

# Three phase isolating transformers

## Factor "K" intended for installations with harmonics




Three phase transformer with galvanic isolation between primary and secondary, includes an electrostatic shield for installations with a high level of harmonic distortion.

Transformers factor "k" of Torytrans provide a special design features that protect the transformer from harmonics current that cause losses and overheating at the windings of transformers.

The "K" factor is a constant that indicates the capacity of the transformer to supply non-linear loads (e.g. induction furnaces, variable speed motors, rectifiers, data centers ...) and support harmonic currents without exceeding their operating temperature (do not filter harmonics).

Construction into enclosure, protection degree of IP-23, metal cabinet with epoxy powder coating polyester resin with excellent mechanical and physical properties corrosion. Type II enclosure includes wheels.

### Technical Characteristics

Power rating	10 ÷ 500 kVA
Input voltage	3 x 400 V
Output voltage	3 x 400 V + N
Vector group	Dyn11
Frequency	50/60 Hz
Factor K harmonics overload	k = 13 k = 20
Harmonic distortion max. admissible	THD-I ≈ 50% (k=13) THD-I ≈ 80% (k=20)
Neutral overload max. admissible	2 x I <sub>N</sub>
Ambient temp	30 °C
Insulation class	F (155 °C) Up to 100 kVA  H (180 °C) From 125 kVA
Protection degree	IP-23
Safety class	Class I 
Voltage test	3 kV

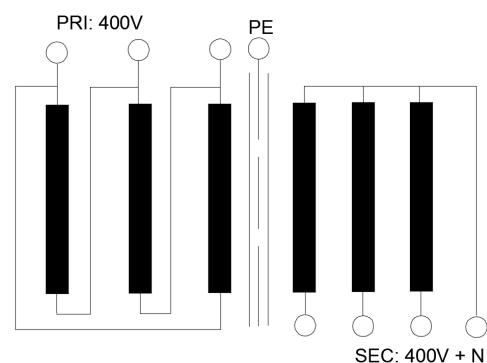
Standard



Power rating ≤ 40 kVA:  
IEC/UNE-EN 61558-1

Power rating > 40 kVA:  
IEC/UNE-EN 60076-11

### Electrical diagram



- Select the K factor depending on the application and harmonics in the network:

Factor	Applications
K = 13	Informatics and Telecommunications equipment UPS without input filtering Lighting with electronic ballast General facilities of offices General facilities of production lines
K = 20	Data Centers Variable Frequency drives (VFD) Induction furnaces Welding equipment Machine tools with numerical control General facilities in critical areas as operating/recovery rooms of hospitals

## Series TTFK

Rating kVA K = 13	Rating kVA K = 20	Reference	Dimensions mm						Weight kg	Type
			A	B	C	D	E	Ø		
10	8	TTFK010	545	385	615	350	360	10	87	II
12	10	TTFK012	545	385	615	350	360	10	100	II
16	12	TTFK016	615	425	690	400	400	10	120	II
20	16	TTFK020	615	425	690	400	400	10	140	II
25	20	TTFK025	775	575	940	400	550	10	202	II
31	25	TTFK031	775	575	940	400	550	10	235	II
40	31	TTFK040	775	575	940	400	550	10	282	II
50	40	TTFK050	775	575	940	400	550	10	267	II
63	50	TTFK063	775	575	940	400	550	10	329	II
80	63	TTFK080	930	710	1275	480	670	16	445	III
100	80	TTFK100	930	710	1275	480	670	16	605	III
125	100	TTFK125	930	710	1275	480	670	16	735	III
160	125	TTFK160	1070	880	1460	660	840	16	800	IV
200	160	TTFK200	1070	880	1460	660	840	16	990	IV
250	200	TTFK250	1070	880	1460	660	840	16	1200	IV
315	250	TTFK315	1070	880	1460	660	840	16	1355	IV
400	315	TTFK400	1210	1070	1650	660	840	16	1564	IV
500	400	TTFK500	1210	1070	1650	660	840	16	1763	IV

\* Other features, power, voltage, etc., on request

\* Torytrans reserves the right to modify the information in any time and without prior notice.

