



TTK SERIES

Isolation three-phase to single-phase · three-phase input 400 V · Single-phase output 230 V

Definition and applications

Transformers for applications in which there is very high single-phase consumption in an installation and the load is to be shared in a three-phase system to prevent important imbalances. It should be mentioned that due to the way in which they operate, this type of transformer does not achieve a totally balanced load in primary. The current in the central primary phase may be double the nominal current. It is advisable to use these transformers for powers higher than 5kVA as it is understood that in most industrial installations, for consumptions equal to or less than this power, it will not entail a considerable consumption load. For powers equal to or less than 5kVA, use the conventional single-phase "PD", "QD", "ND" or "TK" series transformers.



TTKX

- IP00 protection rating.
- Power from 1 kVA to 100 kVA.
- Total impregnated in anti-flash varnish.
- Hoisting elements included.



TTKZ

- IP54 rating / 65 (IK10).
- Power from 1 kVA to 100 kVA.
- Metal box painted with RAL7035 polyester resin.
- High resistance to corrosion.
- Stuffing box cover for cable input depending on installation needs.
- Hoisting elements included.
- Detachable top cover.
- With silentblock.

Manufacturing characteristics

- All the transformers are dipped in anti-flash varnish and then compacted in the furnace. This process increases the insulation grade, reduces noise and provides anti-moisture, waterproofed protection.
- All the connection terminals are made of copper. For transformers with aluminium coils, internal bimetallic AL-CU connections are made by welding with filling and sealing material to ensure a safe, long lasting connection.
- The high power transformers are manufactured with format cores and low loss properties, thus contributing to improving performance.
- All the transformers are checked automatically one by one and the compliance test report is created in accordance with the corresponding standard.



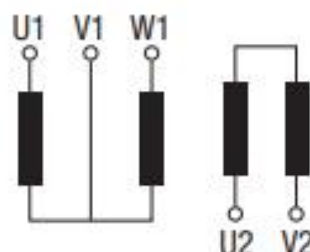
TTKW

- IP23 rating (IK08).
- Power from 1 kVA to 100 kVA.
- Metal box painted with RAL7035 polyester resin.
- High resistance to corrosion.
- Hoisting elements included.
- Detachable top and front cover.
- Cable output with cable gland.

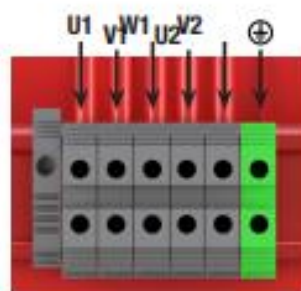
Technical features - standard model

Power	1 kVA to 100 kVA
Standard voltage	Three-phase 400 V input// Single-phase 230 V output
Standard frequency	50-60 Hz
Windings	Class HC-200 °C
Insulators	Class F - 155 °C ≤ 40 kVA (25 kVA TTKZ) Class H - 180 °C ≥ 50 kVA (31.5 kVA TTKZ) *More information in Technical Appendix (LA.1)
Class	I
Altitude	1000 m
Enclosure colour	RAL 7035
IP rating	IP00 (TTKX) IP23 (TTKW) IP54 / 65 (TTKZ)
IK rating	IK08 (TTKW)
Paint class (ISO 12944)	C3 (TTKW) C4 (TTKZ)
Room temperature	45 °C
Standards	IEC/EN/UNE-EN 61558, CE
Test voltage	3 kV (1 min., 50 Hz)
Inrush	< 12 In
Ucc	≤ 4 %
K factor	4
Operation	Continuous
Cooling	AN (TTKX) - ANAN (TTKW-TTKZ)

Electrical diagram



Connection





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Terminal types

Terminals	Maximum cross-section conductor mm²	Maximum tightening torque		TTKX-TTKW-TTKZ			
				Power kVA			
		N-m	Lb-in	Input		Output	
				From	To	From	To
Power strip 1	Terminal 10	16	1.2	10.6	1	1.6	1
	Terminal 16	25	1.2	10.6	2	5	2
	Terminal 35	50	2.5	22.1	6.3	10	6.3
Power strip 2	Terminal 60	25	4.5	40	12.5	40	12.5
	Terminal 100	35	6.7	60	50	63	16
	Terminal 200	95	9	80	80	31.5	40
	Terminal 300	150	9	80	-	50	80
Connection plate	Plate 30 X 1	150	-	-	100	-	-
	Plate 50 X 1	150	-	-	-	100	100



Power strip 1



Power strip 2

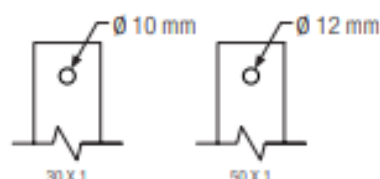


Plate connection

Theoretical data - standard model

Power kVA	Reference	Insulation class	Current A		Protections A		Noise dB
			Input	Output	Input	Output	
TTKX							
1	TTKX1	F	1.4	4.3	3 (D/Am)	4 (C/gG)	≤45
1.6	TTKX1.6	F	2.3	7.0	6 (D/Am)	7 (C/gG)	≤45
2	TTKX2	F	2.9	8.7	10 (D/Am)	8 (C/gG)	≤45
2.5	TTKX2.5	F	3.6	10.9	10 (D/Am)	10 (C/gG)	≤45
3.15	TTKX3.15	F	4.5	13.7	10 (D/Am)	12 (C/gG)	≤45
4	TTKX4	F	5.8	17.4	16 (D/Am)	12 (C/gG)	≤45
5	TTKX5	F	7.2	21.7	16 (D/Am)	20 (C/gG)	≤45
6.3	TTKX6.3	F	9.1	27.4	20 (D/Am)	25 (C/gG)	≤45
8	TTKX8	F	11.5	34.8	25 (D/Am)	30 (C/gG)	≤45
10	TTKX10	F	14.4	43.5	32 (D/Am)	40 (C/gG)	≤45
12.5	TTKX12.5	F	18.0	54.3	40 (D/Am)	50 (C/gG)	≤45
16	TTKX16	F	23.1	69.6	50 (D/Am)	60 (C/gG)	≤45
20	TTKX20	F	28.9	87.0	63 (D/Am)	80 (C/gG)	≤45
25	TTKX25	F	36.1	108.7	80 (D/Am)	100 (C/gG)	≤45
31.5	TTKX31.5	F	45.5	137.0	100 (D/Am)	100 (C/gG)	≤45
40	TTKX40	F	57.7	173.9	125 (D/Am)	160 (C/gG)	≤55
50	TTKX50	H	72.2	217.4	160 (D/Am)	200 (C/gG)	≤55
63	TTKX63	H	90.9	273.9	200 (D/Am)	200 (C/gG)	≤55
80	TTKX80	H	115.5	347.8	300 (D/Am)	300 (C/gG)	≤55
100	TTKX100	H	144.3	434.8	300 (D/Am)	400 (C/gG)	≤55



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Theoretical data - standard model

Power kVA	Reference	Insulation class	Current A		Protections A		Noise dB	Cable gland (TTKW) / Stuffing boxes (TTKZ)	
			Input	Output	Input	Output		ø max. (mm)	Quantity
TTKW									
1	TTKW1	F	1.4	4.3	3 (D/Am)	4 (C/gG)	≤45	14	2
1.6	TTKW1.6	F	2.3	7.0	6 (D/Am)	7 (C/gG)	≤45	14	2
2	TTKW2	F	2.9	8.7	10 (D/Am)	8 (C/gG)	≤45	18	2
2.5	TTKW2.5	F	3.6	10.9	10 (D/Am)	10 (C/gG)	≤45	18	2
3.15	TTKW3.15	F	4.5	13.7	10 (D/Am)	12 (C/gG)	≤45	18	2
4	TTKW4	F	5.8	17.4	16 (D/Am)	12 (C/gG)	≤45	18	2
5	TTKW5	F	7.2	21.7	16 (D/Am)	20 (C/gG)	≤45	25	4
6.3	TTKW6.3	F	9.1	27.4	20 (D/Am)	25 (C/gG)	≤45	25	4
8	TTKW8	F	11.5	34.8	25 (D/Am)	30 (C/gG)	≤45	32	4
10	TTKW10	F	14.4	43.5	32 (D/Am)	40 (C/gG)	≤45	32	4
12.5	TTKW12.5	F	18.0	54.3	40 (D/Am)	50 (C/gG)	≤45	32	4
16	TTKW16	F	23.1	69.6	50 (D/Am)	60 (C/gG)	≤45	32	4
20	TTKW20	F	28.9	87.0	63 (D/Am)	80 (C/gG)	≤45	32	4
25	TTKW25	F	36.1	108.7	80 (D/Am)	100 (C/gG)	≤45	32	8
31.5	TTKW31.5	F	45.5	137.0	100 (D/Am)	100 (C/gG)	≤45	32	8
40	TTKW40	F	57.7	173.9	125 (D/Am)	160 (C/gG)	≤55	32	8
50	TTKW50	H	72.2	217.4	160 (D/Am)	200 (C/gG)	≤55	44	8
63	TTKW63	H	90.9	273.9	200 (D/Am)	200 (C/gG)	≤55	44	8
80	TTKW80	H	115.5	347.8	300 (D/Am)	300 (C/gG)	≤55	44	8
100	TTKW100	H	144.3	434.8	300 (D/Am)	400 (C/gG)	≤55	44	8
TTKZ									
1	TTKZ1	F	1.4	4.3	3 (D/Am)	4 (C/gG)	≤45	10 - 14	2
1.6	TTKZ1.6	F	2.3	7.0	6 (D/Am)	7 (C/gG)	≤45	18 - 25	2
2	TTKZ2	F	2.9	8.7	10 (D/Am)	8 (C/gG)	≤45	18 - 25	2
2.5	TTKZ2.5	F	3.6	10.9	10 (D/Am)	10 (C/gG)	≤45	18 - 25	2
3.15	TTKZ3.15	F	4.5	12.7	10 (D/Am)	12 (C/gG)	≤45	18 - 25	2
4	TTKZ4	F	5.8	17.4	16 (D/Am)	12 (C/gG)	≤45	18 - 25	2
5	TTKZ5	F	7.2	21.7	16 (D/Am)	20 (C/gG)	≤45	18 - 25	2
6.3	TTKZ6.3	F	9.1	27.4	20 (D/Am)	25 (C/gG)	≤45	22 - 32	2
8	TTKZ8	F	11.5	34.8	25 (D/Am)	30 (C/gG)	≤45	22 - 32	2
10	TTKZ10	F	14.4	43.5	32 (D/Am)	40 (C/gG)	≤45	22 - 32	2
12.5	TTKZ12.5	F	18.0	54.3	40 (D/Am)	50 (C/gG)	≤45	22 - 32	2
16	TTKZ16	F	23.1	69.6	50 (D/Am)	60 (C/gG)	≤45	22 - 32	2
20	TTKZ20	F	28.9	87.0	63 (D/Am)	80 (C/gG)	≤45	22 - 32	2
25	TTKZ25	F	36.1	108.7	80 (D/Am)	100 (C/gG)	≤45	22 - 32	2
31.5	TTKZ31.5	H	45.5	137.0	100 (D/Am)	100 (C/gG)	≤45	22 - 32	2
40	TTKZ40	H	57.7	173.9	125 (D/Am)	160 (C/gG)	≤55	22 - 32	2
50	TTKZ50	H	72.2	217.4	160 (D/Am)	200 (C/gG)	≤55	34 - 44	2
63	TTKZ63	H	90.9	273.9	200 (D/Am)	200 (C/gG)	≤55	34 - 44	2
80	TTKZ80	H	115.5	347.8	300 (D/Am)	300 (C/gG)	≤55	34 - 44	2
100	TTKZ100	H	144.3	434.8	300 (D/Am)	400 (C/gG)	≤55	34 - 44	2



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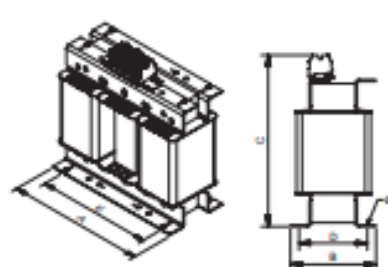
Isolation three-phase to single-phase · three-phase input 400 V · Single-phase output 230 V

Measurements

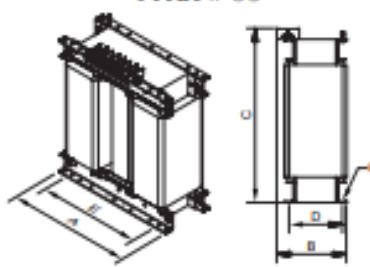
Power kVA	Reference	External dimensions mm			Fastening elements mm			Weight kg
		A	B	C	D	E	Ø	
TTKX								
1	TTKX1	250	118	253	94	200	9	14.1
1.6	TTKX1.6	250	143	253	119	200	9	20.4
2	TTKX2	330	124	303	115	250	9	23.3
2.5	TTKX2.5	330	134	303	125	250	9	27.8
3.15	TTKX3.15	330	154	303	145	250	9	35.2
4	TTKX4	330	164	303	155	250	9	40
5	TTKX5	400	144	353	122	300	11	48
6.3	TTKX6.3	400	164	353	142	300	11	58
8	TTKX8	470	170	419	136	350	11	72
10	TTKX10	470	190	419	156	350	11	88
12.5	TTKX12.5	530	250	480	154	400	11	112
16	TTKX16	530	290	480	184	400	11	139
20	TTKX20	530	310	480	204	400	11	164
25	TTKX25	740	290	580	170	426	13	191
31.5	TTKX31.5	740	310	580	190	426	13	234
40	TTKX40	740	330	580	210	426	13	277
50	TTKX50	785	550	880	460	472	17	340
63	TTKX63	785	550	880	460	472	17	394
80	TTKX80	785	550	880	460	472	17	436
100	TTKX100	785	550	880	460	472	17	507

Power kVA	Reference	External dimensions mm			Fastening elements mm			Weight kg
		A	B	C	D	E	Ø	
TTKW								
1	TTKW1	315	230	315	205	200	6	18.4
1.6	TTKW1.6	315	230	315	205	200	6	24.7
2	TTKW2	385	260	384	245	250	6	28.1
2.5	TTKW2.5	385	260	384	245	250	6	32.6
3.15	TTKW3.15	385	260	384	245	250	6	40
4	TTKW4	385	260	384	245	250	6	44.8
5	TTKW5	458	340	500	300	300	12	54
6.3	TTKW6.3	458	340	500	300	300	12	64
8	TTKW8	528	418	644	375	345	12	84
10	TTKW10	528	418	644	375	345	12	100
12.5	TTKW12.5	597	415	710	375	345	12	124
16	TTKW16	597	415	710	375	345	12	151
20	TTKW20	597	415	710	375	345	12	176
25	TTKW25	795	550	970	500	415	12	216
31.5	TTKW31.5	795	550	970	500	415	12	259
40	TTKW40	795	550	970	500	415	12	302
50	TTKW50	795	550	970	500	415	12	392
63	TTKW63	795	550	970	500	415	12	446
80	TTKW80	970	670	1250	582	470	18	488
100	TTKW100	970	670	1250	582	470	18	559

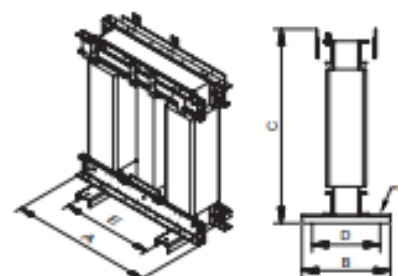
TTKX IP00



From 1 kVA to 12.5 kVA

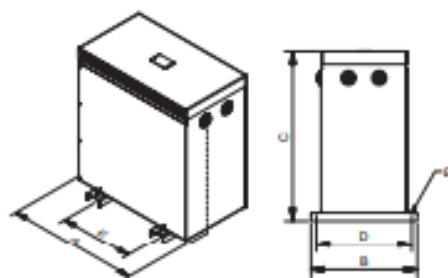


From 12.5 kVA to 63 kVA

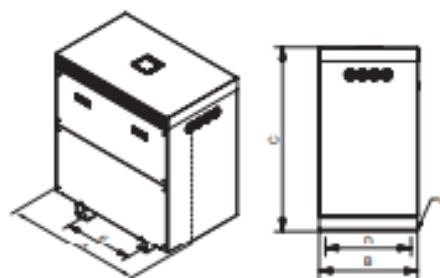


From 80 kVA

TTKW IP23



From 1 kVA to 20 kVA



From 25 kVA



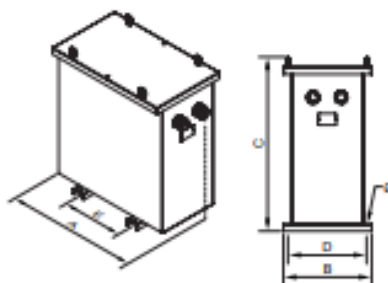
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Measurements

Power kVA	Reference	External dimensions mm			Fastening elements mm			Weight kg
		A	B	C	D	E	Ø	
TTKZ								
1	TTKZ1	330	284	463	230	200	11	33.4
1.6	TTKZ1.6	510	362	689	320	250	11	44.3
2	TTKZ2	510	362	689	320	250	11	48.8
2.5	TTKZ2.5	510	362	689	320	250	11	56
3.15	TTKZ3.15	510	362	689	320	250	11	61
4	TTKZ4	510	362	689	320	250	11	69
5	TTKZ5	510	362	689	320	250	11	79
6.3	TTKZ6.3	694	413	764	370	350	11	112
8	TTKZ8	694	413	764	370	350	11	128
10	TTKZ10	694	413	764	370	350	11	152
12.5	TTKZ12.5	694	413	764	370	350	11	179
16	TTKZ16	694	413	764	370	350	11	204
20	TTKZ20	890	560	1148	520	426	13	256
25	TTKZ25	890	560	1148	520	426	13	299
31.5	TTKZ31.5	890	560	1148	520	426	13	342
40	TTKZ40	890	560	1148	520	426	13	469
50	TTKZ50	890	560	1148	520	426	13	523
63	TTKZ63	972	740	1480	660	470	17	565
80	TTKZ80	972	740	1480	660	470	17	636
100	TTKZ100	972	740	1480	660	470	17	657

TTKZ IP54 / 65





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On-request manufacturing options (please see prices)

Power	From 1 kVA to 100 kVA
Windings	Copper or aluminium
Frequency	From 50 Hz to 400 Hz
IP rating	IP00, IP20, IP23, IP31, IP42, IP54, IP55 and IP65
IK rating	IK08 and IK10
Room temperature	Up to 60 °C
Locks	Screw, key
Test voltage	Up to 28 kV
Short circuit voltage	From 2% to 9%
Operation	Intermittent, continuous
Cooling	Natural, forced ventilation
Electrostatic shield	Up to three shields
Class	I, II
Altitude	Up to 4000 m
Protections	In both primary and secondary (figure 1)
Temperature sensors	PT100 (figure 2), PTC (figure 3) or bimetallic
Temperature control	Temperature control station (4xPT100) (figure 4), PTC thermal relays (3xPTC / 6xPTC)
Network analyser	(Figure 5)
Anti condensation system	Higrostat
Heating system	Heating elements
External protection	Anti-flash varnish, metallic or stainless steel enclosure
Transportation and hoisting	Wheels (figure 6), lifting points
Paint	C3, C4, C5, different RAL
Feature plate	High generation polymer or stainless steel (figure 7)
Anti vibration system	Silentblock
Adjustment	-10%; -7.5%; -5%; -2.5%; +2.5%; +5%; +7.5%; +10% With bridges (figure 8) or selector (figure 9)
Certified	CE, DNV-GL, BV, UL (insulation) and POLYLUX laboratory
Climate class / environment / fire	Up to C2-E2-F1



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



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Feature plate structure

Plastic label up to 20 kVA:

	POLYLUX	CE	CE declaration of conformity
Power (kVA)	XXX kVA	PRI: 400 V XXX A	Primary voltage
Reference	TTKXXX	SEC: 230 V XXX A	Primary current
Frequency	50 - 60 Hz	F-155°C	Secondary voltage
Insulation transformer symbol		3 kV	Secondary current
Connection unit	V/Vin	EN 61558	IP rating
Serial number	SN: TTK0000000X		Applicable standard
	Made in Spain	9 638 456 958 502	EAN bar code
			Test voltage
			Insulators

Stainless steel label from 25 kVA:

	POLYLUX	www.polylux.com	Insulators
Performance			Test voltage
Short circuit voltage		PRI: 400 V XXX A	Primary voltage
Power (kVA)	XXX kVA	SEC: 230 V XXX A	Primary current
Frequency	50 - 60 Hz	H-180°C	Secondary voltage
Insulation transformer symbol		3 kV	Secondary current
Connection unit	V/Vin	EN 61558	Applicable standard
CE declaration of conformity		Pcc=XXX W	Protection rating
Losses in short circuit	Made in Spain	η=XX %	Cooling
Losses when empty		Ucc=X %	Weight
		ANXX	Reference
		XXXX kg	Serial number
		TTK0000X	
		SN: TTK00000000X	