



### MV/LV TUNNEL TRANSFORMER SUBSTATION (TTR):

- Realized for outdoor and tunnel installations, in heavy conditions.
- Bent steel sheet structure, minimum thickness 3mm, further reinforced where necessary.
- Polyurethane paint for heavy conditions.
- Usually composed by transformer compartment and MV/LV switchgears compartment.
- Equipped with all the accessories and equipments for safety and emergency.
- Realized according to the specific requirements of the operating area.
- Complying with all the international applicable regulations (IEC).
- Fast installation and commissioning.
- Provided with MV/LV cable reel, skid on muddy grounds or wheeled undercarriage on uniform grounds.

## ELECTRICAL FEATURES

### TRANSFORMER

Substation is equipped with a cast resin transformer, oil or air insulated, with power up to 4500 kVA.

#### MEDIUM VOLTAGE SWITCHGEAR

Rated voltage	12 kV	17,5 kV	24 kV	36 kV
Power frequency withstand voltage (50-60 Hz 1 min.) towards the ground and between phases	28 kV	38 kV	50 kV	70 kV
Rated lightning impulse withstand voltage towards the ground and between phases	75 kV	95 kV	125 kV	170 kV
Rated current	400÷ 1250 A	400÷ 1250 A	400÷ 1250 A	400÷ 800 A
Short time withstand current 1 sec on main circuits and earth circuits	12,5÷ 25 kA	12,5÷ 25 kA	12,5÷ 25 kA	16÷ 25 kA
Internal arc withstand 1 sec	12,5÷ 21 kA	12,5÷ 21 kA	12,5÷ 21 kA	16 kA

#### LOW VOLTAGE SWITCHGEAR

Rated voltage up to	1000 Vca 1500 Vcc
Rated current	2500 A
Rated short circuit current	40 kA
Rated short-term withstand current	65 kA
Rated peak withstand current	143 kA
Rated impulse voltage	8 kV
Rated frequency	50-60 Hz

**TTR**

**MV/LV Tunnel Transformer Substation**



Cotti e Marchi Srl reserves the right to modify at any moment the product described

**OPERATING FEATURES**

Operating temperature	-5°/+45°C
External Protection class	IP 54

**ACCESSORY EQUIPMENTS (\*optional)**

- UPS (Uninterruptable Power Supply);
- Fixed PFC;
- Automatic PFC\*;
- Fire detection and extinguishing\*.
- Conditioning system\*.
- External interlocked sockets for power up to 800A;
- Cab shield sockets side.

**INTERNAL ACCESSORIES**

- Interlocked socket 230 Volt - 16A;
- Powder extinguisher;
- Emergency lighting;
- Insulated carpet;
- Electrical drawings;
- Warning notice.

**EXTERNAL ACCESSORIES**

- Warning horn (IP66);
- Flashing warning light (IP55);
- Emergency button under glass



## TTR - SA

### Tunnel transformer substation on skid



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**TUNNEL TRANSFORMER SUBSTATION ON SKID** the tunnel transformer substation, operating on muddy grounds, is equipped with MV/LV cable reel and located on skid. The slide is hot galvanized to avoid the degradation caused by the heavy conditions of work.

## TTR - CA

### Tunnel transformer substation on wheeled undercarriage



**TUNNEL TRANSFORMER SUBSTATION ON WHEELED UNDERCARRIAGE**, when the tunnel transformer substation operates on uniform grounds can be provided with MV/LV cable reel and located on a wheeled undercarriage.