

# TTES - DRY TYPE LOW VOLTAGE POWER TRANSFORMERS (PT-HMT)



TTES-X (shown without enclosure box)

## Base Electrical Characteristics:

- TTES – X: High Efficiency ( $X = S_n[kVA]$ )
- Three phase - epoxy resin impregnated
- Ambient temperature:  $-40\text{ }^{\circ}\text{C}$  to  $+60\text{ }^{\circ}\text{C}$
- Temperature insulation:  $220\text{ }^{\circ}\text{C}$  ( $150\text{ }^{\circ}\text{C}$  rise)  
(optional  $115\text{ }^{\circ}\text{C}$  and  $80\text{ }^{\circ}\text{C}$  rise available)
- Taps made to order per specific requests

## Certified to:

- IEC 60076-11:2004

CSA #C22.2 No. 47-13, No. 92.2-07 and UL 1561 certifications are underway

## Key Features:

- Harmonic mitigating transformers (HMT)
- Fire retardant
- High efficiency: meets NEMA Premium
- Copper windings
- Wall or floor installation
- Highly reliable and Maintenance free
- Sound: meets NEMA ST-20, DIN 42540 and VDE 0532 standards
- Outdoor or indoor enclosures (IP/NEMA)
- No carbon monoxide emissions, environmentally friendly

## Advantages:

- Long performance history, first built in 1960's (FMT Zajecar, Serbia)
- Compact footprint
- No harmful or dangerous material in construction
- Resistant to insulation cracking
- Resistant to short circuit faults
- Resistant to impulse voltage
- Resistant to ingress of moisture and chemicals
- Handles higher short-time overloads
- Low noise, easy installation, no maintenance
- Resistance to fire – self-extinguishes

	TTES-75	TTES-45	TTES-35
U1[V]	600/480/277	600/480/277	600/480/277
U2[V]	480/277/208 /120	480/277/208 /120	480/277/208 /120
$S_n[kVA]$	75	45	35
Efficiency	98.6%	98.4%	98.3%
BIL[kV]	1 / 3 / 6	1 / 3 / 6	1 / 3 / 6
Protection	IP / NEMA	IP / NEMA	IP / NEMA
Frequency	60Hz	60Hz	60Hz
Impedance	2.5 to 6.5%	2.5 to 6.5%	2.5 to 6.5%
W/D/H [mm]	889/584/780	775/508/635	775/508/635
Weight [kg]	345	241	207

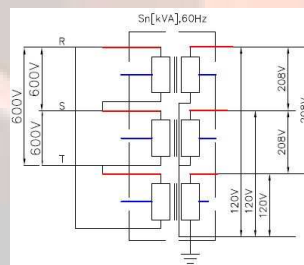
Any IP / NEMA enclosure types available  
K-Factor: per ANSI / IEEE C57.110 and specified request to mitigate harmonic heating effects

**Other rated powers available:**

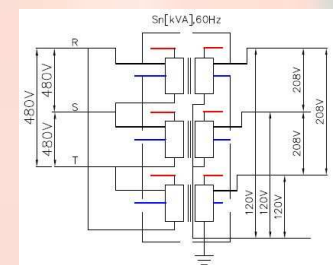
❖ From 3 kVA up to 250 kVA

## **TAP CONNECTIONS**

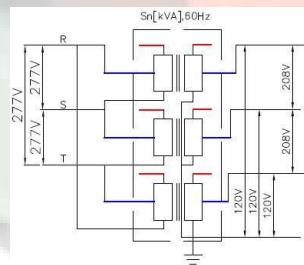
Other tap / ratio connections available per specific orders



Red Taps: Ratio – 600//208/120



Black Taps: Ratio – 480//208/120



Blue Taps: Ratio – 277//208/120



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## POWER TRANSFORMERS - PRODUCTION LINE



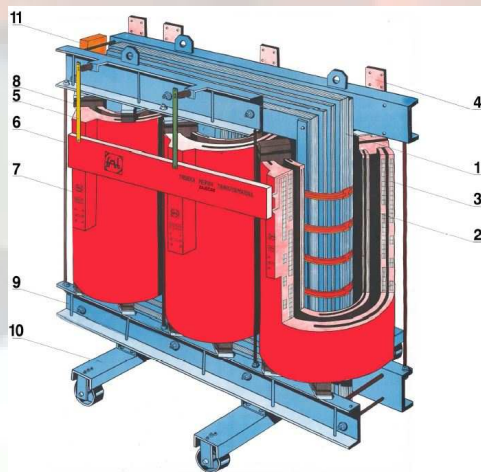
### Application (power to):

- EHT (Electric Heat Tracing)
- Low voltage Motors
- Lightings, instrumentation...

### Industries:

- Oil and gas, Mining, Ships ...  
Hospitals, airports, market centers, sport and congress halls, theatres and cinemas ...

### TTES-X 3D view (without enclosure)



### Main parts:

1. Magnetic core - impregnated hipersil sheet;
2. Secondary-voltage winding with copper foil;
3. Primary-voltage winding casted in epoxy resin, coil with rectangular wire;
4. Secondary-voltage connection;
5. Primary-voltage connection;
6. Connecting clamp;
7. Voltage regulation (Taps);
8. Elastic bolster;
9. Bracket arms for core compression and carrying;
10. Traveling base;
11. Electronic thermal protection.

