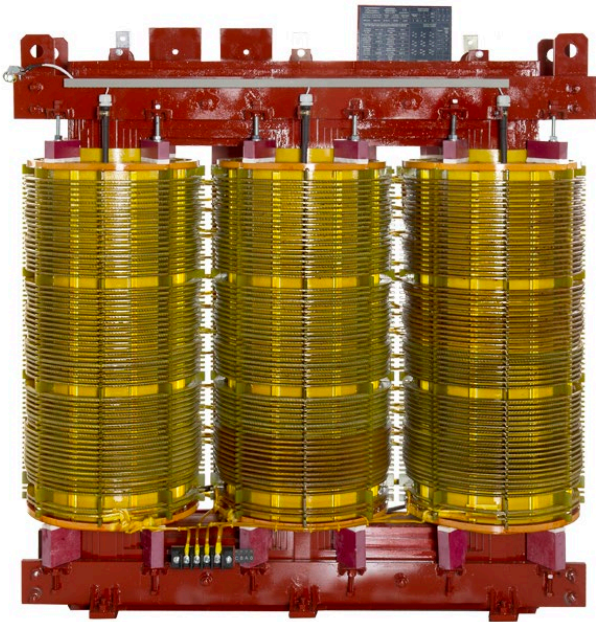


# Multi-pulse harmonic filtering compensator transformers



Multi-pulse harmonic filtering compensator transformer designed for power converters such as frequency converters with high motor rating at medium voltage from 3,3 kV to 15 kV.


The multi-pulse transformer of 12 to 60 pulses cancels current harmonics, generated by the converter with multilevel technology, providing a low value of current harmonic distortion THD-I <5% and a power factor  $PF \approx 0.99$  without external filters, complying with the strictest standards.

As a result the electric distribution grid and the transformer do not require declassification avoiding unwanted resonances and reducing electrical losses by increasing the efficiency of the installation.

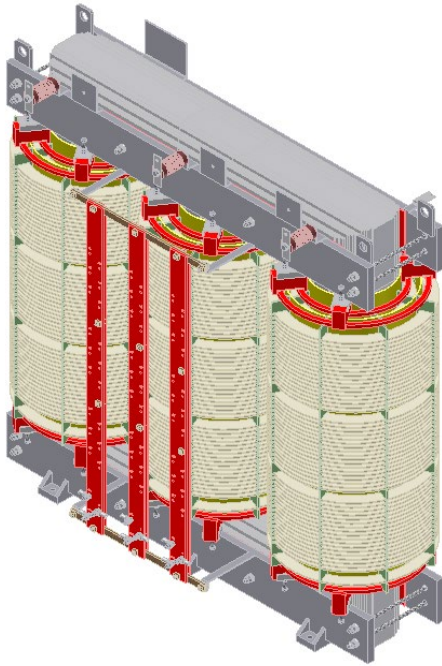
With the advanced design and manufacturing TORYTRANS technology in dry type medium voltage transformers it is provided partial discharge isolation levels lower than 10 pC, according to the standard, that ensure reliability and service life of the transformer for periods greater than 20 years.

Most common applications are for startup and speed variation of high power motors for pumping and Water purification, Mining, Power Generation, Petroleum and Gas Plants, Metallurgy and Paper sectors.

## Technical characteristics

Power rating	200 ÷ 4000 kVA
PRIMARY voltage	3,3 / 4,16 / 6,6 / 11/ 15 kV
SECONDARY voltage	600 ÷ 1100 V Pulses: 12 / 18 / 24 / 36 / 48 / 60
THIRD voltage	400 V
Regulation taps	± 5% at primary
Frequency	50/60 Hz
Harmonics overload factor	$K \geq 20$
Ambient temp.	50 °C
Altitude	1000 m
Insulation class	H (180 °C)
Protection degree	IP-00
Safety class.	Class I 
Cooling	AF $\geq 3$ m/s
Insulation level	3,6 / 7,2 / 12 / 17,5 kV Um
Test voltage	10 / 20 / 28 / 38 kV at 50 Hz 1 min
Lightning impulse	40 / 60 / 75 / 95 kV 1,2/50 $\mu$ s
Partial discharges	< 10 pC
Temperature sensor	PT100
Standard	IEC/UNE-EN 60076-1 IEC/UNE-EN 60076-11 IEC/UNE-EN 60146-1-3 IEC/UNE-EN 61378-1



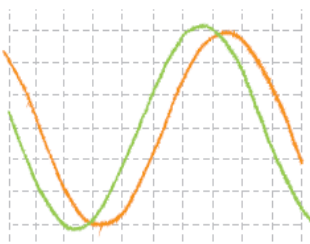


## VARIABLE FREQUENCY DRIVER: MEDIUM VOLTAGE

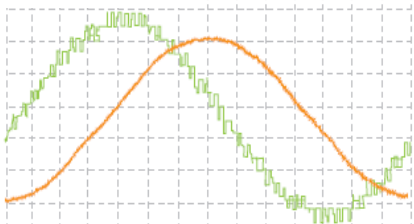
### Series:

- TAM12** – 12 pulses
- TAM18** – 18 pulses
- TAM24** – 24 pulses
- TAM36** – 36 pulses
- TAM48** – 48 pulses
- TAM60** – 60 pulses

### Input waves



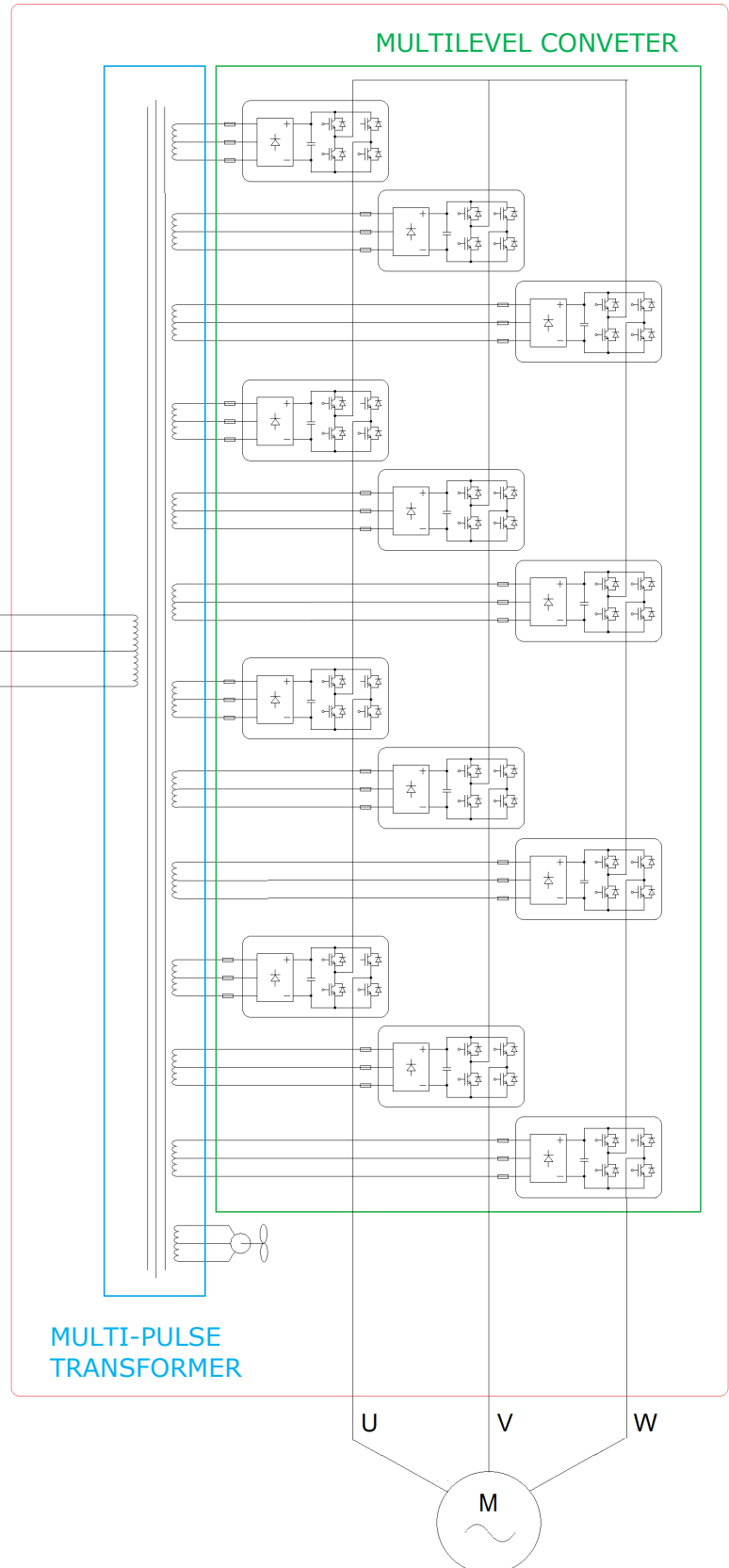
### Output waves



Voltage

Current  $i$

NET  
R  
S  
T



\* Other features, power, voltage, etc., on request  
 \* Torytrans reserves the right to modify the information in any time and without prior notice.