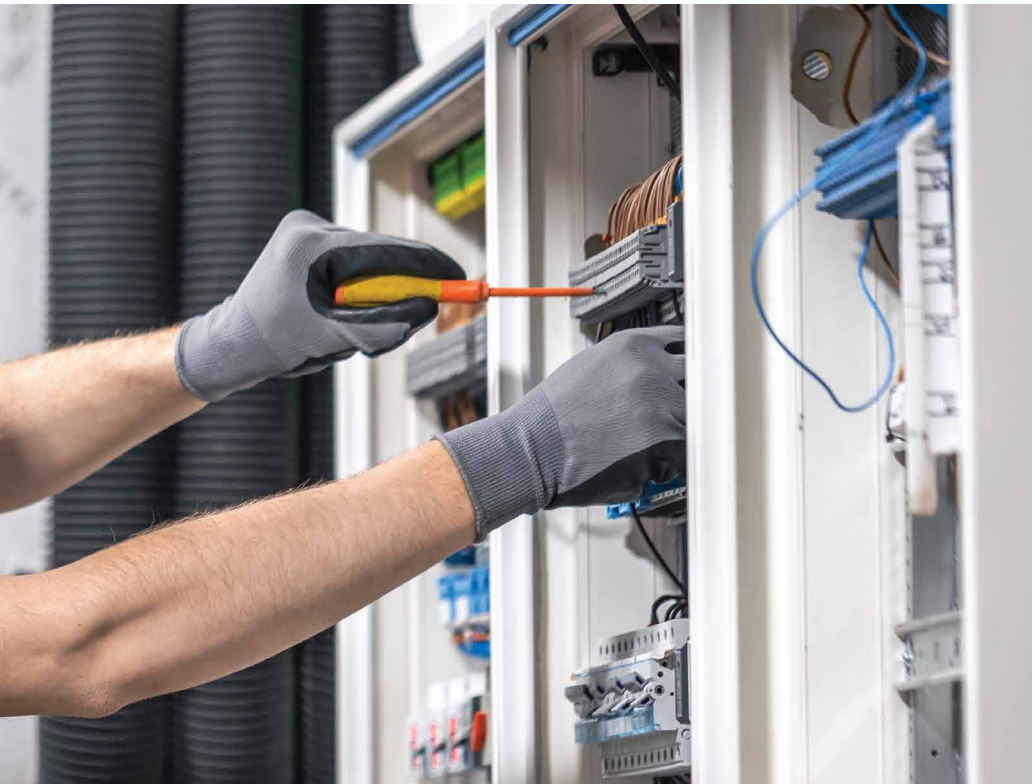
Industri s

URBAN AND RESIDENTIAL AREAS

To provide reliable power distribution in densely populated areas.

Rural Electrification

To extend power distribution networks into rural and remote areas.



INDUSTRIAL FACILITIES

To manage and distribute power within industrial complexes.

Temporary Installations

For construction sites, events, and other temporary power needs.

Specification

05

Technical Specification

Rated Power	**P (KVA)**	**≤3500**
Rated Voltage	**Ur (KV)**	**≤24**
Short circuit withstand current of internal earthing network	**I (KA)/(Sec)**	**20**
Over all Dimensions (LxWxH) (Approximate)	**mm**	**4400x2900x2560**
Weight of CSS (Approximated)	**Ton**	**2.5**
Rated current of LV panel	**I (A)**	**≤6300**
Rated short circuit withstand capacity of LV busbar system	**I (KA)/(Sec)**	**50**
Transformer compartment protection degree	**IP**	**2x**
MV/LV compartment protection degree	**IP**	**54**

Environmental Specifications

Ambient temperature

Maximum temperature:+40℃
Minimum temperature: -10 ℃

Ambient Humidity

The relative humidity of air
daily average ≤ 90 %
monthly average ≤ 95 %

Altitude

No more than 1000m

Seismic intensity

Does not exceed 8 degrees

Surroinding air

Not significantly contaminated by dust, smoke, corrosive and/or flammable gases, vapors or salt spray.

Note

If your environment falls outside these parameters, please contact us for a customized solution

Types of CSS Layouts

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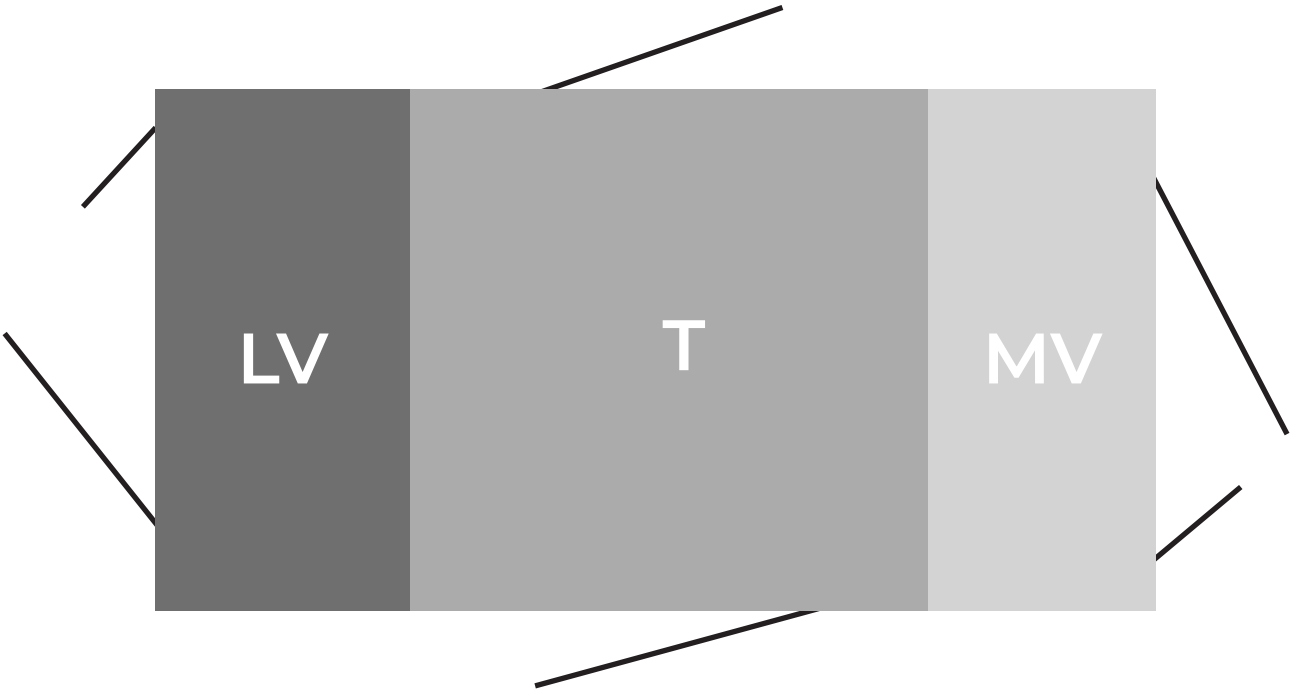
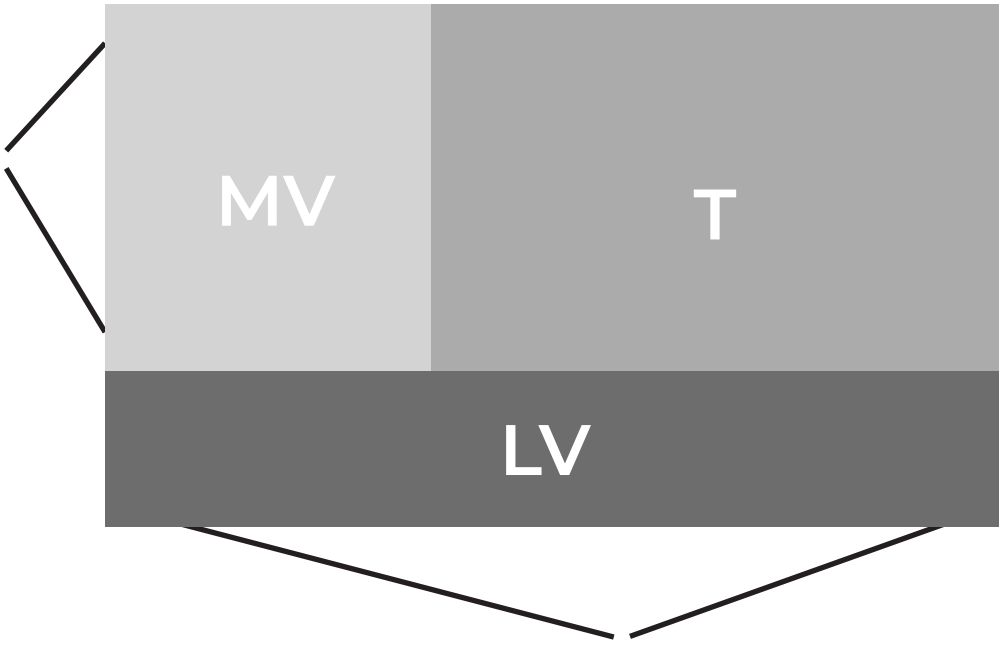
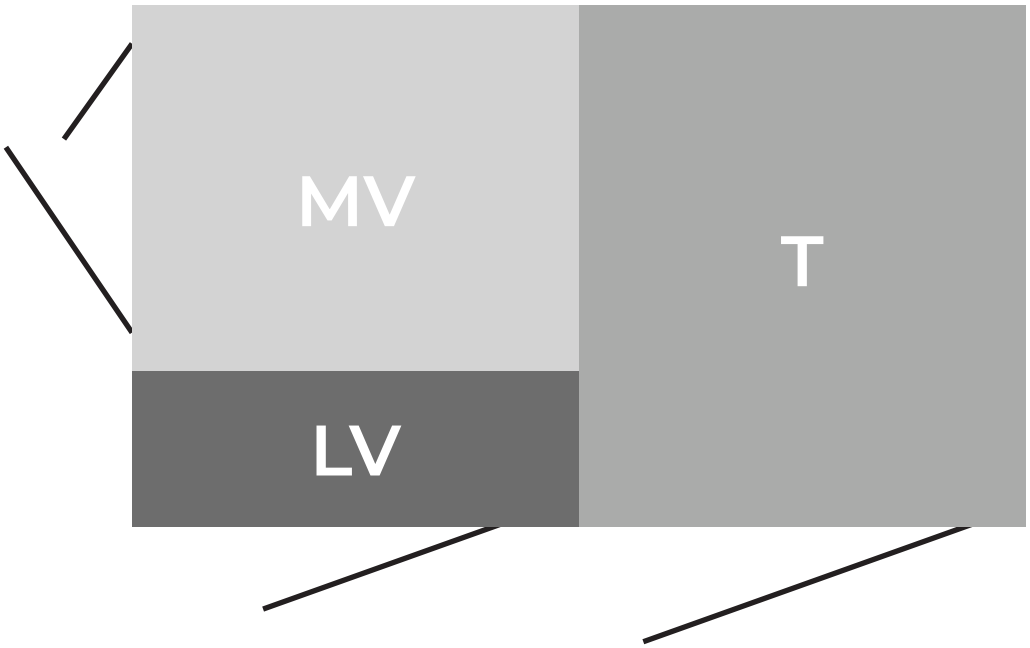
1-CSS-TYPE A



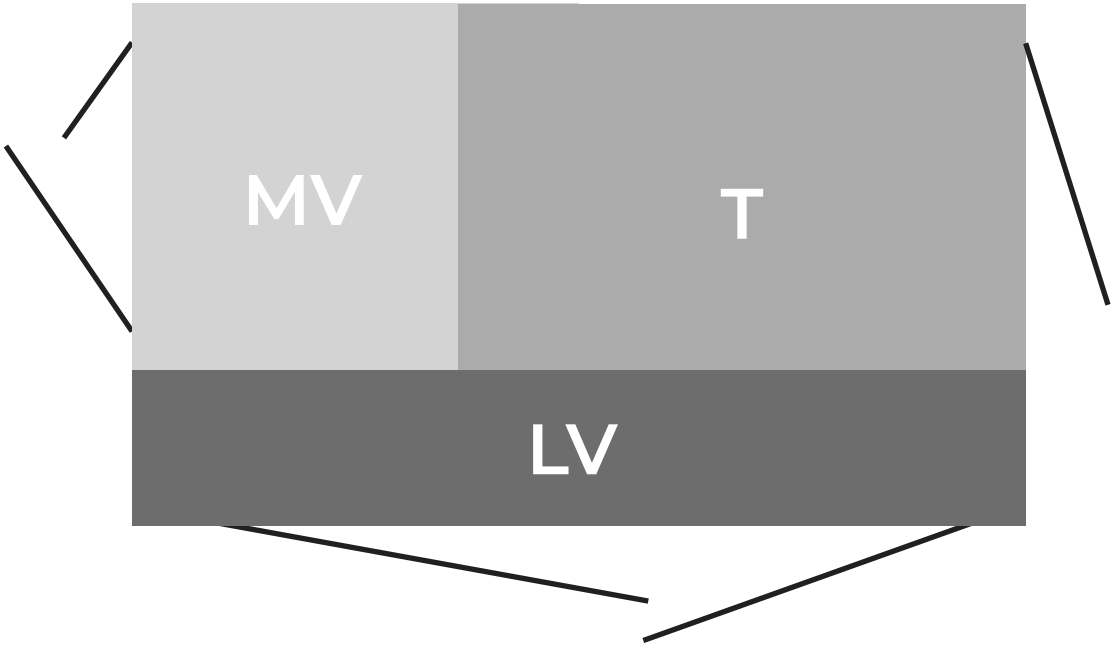
2-CSS-TYPE B



3-CSS-TYPE C



4-CSS-TYPE D



5-CSS-TYPE E

MV
Up to 40.s kv

Main Component

07

Typically, CSS units include medium voltage switchgear, a step-down transformer and a low voltage switchboard. Very often, different substation configurations (e.g., only MV switchgear) are used in the network

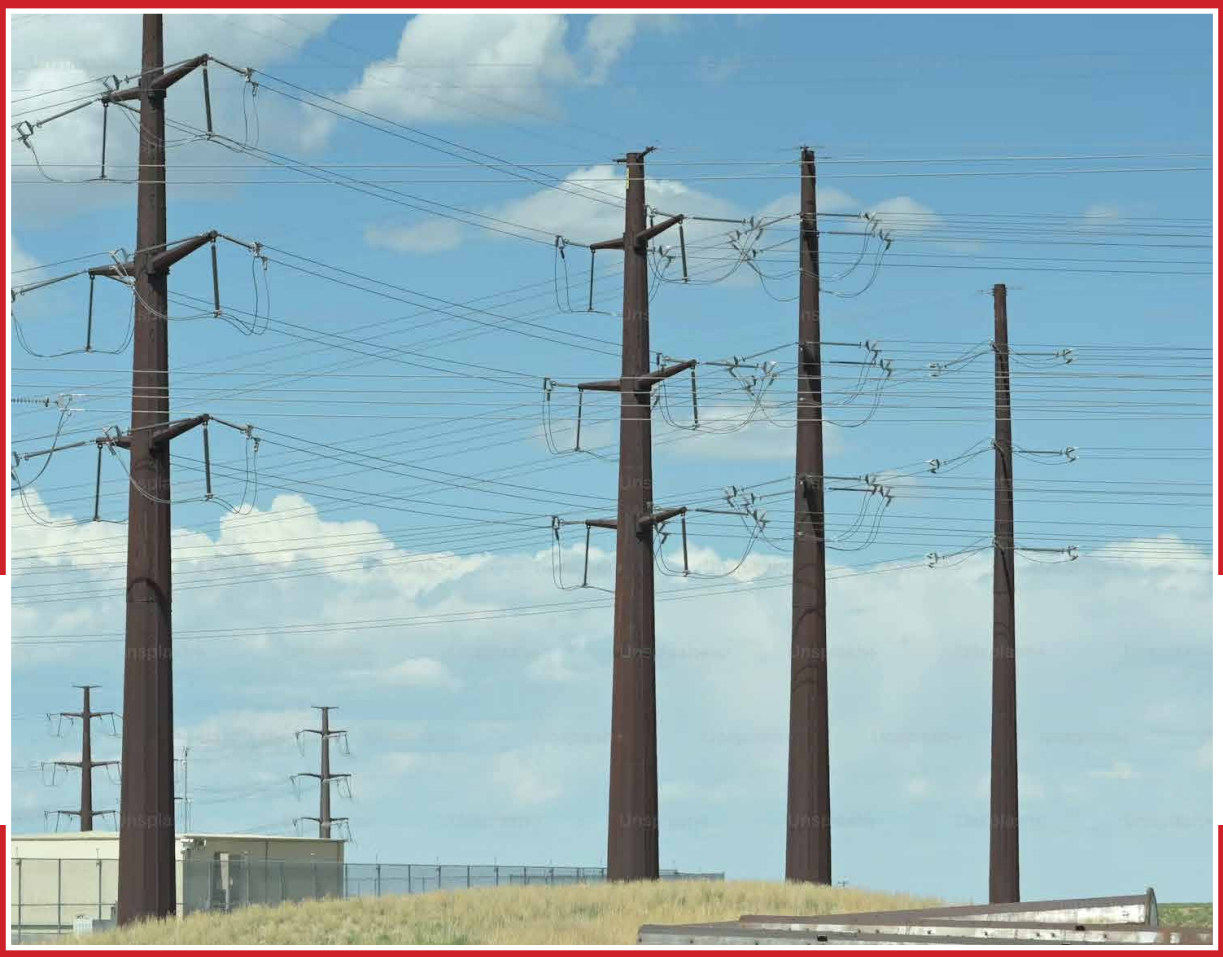
MEDIUM VOLTAGE SWITCHGEAR (RMU)

Medium voltage switchgear safeguards transformers and offers network isolation for maintenance and reconfigurations. Transformer protection is tailored to local regulations and transformer ratings, with fuses used for lower ratings and circuit breakers for higher ratings. The most common switchgear types in substations are Air RMUs and SF6 RMUs.

L.V DISTRIBUTION BOARD (MDB)

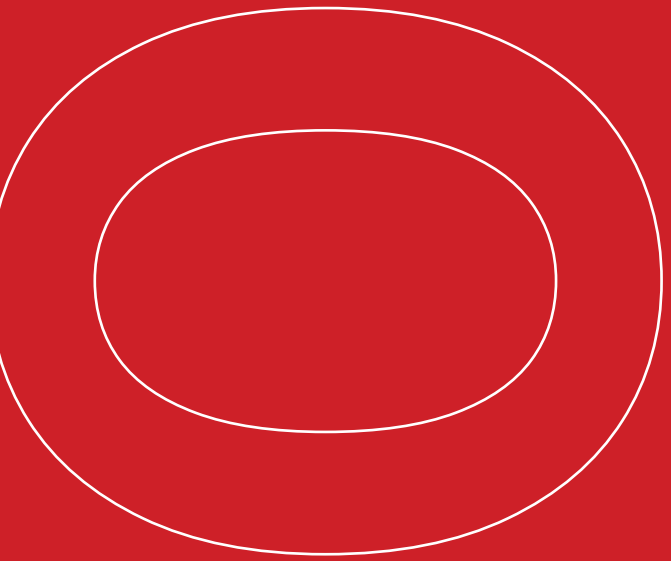
The low voltage switchboard varies in complexity, with functions including incoming switch protection for the transformer, outgoing feeders to divide networks, and protection via fuses or MCCBs. It also supports various options for auxiliary equipment like measurement, metering, and surge protection.

TRANSFORMER



While step-down transformers are common in CSS applications, the rise in wind and solar energy has increased the use of step-up transformers. Oil-filled transformers are typical due to cost, while dry-type transformers are used in specialized settings like industrial sites and PV plants.

CSS Design



8

CONSTRUCTION

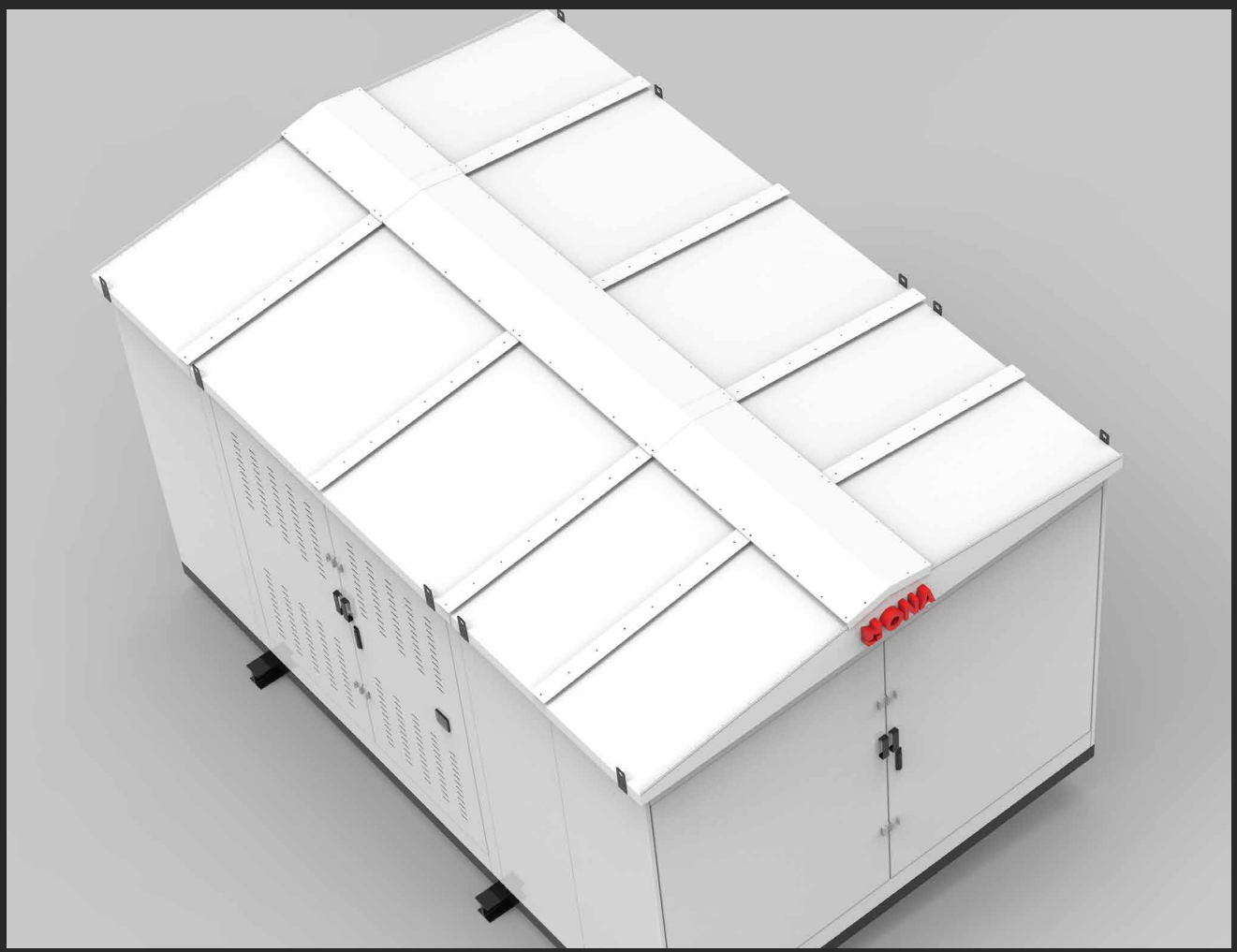
The Compact Secondary Substation (CSS) housing consists of an above-ground structure that can be installed on-site into a base provided by ONA. It includes doors, a roof, and ventilation elements tailored to the application. Non-walk-in solutions are designed for outdoor operation, while walk-in stations feature an internal operating aisle.

VENTILATION

ONA's ventilation system uses air intake openings and top-side louvers for natural cooling of distribution transformers, lowering enclosure temperature and improving performance, lifespan, and effectiveness, especially in hot climates. ONA also provides thermal simulations for optimizing transformer life in challenging conditions.

ROOF

The CSS has separate, detachable roofs for the MV switchgear, LV switchboard, and transformer compartments, allowing for easy maintenance and weather protection. The roof options include a 6-degree standard slope or an 18-degree slope for snow, and supports up to 250 kg/m².



DOORS

CSS doors are made of pre-galvanized steel, featuring stainless steel hinges and 2-point or 3-point locking for enhanced security and protection against unauthorized access and internal arc faults. Safety barriers and handles provide additional safety for operators and the public.

COMPARTMENTED DESIGN AND LAYOUTS

The compact substation has distinct compartments for medium voltage (MV) switchgear, low voltage (LV) switchboard, and a distribution transformer. It is a walk-in design for easy maintenance and complies with IEC 62271-202 ed.2 for safety. The transformer compartment is typically designed for liquid-filled transformers but can be customized for different types if needed.

INSTALLATION

The factory provides a pre-tested substation and lifting devices for installation. No complex civil work is required—only a pit needs to be excavated for the substation. After placement, commissioning begins once the cables are connected.

Ona Electric Industries
5-Year Warranty Commitment

At Ona Electric Industries, we believe in the quality and durability of our products. That's why we offer a comprehensive 5-Year Warranty on all our electrical solutions, including our switchgear, transformers, smart grids, and more

Benefits of Choosing Ona Electric

Long-Term Reliability: Trust in the longevity of your electrical systems.
Top-Tier Support: Our dedicated support team is always here to assist.
No Additional Costs: Enjoy full coverage wit

ONA Electric Industries

New era of digital electricity solutions today

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POWERING YOUR FUTURE, SAFELY.