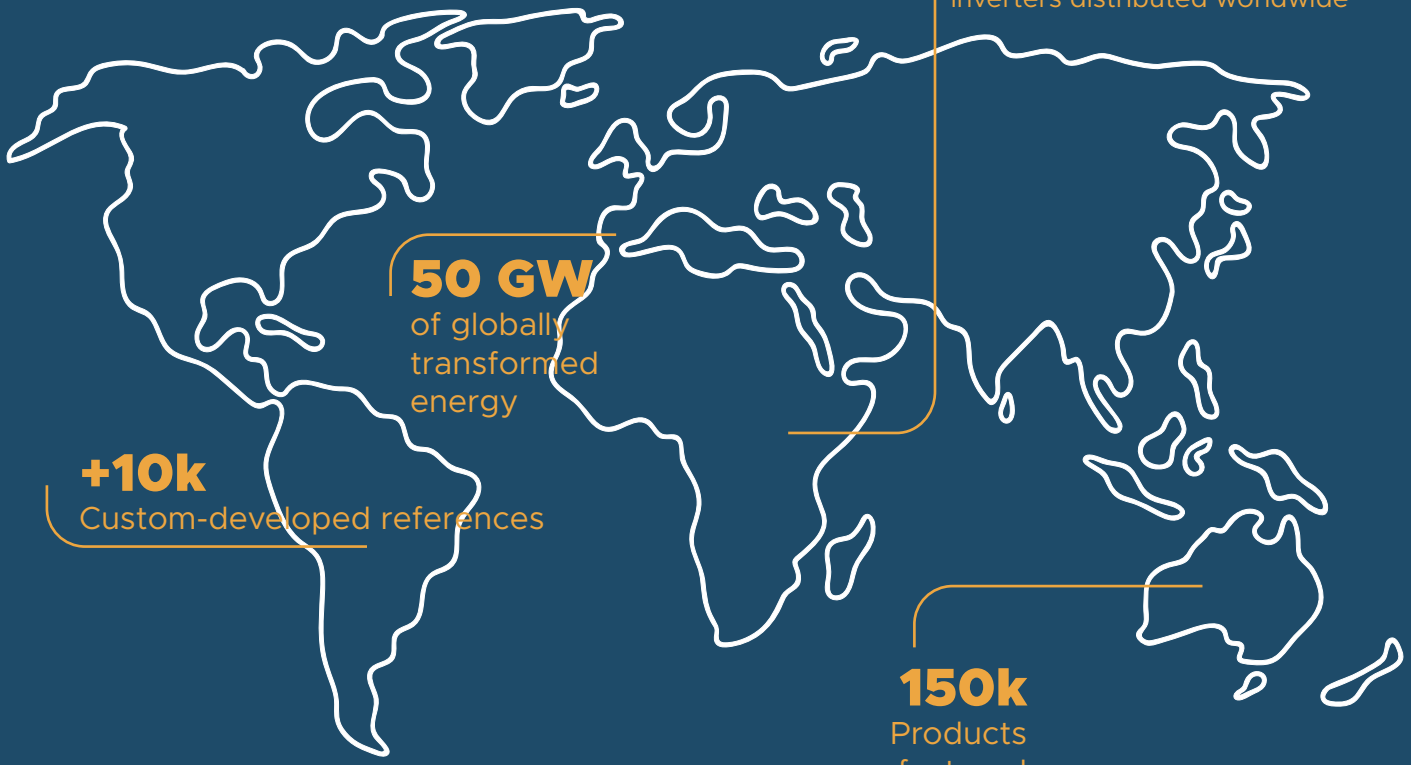
TORYTRANS

CATALOGUE
INDUSTRIAL SECTOR

V.1

33 years at the forefront of the sector

+100k
Filter inductances in wind converters and photovoltaic inverters distributed worldwide



50 GW
of globally transformed energy

+10k
Custom-developed references

150k
Products manufactured every year

INNOVATION THAT TRANSFORMS

LEADER IN CUSTOM ELECTRICAL SOLUTIONS

At Torytrans, we are pioneers in the design and manufacturing of advanced electrical solutions.

Since our founding in 1989, we have been dedicated to providing the highest quality transformers, autotransformers, inductances, filters, and voltage stabilizers.

We specialise in developing custom projects, adapting to our clients' specific needs from initial analysis to final manufacturing.

Our vision is to lead the future of energy efficiency and renewable energy, designing products that not only meet current demands but also anticipate future ones.

We prioritise customer satisfaction, guaranteeing quality and meeting delivery deadlines, thanks to a highly qualified team and a constant commitment to innovation.

With over 7,000 m^2 of modern facilities and a fully equipped testing laboratory, our production capabilities are designed to maintain the highest standards. Furthermore, our UNE EN ISO 9001 certification underlines our commitment to excellence.

With a presence in more than 50 countries, Torytrans is dedicated to providing a global service, ensuring personalised and efficient attention to our customers.

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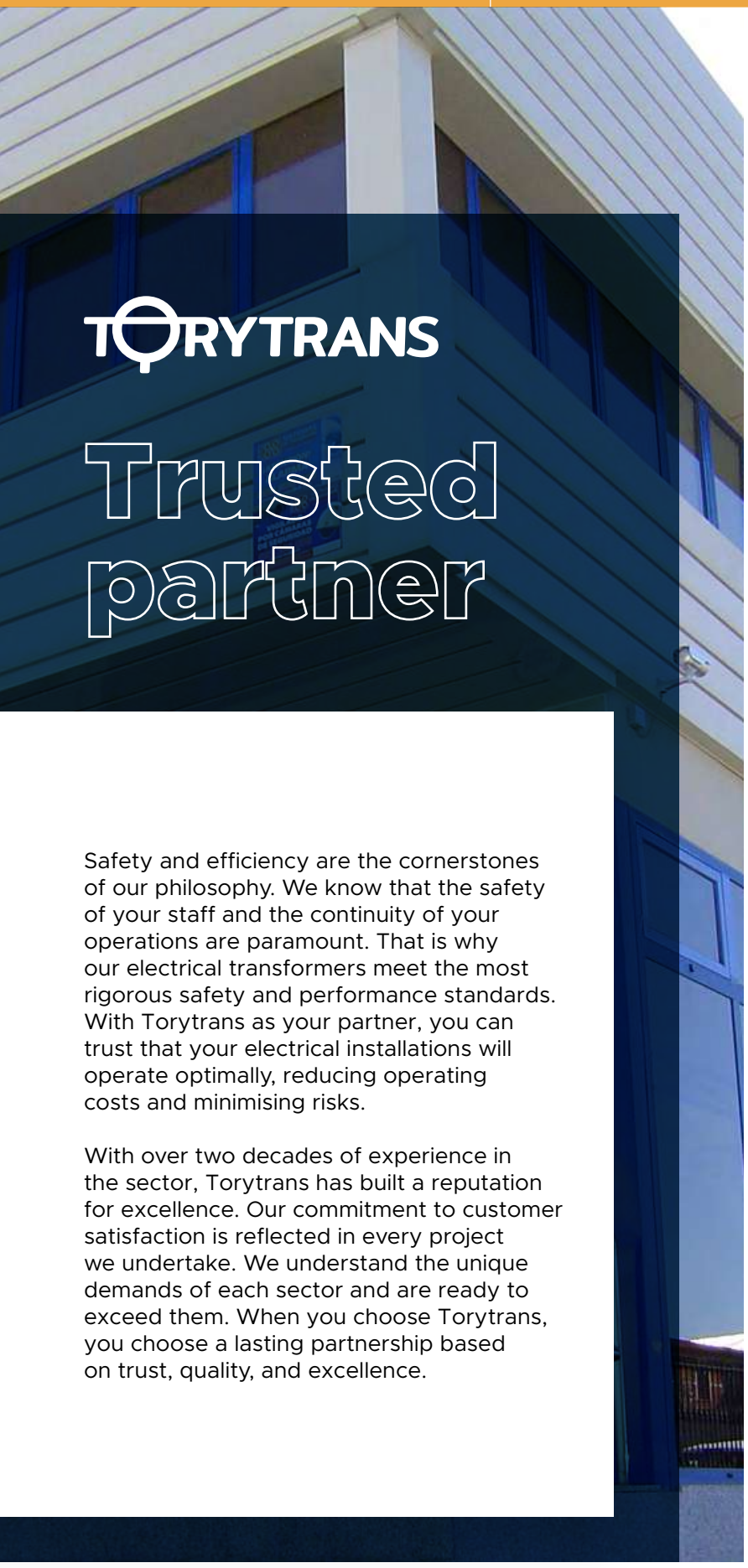
Km 1,5 P.I. San Jorge,
C/ Pitágoras, 1 13270
Almagro - Ciudad Real

www.torytrans.com


EFFICIENCY
INNOVATION
TORYTRANS

INDUSTRY

SECTORS OF ACTION
Industry and electrical installations



TORYTRANS

Trusted partner

Safety and efficiency are the cornerstones of our philosophy. We know that the safety of your staff and the continuity of your operations are paramount. That is why our electrical transformers meet the most rigorous safety and performance standards. With Torytrans as your partner, you can trust that your electrical installations will operate optimally, reducing operating costs and minimising risks.

With over two decades of experience in the sector, Torytrans has built a reputation for excellence. Our commitment to customer satisfaction is reflected in every project we undertake. We understand the unique demands of each sector and are ready to exceed them. When you choose Torytrans, you choose a lasting partnership based on trust, quality, and excellence.

Efficiency and reliability in any electrical installation.

In the industrial and electrical installation sectors, transformers play an essential role in the safety and efficiency of electrical systems. Our **control, safety and circuit isolation transformers** are essential to protect control and automation systems, ensuring safe and reliable operation. These devices are widely used in the manufacturing industry, process automation systems, and control panels, where it is essential to prevent potential operational failures.

Isolation transformers are especially important in sensitive applications, such as medical and laboratory equipment, where data integrity and personnel safety are priorities. They are also used in telecommunications and information technology systems to prevent damage from surges and improve the quality of the power supply.

Our equipment for **neutral generation** is essential in installations where we find electrical distribution networks, backup power systems (UPS) and industrial facilities that require special protection of sensitive equipment and improve energy efficiency.

In applications where it is necessary to adjust the phase of the electrical current, Torytrans **phase-shifting** transformers offer accurate and efficient solutions. These devices are essential in installations such as welding equipment and frequency converters. In addition, they optimise energy consumption and reduce operating costs.

In the field of **lighting**, our transformers are designed for specific applications, such as swimming pool lighting. These transformers ensure safety in wet environments, such as swimming pools, fountains, and hot tubs, minimising the risk of electric shock. They are ideal for underwater lighting installations, ensuring a safe and attractive environment in recreational and sports facilities.

Torytrans not only offers high-quality products but also provides customised solutions tailored to each client's specific needs. Our focus on custom development, from needs analysis to final manufacturing, ensures that each solution integrates seamlessly into your operating environment.

With a team of dedicated experts and an unwavering commitment to excellence, Torytrans is your trusted partner for efficient energy management and operational reliability across a variety of sectors, including industry, electrical installations, and the medical sector.

TORYTRANS

TORYTRANS

INDEX
CONTENTS

INDEX

1

CONTROL, SAFETY AND CIRCUIT SEPARATION

a. Series TC
b. Series CSE
c. Series CSS
d. Series TOR

CONTROL

TORYTRANS

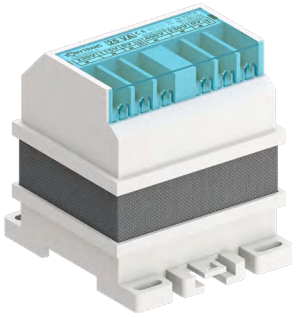
SECTOR
Industrial

CONTROL, SAFETY AND CIRCUIT SEPARATION

TC

Compact single-phase control transformer

25, 40, 63 and 100 VA
PRI: 230 - 400 V
SEC: 12 - 24 V / 115 - 230 V



CSE

Single-phase control transformer (IP20)

25 ÷ 5000 VA
PRI: 230, 400, 460 V
SEC: 12 - 24 V / 24 - 48 V / 115 - 230 V

CSS

Single-phase control transformer (IP00)

25 ÷ 5000 VA
PRI: 230, 400, 460 V
SEC: 12 - 24 V / 24 - 48 V / 115 - 230 V

TOR

Toroidal single phase transformer

50 ÷ 600 VA
PRI: 230 V
SEC: 12 V

TORYTRANS

Compact single-phase control transformer

Single-phase transformer with galvanic isolation between primary and secondary for control, safety, and circuit separation. Its compact design saves space when installing electrical panels.

Ensures proper operation thanks to its resettable bimetallic thermal relay that protects it against overheating and overloads.

Applications

- Intended for powering control, manoeuvring, and signalling elements in electrical panels of machines, equipment, and processes.
- Applications requiring reduced or isolated voltages to provide electrical isolation for security, machine vision, lighting, audio and video systems.

POWER

25, 40, 63 and 100 VA

PRIMARY VOLTAGE

230 - 400 V

SECONDARY VOLTAGE

12 - 24 V
115 - 230 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-2

SEC voltage < 50 V:
IEC/UNE-EN 61558-2-6

SEC voltage > 50 V:
IEC/UNE-EN 61558-2-4

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TC

CONTROL, SAFETY AND CIRCUIT SEPARATION

Connection

WITH SCREW TERMINAL and pre-inserted spring washer.

Enclosure

MADE OF POLYAMIDE SELF-EXTINGUISHING V0, halogen and phosphorus free, prevents the user from accessing dangerous contact parts.

Bright LED

VOLTAGE indicator.

Selection

OF SECONDARY VOLTAGE
by means of built-in jumpers.

Fixation

RAPID, via DIN rail.

SERIES TC

TRANSFORMER
COMPACT CONTROL
SINGLE-PHASE

V0_10/24

TORYTRANS

CONTROL, SAFETY AND CIRCUIT SEPARATION

SERIES TC

Technical specifications

POWER
25, 40, 63 and 100 VA

PRI VOLTAGE
230 - 400 V

SEC VOLTAGE
12 - 24 V
115 - 230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
B (130 °C)

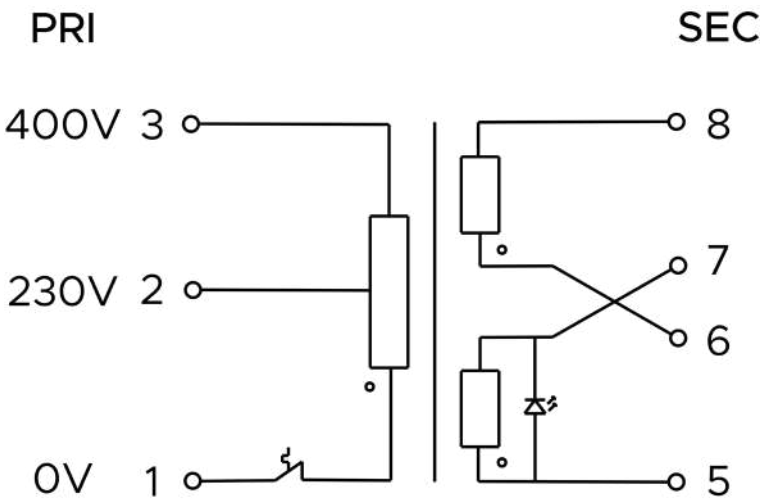
PROTECTION INDEX
IP20

ELECTRIC SHOCK PROTECTION
Class II

TEST VOLTAGE
4 kV

COMPACT SINGLE-PHASE CONTROL TRANSFORMER

Electric **schematic**



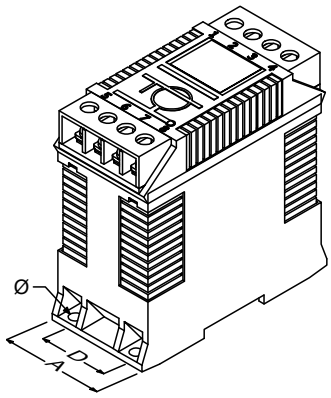
Technical data - standard models

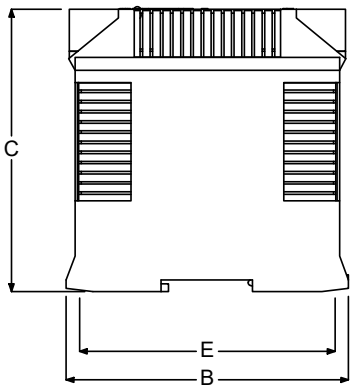
POWER (VA)		INTENSITY - PRIMARY (A)		INTENSITY - SECONDARY (A)					
Nominal	Instant	230 V	400 V	REF.	12 V	24 V	REF.	115 V	230 V
25	45	0,11	0,06	**TC025-1**	2,08	1,04	**TC025-3**	0,22	0,11
40	70	0,17	0,10	**TC040-1**	3,33	1,67	**TC040-3**	0,35	0,17
63	100	0,27	0,16	**TC063-1**	5,25	2,63	**TC063-3**	0,55	0,27
100	150	0,43	0,25	**TC100-1**	8,33	4,17	**TC100-3**	0,87	0,43

Dimensions

POWER (VA)	REF.*	DIMENSIONS (mm)						WEIGHT (kg)
		A	B	C	D	E	Ø	
25	**TC025-x**	54	112	112	37	100	6	0,8
40	**TC040-x**	54	112	112	37	100	6	0,9
63	**TC063-x**	54	112	112	37	100	6	1,0
100	**TC100-x**	54	112	112	37	100	6	1,4

(*) x=1: 12-24 V
x=3: 115-230 V





CONTROL, SAFETY AND CIRCUIT SEPARATION

SECTOR
Industrial

Cabling

POWER (VA)	REF.*	MIN. SECTION PRIMARY CONDUCTOR (mm^2)		MIN. SECTION SECONDARY CONDUCTOR (mm^2)			
		230 V	400 V	12 V	24 V	115 V	230 V
25	**TC025-x**	0,5	0,5	0,75	0,5	0,5	0,5
40	**TC040-x**	0,5	0,5	0,75	0,5	0,5	0,5
63	**TC063-x**	0,5	0,5	0,75	0,5	0,5	0,5
100	**TC100-x**	0,5	0,5	1,0	0,75	0,5	0,5

(*) x=1: 12-24 V
x=3: 115-230 V

Protection and fuses

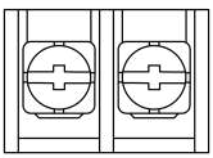
POWER (VA)	REF.*	PRIMARY PROTECTIONS (A) (T / D / aM)		SECONDARY PROTECTIONS (A) (F / C / gG)			
		230 V	400 V	12 V	24 V	115 V	230 V
25	**TC025-x**	0,16	0,10	2	4	0,2	0,1
40	**TC040-x**	0,25	0,16	3,15	1,6	0,32	0,16
63	**TC063-x**	0,40	0,20	5	2,5	0,5	0,25
100	**TC100-x**	0,80	0,50	8	4	0,8	0,4

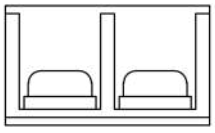
(*) x=1: 12-24 V
x=3: 115-230 V

Terminals

CONNECTION		MAX. TIGHTENING TORQUE
Type	Size	(Nm)
T1	M4	1,2

T1





Single-phase control transformer (IP20)

Single-phase transformer with galvanic isolation between primary and secondary, for control, safety and insulation.
The windings are fully protected against impacts, dirt, pollution and moisture.
Prepared for installation in harsh environments.

Applications

- Intended for powering control, manoeuvring, and signalling elements in electrical panels of machines, equipment, and processes.
- Applications requiring reduced or increased voltages to provide electrical isolation for security, machine vision, lighting, audio and video systems.

POWER
25 ÷ 5000 VA

PRI VOLTAGE
230 - 400 V (Powers 25 ÷ 1600 VA)
230 - 400 - 600 V (Powers 2000 ÷ 5000 VA)

SEC VOLTAGE
12 - 24 V
24 - 48 V
115 - 230 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-2

SEC voltage < 50 V:
IEC/UNE-EN 61558-2-6

SEC voltage > 50 V:
IEC/UNE-EN 61558-2-4

INDUSTRIAL SECTOR
Series CSE

CONTROL, SAFETY AND CIRCUIT SEPARATION

Connection
SCREW AND WASHER pre-inserted pressure.

Selection
OF VOLTAGE primary (between 2000 and 5000 VA) and secondary (between 160 and 5000 VA) by means of built-in bridges.

Enclosure
RESIN ENCAPSULATED with polycarbonate terminal covers. Suitable for vibratory, humid and corrosive environments (from 2000 VA to 5000 VA).

Enclosure
IN SELF-EXTINGUISHING TECHNICAL POLYAMIDE V0, halogen and phosphorus free (from 1000 VA to 1600 VA).

Protects
THE USER from access to dangerous contact parts of the winding.

SERIES CSE
TRANSFORMER
SINGLE-PHASE CONTROL
(IP20)

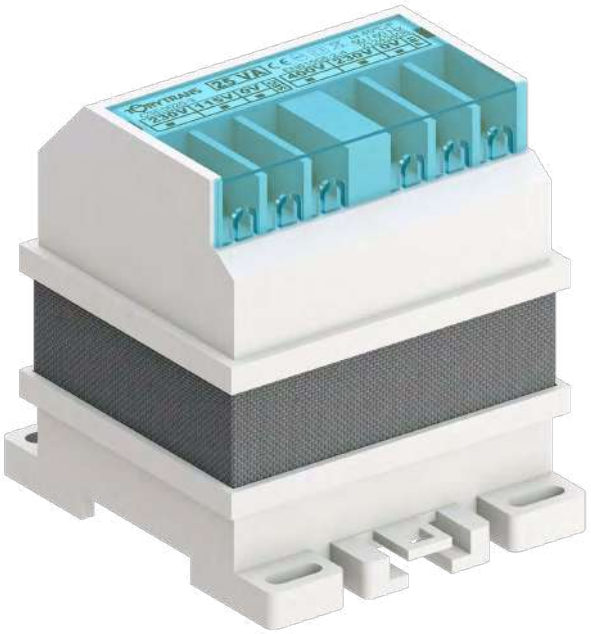
V0_10/24

TORYTRANS

CONTROL, SAFETY AND CIRCUIT SEPARATION

SERIES CSE

SINGLE-PHASE CONTROL TRANSFORMER (IP20)



Technical specifications

POWER
25 ÷ 5000 VA

PRI VOLTAGE
(Powers 25 ÷ 1600 VA) 230 - 400 V
(Powers 2000 ÷ 5000 VA) 230 - 400 - 600 V

SEC VOLTAGE
12 - 24 V
24 - 48 V
115 - 230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

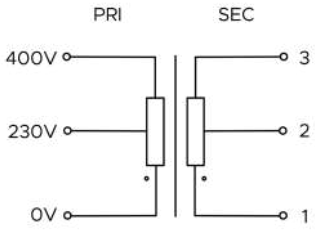
PROTECTION INDEX
IP20

ELECTRIC SHOCK PROTECTION
(Powers 25 ÷ 1600 VA) Class II
(Powers 2000 ÷ 5000 VA) Class I

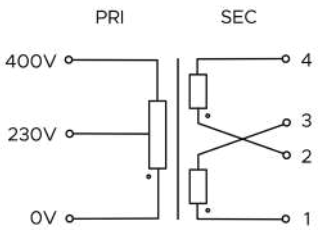
TEST VOLTAGE
4 kV

Electric **schematic**

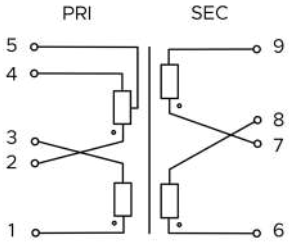
0-100 VA



160-1600 VA



2000-5000 VA



Technical data - standard models

POWER (VA)		REFERENCES*	INTENSITY - PRIMARY (A)		
Nominal	Instant		230 V	400 V	460 V
25	65	CSE0025-X	0,11	0,06	
40	80	CSE0040-X	0,17	0,10	
63	135	CSE0063-X	0,27	0,16	
100	210	CSE0100-X	0,43	0,25	
160	370	CSE0160-X	0,70	0,40	
200	460	CSE0200-X	0,87	0,50	
250	650	CSE0250-X	1,1	0,63	
315	875	CSE0315-X	1,4	0,79	
400	1250	CSE0400-X	1,7	1,0	
500	1400	CSE0500-X	2,2	1,3	
630	1800	CSE0630-X	2,7	1,6	
1000	3200	CSE1000-X	4,3	2,5	
1600	5350	CSE1600-X	7,0	4,0	
2000	5600	CSE2000-X	8,7	5,0	4,3
2500	7800	CSE2500-X	10,9	6,3	5,4
3150	10100	CSE3150-X	13,7	7,9	6,8
4000	12500	CSE4000-X	17,4	10,0	8,7
5000	15000	CSE5000-X	21,7	12,5	10,9

(*) x= 1: 12-24 V
x= 2: 24-48 V
x= 3: 115-230 V

POWER (VA)		INTENSITY - SECONDARY (A)								
Nominal	Instant	REF.	12 V	24 V	REF.	24 V	48 V	REF.	115 V	230 V
25	65	CSE0025-1	2,1	1,0	CSE0025-2	1,0	0,52	CSE0025-3	0,22	0,11
40	80	CSE0040-1	3,3	1,7	CSE0040-2	1,7	0,83	CSE0040-3	0,35	0,17
63	135	CSE0063-1	5,3	2,6	CSE0063-2	2,6	1,3	CSE0063-3	0,55	0,27
100	210	CSE0100-1	8,3	4,2	CSE0100-2	4,2	2,1	CSE0100-3	0,87	0,43
160	370	CSE0160-1	13,3	6,7	CSE0160-2	6,7	3,3	CSE0160-3	1,4	0,70
200	460	CSE0200-1	16,7	8,3	CSE0200-2	8,3	4,2	CSE0200-3	1,7	0,87
250	650	CSE0250-1	20,8	10,4	CSE0250-2	10,4	5,2	CSE0250-3	2,2	1,1
315	875	CSE0315-1	26,3	13,1	CSE0315-2	13,1	6,6	CSE0315-3	2,7	1,4
400	1250	CSE0400-1	33,3	16,7	CSE0400-2	16,7	8,3	CSE0400-3	3,5	1,7
500	1400	CSE0500-1	41,7	20,8	CSE0500-2	20,8	10,4	CSE0500-3	4,3	2,2
630	1800	CSE0630-1	52,5	26,3	CSE0630-2	26,3	13,1	CSE0630-3	5,5	2,7
1000	3200	CSE1000-1	83,3	41,7	CSE1000-2	41,7	20,8	CSE1000-3	8,7	4,3
1600	5350				CSE1600-2	66,7	33,3	CSE1600-3	13,9	7,0
2000	5600				CSE2000-2	83,3	41,7	CSE2000-3	17,4	8,7
2500	7800				CSE2500-2	104,2	52,1	CSE2500-3	21,7	10,9
3150	10100							CSE3150-3	27,4	13,7
4000	12500							CSE4000-3	34,8	17,4
5000	15000							CSE5000-3	43,5	21,7

CONTROL, SAFETY AND CIRCUIT SEPARATION

SECTOR
Industrial

Dimensions

POWER (VA)	REF.*	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
25	**CSE0025-X**	82	90	92	58	79	5,5x12	1,0	I
40	**CSE0040-X**	82	90	92	58	79	5,5x12	1,1	I
63	**CSE0063-X**	82	90	96	58	79	5,5x12	1,3	I
100	**CSE0100-X**	82	90	106	58	79	5,5x12	1,6	I
160	**CSE0160-X**	94	106	117	58	90	7x14	2,4	II
200	**CSE0200-X**	105	115	116	70	99	7x14	2,9	II
250	**CSE0250-X**	105	115	127	70	99	7x14	3,8	II
315	**CSE0315-X**	115	123	134	80	108	7x14	4,4	II
400	**CSE0400-X**	115	123	148	80	108	7x14	5,5	II
500	**CSE0500-X**	135	145	148	101	130	7x15	6,5	II
630	**CSE0630-X**	135	145	170	101	130	7x15	8,4	II
1000	**CSE1000-X**	155	158	190	124	143	7x15	12,7	III
1600	**CSE1600-X**	155	158	228	124	143	7x15	17,8	III
2000	**CSE2000-X**	192	212	210	165	195	7x16	24,6	IV
2500	**CSE2500-X**	192	212	250	165	195	7x16	26,2	IV
3150	**CSE3150-X**	192	212	250	165	195	7x16	42,0	IV
4000	**CSE4000-X**	240	255	235	205	235	9x18	53,0	IV
5000	**CSE5000-X**	240	255	255	205	235	9x18	59,0	IV

(*) x= 1: 12-24 V
x= 2: 24-48 V
x= 3: 115-230 V

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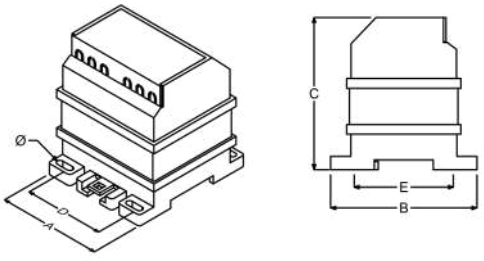

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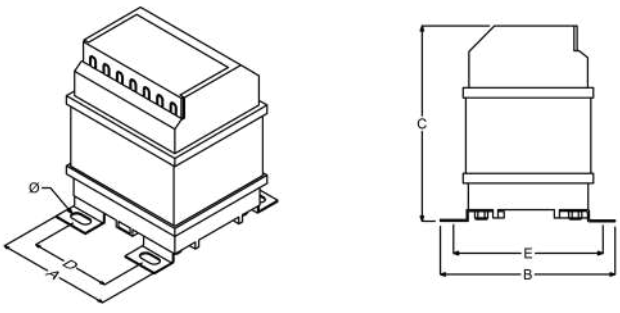
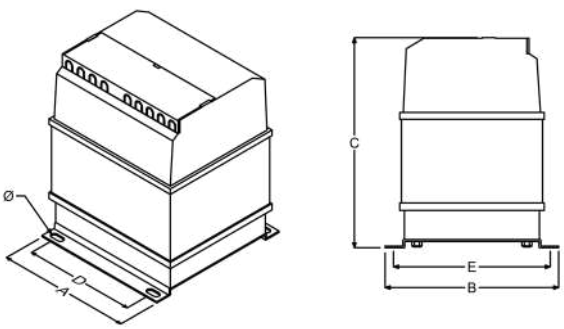


III



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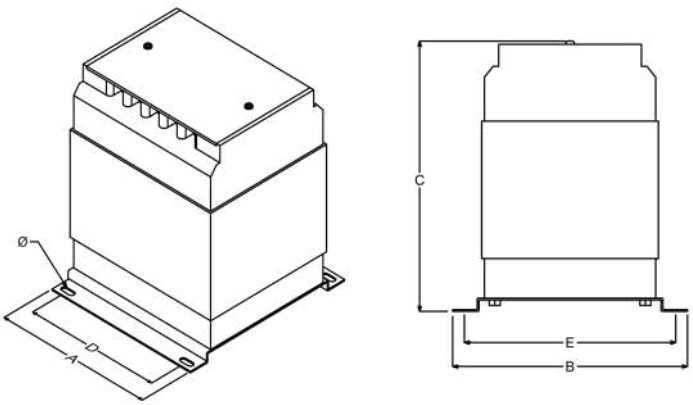


CONTROL, SAFETY AND CIRCUIT SEPARATION

Cabling

POWER (VA)	REF.*	MIN. SECTION PRIMARY CONDUCTOR (mm²)			MIN. SECTION SECONDARY CONDUCTOR (mm²)				
		230 V	400 V	460 V	12 V	24 V	48 V	115 V	230 V
25	**CSE0025-X**	0,5	0,5		0,5	0,5	0,5	0,5	0,5
40	**CSE0040-X**	0,5	0,5		0,75	0,5	0,5	0,5	0,5
63	**CSE0063-X**	0,5	0,5		0,75	0,5	0,5	0,5	0,5
100	**CSE0100-X**	0,5	0,5		1	0,75	0,5	0,5	0,5
160	**CSE0160-X**	0,5	0,5		1,5	1	0,75	0,5	0,5
200	**CSE0200-X**	0,5	0,5		2,5	1	0,75	0,5	0,5
250	**CSE0250-X**	0,5	0,5		2,5	1,5	0,75	0,5	0,5
315	**CSE0315-X**	0,5	0,5		4	1,5	1	0,75	0,5
400	**CSE0400-X**	0,5	0,5		6	2,5	1	0,75	0,5
500	**CSE0500-X**	0,5	0,5		6	2,5	1,5	0,75	0,5
630	**CSE0630-X**	0,5	0,5		10	4	1,5	1	0,5
1000	**CSE1000-X**	0,75	0,5		16	10	2,5	1,5	0,75
1600	**CSE1600-X**	1	0,75			16	6	1,5	1
2000	**CSE2000-X**	1	0,75	0,75		20	10	2,5	1
2500	**CSE2500-X**	1,5	1	0,75		25	10	2,5	1,5
3150	**CSE3150-X**	1,5	1	1				4	1,5
4000	**CSE4000-X**	2,5	1	1				6	2,5
5000	**CSE5000-X**	2,5	1,5	1,5				10	2,5

(*) x= 1: 12-24 V
x= 2: 24-48 V
x= 3: 115-230 V

Encapsulated in resin

CONTROL, SAFETY AND CIRCUIT SEPARATION

SECTOR
Industrial

Protection and fuses

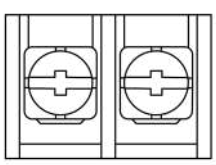
POWER (VA)	REF.*	PRIMARY PROTECTIONS (A) (T / D / aM)			SECONDARY PROTECTIONS (A) (F / C / gG)				
		230 V	400 V	460 V	12 V	24 V	48 V	115 V	230 V
25	CSE0025-X	0,125	0,08		2	1	0,5	0,2	0,1
40	CSE0040-X	0,200	0,125		3,15	1,6	0,8	0,32	0,16
63	CSE0063-X	0,315	0,2		5	2,5	1,25	0,5	0,25
100	CSE0100-X	0,5	0,315		8	4	2	0,8	0,4
160	CSE0160-X	0,8	0,5		12	6,3	3,15	1,25	0,63
200	CSE0200-X	1	0,6		16	8	4	1,6	0,8
250	CSE0250-X	1,25	0,8		20	10	5	2	1
315	CSE0315-X	1,6	1		25	12	6,3	2,5	1,25
400	CSE0400-X	2	0,25		32	16	8	3,15	1,6
500	CSE0500-X	2,5	1,6		40	20	10	4	2
630	CSE0630-X	3,15	2		50	25	12	5	2,5
1000	CSE1000-X	5	3,15		80	40	20	8	4
1600	CSE1600-X	8	5				32	12	6,3
2000	CSE2000-X	10	6,3	5			40	16	8
2500	CSE2500-X	12	8	6,3			50	20	10
3150	CSE3150-X	15	8	8				25	12
4000	CSE4000-X	20	12	10				32	16
5000	CSE5000-X	25	15	12				40	20

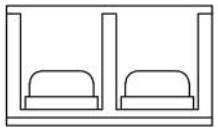
(*) x= 1: 12-24 V
x= 2: 24-48 V
x= 3: 115-230 V

Terminals

CONNECTION		MAX. TIGHTENING TORQUE	POWER (VA)	
Type	Size	(Nm)	Primary	Secondary
T1	M4	1,2	25 - 630	25 - 250
	M5	2	1000 - 3150	315 - 3150
	M6	5	4000-5000	4000-5000

T1

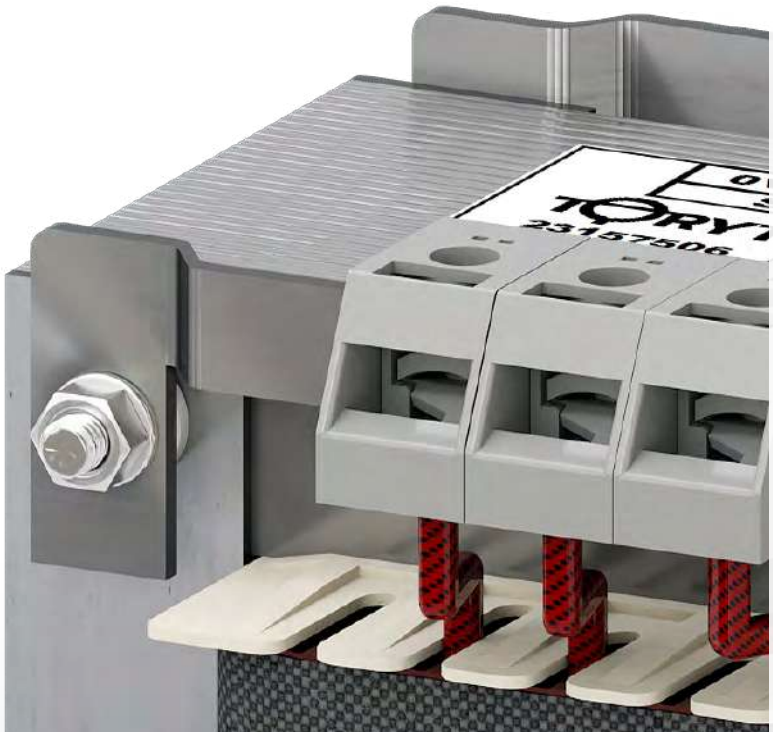




TORYTRANS

Single-phase control transformer (IP00)

IP00 single-phase transformer with galvanic isolation between primary and secondary for control, safety and circuit isolation.



Applications

- Intended for powering control, manoeuvring, and signalling elements in electrical panels of machines, equipment, and processes.
- Applications requiring reduced or increased voltages to provide electrical isolation for security, machine vision, lighting, audio and video systems.

POWER

25 ÷ 5000 VA

PRI VOLTAGE

230 - 400 V (Powers 25 ÷ 1600 VA)
230 - 400 - 600 V (Powers 2000 ÷ 5000 VA)

SEC VOLTAGE

12 - 24 V
24 - 48 V
115 - 230 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-2

SEC voltage < 50 V:
IEC/UNE-EN 61558-2-6

SEC voltage > 50 V:
IEC/UNE-EN 61558-2-4

Optional:

UL 5085-1
UL 5085-2

CAN/CSA C22.2 NO.66.1-06
CAN/CSA C22.2 NO.66.2-06

Certifications

CE UKCA

Optional: cULus

INDUSTRIAL SECTOR
Series CSS

CONTROL, SAFETY AND CIRCUIT SEPARATION

Connection

IP20 TERMINALS that protect against dangerous direct contact.

Varnishing

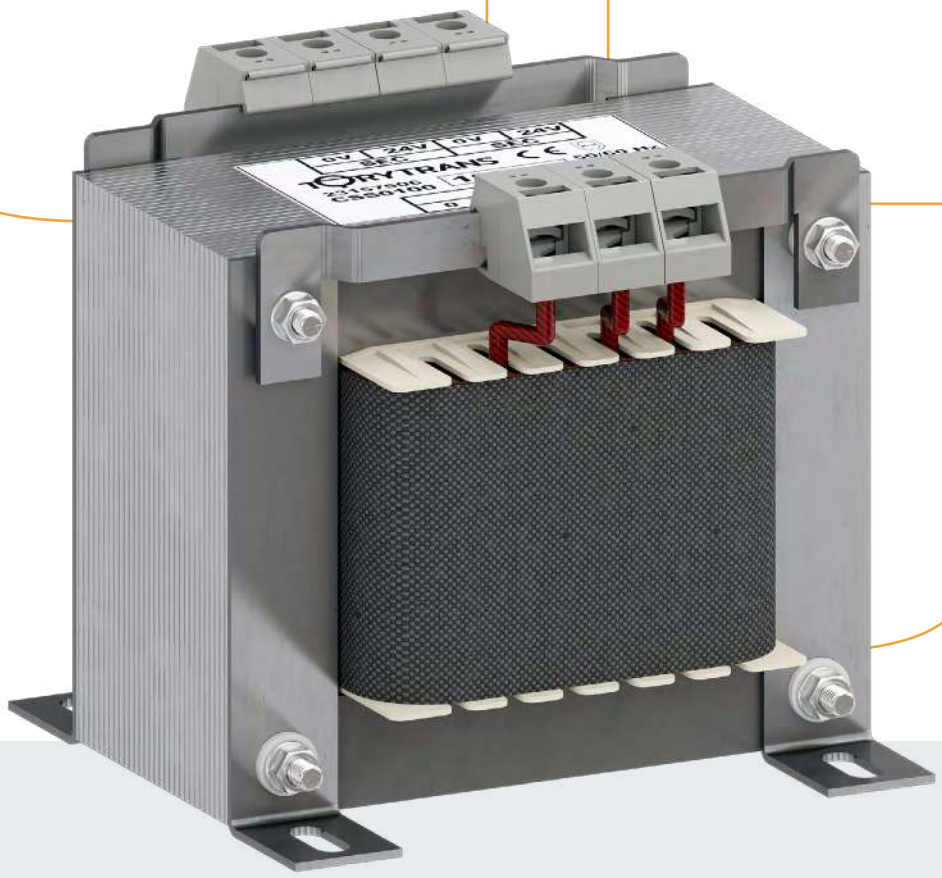
COMPLETE AND ROBUST that protects it from moisture, dust and corrosion.

Size

AND REDUCED WEIGHT for easy placement in electrical cabinets.

Versatile

MULTITUDE OF VOLTAGE SOCKETS in primary and secondary.



UL

TAGGED cURus optional.

SERIES CSS

TRANSFORMER
SINGLE-PHASE CONTROL
(IP00)

V0_10/24

TORYTRANS

CONTROL,
SAFETY
AND CIRCUIT
SEPARATION

SERIES CSS

Technical specifications

POWER
25 ÷ 5000 VA

PRI VOLTAGE
(Powers 25 ÷ 1600 VA) 230 - 400 V
(Powers 2000 ÷ 5000 VA) 230 - 400 - 600 V

SEC VOLTAGE
12 - 24 V
24 - 48 V
115 - 230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP00

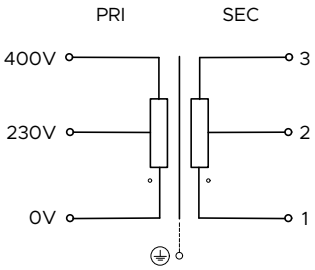
ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
4 kV

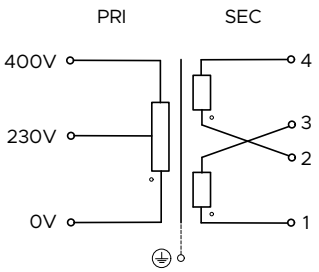
SINGLE-PHASE CONTROL TRANSFORMER (IP00)

Electric **schematic**

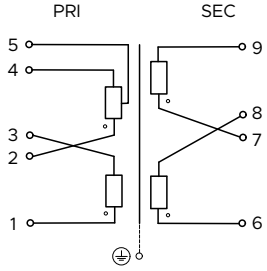
0-100 VA



160-1600 VA



2000-5000 VA



Technical data - standard models

POWER (VA)		REFERENCES*	IINTENSITY - PRIMARY (A)		
Nominal	Instant		230 V	400 V	460 V
25	65	**CSS0025-X**	0,11	0,06	
40	80	**CSS0040-X**	0,17	0,10	
63	135	**CSS0063-X**	0,27	0,16	
100	210	**CSS0100-X**	0,43	0,25	
160	370	**CSS0160-X**	0,70	0,40	
200	460	**CSS0200-X**	0,87	0,50	
250	650	**CSS0250-X**	1,1	0,63	
315	875	**CSS0315-X**	1,4	0,79	
400	1250	**CSS0400-X**	1,7	1,0	
500	1400	**CSS0500-X**	2,2	1,3	
630	1800	**CSS0630-X**	2,7	1,6	
1000	3200	**CSS1000-X**	4,3	2,5	
1600	5350	**CSS1600-X**	7,0	4,0	
2000	5600	**CSS2000-X**	8,7	5,0	4,3
2500	7800	**CSS2500-X**	10,9	6,3	5,4
3150	10100	**CSS3150-X**	13,7	7,9	6,8
4000	12500	**CSS4000-X**	17,4	10,0	8,7
5000	15000	**CSS5000-X**	21,7	12,5	10,9

(*) x= 1: 12-24 V
x= 2: 24-48 V
x= 3: 115-230 V

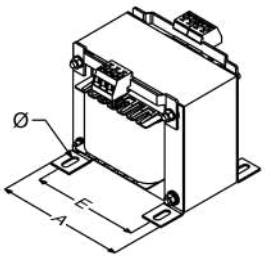
POWER (VA)		INTENSITY - SECONDARY (A)								
Nominal	Instant	REF.*	12 V	24 V	REF.*	24 V	48 V	REF.*	115 V	230 V
25	65	**CSS0025-1**	2,1	1,0	**CSS0025-2**	1,0	0,52	**CSS0025-3**	0,22	0,11
40	80	**CSS0040-1**	3,3	1,7	**CSS0040-2**	1,7	0,83	**CSS0040-3**	0,35	0,17
63	135	**CSS0063-1**	5,3	2,6	**CSS0063-2**	2,6	1,3	**CSS0063-3**	0,55	0,27
100	210	**CSS0100-1**	8,3	4,2	**CSS0100-2**	4,2	2,1	**CSS0100-3**	0,87	0,43
160	370	**CSS0160-1**	13,3	6,7	**CSS0160-2**	6,7	3,3	**CSS0160-3**	1,4	0,70
200	460	**CSS0200-1**	16,7	8,3	**CSS0200-2**	8,3	4,2	**CSS0200-3**	1,7	0,87
250	650	**CSS0250-1**	20,8	10,4	**CSS0250-2**	10,4	5,2	**CSS0250-3**	2,2	1,1
315	875	**CSS0315-1**	26,3	13,1	**CSS0315-2**	13,1	6,6	**CSS0315-3**	2,7	1,4
400	1250	**CSS0400-1**	33,3	16,7	**CSS0400-2**	16,7	8,3	**CSS0400-3**	3,5	1,7
500	1400	**CSS0500-1**	41,7	20,8	**CSS0500-2**	20,8	10,4	**CSS0500-3**	4,3	2,2
630	1800	**CSS0630-1**	52,5	26,3	**CSS0630-2**	26,3	13,1	**CSS0630-3**	5,5	2,7
1000	3200				**CSS1000-2**	41,7	20,8	**CSS1000-3**	8,7	4,3
1600	5350							**CSS1600-3**	13,9	7,0
2000	5600							**CSS2000-3**	17,4	8,7
2500	7800							**CSS2500-3**	21,7	10,9
3150	10100							**CSS3150-3**	27,4	13,7
4000	12500							**CSS4000-3**	34,8	17,4
5000	15000							**CSS5000-3**	43,5	21,7

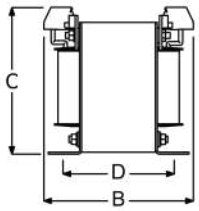
CONTROL, SAFETY AND CIRCUIT SEPARATION

SECTOR
Industrial

Dimensions

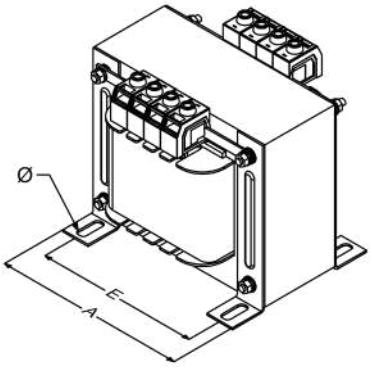
POWER (VA)	REF.*	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
25	CSS0025-X	75	58	75	44	62	4x10	0,7	I
40	CSS0040-X	75	58	75	44	62	4x10	1	I
63	CSS0063-X	75	62	75	48	62	4x10	1,1	I
100	CSS0100-X	75	72	75	58	62	4x10	1,6	I
160	CSS0160-X	84	92	82	72	70	5x11	2,5	I
200	CSS0200-X	96	88	91	68	80	5x14	3	II
250	CSS0250-X	96	98	91	80	80	5x14	3,6	II
315	CSS0315-X	108	106	102	84	90	6x16	4,5	II
400	CSS0400-X	108	121	102	98	90	6x16	5,4	II
500	CSS0500-X	126	128	116	102	105	6x20	6,5	II
630	CSS0630-X	126	138	116	112	105	6x20	8	II
1000	CSS1000-X	150	144	138	114	125	8x20	12	II
1600	CSS1600-X	150	184	138	154	125	8x20	18	II
2000	CSS2000-X	192	152	173	118	162	10x23	21	II
2500	CSS2500-X	192	182	173	148	162	10x23	30	II
3150	CSS3150-X	192	192	173	158	162	10x23	33,5	II
4000	CSS4000-X	240	176	215	136	200	12x28	42	II
5000	CSS5000-X	240	206	215	266	200	12x28	49	II

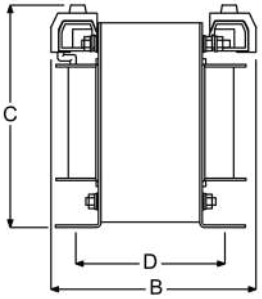




Cabling

POWER (VA)	REF.*	MIN. SECTION PRIMARY CONDUCTOR (mm²)			MIN. SECTION SECONDARY CONDUCTOR (mm²)				
		230 V	400 V	460 V	12 V	24 V	48 V	115 V	230 V
25	CSS0025-X	0,5	0,5		0,5	0,5	0,5	0,5	0,5
40	CSS0040-X	0,5	0,5		0,75	0,5	0,5	0,5	0,5
63	CSS0063-X	0,5	0,5		0,75	0,5	0,5	0,5	0,5
100	CSS0100-X	0,5	0,5		1	0,75	0,5	0,5	0,5
160	CSS0160-X	0,5	0,5		1,5	1	0,75	0,5	0,5
200	CSS0200-X	0,5	0,5		2,5	1	0,75	0,5	0,5
250	CSS0250-X	0,5	0,5		2,5	1,5	0,75	0,5	0,5
315	CSS0315-X	0,5	0,5		4	1,5	1	0,75	0,5
400	CSS0400-X	0,5	0,5		6	2,5	1	0,75	0,5
500	CSS0500-X	0,5	0,5		6	2,5	1,5	0,75	0,5
630	CSS0630-X	0,5	0,5		10	4	1,5	1	0,5
1000	CSS1000-X	0,75	0,5			10	2,5	1,5	0,75
1600	CSS1600-X	1	0,75					1,5	1
2000	CSS2000-X	1	0,75	0,75				2,5	1
2500	CSS2500-X	1,5	1	0,75				2,5	1,5
3150	CSS3150-X	1,5	1	1				4	1,5
4000	CSS4000-X	2,5	1	1				6	2,5
5000	CSS5000-X	2,5	1,5	1,5				10	2,5





(*) x= 1: 12-24 V
x= 2: 24-48 V
x= 3: 115-230 V

CONTROL, SAFETY AND CIRCUIT SEPARATION

Protection and fuses

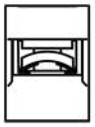
POWER (VA)	REF.*	PRIMARY PROTECTIONS (A) (T / D / aM)			SECONDARY PROTECTIONS (A) (F / C / gG)				
		230 V	400 V	460 V	12 V	24 V	48 V	115 V	230 V
25	**CSS0025-X**	0,125	0,08		2	1	0,5	0,2	0,1
40	**CSS0040-X**	0,200	0,125		3,15	1,6	0,8	0,32	0,16
63	**CSS0063-X**	0,315	0,2		5	2,5	1,25	0,5	0,25
100	**CSS0100-X**	0,5	0,315		8	4	2	0,8	0,4
160	**CSS0160-X**	0,8	0,5		12	6,3	3,15	1,25	0,63
200	**CSS0200-X**	1	0,6		16	8	4	1,6	0,8
250	**CSS0250-X**	1,25	0,8		20	10	5	2	1
315	**CSS0315-X**	1,6	1		25	12	6,3	2,5	1,25
400	**CSS0400-X**	2	0,25		32	16	8	3,15	1,6
500	**CSS0500-X**	2,5	1,6		40	20	10	4	2
630	**CSS0630-X**	3,15	2		50	25	12	5	2,5
1000	**CSS1000-X**	5	3,15			40	20	8	4
1600	**CSS1600-X**	8	5					12	6,3
2000	**CSS2000-X**	10	6,3	5				16	8
2500	**CSS2500-X**	12	8	6,3				20	10
3150	**CSS3150-X**	15	8	8				25	12
4000	**CSS4000-X**	20	12	10				32	16
5000	**CSS5000-X**	25	15	12				40	20

(*) x= 1: 12-24 V
x= 2: 24-48 V
x= 3: 115-230 V

Terminals

CONNECTION		MAX. TIGHTENING TORQUE	POWER (VA)			
Type	Size	(Nm)	PRIMARY	SEC 12/24	SEC 24/48	SEC 115/230
	M3	0,5	25 - 5000	25 - 250	25 - 500	25 - 2500
B1	M4	1,2		315	630	3150
	M5	2		400 - 630	1000	4000 - 5000

B1



Certification UL (Optional)

Certificate number 20181127-E354573.
UL Category XORU2/8 (Transformer, Construction Only - Component).
Maximum voltage 600V USA (UL) and 750V Canada (CSA).

TORYTRANS

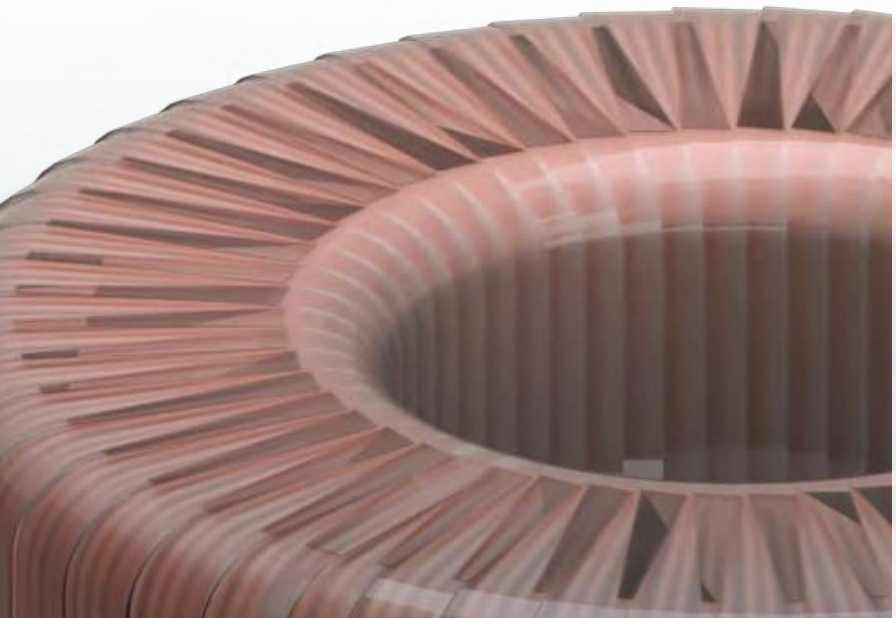
Toroidal single-phase transformer

Single-phase toroidal transformer with galvanic isolation between primary and secondary.

Constructed from premium grain-oriented Fe-Si alloy and subjected to an advanced thermal cycle, the cores of our toroidal cores are characterised by very low losses and optimal work induction.

Applications

- For powering lamps, electrical and electronic equipment with 12 V safety voltage.
- Electromedical, security, artificial vision, audio and video, telecommunications, and lighting equipment.



POWER
50 ÷ 600 VA

PRIMARY VOLTAGE
230 V

SECONDARY VOLTAGE
12 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-6

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TOR

CONTROL, SAFETY AND CIRCUIT SEPARATION

Accessories

FOR INSTALLATION plastic washer and screw included.
OPTIONAL: possibility of complete enclosure, of the central hole, or under a polyamide envelope.

Size

AND REDUCED WEIGHT for better installation in electrical cabinets.

Low radiation

MAGNETIC to adjacent susceptible electronic components.

High efficiency

VERY LOW LOSSES
on standby.

Low noise

AND ABSENCE OF VIBRATIONS.

SERIES TOR
TRANSFORMER
TOROIDAL

V0_10/24

TORYTRANS

CONTROL, SAFETY AND CIRCUIT SEPARATION

SERIES TOR

Technical specifications

POWER
50 ÷ 600 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
B (130 °C)

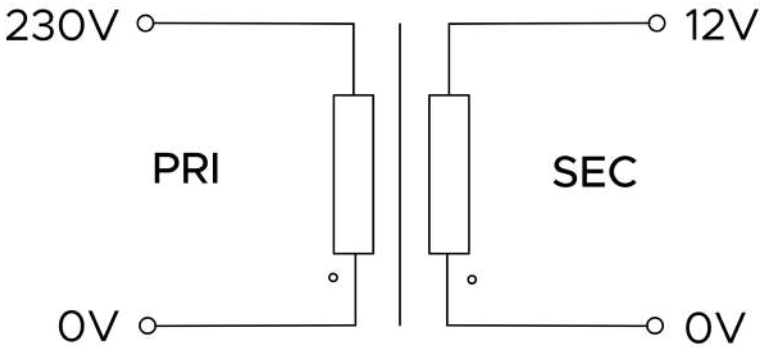
PROTECTION INDEX
IP00

ELECTRIC SHOCK PROTECTION
Class II

TEST VOLTAGE
4 kV

TOROIDAL SINGLE-PHASE TRANSFORMER

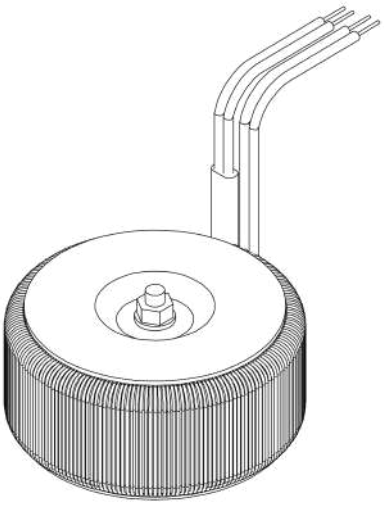
Electric **schematic**



CONTROL, SAFETY AND CIRCUIT SEPARATION

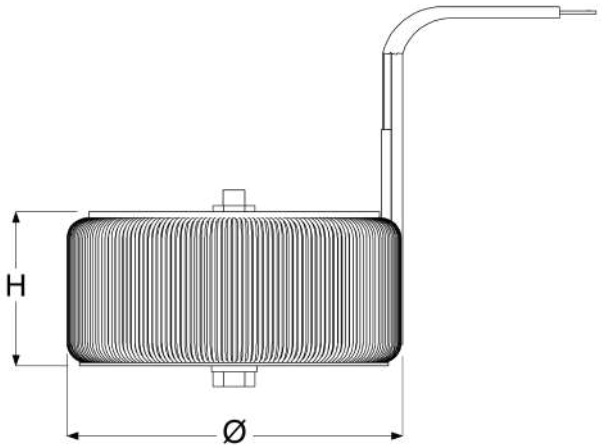
Technical data - standard models

POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secondary
50	TOR050	0,22	4,2
100	TOR100	0,43	8,3
150	TOR150	0,65	12,5
200	TOR200	0,87	16,7
250	TOR250	1,1	20,8
300	TOR300	1,3	25,0
400	TOR400	1,7	33,3
500	TOR500	2,2	41,7
600	TOR600	2,6	50,0



Dimensions

POWER (VA)	REF.	DIMENSIONS (mm)		WEIGHT (kg)
		Height	Ø	
50	TOR050	36	75	0,6
100	TOR100	35	115	1,2
150	TOR150	44	115	1,6
200	TOR200	45	120	1,8
250	TOR250	52	122	2,4
300	TOR300	52	132	3,0
400	TOR400	54	140	3,6
500	TOR500	52	155	4,5
600	TOR600	58	168	5,0



Cabling, protection and fuses

POWER (VA)	REF.	MIN. SECTION PRIMARY CONDUCTOR (mm^2)	MIN. SECTION SECONDARY CONDUCTOR (mm^2)	PRIMARY PROTECTIONS (A) (D / T / aM)	SECONDARY PROTECTIONS (A) (F / C / gG)
50	TOR050	0,5	0,75	0,5	4
100	TOR100	0,5	1	1	8
150	TOR150	0,5	1,5	1,6	12
200	TOR200	0,5	2,5	2	16
250	TOR250	0,5	2,5	2,5	20
300	TOR300	0,5	2,5	3,15	25
400	TOR400	0,5	6	4	32
500	TOR500	0,5	10	5	40
600	TOR600	0,5	10	6,3	50

2
ISOLATION

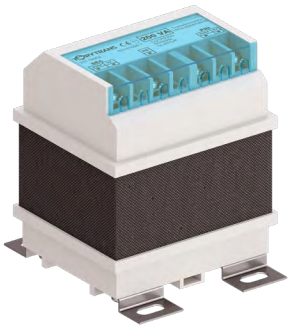
a. Series CUP
b. Series CN
c. Series CNE
d. Series TTE
e. Series TT
f. Series TTH
g. Series TTFK

ISOLATION

TORYTRANS

SECTOR
Industrial

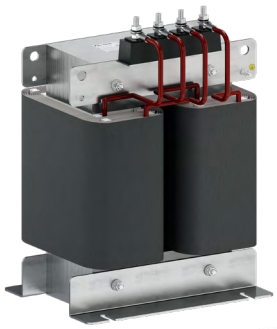
ISOLATION



CUP

Single-phase ultra-isolation transformer

200 ÷ 5000 VA
PRI: 230 V
SEC: 230 V



CN

Single-phase isolation transformer

3.15 ÷ 60 kVA
PRI: 230 V
SEC: 230 V

CNE

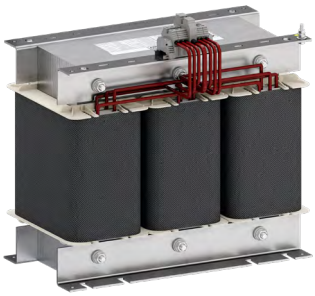
Single-phase encapsulated isolation transformer

5 ÷ 50 kVA
PRI: 230 V
SEC: 230 V

TTE

Three-phase encapsulated isolation transformer

5 ÷ 50 kVA
PRI: 400 V
SEC: 400 V



TT

Three-phase isolation transformer

1 ÷ 400 kVA
PRI: 400 V
SEC: 400 V

TTH

High-power three-phase transformer

500 ÷ 5000 kVA
PRI: 400V 500 ÷ 1600 kVA
690V 2000 ÷ 5000 kVA
SEC: 400V 500 ÷ 1600 kVA
690V 2000 ÷ 5000 kVA

TTFK

Three-phase K factor isolation transformer

3 ÷ 400 kVA
PRI: 400 V
SEC: 400 V

TORYTRANS

Single-phase ultra-isolation transformer

Single-phase transformer with ultra galvanic isolation, primary and secondary voltage ratio 1:1.

It incorporates one (CU1P) or three (CU3P) electrostatic screens as a separation of the primary and secondary windings, creating a high level of attenuation of noise and unwanted electrical disturbances.

Applications

- Intended for powering control, manoeuvring, and signalling elements in electrical panels of machines, equipment, and processes.
- Applications where a high level of attenuation and filtering of electrical disturbances is required.

POWER
200 ÷ 5000 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-4

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series CUP

ISOLATION

Attenuation

OF NOISE
Common mode ≈-45dB CU1P / ≈-55dB CU3P (for > 1 kHz).

Differential mode ≈-30dB CU1P / ≈-40dB CU3P (for > 1 kHz).

Enclosure

RESIN ENCAPSULATED with polycarbonate terminal covers. Suitable for vibratory, humid and corrosive environments (from 2000 VA to 5000 VA).

Enclosure

IN SELF-EXTINGUISHING TECHNICAL POLYAMIDE V0, halogen and phosphorus free (from 200 VA to 1600 VA).

Connection

SCREW AND WASHER
pre-inserted pressure.

Protects

THE USER
from access to dangerous contact parts of the winding.

SERIES CUP

TRANSFORMER
ULTRA-INSULATION
SINGLE-PHASE

TORYTRANS

ISOLATION

SERIES CUP

Technical specifications

POWER
200 ÷ 5000 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40°

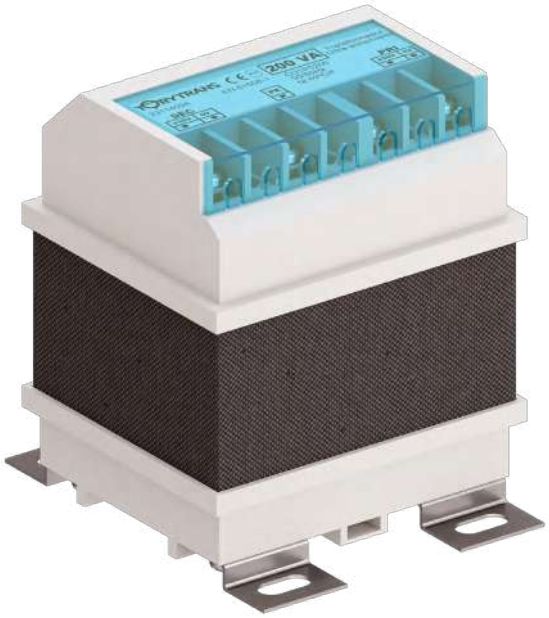
THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP00

ELECTRIC SHOCK PROTECTION
Class I

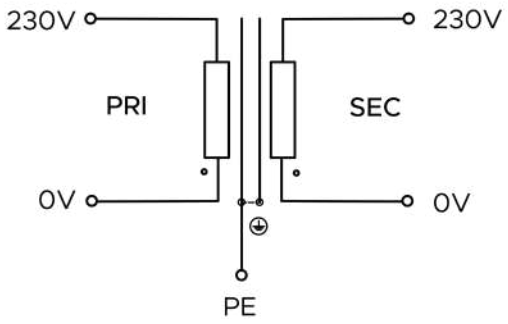
TEST VOLTAGE
4 kV

SINGLE-PHASE ULTRA-ISOLATION TRANSFORMER

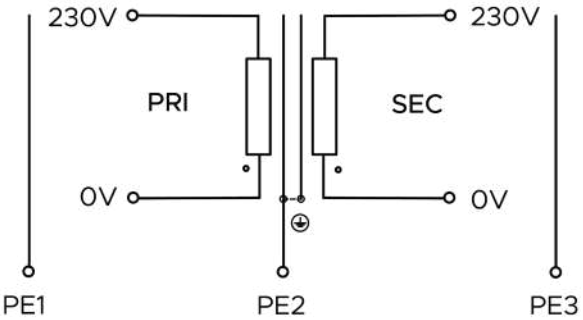


Electric **schematic**

CU1P

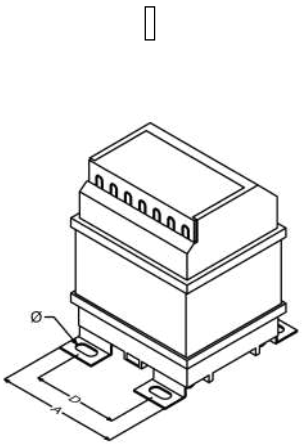


CU3P



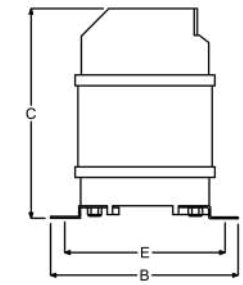
Technical data - standard models

POWER (VA)	REFERENCES		IINTENSITY (A)
	1 screen	3 screens	
200	CU1P0200	CU3P0200	0,9
315	CU1P0315	CU3P0315	1,4
500	CU1P0500	CU3P0500	2,2
630	CU1P0630	CU3P0630	2,7
1000	CU1P1000	CU3P1000	4,3
1600	CU1P1600	CU3P1600	7,0
2000	CU1P2000	CU3P2000	8,7
2500	CU1P2500	CU3P2500	10,9
3150	CU1P3150	CU3P3150	13,7
4000	CU1P4000	CU3P4000	17,4
5000	CU1P5000	CU3P5000	21,7

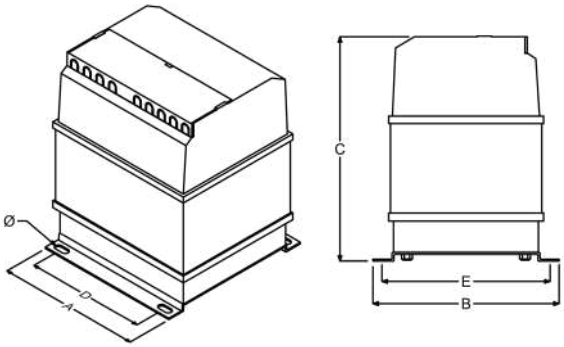


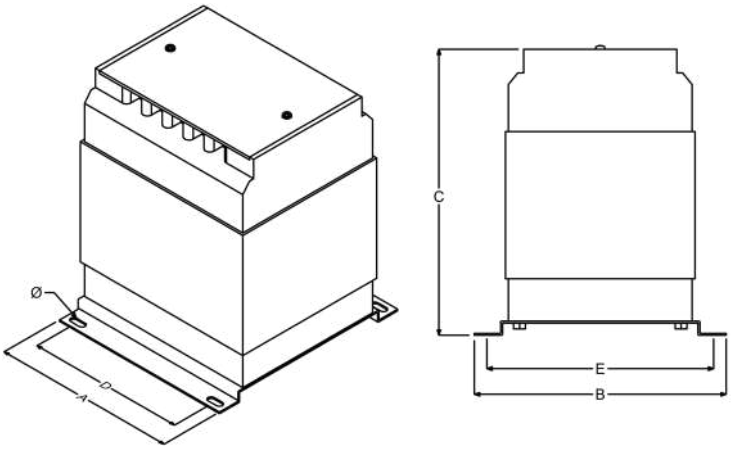
Dimensions

POWER (VA)	REF.*	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
200	CUxP0200	105	115	116	70	99	7x14	2,9	I
315	CUxP0315	115	123	134	80	108	7x14	4,5	I
500	CUxP0500	135	145	148	101	130	7x15	6,5	I
630	CUxP0630	135	145	170	101	130	7x15	8,4	I
1000	CUxP1000	150	158	190	124	143	7x15	12,7	II
1600	CUxP1600	155	158	228	124	143	7x15	17,8	II
2000	CUxP2000	192	212	215	165	195	7x16	24,6	III
2500	CUxP2500	192	212	230	165	195	7x16	33	III
3150	CUxP3150	192	212	250	165	195	7x16	42	III
4000	CUxP4000	240	255	235	205	235	9x18	53	III
5000	CUxP5000	240	255	255	205	235	9x18	59	III



(*) x= 1: 1 screen
x= 3: 3 screens





ISOLATION

INDUSTRIAL SECTOR
Series CUP

Cabling, protection and fuses

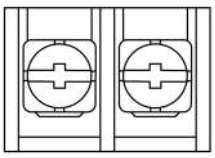
POWER (VA)	REF.*	MIN. SECTION CONDUCTOR (mm^2)	PRIMARY PROTECTIONS (A) (T / D / aM)	SECONDARY PROTECTIONS (A) F / (C / gG)
200	**CUxP0200**	0,5	1	0,8
250	**CUxP0250**	0,5	1,25	1
315	**CUxP0315**	0,5	1,6	1,25
400	**CUxP0400**	0,5	2	1,6
500	**CUxP0500**	0,5	2,5	2
630	**CUxP0630**	0,5	3,15	2,5
1000	**CUxP1000**	0,75	5	4
1600	**CUxP1600**	1	8	6,3
2000	**CUxP2000**	1	10	8
2500	**CUxP2500**	1,5	12	10
3150	**CUxP3150**	1,5	15	12
4000	**CUxP4000**	2,5	20	16
5000	**CUxP5000**	2,5	25	20

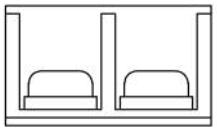
(*) x= 1: 1 screen
x= 3: 3 screens

Terminals

CONNECTION Type	Size	MAX. TIGHTENING TORQUE (Nm)	PRIMARY POWER (kVA)	SECONDARY POWER (kVA)
	M4	1,2	25 - 630	25-250
T1	M5	2	1000 - 3150	315-3150
	M6	6	4000-5000	4000-5000

T1





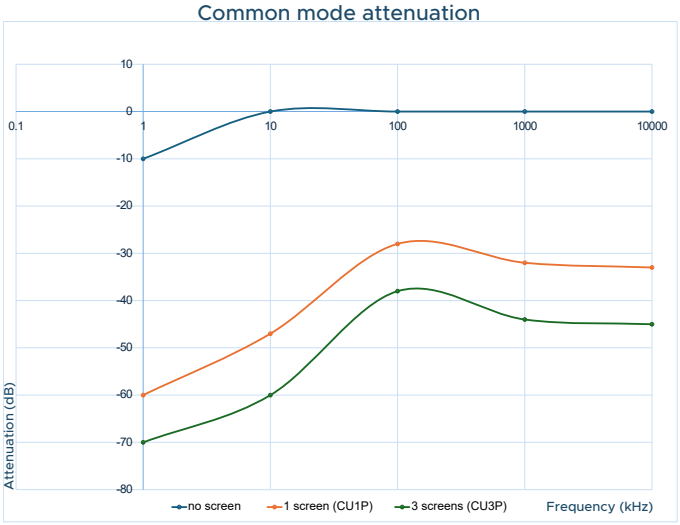
Application schematic

Noise is any voltage transient or undesirable disturbance that may appear in the electrical network and can be:

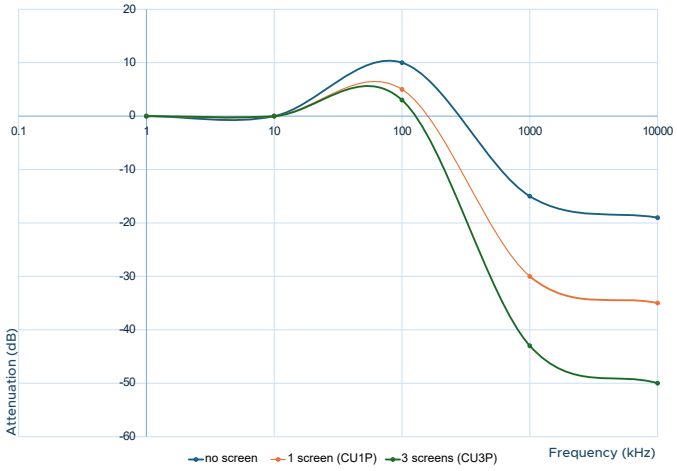
Common mode noise: is present on both the phase and neutral conductors and is measured relative to ground.

Differential mode noise: is the one that can be measured between the phase and neutral conductor.

Common mode attenuation

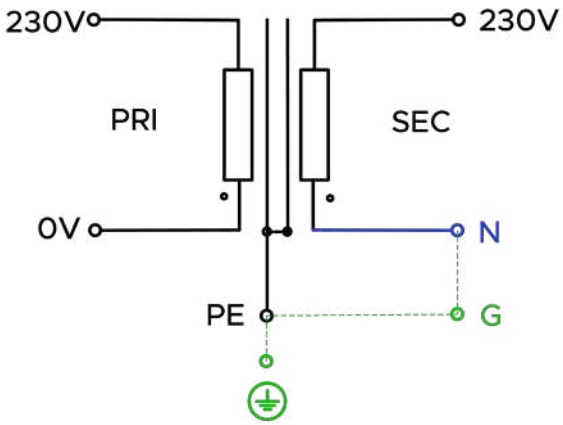


Differential mode attenuation

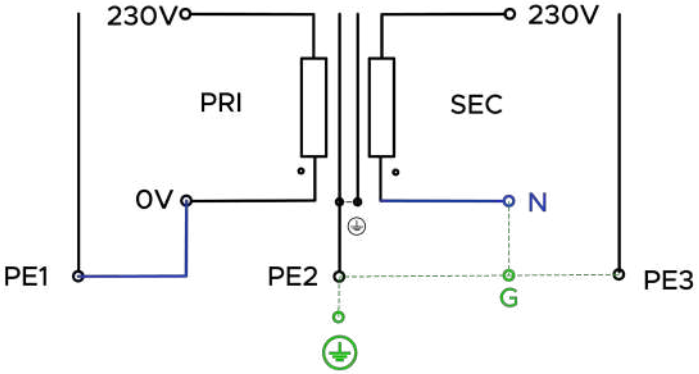


The best option for attenuating electrical disturbances is to reference the secondary to ground according to the diagram:

CU1P



CU3P



TORYTRANS

Single-phase isolation transformer

Single-phase transformer with galvanic isolation between primary and secondary, with excellent attenuation against electrical disturbances.

Built with degrees of protection:
- IP00 without enclosure, for inside electrical cabinets.
- IP23 metal enclosure, corrosion degree C3M ISO12944, for indoor use.
- IP65 metal enclosure, corrosion rating C3H ISO12944, for outdoor use.

Applications

- Galvanic isolation between network and load.
- Independent single-phase neutral generation, free from common electrical disturbances.
- In two-phase installations, to generate a single-phase system with a TN-S or TN-C neutral regime depending on the type of installation, additional differential switch protection is required.
- For isolated two-phase IT systems, an insulation monitor is required.

POWER
3.15 ÷ 60 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

Regulatory

Power ≤ 25 kVA
IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-4

Power > 25 kVA
IEC/UNE-EN 60076-11

Optional:

UL 5085-1
UL 5085-2

CAN/CSA C22.2 NO.66.1-06
CAN/CSA C22.2 NO.66.2-06

Certifications

CE UKCA

Optional: cULus

INDUSTRIAL SECTOR
Series CN

ISOLATION

Impregnation

DIELECTRIC VARNISH with high binding power that protects both the windings and the magnetic core from dust and moisture.

Connection

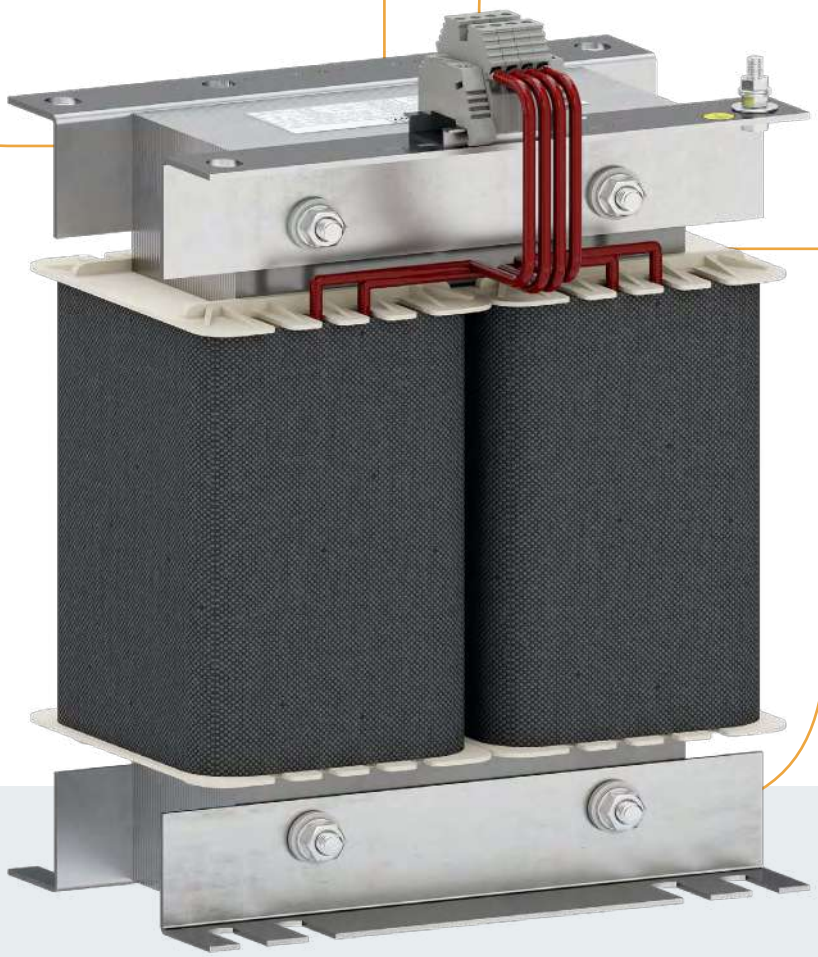
AT THE UPPER PART for easy accessibility and wiring.

Lifting points

INCORPORATED

UL

MARKED cURus optional in IP00.



Transport

WHEELS included in IP23 with Type II enclosure.

SERIES CN

TRANSFORMER
SINGLE-PHASE
ISOLATION

V0_10/24

TORYTRANS

ISOLATION

SERIES CN

Technical specifications

POWER
3.15 ÷ 60 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
(IP00) 40 °C
(IP23) 30 °C
(IP65) 30 °C

THERMAL CLASS
F (155 °C)

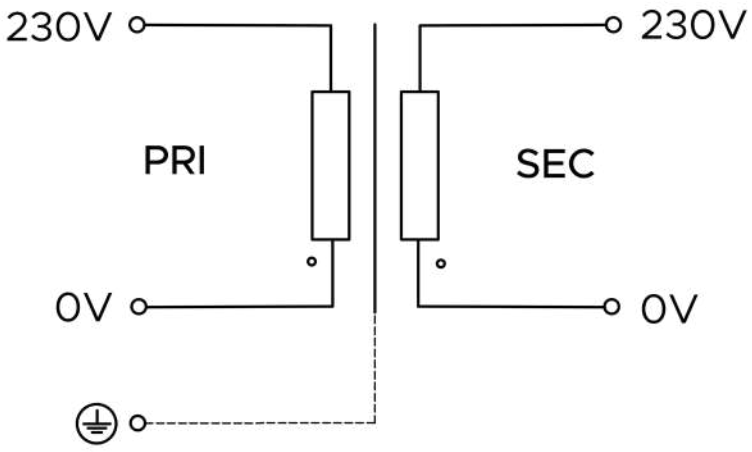
PROTECTION INDEX
IP00, IP23, IP65

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
3 kV

SINGLE-PHASE ISOLATION TRANSFORMER

Electric **schematic**



Technical data - standard models

POWER (kVA)	REFERENCES			INTENSITY (A)	
	IP00	IP23	IP65	Primary	Secondary
3,15	CN03	CNB03	CNP03	13,7	13,7
4	CN04	CNB04	CNP04	17,4	17,4
5	CN05	CNB05	CNP05	21,7	21,7
6	CN06	CNB06	CNP06	26,1	26,1
8	CN08	CNB08	CNP08	34,8	34,8
10	CN10	CNB10	CNP10	43,5	43,5
12	CN12	CNB12	CNP12	52,2	52,2
16	CN16	CNB16	CNP16	69,6	69,6
20	CN20	CNB20	CNP20	87,0	87,0
25	CN25	CNB25	CNP25	108,7	108,7
31	CN31	CNB31	CNP31	134,8	134,8
40	CN40	CNB40	CNP40	173,9	173,9
50	CN50	CNB50	CNP50	217,4	217,4
60	CN60	CNB60	CNP60	260,9	260,9

CN - IP00

I

II

CNB - IP23

I

II

III

CNP - IP65

I

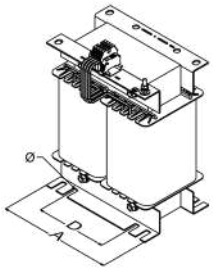
II

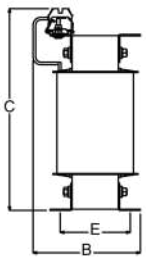
ISOLATION

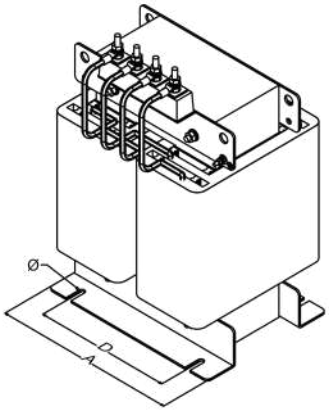
INDUSTRIAL SECTOR
Series CN

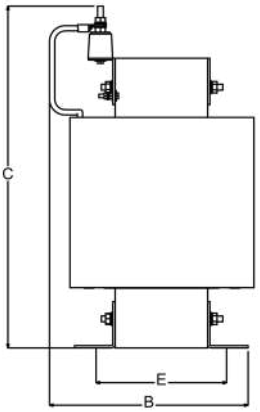
Dimensions - IP00

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
3,15	**CN03**	200	215	340	150	130	9	24	I
4	**CN04**	240	210	380	205	120	11	31	I
5	**CN05**	240	220	380	205	130	11	35	I
6	**CN06**	240	230	380	205	140	11	40	I
8	**CN08**	280	230	440	225	140	11	50	I
10	**CN10**	320	265	490	265	175	11	78	I
12	**CN12**	320	265	490	265	175	11	80	II
16	**CN16**	320	275	490	265	185	11	92	II
20	**CN20**	320	285	490	265	195	11	102	II
25	**CN25**	420	370	605	300	230	11	126	II
31	**CN31**	420	390	605	300	250	11	149	II
40	**CN40**	420	380	705	300	240	11	173	II
50	**CN50**	420	400	705	300	260	11	201	II
60	**CN60**	420	400	805	300	260	11	248	II







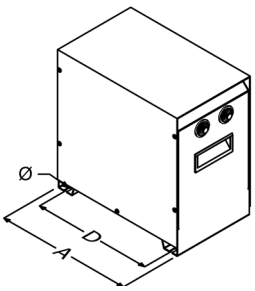


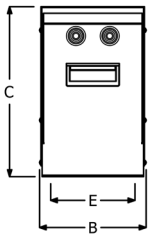
Dimensions - IP23

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE	WHEEL
		A	B	C	D	E	Ø			
3,15	**CNB03**	380	230	375	325	205	7	32	I	
4	**CNB04**	475	345	540	320	320	10	44	II	Included
5	**CNB05**	475	345	540	320	320	10	48	II	Included
6	**CNB06**	475	345	540	320	320	10	53	II	Included
8	**CNB08**	545	385	635	350	360	10	65	II	Included
10	**CNB10**	615	425	710	400	400	10	98	II	Included
12	**CNB12**	615	425	710	400	400	10	100	II	Included
16	**CNB16**	615	425	710	400	400	10	112	II	Included
20	**CNB20**	615	425	710	400	400	10	122	II	Included
25	**CNB25**	775	575	940	480	550	10	161	III	(*)
31	**CNB31**	775	575	940	480	550	10	184	III	(*)
40	**CNB40**	775	575	940	480	550	10	208	III	(*)
50	**CNB50**	775	575	940	480	550	10	236	III	(*)
60	**CNB60**	775	575	940	480	550	10	287	III	(*)

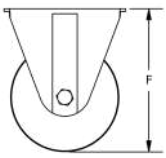
Type I has a lifting handle.
Type II has a built-in wheel.
Type III optional wheel.

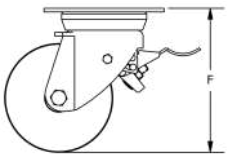
I



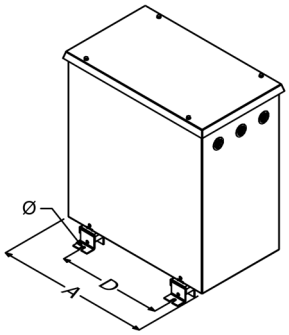


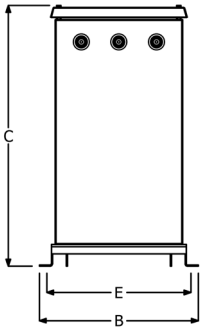
(*) Optional wheel		
Code	**Type**	**F (mm)**
ACC00203	Fixed	97
ACC00431	Rotating	97



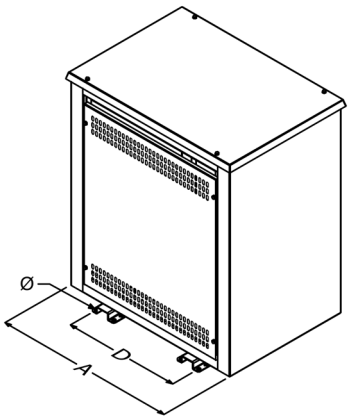


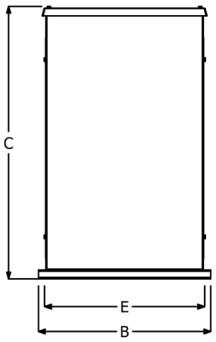
II





III

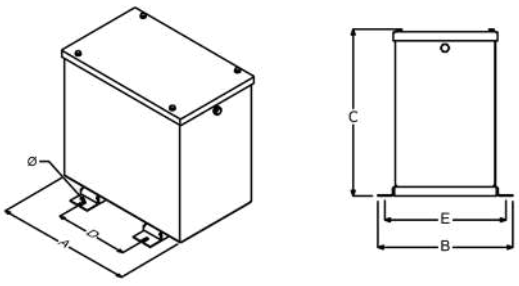




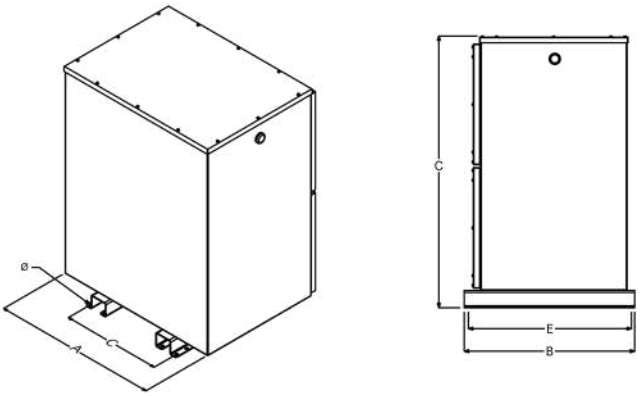
Dimensions - IP65

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
3,15	**CNP03**	580	380	565	320	355	10	48	I
4	**CNP04**	580	380	565	320	355	10	52	I
5	**CNP05**	580	380	565	320	355	10	57	I
6	**CNP06**	650	415	340	350	395	10	70	I
8	**CNP08**	810	555	890	400	535	10	116	I
10	**CNP10**	810	555	890	400	535	10	120	I
12	**CNP12**	810	555	890	400	535	10	132	I
16	**CNP16**	810	555	890	400	535	10	140	I
20	**CNP20**	935	725	1240	560	685	15	215	II
25	**CNP25**	935	725	1240	560	685	15	240	II
31	**CNP31**	935	725	1240	560	685	15	262	II
40	**CNP40**	935	725	1240	560	685	15	290	II
50	**CNP50**	935	725	1240	560	685	15	336	II
60	**CNP60**	935	725	1240	560	685	15	365	II

I



II



Cabling, protection and fuses

POWER (kVA)	REF.*	CNB - Presses		CNP - Prensas		PROTECCIONES PRIMARIO (A)	PROTECCIONES SECUNDARIO (A)
		Ø max. (mm)	Quantity	Ø max. (mm)	Quantity	(D / aM)	(C / gG)
3,15	**CNx03**	PG-29	2	PG-29	2	20	12
4	**CNx04**	PG-38	2	PG-29	2	25	16
5	**CNx05**	PG-38	2	PG-29	2	40	20
6	**CNx06**	PG-38	2	PG-29	2	50	25
8	**CNx08**	PG-38	2	PG-29	3	63	32
10	**CNx10**	PG-38	2	PG-29	3	80	40
12	**CNx12**	PG-38	2	PG-29	3	100	50
16	**CNx16**	PG-38	2	PG-29	3	125	63
20	**CNx20**	PG-38	2	PG-29	3	160*	80
25	**CNx25**	PG-48	3	PG-29	3	200*	100
31	**CNx31**	PG-48	3	PG-29	3	250*	125
40	**CNx40**	PG-48	3	PG-29	3	300*	160
50	**CNx50**	PG-48	3	PG-29	3	400*	200
60	**CNx60**	PG-48	3	PG-29	3	500*	250

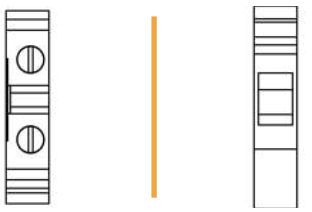
(*) x= -: CN (IP00)
x= B: CNB (IP23)
x= P: CNP (IP65)

(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

Terminals

CONNECTION		MAX SECTION CONDUCTOR (mm2)	MAX. TIGHTENING TORQUE	POWER (kVA)	
Type	Size		(Nm)	CN / CNB	CNP
	6 mm²	10	0,8 - 1,2	3 - 4	3
B3	10 mm²	16	1,2 - 1,8	5 - 6	4 - 5
	16 mm²	25	1,2 - 2,0	8 - 10	6 - 8
R2	M10	150	27	12 - 60	10 - 60

B3



R2

Certification UL (Optional)

Certificate number 20181127-E354573.
UL Category XORU2/8 (Transformer, Construction Only - Component).
Powers from 3 to 100kVA.
Maximum voltage 600V USA (UL) and 750V Canada (CSA).
Only IP00.

TORYTRANS

Single-phase encapsulated isolation transformer

Single-phase transformer with galvanic isolation between primary and secondary, with excellent attenuation against electrical disturbances.
Encapsulated in highly robust resin with high heat dissipation power. It increases the mechanical resistance to electrodynamic stresses of the winding, extending the useful life of the insulation.
Suitable for vibratory, humid, saline or corrosive environments.

Applications

- General use: galvanic isolation between the network and the load.
- Generate a single-phase neutral independent of the network, free from common mode electrical disturbances.
- Two-phase installations: generating a single-phase system with a TN-S or TN-C neutral system, depending on the type of installation, requires additional earth leakage circuit breaker protection.
- Isolated two-phase IT systems: requires additional insulation monitoring protection.

POWER
5 ÷ 50 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

Regulatory

Power ≤ 25 kVA
IEC/UNE-EN 61558-1

Power > 25 kVA
IEC/UNE-EN 60076-11

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series CNE

ISOLATION

Magnetic core

LOW LOSS impregnated with epoxy anti-rust varnish.

Lifting points

INCORPORATED

Windings

FULLY PROTECTED against shocks, dust, dirt and moisture.

Transparent cover

PROTECTS THE TERMINALS connection that prevents the risk of accidents due to electrical contact.

Reliability

IMPROVED for working in vibrating environments.

SERIES CNE

TRANSFORMER
SINGLE-PHASE
ENCAPSULATED INSULATION

V0_10/24

TORYTRANS

ISOLATION

SERIES CNE

Technical specifications

POWER
5 ÷ 50 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40°

THERMAL CLASS
F (155 °C)

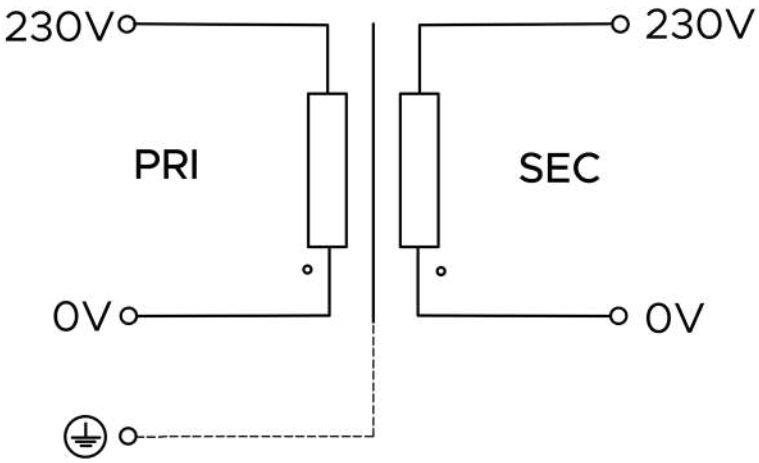
PROTECTION INDEX
IP20

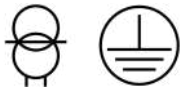
ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
3 kV

SINGLE-PHASE ENCAPSULATED ISOLATION TRANSFORMER

Electric **schematic**





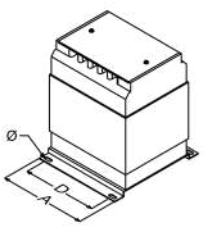
Technical data - standard models

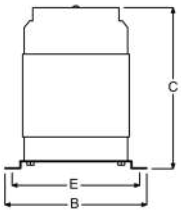
POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secondary
5	**CNE05**	21,7	21,7
6	**CNE06**	26,1	26,1
8	**CNE08**	34,8	34,8
10	**CNE10**	43,5	43,5
12	**CNE12**	52,2	52,2
16	**CNE16**	69,6	69,6
20	**CNE20**	87,0	87,0
25	**CNE25**	108,7	108,7
31	**CNE31**	134,8	134,8
40	**CNE40**	173,9	173,9
50	**CNE50**	217,4	217,4

Dimensions

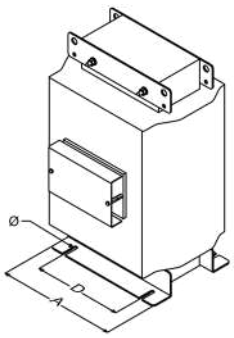
POWER	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		(VA)	B	C	D	E	Ø		
5	**CNE05**	240	260	255	205	235	9	58	I
6	**CNE06**	260	320	315	255	222	11	55	II
8	**CNE08**	360	360	340	295	262	12	70	II
10	**CNE10**	360	360	340	295	262	12	90	II
12	**CNE12**	360	380	425	265	225	11	114	II
16	**CNE16**	360	400	425	265	245	11	134	II
20	**CNE20**	360	430	425	265	275	11	152	II
25	**CNE25**	460	440	505	300	210	13	175	II
31	**CNE31**	460	460	505	300	230	13	200	II
40	**CNE40**	460	450	605	300	220	13	215	II
50	**CNE50**	460	480	605	300	250	13	255	II

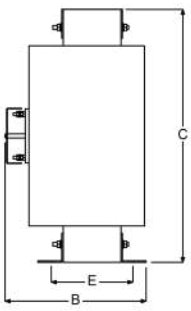
I





II





ISOLATION

INDUSTRIAL SECTOR
Series CN

Protection and fuses

POWER (VA)	REF.	PRIMARY PROTECTIONS (D / aM)	SECONDARY PROTECTIONS (A) (C / gG)
5	**CNE05**	40	20
6	**CNE06**	50	25
8	**CNE08**	63	32
10	**CNE10**	80	40
12	**CNE12**	100	50
16	**CNE16**	125	63
20	**CNE20**	160*	80
25	**CNE25**	200*	100
31	**CNE31**	250*	125
40	**CNE40**	300*	160
50	**CNE50**	400*	200

(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

Terminals

CONNECTION Type	Size	MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE (Nm)	POWER (kVA)
T2	M6	25	5	5 - 10
	M8	40	14	12 - 20
	M10	70	27	25 - 31
	M12	95	45	40 - 50

T2

TORYTRANS

Three-phase encapsulated isolation transformer

Three-phase transformer with galvanic isolation between primary and secondary, with excellent attenuation against electrical disturbances.
Encapsulated in highly robust resin with high heat dissipation power. It increases the mechanical resistance to electrodynamic stresses of the winding, extending the useful life of the insulation.
Suitable for vibratory, humid, saline or corrosive environments.

Applications

- General use: galvanic isolation between the network and the load.
- Generate a neutral independent of the network free from common mode electrical disturbances.
- Three-phase installations: generating a system with a TN-S or TN-C neutral system, depending on the type of installation, requires additional earth leakage circuit breaker protection.
- Isolated three-phase IT systems: requires additional protection by an insulation monitor.

POWER
5 ÷ 50 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
400 V+N

Regulatory

Power ≤ 40 kVA
IEC/UNE-EN 61558-1

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

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TTE

ISOLATION

Magnetic core

LOW LOSS impregnated with epoxy anti-rust varnish.

Lifting points

INCORPORATED

Windings

FULLY PROTECTED against shocks, dust, dirt and moisture.

Reliability

IMPROVED for working in vibrating environments.

Transparent cover

PROTECTS THE TERMINALS connection that prevents the risk of accidents due to electrical contact.

SERIES TTE

TRANSFORMER
THREE-PHASE ENCAPSULATED
INSULATION

V0_10/24

TORYTRANS

ISOLATION

SERIES TTE

Technical specifications

POWER
5 ÷ 50 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
400 V+N

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40°

THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP20

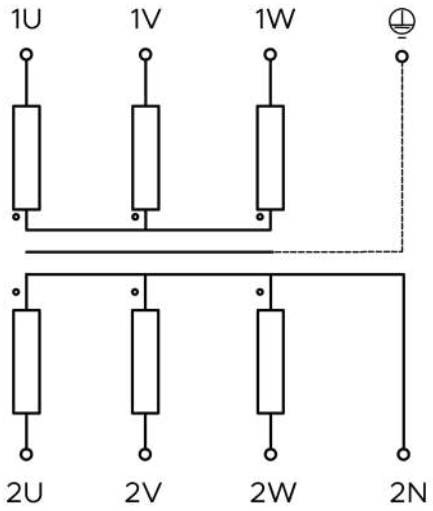
ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
3 kV

CONNECTION
Yyn0

THREE-PHASE ENCAPSULATED ISOLATION TRANSFORMER

Electric **schematic**

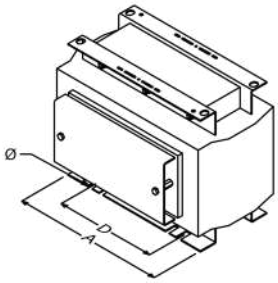


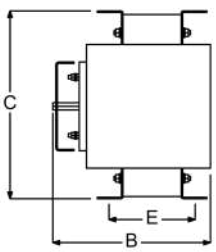
Technical data - standard models

POWER (kVA)	REFERENCES	INTENSITY (A)	Ucc (%)	PERFORMANCE η(%)
5	**TTE005**	7,2	3,8	95,1
6	**TTE006**	8,7	3,4	95,4
8	**TTE008**	11,6	3,4	95,5
10	**TTE010**	14,5	3	96,1
12	**TTE012**	17,3	3,1	96
16	**TTE016**	23,1	2,7	96,4
20	**TTE020**	28,9	2,5	96,7
25	**TTE025**	36,1	2,5	96,7
31	**TTE031**	44,8	2,6	97
40	**TTE040**	57,8	2,5	97,2
50	**TTE050**	72,3	2	97,5

Dimensions

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
5	**TTE005**	340	290	255	200	138	11	52	I
6	**TTE006**	340	300	255	200	158	11	62	I
8	**TTE008**	400	290	305	320	140	11	70	I
10	**TTE010**	400	315	305	320	160	11	85	I
12	**TTE012**	460	330	355	350	160	11	98	I
16	**TTE016**	460	350	355	350	180	11	116	I
20	**TTE020**	460	370	355	350	200	11	135	I
25	**TTE025**	520	370	405	400	195	11	160	I
31	**TTE031**	680	370	505	400	200	13	188	I
40	**TTE040**	680	390	505	400	220	13	224	I
50	**TTE050**	680	430	505	400	260	13	286	I





ISOLATION

INDUSTRIAL SECTOR
Series TTE

Protection and fuses

POWER (kVA)	REF.	PRIMARY PROTECTIONS (A) (D/aM)	SECONDARY PROTECTIONS (A) (C/gG)
5	**TTE005**	16	6
6	**TTE006**	20	8
8	**TTE008**	25	10
10	**TTE010**	32	10
12	**TTE012**	40	16
16	**TTE016**	50	20
20	**TTE020**	63	25
25	**TTE025**	80	32
31	**TTE031**	100	40
40	**TTE040**	125	50
50	**TTE050**	160*	63

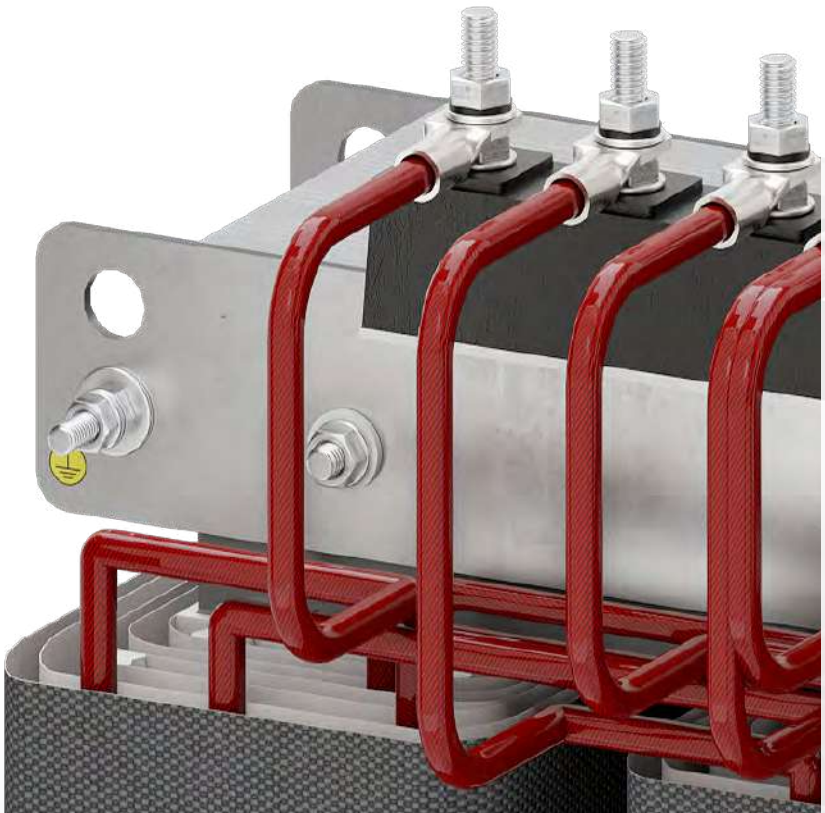
(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

Terminals

CONNECTION Type	CONNECTION Size	MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE (Nm)	POWER (kVA)
T2	M6	25	5	5 -25
	M8	40	14	31 - 50

T2

TORYTRANS



Three-phase isolation transformer

Three-phase transformer with galvanic isolation between primary and secondary. Protection index according to installation needs:
- IP00 without enclosure.
- IP23 enclosure for indoor location.
- IP65 enclosure for outdoor use.

Applications

- General use: isolation and circuit separation transformer.
- Voltage change: booster or reducer to adapt the voltage between the network andáthe equipment.
- Protection of equipment sensitive to electrical disturbances in telecommunications centres, data centres, backups, and computer servers.
- Generation of our isolated IT or neutral-to-ground TN-S and TN-C systems to prevent unwanted tripping of residual current circuit breakers.

POWER
1 ÷ 400 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
400 V + N

Regulatory

Power ≤ 40 kVA
IEC/UNE-EN 61558-1

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

Optional:

UL 5085-1
UL 5085-2

CAN/CSA C22.2 NO.66.1-06
CAN/CSA C22.2 NO.66.2-06

Certifications

CE UKCA

Optional: cULus

INDUSTRIAL SECTOR
Series TT

ISOLATION

Power source

OF SINGLE-PHASE LOADS in networks without neutral up to a maximum imbalance between phases of 30%.

Connection

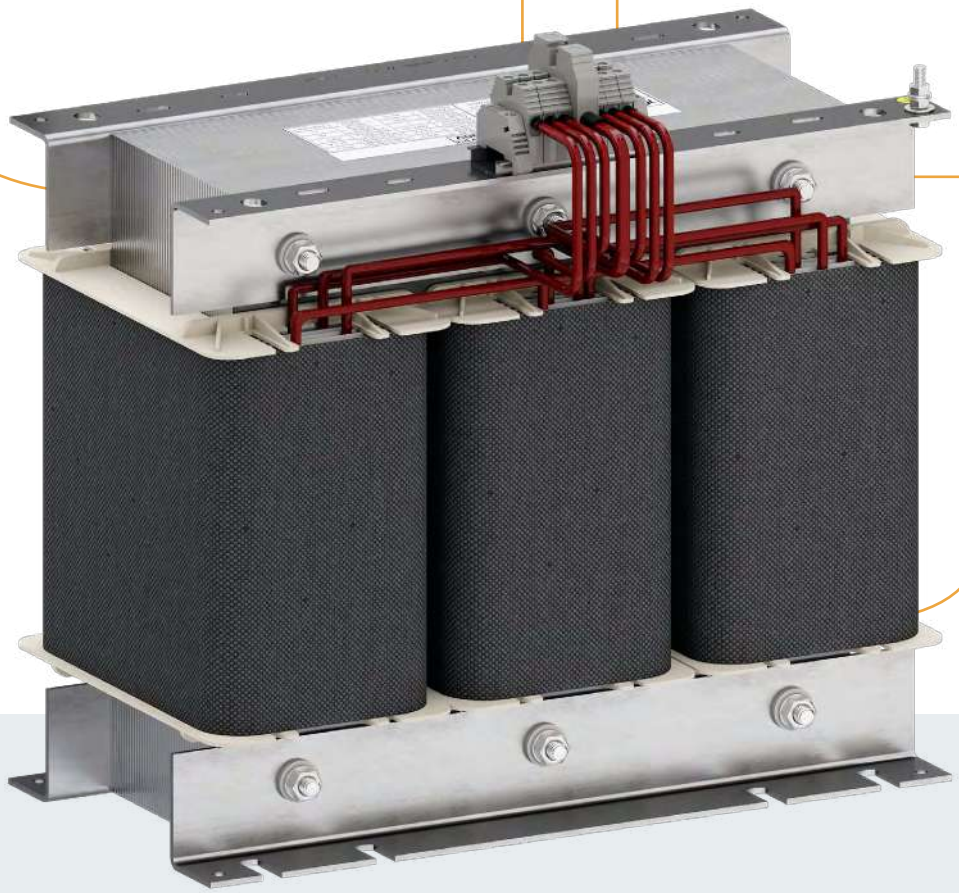
BY TERMINALS IP20, protects against direct voltage contact, up to 31kVA in IP00/23 and 25kVA in IP65.

Lifting points

INCORPORATED

Impregnation

COMPLETE which protects it from moisture, dust, corrosion.



UL

MARKED cURus optional for IP00, up to 100kVA.

SERIES TT

TRANSFORMER
THREE-PHASE ISOLATION

TORYTRANS

ISOLATION

SERIES TT

Technical specifications

POWER
1 ÷ 400 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
400 V + N

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE

(IP00)	40 °C
(IP23)	30 °C
(IP65)	30 °C

THERMAL CLASS

(Up to TTx050)	F (155 °C)
(From TTx063)	H (180 °C)

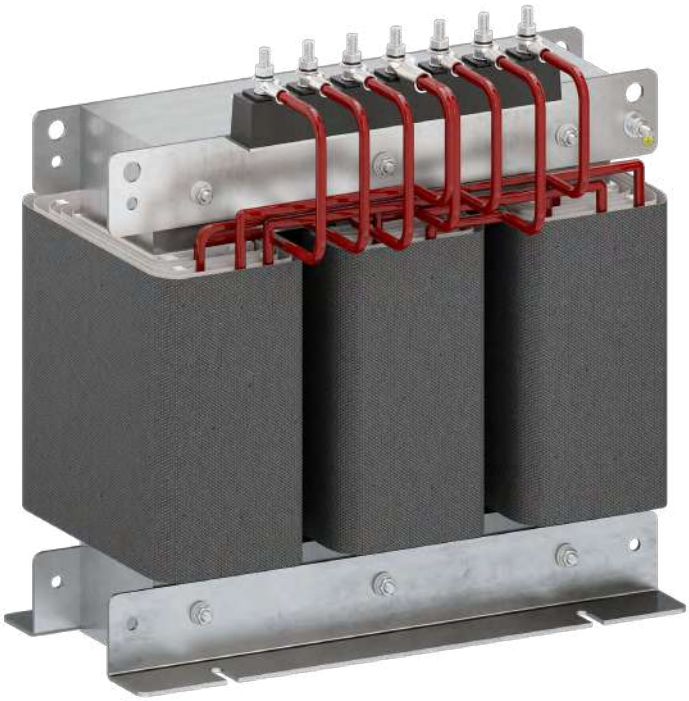
PROTECTION INDEX
IP00, IP23, IP65

ELECTRIC SHOCK PROTECTION
Class I

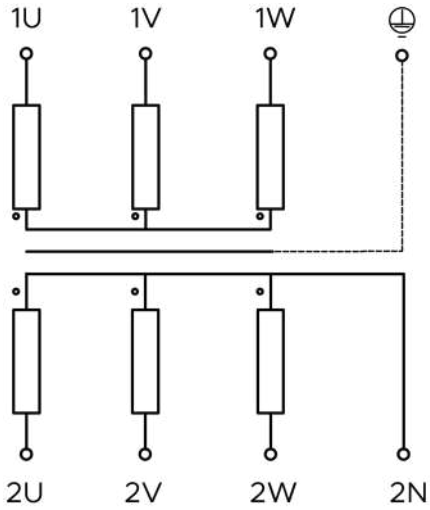
TEST VOLTAGE
3 kV

CONNECTION
Yyn0

THREE-PHASE ISOLATION TRANSFORMER



Electric **schematic**



Technical data - standard models

POTENCIA (kVA)	REFERENCIAS			INTENSIDAD (A)		Ucc (%)	RENDIMIENTO η (%)
	IP00	IP23	IP65	Primario	Secundario		
1	TTS001	TTC001	TTP001	1,4	1,4	6,0	89,5
2	TTS002	TTC002	TTP002	2,9	2,9	8,1	89,0
3	TTS003	TTC003	TTP003	4,3	4,3	5,6	93,2
4	TTS004	TTC004	TTP004	5,8	5,8	7,2	92,1
5	TTS005	TTC005	TTP005	7,2	7,2	4,1	94,8
6	TTS006	TTC006	TTP006	8,7	8,7	4,5	95,2
8	TTS008	TTC008	TTP008	11,6	11,6	4,3	94,8
10	TTS010	TTC010	TTP010	14,5	14,5	4,2	95,0
12	TTS012	TTC012	TTP012	17,3	17,3	4,0	95,1
16	TTS016	TTC016	TTP016	23,1	23,1	3,9	95,2
20	TTS020	TTC020	TTP020	28,9	28,9	2,7	96,4
25	TTS025	TTC025	TTP025	36,1	36,1	3,1	96,1
31	TTS031	TTC031	TTP031	44,8	44,8	2,5	96,9
40	TTS040	TTC040	TTP040	57,8	57,8	2,5	96,6
50	TTS050	TTC050	TTP050	72,3	72,3	2,4	96,8
63	TTS063	TTC063	TTP063	91	91	3,4	96,2
80	TTS080	TTC080	TTP080	116	116	3,0	96,6
100	TTS100	TTC100	TTP100	145	145	2,5	97,0
125	TTS125	TTC125	TTP125	181	181	2,2	97,3
160	TTS160	TTC160	TTP160	231	231	2,1	97,5
200	TTS200	TTC200	TTP200	289	289	1,8	97,9
250	TTS250	TTC250	TTP250	361	361	1,6	98,1
315	TTS315	TTC315	TTP315	455	455	1,5	98,3
400	TTS400	TTC400	TTP400	578	578	1,6	98,6

IP00

IP23

IP65

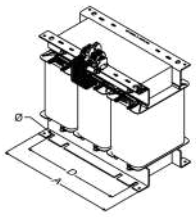
ISOLATION

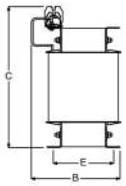
INDUSTRIAL SECTOR
Series TT

Dimensions - IP00

POTENCIA (kVA)	REF.	DIMENSIONES (mm)						PESO (kg)	TIPO
		A	B	C	D	E	Ø		
1	**TTS001**	240	165	255	200	100	7	14	I
2	**TTS002**	240	190	255	200	125	7	20	I
3	**TTS003**	300	180	305	200	105	11	25	I
4	**TTS004**	300	190	305	200	115	11	30	I
5	**TTS005**	300	210	305	200	135	11	38	I
6	**TTS006**	300	220	305	200	145	11	42	I
8	**TTS008**	360	205	355	320	130	11	49	I
10	**TTS010**	360	225	355	320	150	11	62	I
12	**TTS012**	420	230	410	350	160	11	81	I
16	**TTS016**	420	250	410	350	180	11	97	I
20	**TTS020**	420	270	430	350	200	11	114	I
25	**TTS025**	480	260	470	400	185	11	130	I
31	**TTS031**	480	280	470	400	205	11	160	I
40	**TTS040**	655	350	595	400	250	13	230	II
50	**TTS050**	655	375	595	400	270	13	262	II
63	**TTS063**	600	330	795	400	210	13	252	II
80	**TTS080**	600	360	795	400	240	13	312	II
100	**TTS100**	660	370	875	480	265	13	400	II
125	**TTS125**	660	410	875	480	305	13	500	II
160	**TTS160**	720	420	940	480	322	13	595	III
200	**TTS200**	720	450	940	480	352	13	712	III
250	**TTS250**	840	440	1080	660	330	16	770	III
315	**TTS315**	840	480	1080	660	370	16	970	IV
400	**TTS400**	840	500	1080	660	390	16	1120	IV

I





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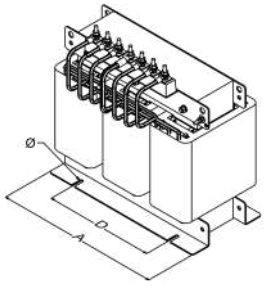

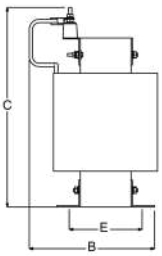

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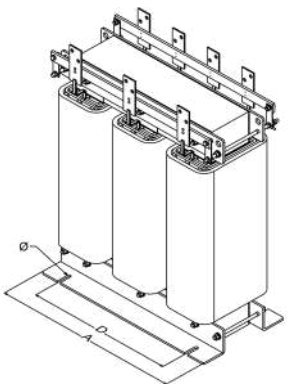

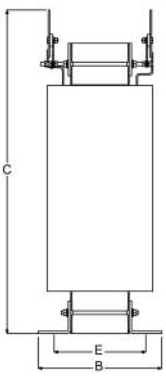

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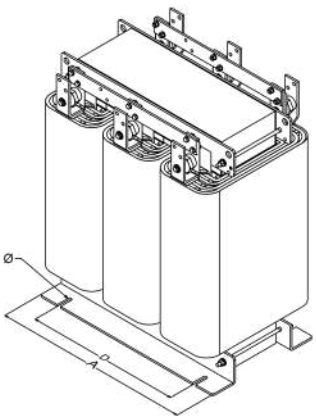
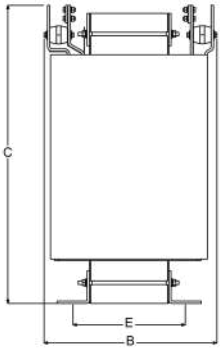
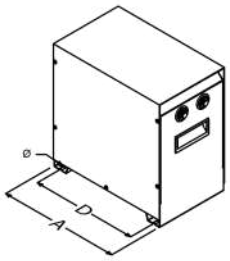


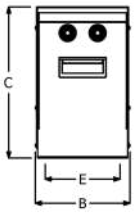


Dimensions - IP23

POTENCIA (kVA)	REF.	DIMENSIONES (mm)						PESO (kg)	TIPO	RUEDA
		A	B	C	D	E	Ø			
1	**TTC001**	310	190	305	265	165	7	18	I	
2	**TTC002**	310	190	305	265	165	7	24	I	
3	**TTC003**	380	230	375	325	205	7	33	I	
4	**TTC004**	380	230	375	325	205	7	38	I	
5	**TTC005**	380	230	375	325	205	7	46	I	
6	**TTC006**	380	230	375	325	205	7	50	I	
8	**TTC008**	475	345	540	320	320	10	62	II	Incluida
10	**TTC010**	475	345	540	320	320	10	75	II	Incluida
12	**TTC012**	545	385	635	350	360	10	97	II	Incluida
16	**TTC016**	545	385	635	350	360	10	114	II	Incluida
20	**TTC020**	545	385	635	350	360	10	130	II	Incluida
25	**TTC025**	615	425	710	400	400	10	150	II	Incluida
31	**TTC031**	615	425	710	400	400	10	180	II	Incluida
40	**TTC040**	775	575	940	480	550	10	265	III	(*)
50	**TTC050**	775	575	940	480	550	10	298	III	(*)
63	**TTC063**	775	575	940	480	550	10	290	III	(*)
80	**TTC080**	775	575	940	480	550	10	348	III	(*)
100	**TTC100**	930	710	1275	605	680	13	470	III	(**)
125	**TTC125**	930	710	1275	605	680	13	565	III	(**)
160	**TTC160**	930	710	1275	605	680	13	662	III	(**)
200	**TTC200**	930	710	1275	605	680	13	780	III	(**)
250	**TTC250**	1080	880	1460	815	840	15	890	IV	(***)
315	**TTC315**	1080	880	1460	815	840	15	1090	IV	(***)
400	**TTC400**	1080	880	1460	815	840	15	1235	IV	(***)

I





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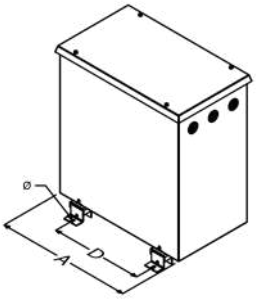

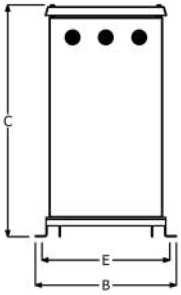

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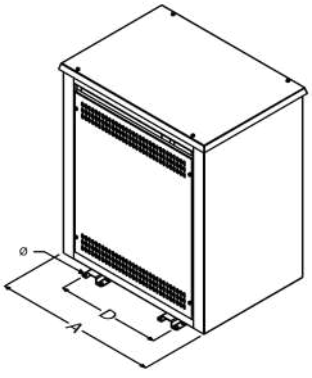

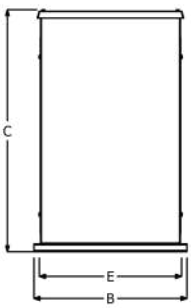

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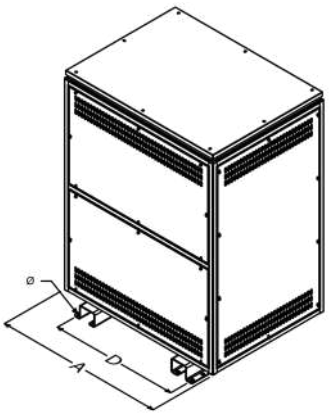
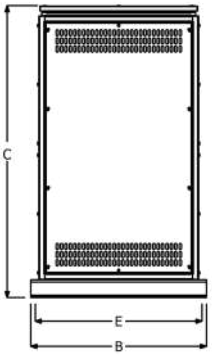




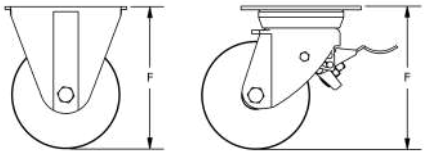
ISOLATION

INDUSTRIAL SECTOR
Series TT

Optional wheel		
Code	**Type**	**F (mm)**
ACC00203	Fixed	97
ACC00431	Rotating	97

(**) Optional wheel I		
Code	**Type**	**F (mm)**
ACC00200	Fixed	124
ACC00201	Rotating with brake	124

(***) Optional wheel		
Code	**Type**	**F (mm)**
ACC00284	Fixed	164
ACC00285	Rotating with brake	164



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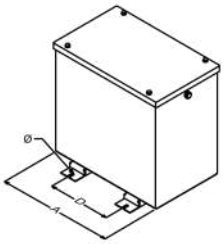

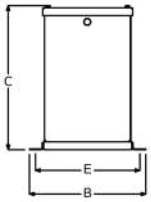

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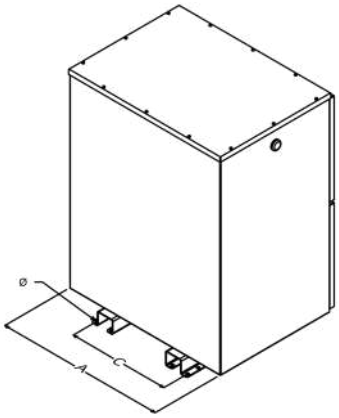
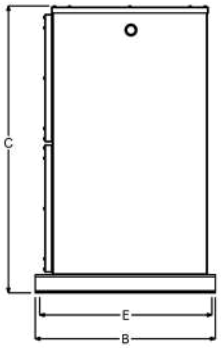




Dimensions - IP65

POTENCIA (kVA)	REF.	DIMENSIONES (mm)						PESO (kg)	TIPO
		A	B	C	D	E	Ø		
1	**TTP001**	410	305	375	200	285	8	28	I
2	**TTP002**	490	340	500	200	320	8	38	I
3	**TTP003**	490	340	500	200	320	8	42	I
4	**TTP004**	490	340	500	200	320	8	52	I
5	**TTP005**	490	340	500	200	320	8	56	I
6	**TTP006**	580	380	565	320	355	10	66	I
8	**TTP008**	580	380	565	320	355	10	80	I
10	**TTP010**	650	415	640	350	395	10	103	I
12	**TTP012**	650	415	640	350	395	10	118	I
16	**TTP016**	650	415	640	350	395	10	135	I
20	**TTP020**	810	555	890	400	535	10	170	I
25	**TTP025**	810	555	890	400	535	10	200	I
31	**TTP031**	935	725	1240	560	685	15	320	II
40	**TTP040**	935	725	1240	560	685	15	352	II
50	**TTP050**	935	725	1240	560	685	15	345	II
63	**TTP063**	935	725	1240	560	685	15	402	II
80	**TTP080**	1100	895	1425	640	855	15	530	II
100	**TTP100**	1100	895	1425	640	855	15	625	II
125	**TTP125**	1070	895	1435	640	855	15	722	II
160	**TTP160**	1100	895	1425	640	855	15	840	II
200	**TTP200**	1240	1100	1615	820	1060	15	950	II
250	**TTP250**	1240	1100	1615	820	1060	15	1140	II
315	**TTP315**	1240	1100	1615	660	1060	15	1280	II

Protection and fuses

POTENCIA (kVA)	REF.	TTC - Pasacables		TTP - Prensas		PROTECCIONES PRIMARIO (A)	PROTECCIONES SECUNDARIO (A)
		Ø máx. (mm)	Cantidad	Ø máx. (mm)	Cantidad	(D/aM)	(C/gG)
1	**TTx001**	PG-29	2	PG-21	2	3	1
2	**TTx002**	PG-29	2	PG-21	2	6	3
3	**TTx003**	PG-29	2	PG-21	2	10	4
4	**TTx004**	PG-38	2	PG-21	2	12	5
5	**TTx005**	PG-38	2	PG-21	2	16	6
6	**TTx006**	PG-38	2	PG-29	2	20	8
8	**TTx008**	PG-38	2	PG-29	2	25	10
10	**TTx010**	PG-38	2	PG-29	2	32	14
12	**TTx012**	PG-38	2	PG-29	2	40	16
16	**TTx016**	PG-38	2	PG-29	2	50	20
20	**TTx020**	PG-38	2	PG-29	3	63	25
25	**TTx025**	PG-38	2	PG-29	3	80	32
31	**TTx031**	PG-38	2	-	-	100	40
40	**TTx040**	PG-48	3	-	-	125	50
50	**TTx050**	PG-48	3	-	-	160*	63
63	**TTx063**	PG-48	3	-	-	200*	80
80	**TTx080**	PG-48	3	-	-	250*	100
100	**TTx100**	-	-	-	-	300*	125
125	**TTx125**	-	-	-	-	400*	160
160	**TTx160**	-	-	-	-	500*	200
200	**TTx200**	-	-	-	-	630*	250
250	**TTx250**	-	-	-	-	800*	300
315	**TTx315**	-	-	-	-	1000*	400
400	**TTx400**	-	-	-	-	1250*	500

(*) x= S: IP00
x= C: IP23
x= P: IP65

(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

ISOLATION

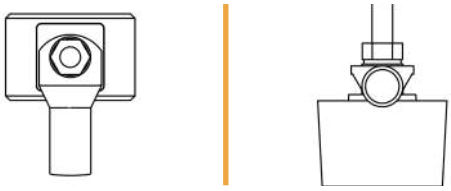
INDUSTRIAL SECTOR
Series TT

Terminals

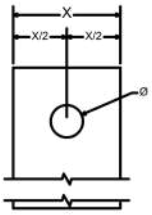
CONEXIÓN		SECCIÓN MÁX. CONDUCTOR (mm2)	PAR DE APRIETE MÁX.	POTENCIA (kVA)	
Tipo	Tamaño		(Nm)	TTS/TTC	TTP
B3	2,5 mm²	4	0,4 - 0,6	1 - 4	2 - 3
	6 mm²	10	0,8 - 1,2	5 - 10	4 - 8
	10 mm²	16	1,2 - 1,8	12 - 16	10 - 12
	16 mm²	25	1,2 - 2,0	20 - 31	16 - 25
R2	M10	150	27	40 - 125	31 - 100
P1	30 mm (x1)Ø9 mm	150	14 (M8)	160	125
	40 mm (x1)Ø11 mm	240	27 (M10)	200	160
P2	60 mm (x2)Ø13 mm	480	45 (M12)	250 - 400	200 - 315

B3

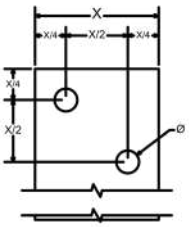
R2



P1



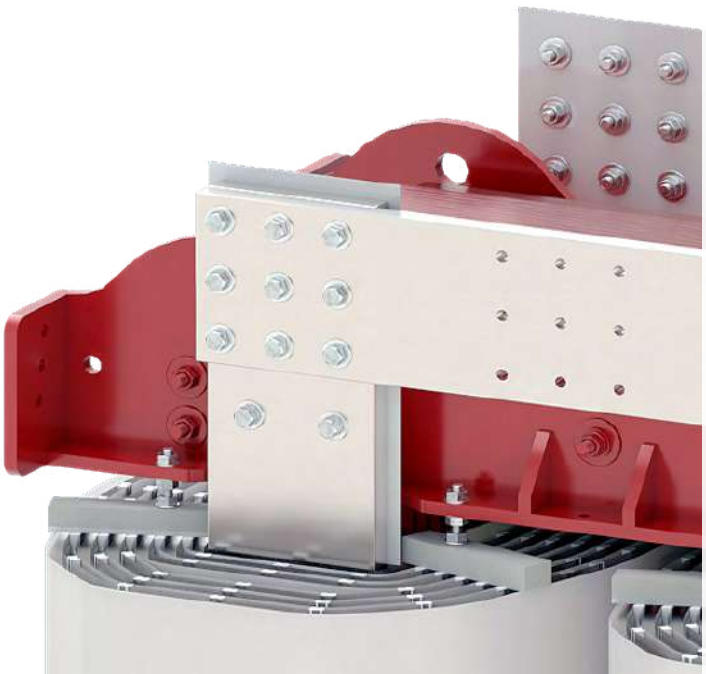
P2



Certification UL (Optional)

Certificate number 20181127-E354573.
UL Category XORU2/8 (Transformer, Construction Only - Component).
Power from 1 to 100 kVA.
Maximum voltage 600V USA (UL) and 750V Canada (CSA).
Only IP00.

TORYTRANS



High-power three-phase transformer

High-power three-phase transformer with galvanic isolation between primary and secondary.
Construction of cylindrical windings and stepped cores 45º.
Protection index according to installation needs:
- IP00 without enclosure.
- IP23 enclosure for indoor location.

Applications

- General use: isolation and circuit separation transformer.
- For recirculation transformer in converter test benches.
- Voltage change: Booster or step-down to adapt the voltage between the network and the device in photovoltaic inverters.
- Generation of our isolated IT or neutral-to-ground TN-S and TN-C systems to prevent unwanted tripping of residual current circuit breakers.

POWER

500 ÷ 4000 kVA

PRI VOLTAGE

400V 500 ÷ 1600 kVA
690V 2000 ÷ 4000 kVA

SEC VOLTAGE

400V 500 ÷ 1600 kVA
690V 2000 ÷ 4000 kVA

Regulatory

IEC/UNE-EN 60076-11

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TTH

ISOLATION

Core

MAGNETIC 45° Step-lap technology that reduces no-load losses and magnetising current,

Lifting points

INCORPORATED

Treatment

ANTIFLASH that protects it against moisture, dust and corrosion.

Windings

FOLIO SHEET to minimise load losses.

Refrigeration

OPTIMISED with perimeter ventilation channels in the windings.

SERIES TTH

TRANSFORMER
HIGH POWER

V0_10/24

ISOLATION

SERIES TTH

Technical specifications

POWER
500 ÷ 4000 kVA

PRI VOLTAGE
400 V 500 ÷ 1600 kVA
690 V 2000 ÷ 4000 kVA

SEC VOLTAGE
400 V 500 ÷ 1600 kVA
690 V 2000 ÷ 4000 kVA

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
(IP00) 40 °C
(IP21) 30 °C

THERMAL CLASS
H (180 °C)

PROTECTION INDEX
IP00, IP21

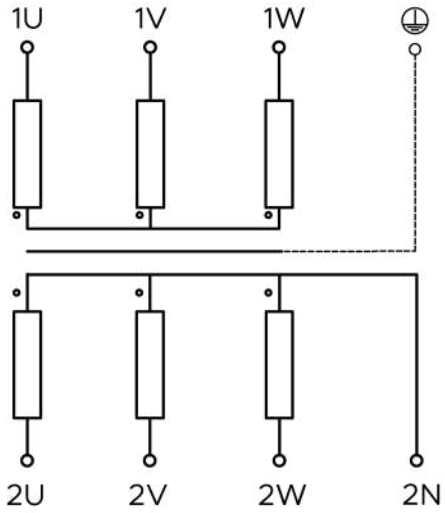
ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
3 kV

CONNECTION
Yyn0

HIGH POWER TRANSFORMER

Electric **schematic**



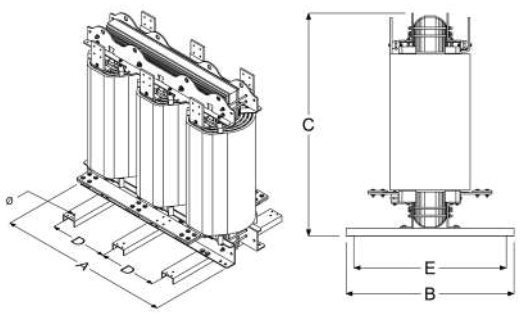
Technical data - standard models

POWER (kVA)	REFERENCES		VOLTAGE (V)		INTENSITY (A)		Ucc (%)	PERFORMANCE η (%)
	IP00	IP21	Primay	Secondary	Primario	Secundario		
500	**TTHS500**	**TTHC500**	400	400	722	722	2,9	98,6
630	**TTHS630**	**TTHC630**	400	400	909	909	3,6	98,6
800	**TTHS800**	**TTHC800**	400	400	1155	1155	3,6	98,7
1000	**TTHS1000**	**TTHC1000**	400	400	1443	1443	5,0	98,9
1250	**TTHS1250**	**TTHC1250**	400	400	1804	1804	4,2	98,9
1600	**TTHS1600**	**TTHC1600**	400	400	2309	2309	4,3	99,0
2000	**TTHS2000**	**TTHC2000**	690	690	1673	1673	4,1	99,0
2500	**TTHS2500**	**TTHC2500**	690	690	2092	2092	4,4	99,1
3150	**TTHS3150**	**TTHC3150**	690	690	2636	2636	4,9	99,3
4000	**TTHS4000**	**TTHC4000**	690	690	3347	3347	4,6	99,4

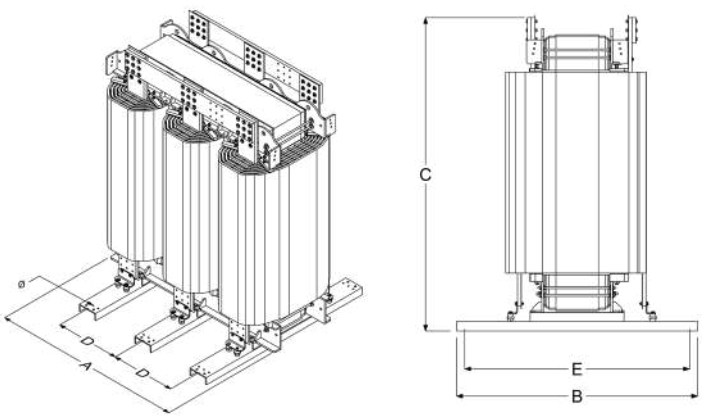
Dimensions - IP00

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
500	**TTHS500**	1340	930	1310	750	780	16	1700	V
630	**TTHS630**	1420	1000	1390	750	850	16	1900	V
800	**TTHS800**	1490	1000	1440	750	850	16	2300	V
1000	**TTHS1000**	1610	1050	1520	550	900	16	2650	V
1250	**TTHS1250**	1630	1050	1680	550	900	16	3200	V
1600	**TTHS1600**	1640	1100	1930	550	950	16	3700	V
2000	**TTHS2000**	1720	1100	2070	550	950	16	4500	V
2500	**TTHS2500**	1840	1150	2110	640	1000	16	5350	V
3150	**TTHS3150**	1960	1350	2280	640	1200	16	7700	VI
4000	**TTHS4000**	2000	1400	2280	640	1250	16	9450	VI

V



VI



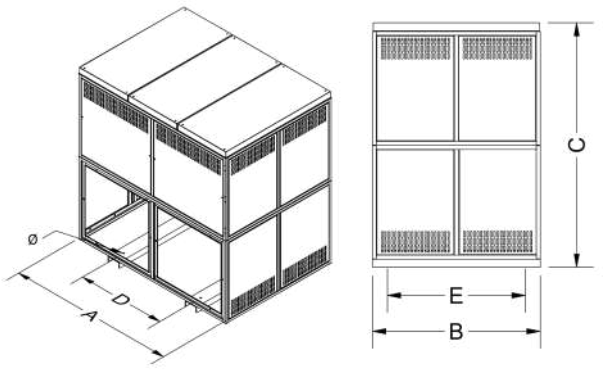
ISOLATION

INDUSTRIAL SECTOR
Series TTH

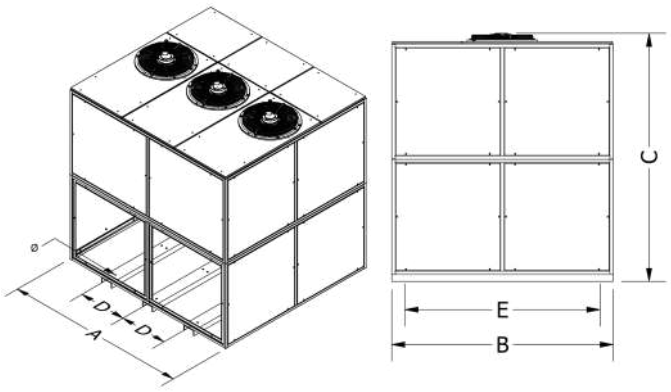
Dimensions - IP21

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
500	**TTHC500**	1750	1250	1850	750	1100	16	1950	V
630	**TTHC630**	1750	1250	1850	750	1100	16	2150	V
800	**TTHC800**	1750	1250	1850	750	1100	16	2550	V
1000	**TTHC1000**	2100	1300	2400	550	1150	16	3000	VI
1250	**TTHC1250**	2100	1300	2400	550	1150	16	3600	VI
1600	**TTHC1600**	2100	1300	2400	550	1150	16	4100	VI
2000	**TTHC2000**	2100	1300	2400	550	1150	16	4900	VI
2500	**TTHC2500**	2300	1700	2700	640	1550	16	5800	VI
3150	**TTHC3150**	2300	1700	2700	640	1550	16	8150	VI
4000	**TTHC4000**	2300	1700	2700	640	1550	16	9900	VI

V



VI



VI

Protection and fuses

POWER (kVA)	REF.	PRIMARY PROTECTIONS (A) (D/aM)	SECONDARY PROTECTIONS (A) (C/gG)
500	**TTHx500**	1600*	630
630	**TTHx630**	2000*	800
800	**TTHx800**	2500*	1000
1000	**TTHx1000**	3150*	1250
1250	**TTHx1250**	4000*	1600
1600	**TTHx1600**	5000*	2000
2000	**TTHx2000**	4000*	1600
2500	**TTHx2500**	5000*	2000
3150	**TTHx3150**	6000*	2500
4000	**TTHx4000**	8000*	3000

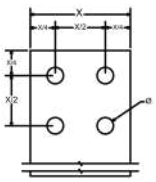
(*) x= S: IP00
x= C: IP23

(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

Terminals

CONNECTION Type	CONNECTION Size	MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE (Nm)	POWER (kVA) TTHS/TTHC
P3	80 mm (x4)Ø13 mm	640	45 (M12)	500
		800		630
	100 mm (x4)Ø13 mm	1000		800
	120 mm (x4)Ø13 mm	1440		1000
		1800		1250, 2000
P4	150 mm (x6)Ø13 mm	2250		1600, 2500
P5	200 mm (x9)Ø13 mm	4000		3150, 4000

P3



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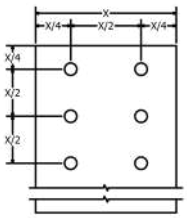

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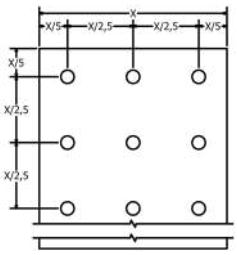


TORYTRANS

Three-phase K factor isolation transformer

Three-phase transformer with galvanic isolation between primary and secondary, with electrostatic shield, for installations with a high level of harmonic distortion. The “K” factor is a constant that indicates the transformer’s ability to supply non-linear loads (e.g., induction furnaces, motor drives, rectifiers, data centres, etc.) and withstand harmonic currents without exceeding its operating temperature. They do not filter harmonics but they do prevent overheating in the windings.

Applications

For general use as isolation transformer for circuit separation.

Specific for feeding loads with high current harmonic content, see load type according to factor K13 or K30.

POWER
10 ÷ 400 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
400 V + N

Regulatory

Power ≤ 40 kVA
IEC/UNE-EN 61558-1

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

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TTFK

ISOLATION

Windings

OVERSIZED which reduce the additional losses caused by current harmonics.

Core

GRAIN-ORIENTED MAGNETIC to minimise losses and vibrations caused by harmonics.

Unipolar contact

ELIMINATES THE RISK in case of unipolar contact.

Treatment

ANTIFLASH that protects it against moisture, dust and corrosion.

Enclosure

OPTIMISED to promote natural air circulation.

SERIES TTFK

TRANSFORMER
THREE-PHASE INSULATION
FACTOR K

V1_10/25

TORYTRANS

ISOLATION

SERIES TTFK

Technical specifications

POWER
10 ÷ 400 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
400 V + N

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE

(IP00)	40 °C
(IP23)	30 °C
(IP65)	30 °C

THERMAL CLASS

(Up to TTFKx040)	F (155 °C)
(From TTFKx050)	H (180 °C)

PROTECTION INDEX
IP00, IP23, IP65

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
3 kV

K FACTOR HARMONIC OVERLOAD
K=13 K=20

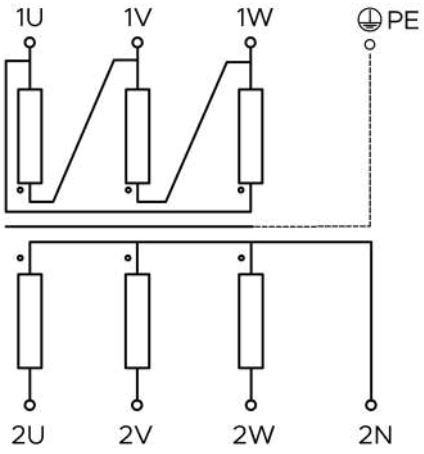
MAX. HARMONIC DISTORTION ADMISSIBLE
THD-I ≈50% (k=13)
THD-I ≈80% (k=20)

NEUTRAL OVERLOAD MAX. ADMISSIBLE
2 x I_N

CONNECTION
Dyn11

THREE-PHASE K FACTOR ISOLATION TRANSFORMER

Electric **schematic**



Technical data - standard models

POWER (VA)		REFERENCES			INTENSITY (A)	Ucc (%)	PERFORMANCE η (%)
K=13	K=20	IP00	IP23	IP65			
10	8	**TTFKS010**	**TTFKC010**	**TTFKP010**	14,5	3,7	95,6
12	10	**TTFKS012**	**TTFKC012**	**TTFKP012**	17,3	3,2	96,0
16	12	**TTFKS016**	**TTFKC016**	**TTFKP016**	23,1	3,0	96,3
20	16	**TTFKS020**	**TTFKC020**	**TTFKP020**	28,9	2,8	96,7
25	20	**TTFKS025**	**TTFKC025**	**TTFKP025**	36,1	2,3	97,3
31	25	**TTFKS031**	**TTFKC031**	**TTFKP031**	44,8	2,6	97,3
40	31	**TTFKS040**	**TTFKC040**	**TTFKP040**	57,8	2,3	97,5
50	40	**TTFKS050**	**TTFKC050**	**TTFKP050**	72,3	2,2	97,3
63	50	**TTFKS063**	**TTFKC063**	**TTFKP063**	91,0	2,1	97,4
80	63	**TTFKS080**	**TTFKC080**	**TTFKP080**	115,6	2,4	97,7
100	80	**TTFKS100**	**TTFKC100**	**TTFKP100**	144,5	2,0	97,9
125	100	**TTFKS125**	**TTFKC125**	**TTFKP125**	180,6	2,5	97,4
160	125	**TTFKS160**	**TTFKC160**	**TTFKP160**	231,2	1,6	98,3
200	160	**TTFKS200**	**TTFKC200**	**TTFKP200**	289,0	1,6	98,3
250	200	**TTFKS250**	**TTFKC250**	**TTFKP250**	361,3	1,3	98,5
315	250	**TTFKS315**	**TTFKC315**	**TTFKP315**	455,2	1,3	98,6
400	315	**TTFKS400**	**TTFKC400**	**TTFKP400**	578,0	1,1	98,7

Selection of Factor K

APPLICATION

- Computer and Telecommunications Equipment.
- UPS without input filter.
- Lighting with electronic ballast or LED.
- General office facilities.
- General facilities and production lines.

K = 13

- Data centres and call centres.
- Variable Frequency Drives (VFD).
- Induction furnaces.
- Welding equipment.
- Numerically controlled machine tools.

K = 20

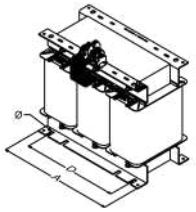
ISOLATION

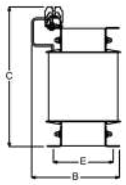
INDUSTRIAL SECTOR
Series TTFK

Dimensions - IP00

POWER (VA)		REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
K=13	K=20		A	B	C	D	E	Ø		
10	8	**TTFKS010**	420	220	430	350	150	11	76	I
12	10	**TTFKS012**	420	240	430	350	170	11	93	I
16	12	**TTFKS016**	480	240	475	400	165	11	114	I
20	16	**TTFKS020**	480	250	475	400	175	11	128	I
25	20	**TTFKS025**	480	290	475	400	215	11	164	I
31	25	**TTFKS031**	655	310	575	400	210	13	192	I
40	31	**TTFKS040**	655	330	595	400	230	13	235	I
50	40	**TTFKS050**	600	340	795	400	220	13	275	II
63	50	**TTFKS063**	600	360	795	400	240	13	320	II
80	63	**TTFKS080**	660	340	875	480	235	13	370	II
100	80	**TTFKS100**	660	370	875	480	265	13	450	II
125	100	**TTFKS125**	720	390	940	480	292	13	550	II
160	125	**TTFKS160**	720	420	940	480	312	13	630	III
200	160	**TTFKS200**	720	460	940	480	352	13	755	III
250	200	**TTFKS250**	840	480	1080	660	370	16	975	III
315	250	**TTFKS315**	840	520	1080	660	410	16	1170	III
400	315	**TTFKS400**	900	560	1200	660	455	16	1485	III

I





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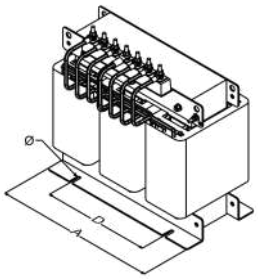

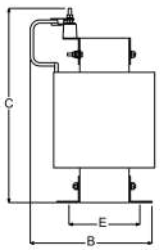

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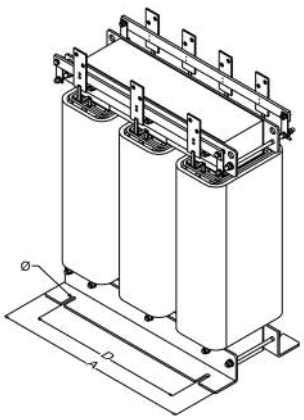
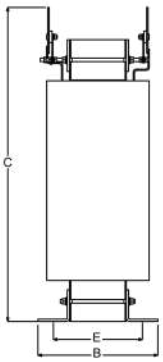
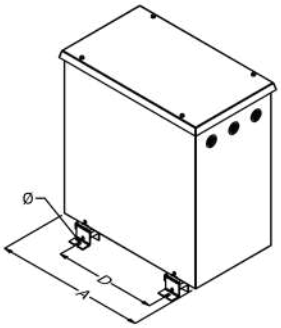


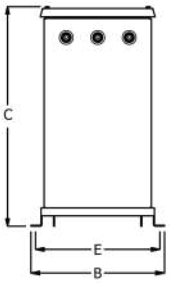


Dimensions - IP23

II

POWER (VA) K=13	POWER (VA) K=20	REF.	DIMENSIONS (mm) A	B	C	D	E	Ø	WEIGHT (kg)	TYPE	WHEEL
10	8	**TTFKC010**	545	385	635	350	360	10	92	II	Included
12	10	**TTFKC012**	545	385	635	350	360	10	109	II	Included
16	12	**TTFKC016**	615	425	710	400	400	10	134	II	Included
20	16	**TTFKC020**	615	425	710	400	400	10	148	II	Included
25	20	**TTFKC025**	615	425	710	400	400	10	184	II	Included
31	25	**TTFKC031**	775	575	940	480	550	10	227	III	(*)
40	31	**TTFKC040**	775	575	940	480	550	10	270	III	(*)
50	40	**TTFKC050**	775	575	940	480	550	10	310	III	(*)
63	50	**TTFKC063**	775	575	940	480	550	10	355	III	(*)
80	63	**TTFKC080**	930	710	1275	605	680	13	438	III	(**)
100	80	**TTFKC100**	930	710	1275	605	680	13	518	III	(**)
125	100	**TTFKC125**	930	710	1275	605	680	13	618	III	(**)
160	125	**TTFKC160**	930	710	1275	605	680	13	698	III	(**)
200	160	**TTFKC200**	930	710	1275	605	680	13	823	III	(**)
250	200	**TTFKC250**	1080	880	1460	815	840	15	1093	IV	(***)
315	250	**TTFKC315**	1080	880	1460	815	840	15	1288	IV	(***)
400	315	**TTFKC400**	1220	1070	1650	815	1030	15	1636	IV	---

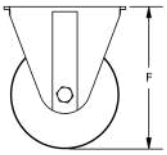


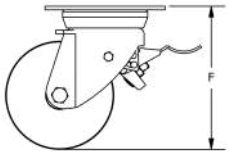


Optional (*) Optional Wheel		
Code	**Type**	**F (mm)**
ACC00203	Fixed	97
ACC00431	Rotating	97

(**) Optional Wheel		
Code	**Type**	**F (mm)**
ACC00200	Fixed	124
ACC00201	Rotating with brake	124

(***) Optional Wheel		
Code	**Type**	**F (mm)**
ACC00284	Fixed	164
ACC00285	Rotating with brake	164





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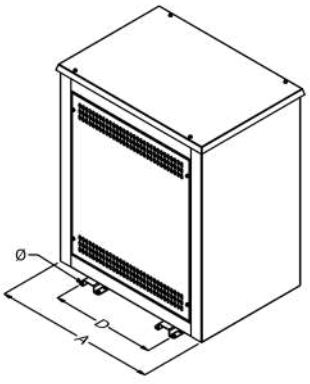

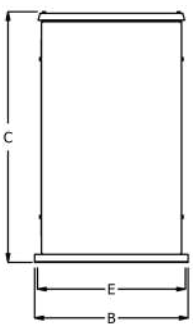

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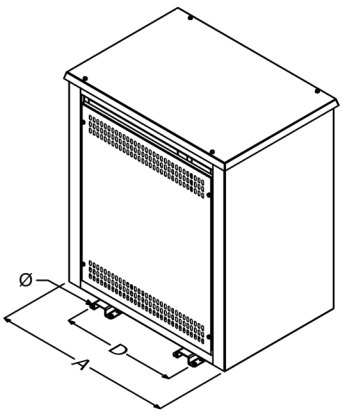
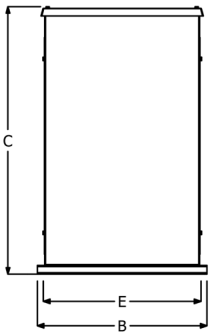


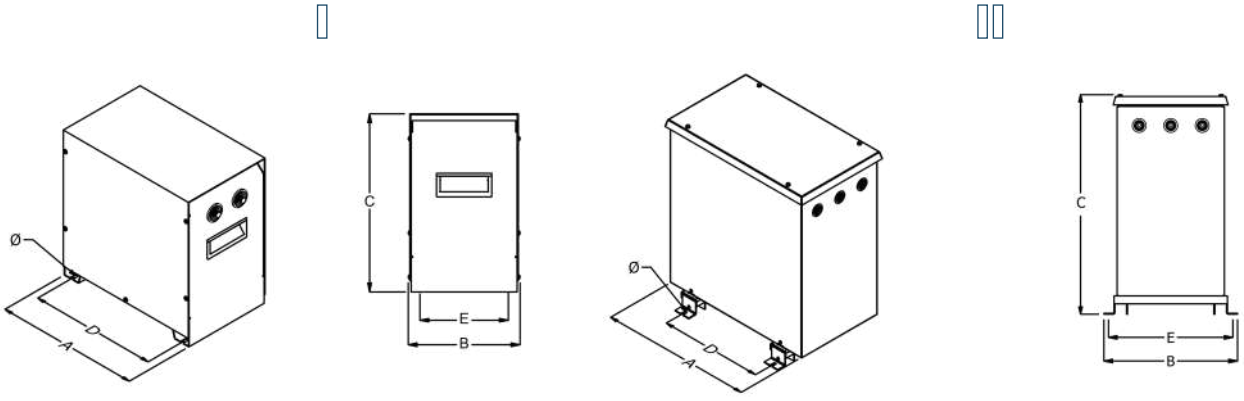


ISOLATION

INDUSTRIAL SECTOR
Series TTFK

Dimensions - IP65

POWER (VA)		REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
K=13	K=20		A	B	C	D	E	Ø		
10	8	**TTFKP010**	650	415	640	350	395	10	115	I
12	10	**TTFKP012**	810	555	590	400	535	10	153	I
16	12	**TTFKP016**	810	555	590	400	535	10	167	I
20	16	**TTFKP020**	810	555	590	400	535	10	203	I
25	20	**TTFKP025**	935	725	1240	560	685	15	282	II
31	25	**TTFKP031**	935	725	1240	560	685	15	325	II
40	31	**TTFKP040**	935	725	1240	560	685	15	365	II
50	40	**TTFKP050**	935	725	1240	560	685	15	410	II
63	50	**TTFKP063**	1100	895	1425	640	855	15	497	II
80	63	**TTFKP080**	1100	895	1425	640	855	15	577	II
100	80	**TTFKP100**	1100	895	1425	640	855	15	677	II
125	100	**TTFKP125**	1100	895	1425	640	855	15	757	II
160	125	**TTFKP160**	1100	895	1425	640	855	15	882	II
250	200	**TTFKP250**	1240	1100	1615	820	1060	15	1145	II
315	250	**TTFKP315**	1240	1100	1615	820	1060	15	1340	II



Cabling, protection and fuses

POWER (VA)		REF.	CABLE GLANDS (TTFKC)		CABLE GLANDS (TTFKP)		PRIMARY PROTECTIONS(A)	SECONDARY PROTECTIONS (A)
K=13	K=20		Ø max. (mm)	Cantidad	Ø max. (mm)	Cantidad	(D/aM)	(C/gG)
10	8	**TTFKx010**	PG-38	2	PG-29	2	32	14
12	10	**TTFKx012**	PG-38	2	PG-29	3	40	16
16	12	**TTFKx016**	PG-38	2	PG-29	3	50	20
20	16	**TTFKx020**	PG-38	2	PG-29	3	63	25
25	20	**TTFKx025**	PG-38	2	-	-	80	32
31	25	**TTFKx031**	-	-	-	-	100	40
40	31	**TTFKx040**	-	-	-	-	125	50
50	40	**TTFKx050**	-	-	-	-	160*	63
63	50	**TTFKx063**	-	-	-	-	200*	80
80	63	**TTFKx080**	-	-	-	-	250*	100
100	80	**TTFKx100**	-	-	-	-	300*	125
125	100	**TTFKx125**	-	-	-	-	400*	160
160	125	**TTFKx160**	-	-	-	-	500*	200
200	160	**TTFKx200**	-	-	-	-	630*	250
250	200	**TTFKS250**	-	-	-	-	800*	315
315	250	**TTFKS315**	-	-	-	-	1000*	400
400	315	**TTFKS400**	-	-	-	-	1250*	500

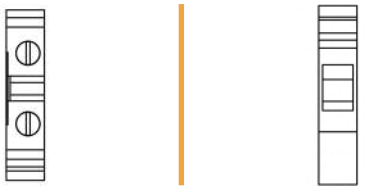
(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

(*) x= S: IP00
x= C: IP23
x= P: IP65

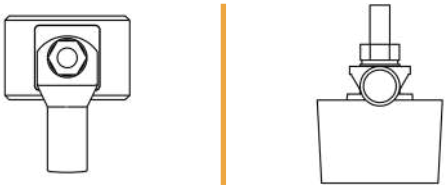
Terminals

CONNECTION		MAX SECTION CONDUCTOR (mm²)	MAX. TIGHTENING TORQUE	POWER (kVA)	
Type	Size		(Nm)	Primary	Secondary
B3	10 mm²	16	1,2 - 1,8	10 - 20	10 - 16
	16 mm²	25	1,2 - 2,0	25	20
	35 mm²	50	2,5 - 3,5	31	25 - 31
R2	M10	150	27	40 - 125	40 - 125
P2	60 mm (x2)Ø13 mm	360	45 (M12)	160 - 315	160 - 315
P3	80 mm (x4)Ø13 mm	480		400	400

B3



R2



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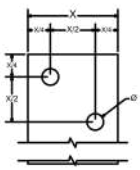

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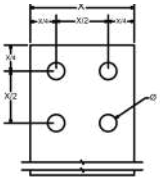
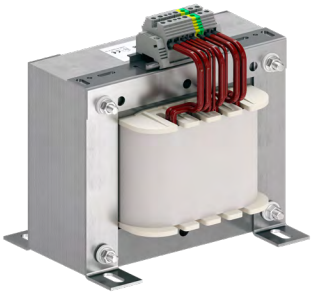


3
MEDICAL USE

a. Series CM
b. Series CTM
c. Series CM8
d. Series CTM8

TORYTRANS

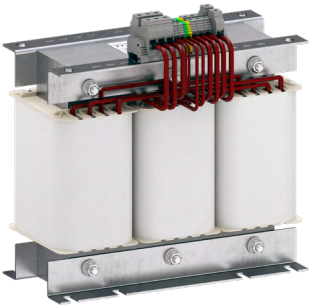
MEDICAL



CM

Single-phase isolation transformer for medical use

1 ÷ 10 kVA
PRI: 230 V
SEC: 230 V



CTM

Three-phase isolation transformer for medical use

1 ÷ 10 kVA
PRI: 3 x 400 V + N
SEC: 3 x 230 V

CM8

Single-phase isolation transformer for medical use Ucc > 8%

1 ÷ 10 kVA
PRI: 230 V
SEC: 230 V

CTM8

Three-phase isolation transformer for medical use Ucc > 8%

1 ÷ 10 kVA
PRI: 3 x 400 V
SEC: 3 x 230 V

TORYTRANS

Single-phase isolation transformer for medical use

Single-phase transformer with galvanic isolation between primary and secondary, for the electrical supply of medical facilities (operating rooms, ICU, ICU) in accordance with the mandatory prescription of standard IEC/UNE-EN 61558-2-15.

Electrostatic shield between primary and secondary connected to an independent terminal that attenuates electrical disturbances from the network to medical equipment.

Applications

- For general use as an isolation transformer for generating the IT regime in medical facilities (operating rooms, ICUs, intensive care units).
- Protection of medical equipment sensitive to electrical disturbances.

POWER
1 ÷ 10 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

Regulatory

IEC/UNE-EN 61558-1

IEC/UNE-EN 61558-2-15

Certifications

CE UKCA

BUILDING SECTOR
Series CM

MEDICAL

Thermal protector

NC CONTACT (250V 6A) BUILT-IN
In case of over-temperature or overload, it opens the circuit, alerting the safety monitor. It resets automatically when the anomaly disappears.

Connection

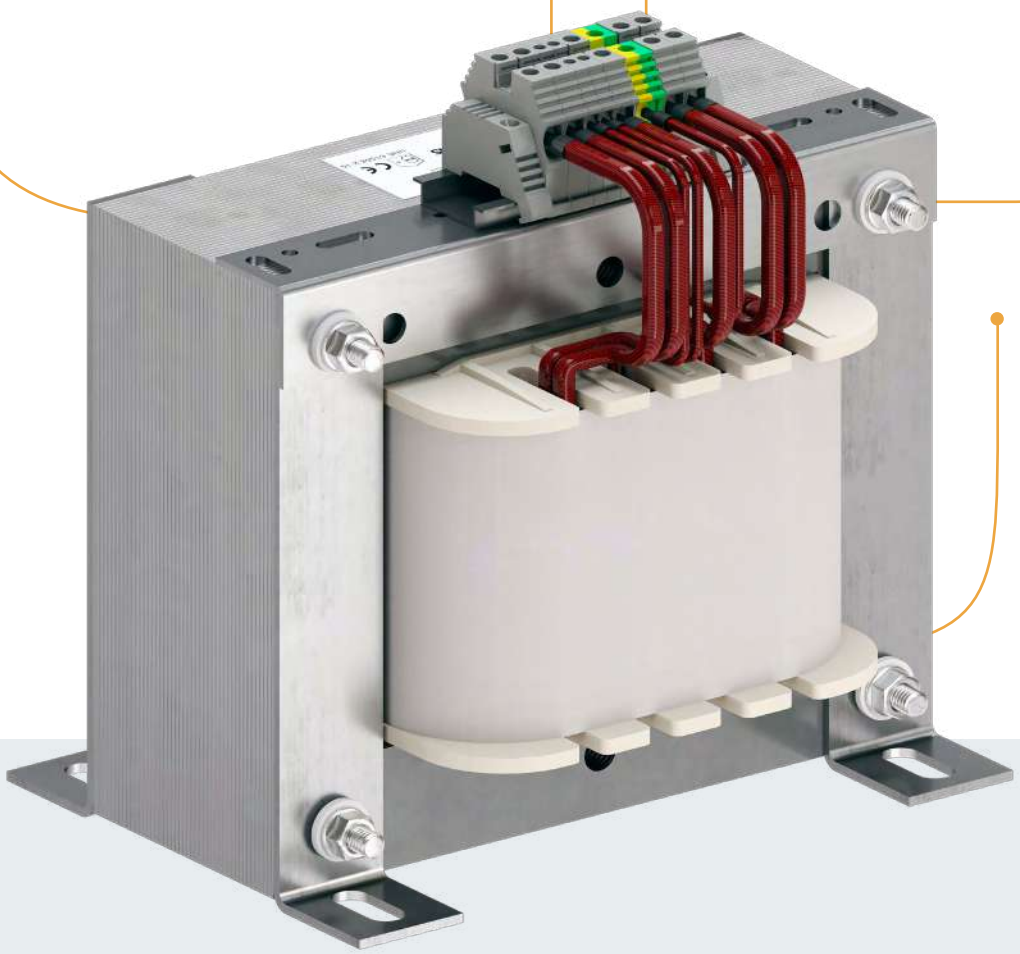
IP20 TERMINALS protect against direct voltage contact.

Varnishing

COMPLETE AND ROBUST that protects it from moisture, dust and corrosion.

Magnetic core

LOW LOSSES and reduced inrush current.



General

IT NEUTRAL REGIME in facilities with processes that are sensitive to interruption.

SERIES CM

SINGLE-PHASE TRANSFORMER
INSULATION FOR MEDICAL USE

V0_10/24

CLINICAL

SERIES CM

Technical specifications

POWER
1 ÷ 10 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP00

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
4 kV - 2 kV

CONNECTION CURRENT
< 12 I_N

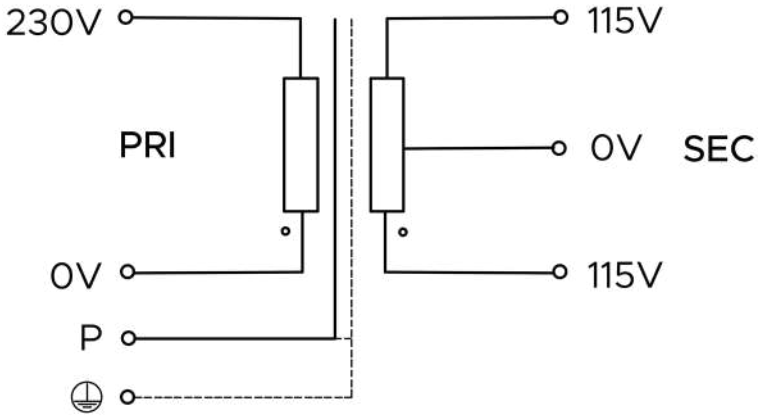
VACUUM PRI INTENSITY
< 3%

LEAKAGE CURRENT
< 0.5 mA

INSULATION RESISTANCE
> 7 MΩ

SINGLE-PHASE ISOLATION TRANSFORMER FOR MEDICAL USE

Electric **schematic**



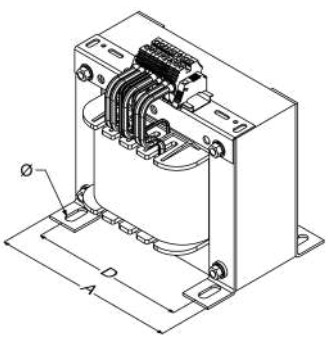
Technical data - standard models

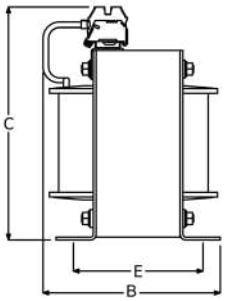
POWER (VA)	REFERENCES	LOSSES (W)		INTENSITY (A)	
		In vacuum	Totals	Primary	Secondary
1000	**CM1000**	12	60	4,3	4,3
1600	**CM1600**	16	86	7,0	7,0
2000	**CM2000**	20	110	8,7	8,7
2500	**CM2500**	25	120	10,9	10,9
3150	**CM3150**	28	128	13,7	13,7
3500	**CM3500**	30	138	15,2	15,2
4000	**CM4000**	25	190	17,4	17,4
5000	**CM5000**	34	250	21,7	21,7
6300	**CM6300**	40	285	27,4	27,4
8000	**CM8000**	45	300	34,8	34,8
10000	**CM10000**	70	400	43,5	43,5

Dimensions

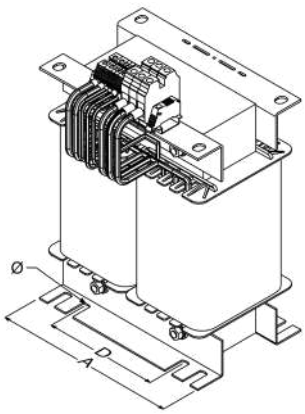
POWER (VA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
1000	**CM1000**	150	170	185	125	133	8	12,5	I
1600	**CM1600**	180	150	220	150	122	9	18,2	I
2000	**CM2000**	192	200	228	160	154	10	25,2	I
2500	**CM2500**	240	180	270	200	123	12	28,4	I
3150	**CM3150**	240	190	270	200	133	12	32,5	I
3500	**CM3500**	240	200	270	200	143	12	36	I
4000	**CM4000**	240	175	370	205	110	11	27	II
5000	**CM5000**	240	185	385	205	130	11	33	II
6300	**CM6300**	240	200	385	205	150	11	41	II
8000	**CM8000**	280	215	430	225	148	11	50,5	II
10000	**CM10000**	280	260	430	225	188	11	68,5	II

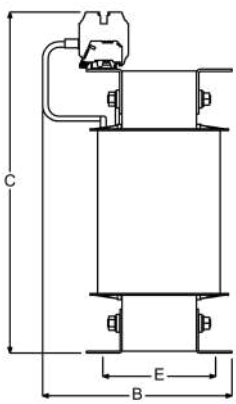
I





II





MEDICAL

BUILDING SECTOR
Series CM

Cabling

POWER (VA)	REF.	MIN. SECTION PRIMARY CONDUCTOR (mm^2) 230 V	MIN. SECTION SECONDARY CONDUCTOR (mm^2) 230 V
1000	**CM1000**	0,75	0,75
1600	**CM1600**	1	1
2000	**CM2000**	1	1
2500	**CM2500**	1,5	1,5
3150	**CM3150**	1,5	1,5
3500	**CM3500**	1,5	1,5
4000	**CM4000**	2,5	2,5
5000	**CM5000**	2,5	2,5
6300	**CM6300**	4	4
8000	**CM8000**	6	6
10000	**CM10000**	10	10

Protection

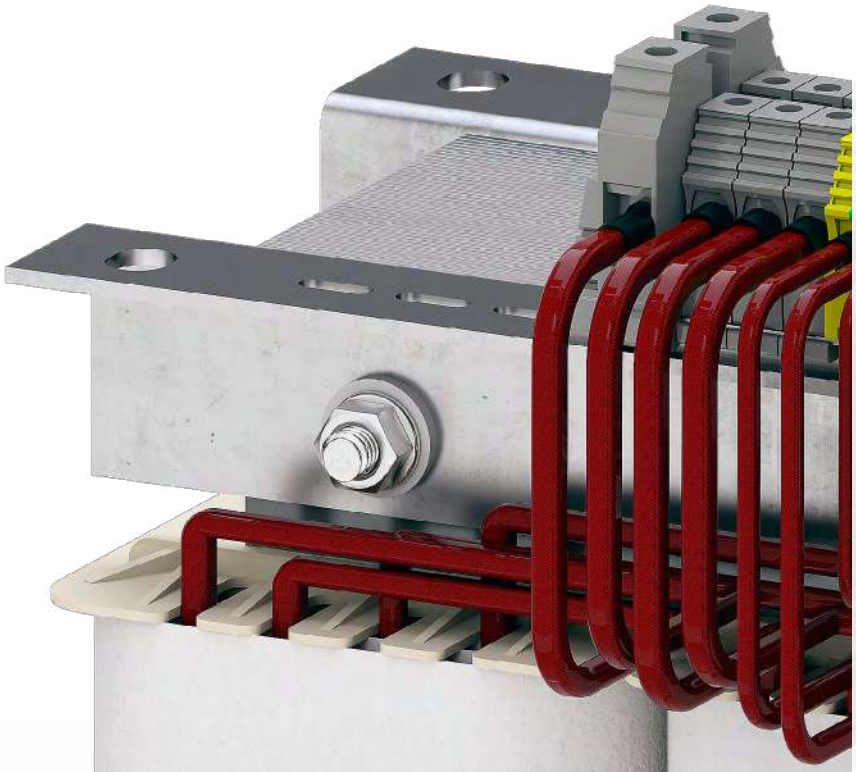
POWER (VA)	REF.	PRIMARY PROTECTIONS (A) (D / aM)	SECONDARY PROTECTIONS (A) (C / gG)
1000	**CM1000**	6	4
1600	**CM1600**	10	6
2000	**CM2000**	16	8
2500	**CM2500**	16	10
3150	**CM3150**	20	12
3500	**CM3500**	20	12
4000	**CM4000**	25	16
5000	**CM5000**	32	20
6300	**CM6300**	40	25
8000	**CM8000**	50	32
10000	**CM10000**	63	40

Terminals

CONNECTION		MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE	POWER (kVA)	
Type	**Size**		**(Nm)**	**Primary**	**Secondary**
B3	2,5 mm2	4	0,4 - 0,6	1 - 2	1 - 2
	6 mm2	10	0,8 - 1,2	2,5 - 3,15	2,5 - 3,15
	10 mm2	16	1,2 - 1,8	4 - 5	4 - 5
	16 mm2	25	1,2 - 2	6,3	
	25 mm2	35	2 - 3	8	6,3
	35 mm2	50	2,5 - 3,5	10	10

B3

TORYTRANS



Three-phase isolation transformer for medical use

Three-phase transformer with galvanic isolation between primary and secondary, for supply in medical installations (operating theatres, ICU, ICU) in accordance with the mandatory IEC/UNE-EN 61558-2-15 standard. Electrostatic shield between primary and secondary connected to an independent terminal that attenuates electrical disturbances from the network to medical equipment.

Applications

- For general use as an isolation transformer for generating the IT regime in medical facilities (operating rooms, ICUs, intensive care units).
- Protection of medical equipment sensitive to electrical disturbances.

POWER
1 ÷ 10 kVA

PRI VOLTAGE
3 x 400 V+N

SEC VOLTAGE
3 x 230 V

Regulatory

IEC/UNE-EN 61558-1

IEC/UNE-EN 61558-2-15

Certifications

CE UKCA

BUILDING SECTOR
Series CTM

MEDICAL

Thermal protector

NC CONTACT (250V 6A) BUILT-IN
In case of over-temperature or overload, it opens the circuit, alerting the safety monitor. It resets automatically when the anomaly disappears.

Connection

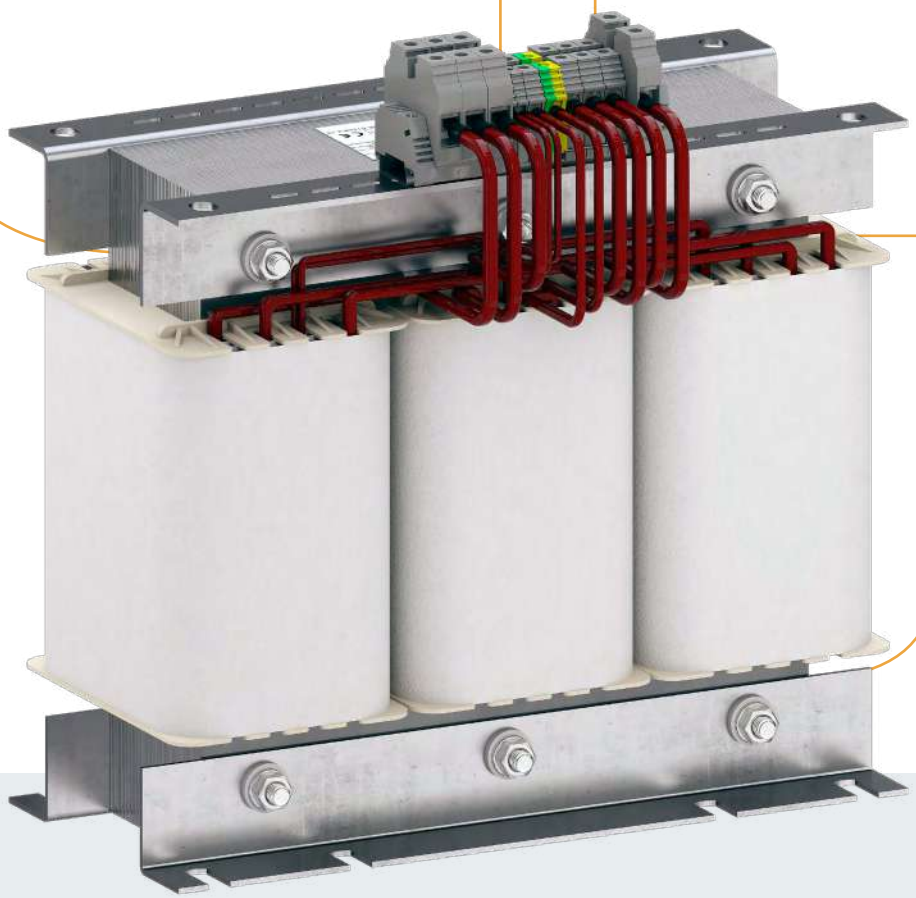
IP20 TERMINALS that protect against direct voltage contact.

Varnishing

COMPLETE AND ROBUST that protects it from moisture, dust and corrosion.

Magnetic core

LOW LOSSES and reduced Inrush current.



General

IT NEUTRAL REGIME in facilities with processes that are sensitive to interruption.

SERIES CTM

THREE-PHASE ISOLATION TRANSFORMER FOR MEDICAL USE

V0_10/24

TORYTRANS

CLINICAL

SERIES CTM

THREE-PHASE ISOLATION TRANSFORMER FOR MEDICAL USE

Technical specifications

POWER
1 ÷ 10 kVA

PRI VOLTAGE
3 x 400 V+N

SEC VOLTAGE
3 x 230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP00

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
4 kV - 2 kV

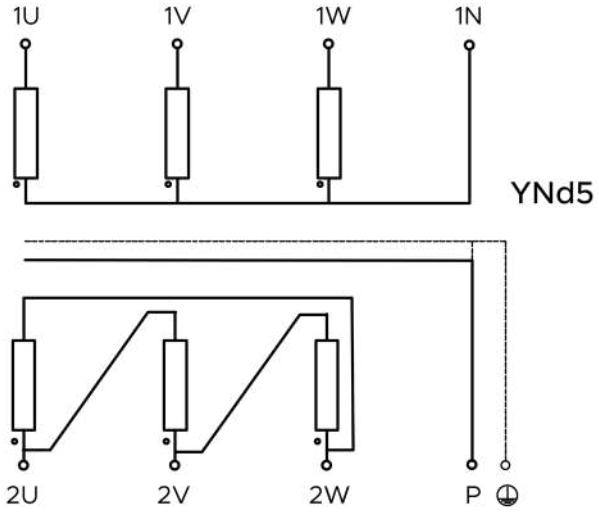
CONNECTION CURRENT
< 12 I_N

VACUUM PRI INTENSITY
< 3%

LEAKAGE CURRENT
< 0.5 mA

INSULATION RESISTANCE
> 7 MΩ

Electric **schematic**

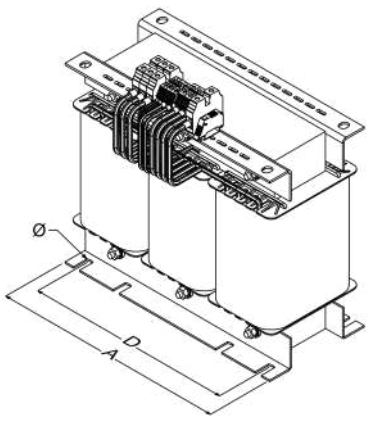


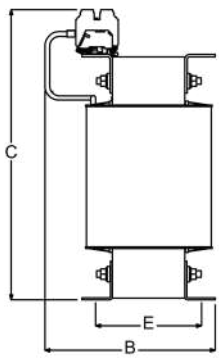
Technical data - standard models

POWER (VA)	REFERENCES	LOSSES (W)		INTENSITY (A)	
		In vacuum	Totals	Primary	Secondary
2000	**CTM2000**	20	135	2,9	5,0
2500	**CTM2500**	24	145	3,6	6,3
3500	**CTM3500**	30	185	5,1	8,8
4000	**CTM4000**	34	210	5,8	10,1
5000	**CTM5000**	45	255	7,2	12,6
6300	**CTM6300**	42	335	9,1	15,8
7500	**CTM7500**	58	345	10,8	18,8
8000	**CTM8000**	65	348	11,6	20,1
10000	**CTM10000**	75	390	14,5	25,1

Dimensions

POWER (VA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)
		A	B	C	D	E	Ø	
2000	**CTM2000**	300	170	310	200	98	11	23
2500	**CTM2500**	300	150	310	200	108	11	27
3500	**CTM3500**	300	170	330	200	115	11	32
4000	**CTM4000**	300	185	330	200	125	11	36
5000	**CTM5000**	300	205	340	200	145	11	45
6300	**CTM6300**	360	175	380	320	110	11	42
7500	**CTM7500**	360	205	390	320	140	11	57
8000	**CTM8000**	360	205	390	320	140	11	59
10000	**CTM10000**	360	235	390	320	160	11	72





MEDICAL

BUILDING SECTOR
Series CTM

Cabling

POWER (VA)	REF.	MIN. SECTION PRIMARY CONDUCTOR (mm^2) 400 V	MIN. SECTION SECONDARY CONDUCTOR (mm^2) 230 V
2000	CTM2000	0,5	0,75
2500	CTM2500	0,75	1
3150	CTM3150	0,75	1
3500	CTM3500	0,75	1
4000	CTM4000	0,75	1,5
5000	CTM5000	1	1,5
6300	CTM6300	1	1,5
7500	CTM7500	1,5	2,5
8000	CTM8000	1,5	2,5
10000	CTM10000	1,5	4

Protection

POWER (VA)	REF.	PRIMARY PROTECTIONS (A) (D / aM)	SECONDARY PROTECTIONS (A) (C / gG)
2000	**CTM2000**	6	4
2500	**CTM2500**	6	6
3150	**CTM3150**	10	6
3500	**CTM3500**	10	8
4000	**CTM4000**	10	10
5000	**CTM5000**	16	10
6300	**CTM6300**	20	10
7500	**CTM7500**	20	16
8000	**CTM8000**	25	20
10000	**CTM10000**	32	25

Terminals

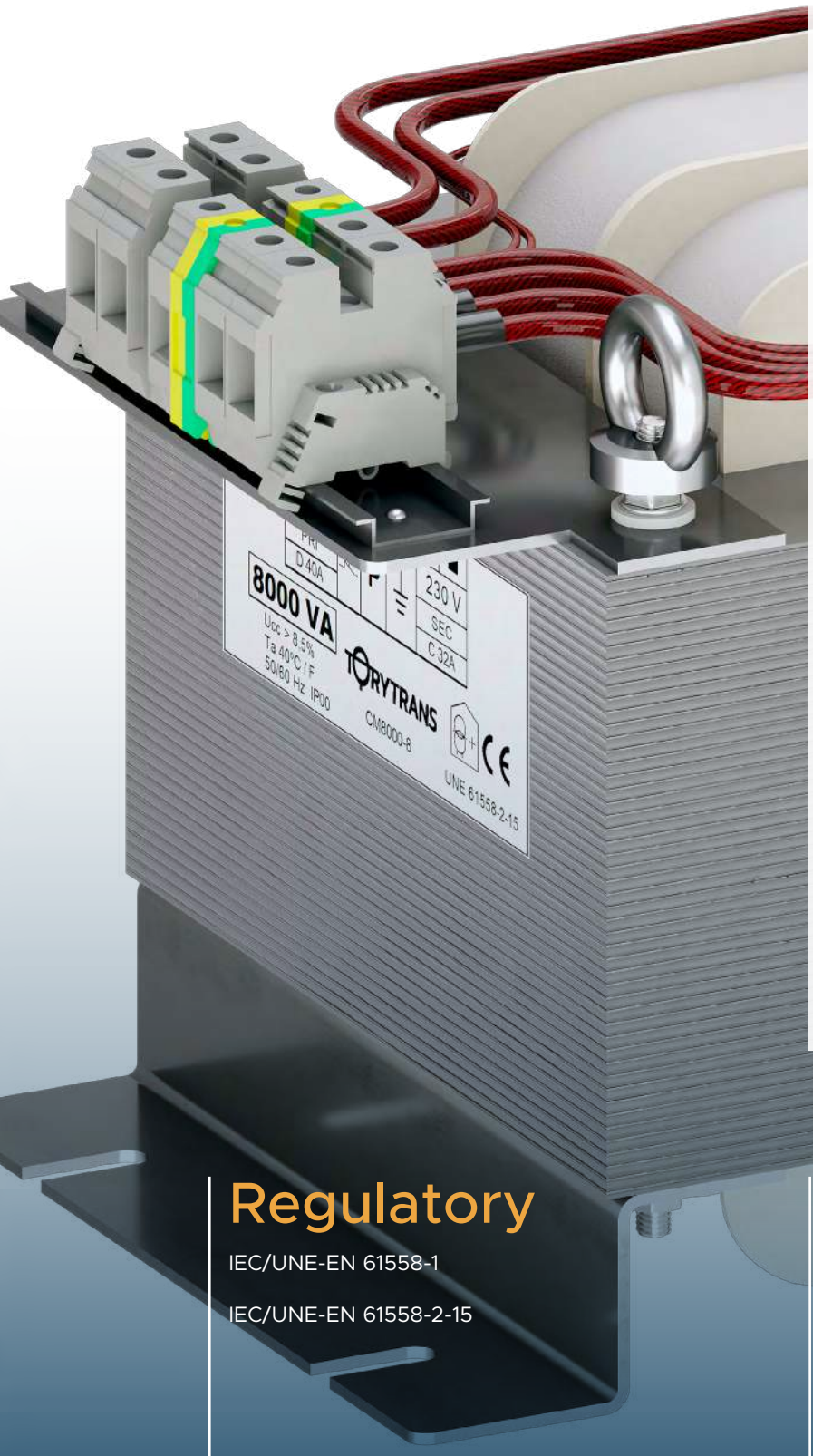
CONNECTION Type	Size	MAX SECTION CONDUCTOR (mm^2)	MAX TIGHTENING TORQUE. (Nm)	POWER (kVA) Primary	Secondary
B3	2,5 mm^2	4	0,4 - 0,6	2 - 3,5	
	6 mm^2	10	0,8 - 1,2	4 - 6,3	2 - 5
	10 mm^2	16	1,2 - 1,8		6,3
	16 mm^2	25	1,2 - 2	8 - 10	
	25 mm^2	35	2 - 3		8 - 10
	35 mm^2	50	2,5 - 3,5		

B3

TORYTRANS

Single-phase isolation transformer for medical use < 8%

Single-phase transformer with galvanic isolation between primary and secondary, for supply in medical installations (operating theatres, ICU, ICU) in accordance with the mandatory IEC/UNE-EN 61558-2-15 standard.
Electrostatic shield between primary and secondary connected to an independent terminal that attenuates electrical disturbances from the network to medical equipment.
High impedance with short-circuit voltage > 8%, allowing the primary circuit breakers to be adjusted to the next higher value of the nominal current.



Applications

- For general use as an isolation transformer for generating the IT regime in medical facilities (operating rooms, ICUs, intensive care units).
- Protection of medical equipment sensitive to electrical disturbances.

POWER
1 ÷ 10 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

Regulatory

IEC/UNE-EN 61558-1

IEC/UNE-EN 61558-2-15

Certifications

CE UKCA

BUILDING SECTOR
Series CM8

MEDICAL

Thermal protector

NC CONTACT (250V 6A) BUILT-IN
In case of over-temperature or overload, it opens the circuit, alerting the safety monitor. It resets automatically when the anomaly disappears.

Magnetic core

LOW LOSSES and reduced Inrush current.

Connection

IP20 TERMINALS that protect against direct voltage contact.

Varnishing

COMPLETE AND ROBUST that protects it from moisture, dust and corrosion.

General

IT NEUTRAL REGIME in facilities with processes that are sensitive to interruption.

SERIES CM8

SINGLE-PHASE ISOLATION TRANSFORMER FOR MEDICAL USE UCC > 8%

V0_10/24

TORYTRANS

CLINICAL

SERIES CM8

Technical specifications

POWER
1 ÷ 10 kVA

PRI VOLTAGE
230 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP00

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
4 kV - 2 kV

CONNECTION CURRENT
< 8 I_N

VACUUM PRI INTENSITY
< 3%

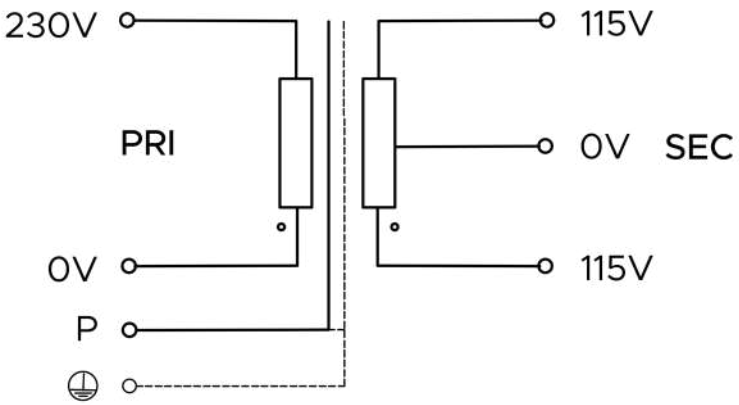
SHORT CIRCUIT VOLTAGE
> 8.5%

LEAKAGE CURRENT
< 40 µA

INSULATION RESISTANCE
> 7 MΩ

SINGLE-PHASE ISOLATING TRANSFORMER FOR MEDICAL USE UCC > 8%

Electric **schematic**

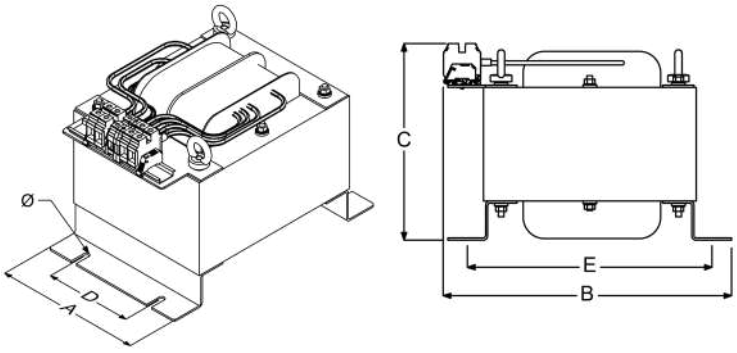


Technical data - standard models

POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secondary
2000	**CM2000-8**	8,7	8,7
3000	**CM3000-8**	13,0	13,0
3500	**CM3500-8**	15,2	15,2
4000	**CM4000-8**	17,4	17,4
5000	**CM5000-8**	21,7	21,7
6300	**CM6300-8**	27,4	27,4
7500	**CM7500-8**	32,6	32,6
8000	**CM8000-8**	34,8	34,8
10000	**CM10000-8**	43,5	43,5

Dimensions

POWER (VA)	REF.	DIMENSIONS (mm)					WEIGHT (kg)
		A	B	C	D	E	
2000	**CM2000-8**	200	320	190	120	280	31
3000	**CM3000-8**	200	320	210	120	280	40
3500	**CM3500-8**	200	320	230	120	280	46
4000	**CM4000-8**	200	320	240	120	280	50
5000	**CM5000-8**	250	400	240	150	370	65
6300	**CM6300-8**	250	400	260	150	370	80
7500	**CM7500-8**	250	400	270	150	370	88
8000	**CM8000-8**	250	400	280	150	370	92
10000	**CM10000-8**	300	460	300	150	430	125



MEDICAL

BUILDING SECTOR
Series CM8

Cabling

POWER (VA)	REF.	MIN. SECTION PRIMARY CONDUCTOR (mm^2) 230 V	MIN. SECTION SECONDARY CONDUCTOR (mm^2) 230 V
2000	**CM2000-8**	1	1
3000	**CM3000-8**	1,5	1,5
3500	**CM3500-8**	1,5	1,5
4000	**CM4000-8**	2,5	2,5
5000	**CM5000-8**	2,5	2,5
6300	**CM6300-8**	4	4
7500	**CM7500-8**	6	6
8000	**CM8000-8**	6	6
10000	**CM10000-8**	10	10

Protection

POWER (VA)	REF.	PRIMARY PROTECTIONS (A) (D / aM)	SECONDARY PROTECTIONS (A) (C / gG)
2000	**CM2000-8**	10	8
3000	**CM3000-8**	16	10
3500	**CM3500-8**	16	10
4000	**CM4000-8**	20	16
5000	**CM5000-8**	25	20
6300	**CM6300-8**	32	25
7500	**CM7500-8**	40	32
8000	**CM8000-8**	40	32
10000	**CM10000-8**	50	40

Terminals

CONNECTION Type	Size	MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE (Nm)	POWER (kVA) Primary	Secondary
B3	2,5 mm^2	4	0,4 - 0,6		
	6 mm^2	10	0,8 - 1,2	2000 - 3000	2000 - 3000
	10 mm^2	16	1,2 - 1,8	3500 - 4000	3500 - 4000
	16 mm^2	25	1,2 - 2	5000	5000
	25 mm^2	35	2 - 3	6300	6300
	35 mm^2	50	2,5 - 3,5	7500 - 10000	7500 - 10000

B3

TORYTRANS

Three-phase isolation transformer for medical use Ucc > 8%

Three-phase transformer with galvanic isolation between primary and secondary, for supply in medical installations (operating theatres, ICU, ICU) in accordance with the mandatory IEC/UNE-EN 61558-2-15 standard. Electrostatic shield between primary and secondary connected to an independent terminal that attenuates electrical disturbances from the network to medical equipment. High impedance with short-circuit voltage > 8%, allowing the primary circuit breakers to be adjusted to the next higher value of the nominal current.

Applications

- For general use as an isolation transformer for generating the IT regime in medical facilities (operating rooms, ICUs, intensive care units).
- Protection of medical equipment sensitive to electrical disturbances.

POWER
1 ÷ 10 kVA

PRI VOLTAGE
3 x 400 V

SEC VOLTAGE
3 x 230 V

Regulatory

IEC/UNE-EN 61558-1

IEC/UNE-EN 61558-2-15

Certifications

CE UKCA

MEDICAL

Thermal protector

NC CONTACT (250V 6A) BUILT-IN
In case of overheating or overload, it opens the circuit, alerting the safety monitor. It resets automatically when the anomaly disappears.

Connection

IP20 TERMINALS that protect against direct voltage contact.

General

IT NEUTRAL REGIME in facilities with processes that are sensitive to interruption.

Magnetic core

LOW LOSSES and reduced Inrush current.

Varnishing

COMPLETE AND ROBUST protects from moisture, dust and corrosion.

SERIES CTM8

THREE-PHASE ISOLATION TRANSFORMER FOR MEDICAL USE UCC > 8%

V0_10/24

CLINICAL

SERIES CTM8

Technical specifications

POWER
1 ÷ 10 kVA

PRI VOLTAGE
3 x 400 V

SEC VOLTAGE
3 x 230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP00

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
4 kV - 2 kV

CONNECTION CURRENT
< 8 I_N

VACUUM PRI INTENSITY
< 3%

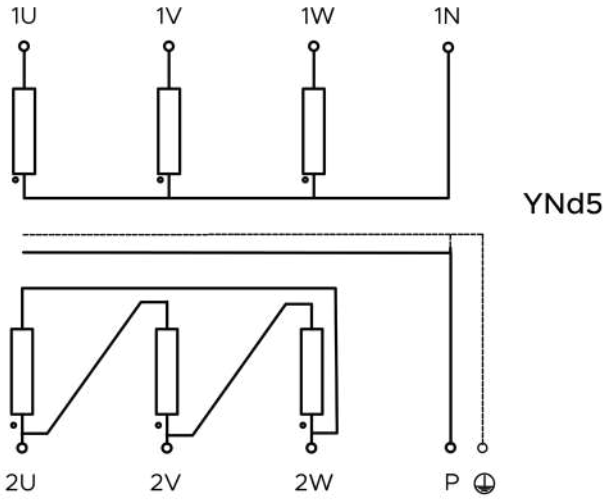
SHORT CIRCUIT VOLTAGE
> 8.5%

LEAKAGE CURRENT
< 40 µA

INSULATION RESISTANCE
> 7 MΩ

THREE-PHASE ISOLATION TRANSFORMER FOR MEDICAL USE UCC > 8%

Electric **schematic**

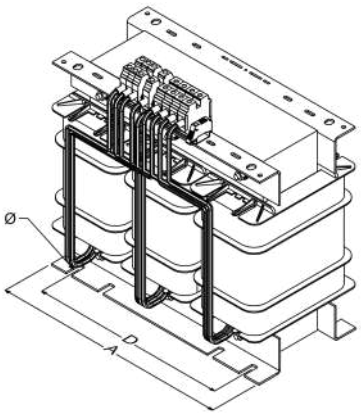


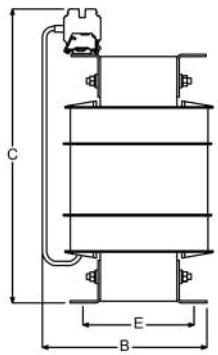
Technical data - standard models

POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secondary
2000	**CTM2000-8**	2,9	5,0
3000	**CTM3000-8**	4,3	7,5
3500	**CTM3500-8**	5,1	8,8
4000	**CTM4000-8**	5,8	10,1
5000	**CTM5000-8**	7,2	12,6
6300	**CTM6300-8**	9,1	15,8
7500	**CTM7500-8**	10,8	18,8
8000	**CTM8000-8**	11,6	20,1
10000	**CTM10000-8**	14,5	25,1

Dimensions

POWER (VA)	REF.	DIMENSIONS (mm)					WEIGHT (kg)
		A	B	C	D	E	
2000	**CTM2000-8**	300	170	300	200	128	34
3000	**CTM3000-8**	300	180	300	200	138	38
3500	**CTM3500-8**	360	165	365	320	120	45
4000	**CTM4000-8**	360	175	365	320	130	50
5000	**CTM5000-8**	360	185	367	320	140	55
6300	**CTM6300-8**	360	195	367	320	150	62
7500	**CTM7500-8**	420	185	425	350	150	75
8000	**CTM8000-8**	420	180	425	350	160	83
10000	**CTM10000-8**	420	190	425	350	170	90





MEDICAL

BUILDING SECTOR
Series CTM8

Cabling

POWER (VA)	REF.	MIN. SECTION PRIMARY CONDUCTOR (mm^2) 400 V	MIN. SECTION SECONDARY CONDUCTOR (mm^2) 230 V
2000	**CM2000-8**	0,5	0,75
3000	**CM3000-8**	0,75	1
3500	**CM3500-8**	0,75	1
4000	**CM4000-8**	0,75	1,5
5000	**CM5000-8**	1	1,5
6300	**CM6300-8**	1	1,5
7500	**CM7500-8**	1,5	2,5
8000	**CM8000-8**	1,5	2,5
10000	**CM10000-8**	1,5	4

Protection

POWER (VA)	REF.	PRIMARY PROTECTIONS (A) (D / aM)	SECONDARY PROTECTIONS (A) (D / aM)
2000	**CM2000-8**	3	5
3000	**CM3000-8**	6	6
3500	**CM3500-8**	6	8
4000	**CM4000-8**	6	10
5000	**CM5000-8**	8	12
6300	**CM6300-8**	10	12
7500	**CM7500-8**	16	16
8000	**CM8000-8**	16	20
10000	**CM10000-8**	16	25

Terminals

CONNESTION Type	Size	MAX SECTION CONDUCTOR (mm^2)	MAX TIGHTENING TORQUE (Nm)	POWER (kVA) - ATNP Primary	Secondary
B3	2,5 mm^2	4	0,4 - 0,6	2000	
	6 mm^2	10	0,8 - 1,2	3000 - 4000	
	10 mm^2	16	1,2 - 1,8	5000 - 6300	2000 - 3000
	16 mm^2	25	1,2 - 2		3500 - 6300
	25 mm^2	35	2 - 3	7500 - 10000	7500 - 10000

B3

4
VOLTAGE CHANGE

a. Series AME
b. Series AMS
c. Series AT

5
NEUTRAL GENERATOR

a. Series ATN

CHANGE GENERATION

TORYTRANS

SECTOR
Industrial

VOLTAGE CHANGE

AME

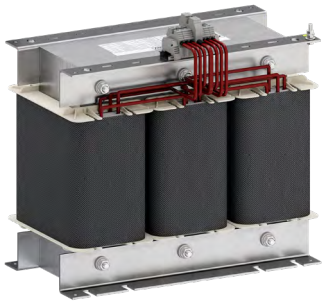
Reversible single-phase autotransformer (IP20)

100 VA ÷ 10 kVA
PRI: 400 V
SEC: 230 V

AMS

Reversible single-phase autotransformer (IP00)

100 VA ÷ 10 kVA
PRI: 400 V
SEC: 230 V



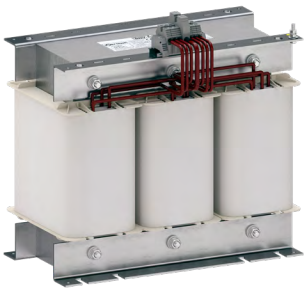
AT

Reversible three-phase autotransformer

3 ÷ 1000 VA
PRI: 3 x 400 V
SEC: 3 x 230 V

SECTOR
Industrial

NEUTRAL GENERATOR



ATN

Three-phase autotransformer artificial neutral generator

3 ÷ 100 kVA
PRI: 3 x 400 V
SEC: 3x 230 V + N

TORYTRANS

Single-phase reversible auto-transformer (IP20)

Single-phase reversible autotransformer, not a circuit separator, intended for voltage changes 400 V / 230 V.

The windings are fully protected against impacts, dirt, pollution and moisture. Prepared for installation in harsh environments.

Applications

- Intended for supplying elements with a voltage different from that available on the network.
- Suitable for those cases where economical voltage adjustment is required without the need for galvanic separation or a reduction in network disturbances.

POWER
100 VA ÷ 10 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
230 V

Regulatory

Power ≤ 4 kVA
IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-13

Power > 4 kVA
IEC/UNE-EN 60076-11

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series AME

VOLTAGE CHANGE

Encapsulated

IN RESIN with polycarbonate terminal covers. Suitable for vibratory, humid and corrosive environments. From 5000VA to 10000 VA.

Reversible

CAN WORK as a voltage booster or reducer.

Enclosure

TECHNICAL POLYAMIDE self-extinguishing V0, halogen and phosphorus free. From 100VA to 4000 VA.

Connection

SCREW AND WASHER pre-inserted pressure.

Protects

THE USER from access to dangerous contact parts of the winding.

SERIES AME

AUTOTRANSFORMER
REVERSIBLE SINGLE-PHASE
(IP20)

V0_10/24

TORYTRANS

VOLTAGE CHANGE

SERIES AME

Technical specifications

POWER
100 VA ÷ 10 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40°

THERMAL CLASS
F (155 °C)

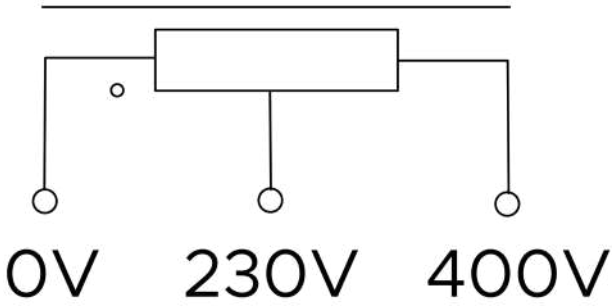
PROTECTION INDEX
IP20

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
3 kV

REVERSIBLE SINGLE-PHASE AUTOTRANSFORMER (IP20)

Electric **schematic**



Technical data - standard models

POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secundary
100	**AME100**	0,25	0,43
200	**AME200**	0,50	0,87
315	**AME315**	0,79	1,4
400	**AME400**	1,0	1,7
500	**AME500**	1,3	2,2
630	**AME630**	1,6	2,7
800	**AME800**	2,0	3,5
1000	**AME1000**	2,5	4,3
2000	**AME2000**	5,0	8,7
2500	**AME2500**	6,3	10,9
3150	**AME3150**	7,9	13,7
4000	**AME4000**	10,0	17,4
5000	**AME5000**	12,5	21,7
6300	**AME6300**	15,8	27,4
8000	**AME8000**	20,0	34,8
10000	**AME10000**	25,0	43,5

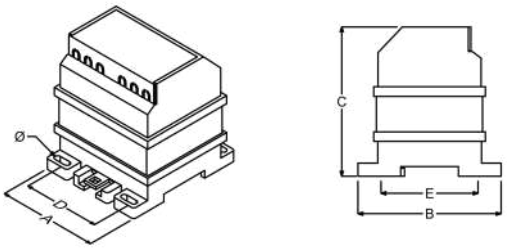
VOLTAGE CHANGE

INDUSTRIAL SECTOR
Series AME

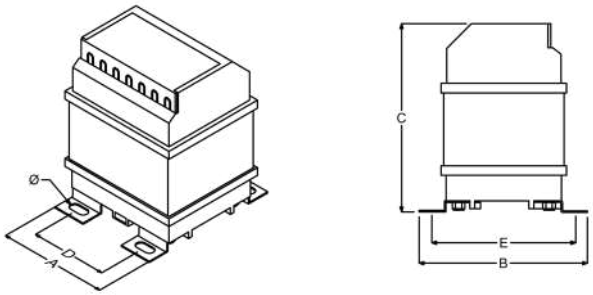
Dimensions

POWER (VA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
100	**AME100**	82	90	92	58	79	5,5x12	1,1	I
200	**AME200**	82	90	106	58	79	5,5x12	1,5	I
315	**AME315**	94	106	107	58	90	7x14	2,0	II
400	**AME400**	94	106	117	58	90	7x14	2,4	II
500	**AME500**	105	115	111	70	99	7x14	2,8	II
630	**AME630**	105	115	122	70	99	7x14	3,2	II
800	**AME800**	115	123	138	80	108	7x14	4,2	II
1000	**AME1000**	115	123	148	80	108	7x14	5,1	II
2000	**AME2000**	135	145	180	101	130	7x15	9,2	II
2500	**AME2500**	150	158	190	124	143	7x15	11,5	III
3150	**AME3150**	150	158	200	124	143	7x15	13,5	III
4000	**AME4000**	150	158	220	124	143	7x15	16,5	III
5000	**AME5000**	192	212	210	165	195	7x16	22,0	IV
6300	**AME6300**	192	212	230	165	195	7x16	27,0	IV
8000	**AME8000**	192	212	250	165	195	7x16	31,0	IV
10000	**AME10000**	240	255	215	205	235	9x18	41,0	IV

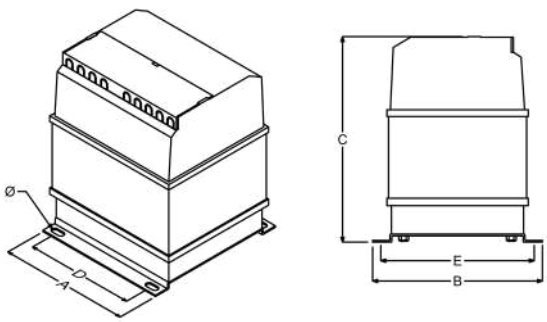
I



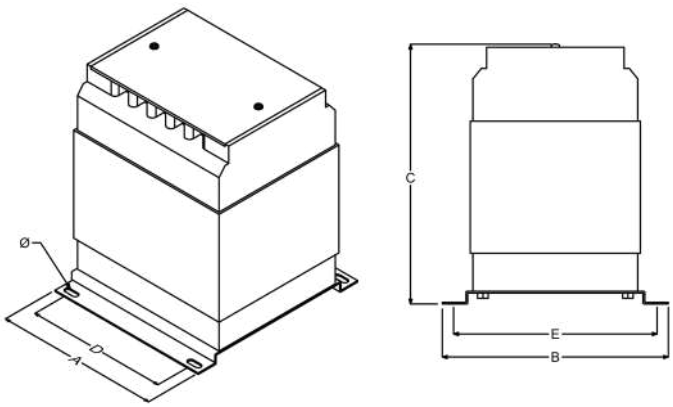
II



III



IV



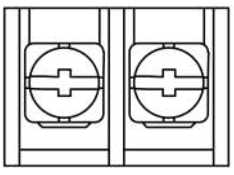
Cabling, protection and fuses

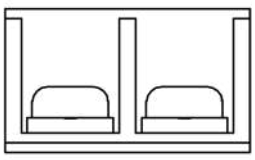
POWER (VA)	REF.	MIN. SECTION PRIMARY PRIMARIO (mm²)	MIN. SECTION SECONDARY (mm²)	PRIMARY PROTECTIONS (A) (T/D/aM)	SECONDARY PROTECTIONS (A) (F/C/gG)
100	**AME100**	0,5	0,5	0,25	0,4
200	**AME200**	0,5	0,5	0,5	0,8
315	**AME315**	0,5	0,5	0,8	1
400	**AME400**	0,5	0,5	1	1,6
500	**AME500**	0,5	0,5	1,6	2
630	**AME630**	0,5	0,5	1,6	2,5
800	**AME800**	0,5	0,75	2	3,5
1000	**AME1000**	0,5	0,75	2,5	4
2000	**AME2000**	0,75	1	5	8
2500	**AME2500**	1	1,5	6,3	10
3150	**AME3150**	1	1,5	8	12
4000	**AME4000**	1	2,5	10	16
5000	**AME5000**	1,5	2,5	15	20
6300	**AME6300**	1,5	4	16	25
8000	**AME8000**	2,5	6	20	32
10000	**AME10000**	2,5	10	25	40

Terminals

CONNECTION		MAX. TIGHTENING TORQUE	POWER (VA)	
Type	Size	(Nm)	Primary	Secondary
T1	M4	1,2	100 - 2000	100 - 630
	M5	2	2500 - 8000	800 - 8000
	M6	5	10000	10000

T1

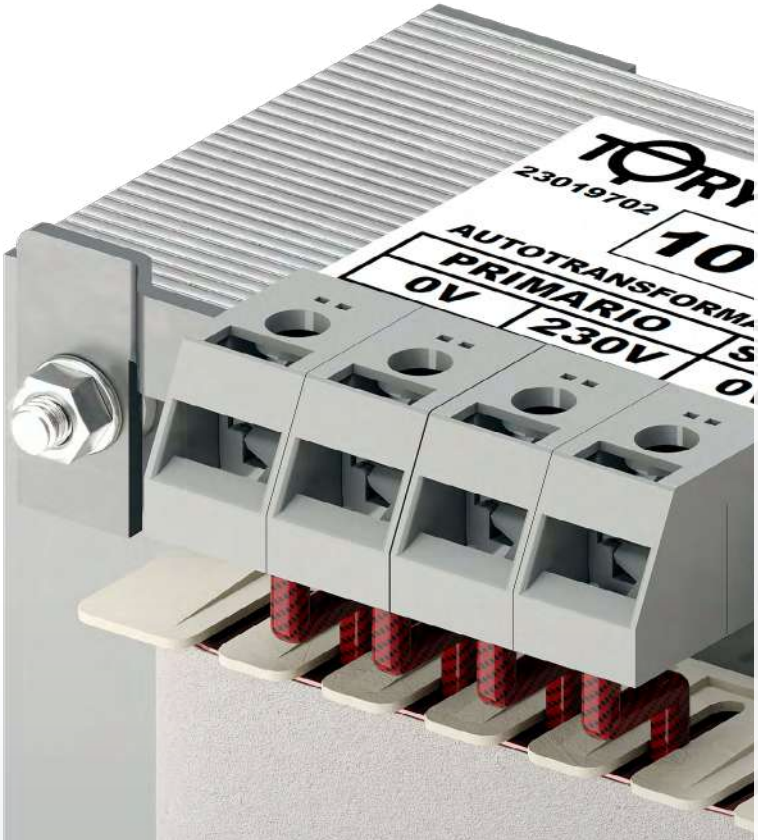




TORYTRANS

Single-phase reversible auto-transformer (IP00)

Single-phase reversible autotransformer, not a circuit separator, intended for voltage changes 400 V / 230 V.



Applications

- Intended for supplying elements with a voltage different from that available on the network.
- Suitable for those cases where economical voltage adjustment is required without the need for galvanic separation or a reduction in network disturbances.

POWER
100 VA ÷ 10 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
230 V

Regulatory

Power ≤ 4 kVA
IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-13

Power > 4 kVA
IEC/UNE-EN 60076-11

Optional:

UL 5085-1
UL 5085-2

CAN/CSA C22.2 NO.66.1-06
CAN/CSA C22.2 NO.66.2-06

Certifications

CE UKCA

Optional: cULus

INDUSTRIAL SECTOR
Series AMS

VOLTAGE CHANGE

Varnishing

COMPLETE AND ROBUST that protects it from moisture, dust and corrosion.

Reversible

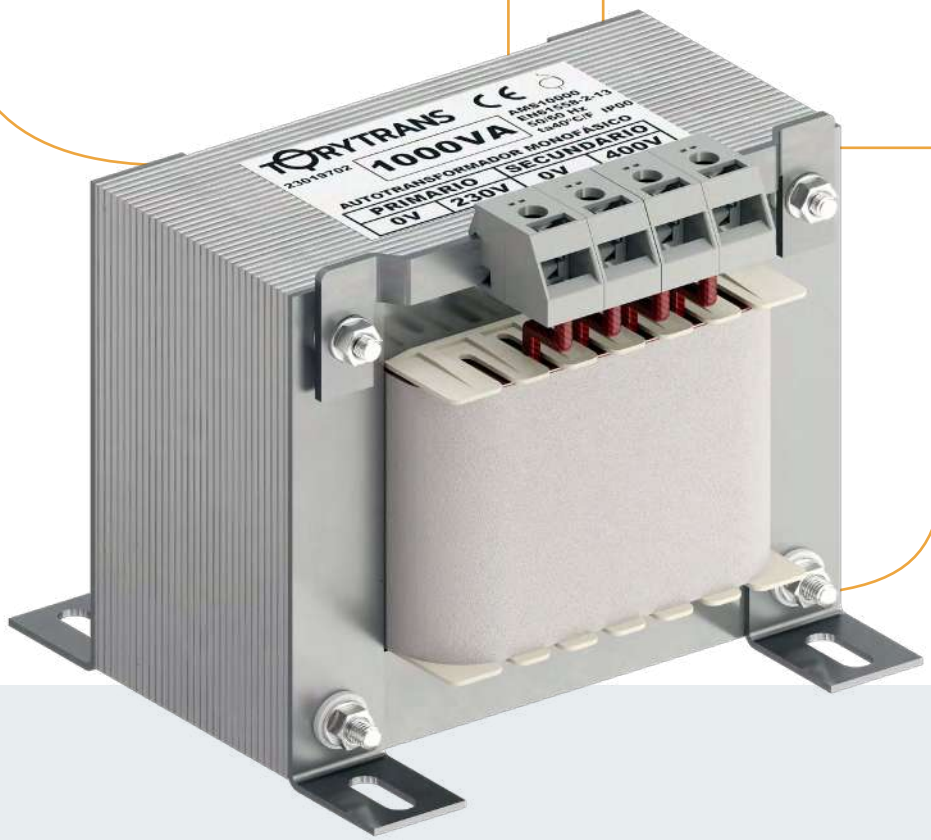
CAN WORK as a voltage booster or reducer.

Size

AND REDUCED WEIGHT for easy placement in electrical cabinets.

Connection

IP20 TERMINALS that protect against dangerous direct contact.



UL

MARKED cRUus optional.

SERIES AMS

AUTOTRANSFORMER
REVERSIBLE SINGLE-PHASE
(IP00)

V0_10/24

TORYTRANS

VOLTAGE CHANGE

SERIES AMS

Technical specifications

POWER
100 VA ÷ 10 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40°

THERMAL CLASS
F (155 °C)

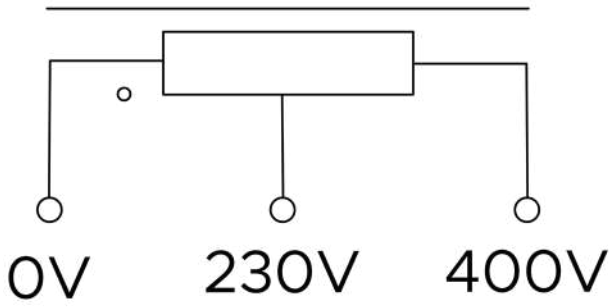
PROTECTION INDEX
IP20

ELECTRIC SHOCK PROTECTION
Class I

TEST VOLTAGE
3 kV

REVERSIBLE SINGLE-PHASE AUTOTRANSFORMER (IP00)

Electric **schematic**

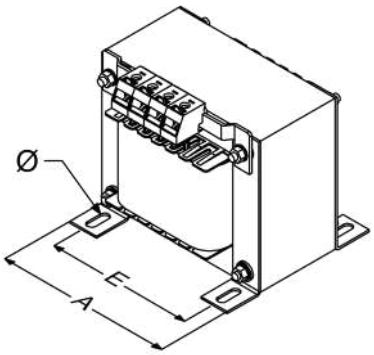


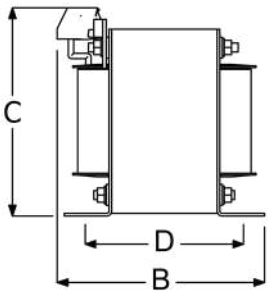
Technical data - standard models

POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secondary
100	**AMS100**	0,25	0,43
200	**AMS200**	0,50	0,87
315	**AMS315**	0,79	1,4
400	**AMS400**	1,0	1,7
500	**AMS500**	1,3	2,2
630	**AMS630**	1,6	2,7
800	**AMS800**	2,0	3,5
1000	**AMS1000**	2,5	4,3
2000	**AMS2000**	5,0	8,7
2500	**AMS2500**	6,3	10,9
3150	**AMS3150**	7,9	13,7
4000	**AMS4000**	10,0	17,4
5000	**AMS5000**	12,5	21,7
6300	**AMS6300**	15,8	27,4
8000	**AMS8000**	20,0	34,8
10000	**AMS10000**	25,0	43,5

Dimensions

POWER (VA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)
		A	B	C	D	E	Ø	
100	**AMS100**	75	58	75	44	62	4x10	1,1
200	**AMS200**	75	72	75	59	62	4x10	1,5
315	**AMS315**	84	78	82	62	70	5x11	2,0
400	**AMS400**	84	88	82	72	70	5x11	2,4
500	**AMS500**	96	83	91	65	80	5x14	2,8
630	**AMS630**	96	93	91	75	80	5x14	3,2
800	**AMS800**	108	110	102	90	90	6x16	4,2
1000	**AMS1000**	108	120	102	100	90	6x16	5,1
2000	**AMS2000**	126	145	116	118	105	6x16	9,2
2500	**AMS2500**	150	145	138	116	125	8x20	11,5
3150	**AMS3150**	150	155	138	126	125	8x20	13,5
4000	**AMS4000**	150	175	138	146	125	8x20	16,5
5000	**AMS5000**	192	150	175	120	160	10x23	21,0
6300	**AMS6300**	192	170	175	140	160	10x23	26,0
8000	**AMS8000**	192	190	175	160	160	10x23	30,0
10000	**AMS10000**	240	200	215	158	200	12x28	40,0





VOLTAGE CHANGE

INDUSTRIAL SECTOR
Series AMS

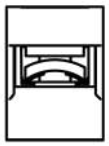
Cabling, protection and fuses

POWER (VA)	REF.	MIN. SECTION PRIMARY CONDUCTOR (mm²)	SMAX SECTION SECONDARY CONDUCTOR (mm²)	PRIMARY PROTECTIONS (A) (T/D/aM)	SECONDARY PROTECTIONS (A) (F/C/gG)
100	**AMS100**	0,5	0,5	0,25	0,4
200	**AMS200**	0,5	0,5	0,5	0,8
315	**AMS315**	0,5	0,5	0,8	1
400	**AMS400**	0,5	0,5	1	1,6
500	**AMS500**	0,5	0,5	1,6	2
630	**AMS630**	0,5	0,5	1,6	2,5
800	**AMS800**	0,5	0,75	2	3,5
1000	**AMS1000**	0,5	0,75	2,5	4
2000	**AMS2000**	0,75	1	5	8
2500	**AMS2500**	1	1,5	6,3	10
3150	**AMS3150**	1	1,5	8	12
4000	**AMS4000**	1	2,5	10	16
5000	**AMS5000**	1,5	2,5	15	20
6300	**AMS6300**	1,5	4	16	25
8000	**AMS8000**	2,5	6	20	32
10000	**AMS10000**	2,5	10	25	40

Terminals

CONECTION		MAX TIGHTENING TORQUE.	POWER (VA)	
Type	Size	(Nm)	400V	230V
	M3	0,5	0,1 - 3,15	0,1 - 1
B1	M4	1,2	4 - 5	2 - 3,15
	M5	2	6,3 - 10	4 - 10

B1

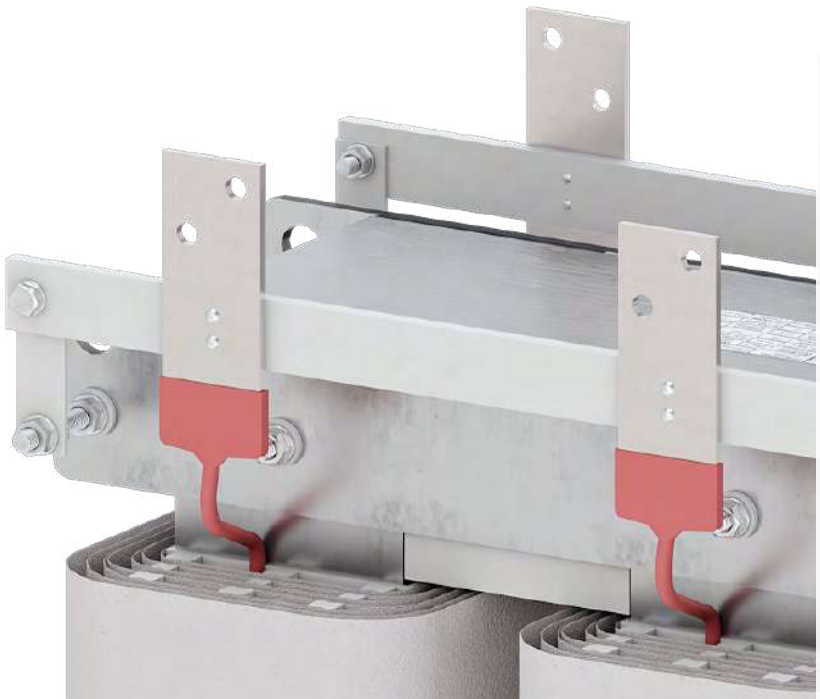


Certification UL (Optional)

Certificate number 20181127-E354573.
UL Category XORU2/8 (Transformer, Construction Only - Component).
Maximum voltage 600V USA (UL) and 750V Canada (CSA).


THERMIC
FAULT
AUTO - 0 - MAN
1
2

TORYTRANS



Reversible three-phase autotransformer

Reversible three-phase autotransformer for voltage changes.

Protection index according to installation needs:
- IP00 without enclosure.
- IP23 enclosure for indoor location.
- IP65 enclosure for outdoor use.

Applications

- As a booster or reducer, adapting the voltage between the electrical network of the country where an industrial machine manufactured in a country of origin with a different voltage is installed.
- To increase the voltage in long-distance electrical power transmission to reduce resistance losses in the conductors.
- Optional voltage changes with regulation sockets to compensate for voltage drops in the installation cables.

POWER
3 ÷ 1000 kVA

PRI VOLTAGE
3 x 400 V

SEC VOLTAGE
3 x 230 V

Regulatory

Power ≤ 20 kVA
IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-13

Power > 20 kVA
IEC/UNE-EN 60076-11

Optional:

UL 5085-1
UL 5085-2

CAN/CSA C22.2 NO.66.1-06
CAN/CSA C22.2 NO.66.2-06

Certifications

CE UKCA

Optional: cULus

INDUSTRIAL SECTOR
Series AT

VOLTAGE CHANGE

Power source

SINGLE-PHASE LOADS in networks without neutral, maximum imbalance between phases is 10%.

Varnishing

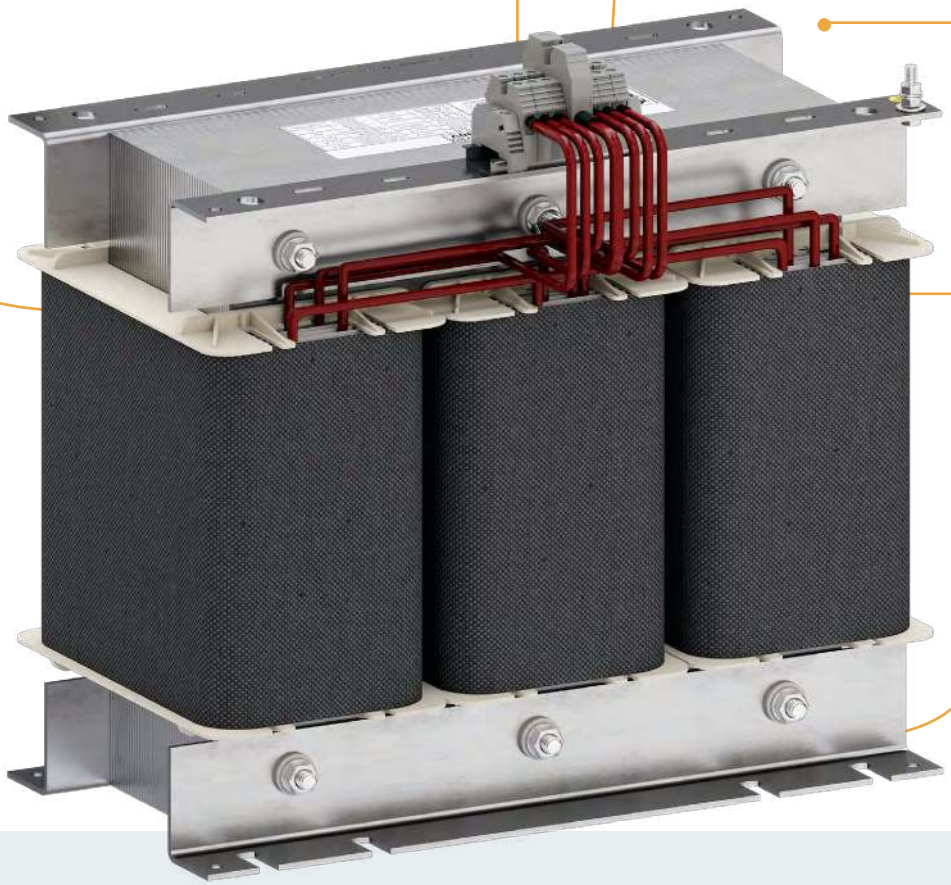
COMPLETE AND ROBUST that protects it from moisture, dust and corrosion.

Economical and effective

TO ADAPT A VOLTAGE different between the network and the equipment.

Connection

BY TERMINALS IP20 protects against direct voltage contact, up to 31kVA in IP00/23 and 25kVA in IP65.



UL

MARKED cURus optional up to 100kVA.

SERIES AT

AUTOTRANSFORMER
REVERSIBLE THREE-PHASE

V1_10/25

TORYTRANS

VOLTAGE CHANGE

SERIES AT

Technical specifications

POWER
3 ÷ 1000 kVA

PRI VOLTAGE
400 V

SEC VOLTAGE
230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
(IP00) 40 °C
(IP23) 30 °C
(IP65) 30 °C

THERMAL CLASS
(Up to ATx125) F (155 °C)
(From ATx160) H (180 °C)

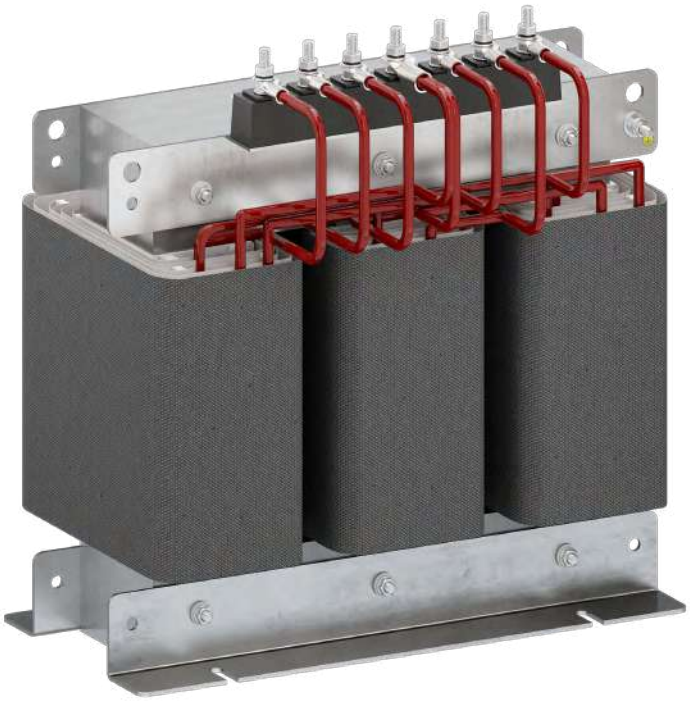
PROTECTION INDEX
IP00 / IP23 / IP65

ELECTRIC SHOCK PROTECTION
Class I

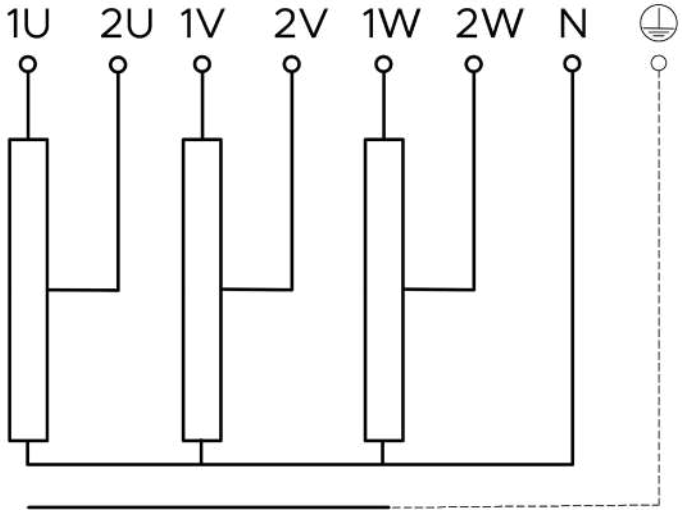
TEST VOLTAGE
3 kV

CONNECTION
YN0

REVERSIBLE THREE-PHASE AUTOTRANSFORMER



Electric **schematic**



Technical data - standard models

POWER (kVA)	REFERENCES			INTENSITY (A)		PERFORMANCE η (%)
	IP00	IP23	IP65	Primary	Secondary	
3	ATS003	ATC003	ATP003	4,3	7,5	94,4
4	ATS004	ATC004	ATP004	5,8	10,1	95,4
6	ATS006	ATC006	ATP006	8,7	15,1	96,3
8	ATS008	ATC008	ATP008	11,6	20,1	96,3
10	ATS010	ATC010	ATP010	14,5	25,1	96,4
12	ATS012	ATC012	ATP012	17,3	30,2	96,8
16	ATS016	ATC016	ATP016	23,1	40,2	96,8
20	ATS020	ATC020	ATP020	28,9	50,3	97,1
25	ATS025	ATC025	ATP025	36,1	62,8	97,2
31	ATS031	ATC031	ATP031	44,8	77,9	97,3
40	ATS040	ATC040	ATP040	57,8	100,5	97,8
50	ATS050	ATC050	ATP050	72,3	125,7	97,9
63	ATS063	ATC063	ATP063	91,0	158,3	98,2
80	ATS080	ATC080	ATP080	115,6	201,1	98,2
100	ATS100	ATC100	ATP100	144,5	251,3	98,5
125	ATS125	ATC125	ATP125	180,6	314,1	98,6
160	ATS160	ATC160	ATP160	231,2	402,1	98,4
200	ATS200	ATC200	ATP200	289,0	502,6	98,6
250	ATS250	ATC250	ATP250	361,3	628,3	98,7
315	ATS315	ATC315	ATP315	455,2	791,7	98,9
400	ATS400	ATC400	ATP400	578,0	1005,3	98,9
500	ATS500	ATC500	ATP500	722,5	1256,6	99,0
630	ATS630	ATC630	ATP630	910,4	1583,3	99,1
800	ATS800	ATC800	ATP800	1156,1	2010,6	99,2
1000	ATS1000	ATC1000	---	1445,1	2513,2	99,3

IP00

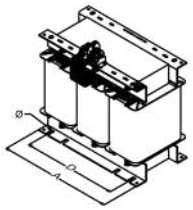
IP23

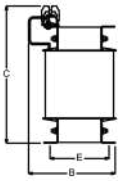
IP65

Dimensions - IP00

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
3	**ATS003**	240	155	255	200	90	7	11	I
4	**ATS004**	240	165	255	200	100	7	13	I
6	**ATS006**	240	190	255	200	125	7	20	I
8	**ATS008**	300	180	305	200	105	11	24	I
10	**ATS010**	300	190	305	200	115	11	28	I
12	**ATS012**	300	220	305	200	145	11	39	I
16	**ATS016**	360	205	375	320	130	11	46	I
20	**ATS020**	360	225	375	320	150	11	57	I
25	**ATS025**	420	220	430	350	150	11	70	I
31	**ATS031**	420	230	430	350	160	11	79	I
40	**ATS040**	420	250	450	350	180	11	96	II
50	**ATS050**	480	240	495	400	165	11	107	II
63	**ATS063**	480	260	495	400	185	11	128	II
80	**ATS080**	655	320	595	400	220	13	178	II
100	**ATS100**	655	340	595	400	240	13	211	II
125	**ATS125**	655	370	595	400	270	13	258	II
160	**ATS160**	600	330	795	400	210	13	245	II
200	**ATS200**	600	365	810	400	245	13	320	III
250	**ATS250**	660	380	880	480	275	13	416	III
315	**ATS315**	660	440	880	480	365	13	570	III
400	**ATS400**	720	440	940	480	342	13	665	IV
500	**ATS500**	720	470	940	480	372	13	755	IV
630	**ATS630**	780	490	1010	660	395	16	931	IV
800	**ATS800**	840	530	1080	660	420	16	1130	IV
1000	**ATS1000**	840	570	1080	660	460	16	1300	IV

I





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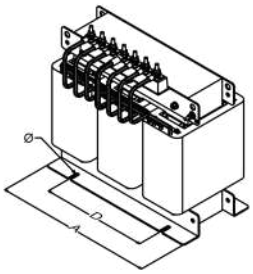

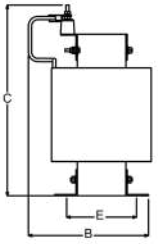

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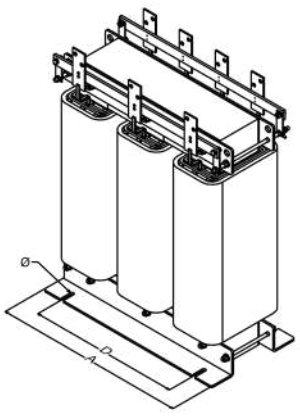

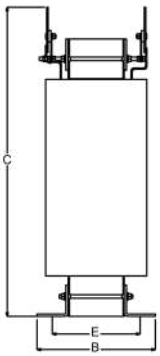

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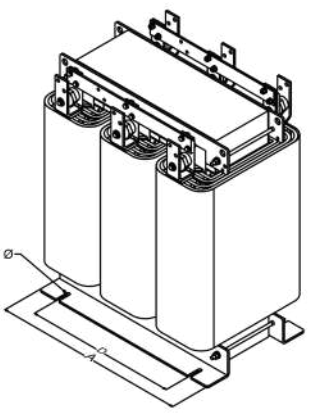
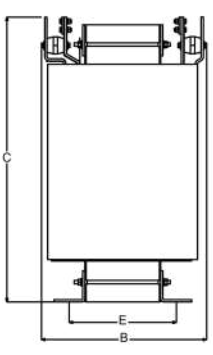
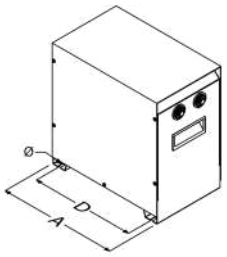


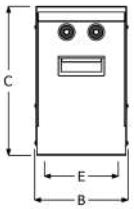


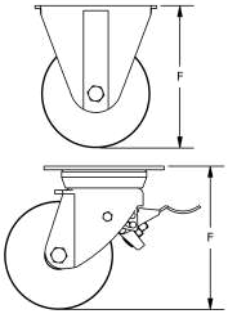
Dimensions - IP23

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE	WHEEL
		A	B	C	D	E	Ø			
3	**ATC003**	310	190	305	265	165	7	16	I	
4	**ATC004**	310	190	305	265	165	7	18	I	
6	**ATC006**	310	190	305	265	165	7	25	I	
8	**ATC008**	380	230	375	325	205	7	32	I	
10	**ATC010**	380	230	375	325	205	7	36	I	
12	**ATC012**	380	230	375	325	205	7	47	I	
16	**ATC016**	475	345	540	320	320	10	59	II	Included
20	**ATC020**	475	345	540	320	320	10	70	II	Included
25	**ATC025**	545	385	635	350	360	10	86	II	Included
31	**ATC031**	545	385	635	350	360	10	95	II	Included
40	**ATC040**	545	385	635	350	360	10	112	II	Included
50	**ATC050**	615	425	710	400	400	10	127	II	Included
63	**ATC063**	615	425	710	400	400	10	148	II	Included
80	**ATC080**	775	575	940	480	550	10	213	III	(*)
100	**ATC100**	775	575	940	480	550	10	246	III	(*)
125	**ATC125**	775	575	940	480	550	10	293	III	(*)
160	**ATC160**	775	575	940	480	550	10	281	III	(*)
200	**ATC200**	775	575	940	480	550	10	354	III	(*)
250	**ATC250**	930	710	1275	605	680	13	484	III	(**)
315	**ATC315**	930	710	1275	605	680	13	638	III	(**)
400	**ATC400**	930	710	1275	605	680	13	733	III	(**)
500	**ATC500**	930	710	1275	605	680	13	823	III	(**)
630	**ATC630**	1080	880	1460	815	840	15	1049	III	(***)
800	**ATC800**	1080	880	1460	815	840	15	1248	III	(***)
1000	**ATC1000**	1080	880	1460	815	840	15	1420	III	(***)

I





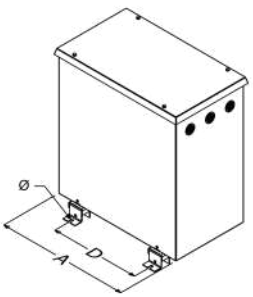


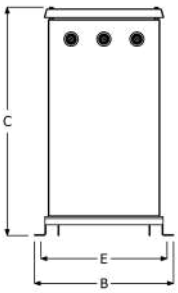
(*) Optional wheel		
Code	**Type**	**F (mm)**
ACC00203	Fixed	97
ACC00431	Rotating	97

(**) Optional wheel		
Code	**Type**	**F (mm)**
ACC00200	Fixed	124
ACC00201	Rotating with brake	124

(***) Optional wheel		
Code	**Type**	**F (mm)**
ACC00284	Fixed	164
ACC00285	Rotating with brake	164

II





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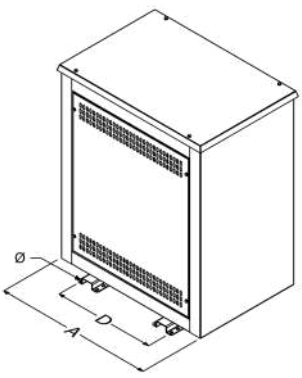
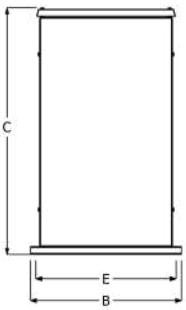
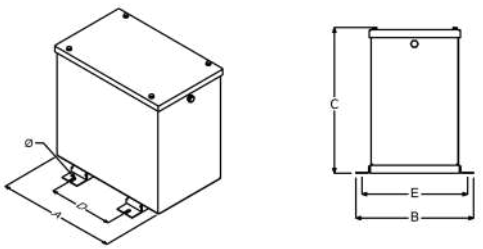




Dimensions - IP65

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
3	**ATP003**	410	305	375	200	285	8	22	I
4	**ATP004**	410	305	375	200	285	8	28	I
6	**ATP006**	490	340	500	200	320	8	38	I
8	**ATP008**	490	340	500	200	320	8	42	I
10	**ATP010**	490	340	500	200	320	8	53	I
12	**ATP012**	580	380	565	320	355	10	63	I
16	**ATP016**	580	380	565	320	355	10	74	I
20	**ATP020**	650	415	640	350	395	10	92	I
25	**ATP025**	650	415	640	350	395	10	100	I
31	**ATP031**	650	415	640	350	395	10	118	I
40	**ATP040**	810	555	590	400	535	10	146	I
50	**ATP050**	810	555	590	400	535	10	167	I
63	**ATP063**	935	725	1240	560	685	15	268	II
80	**ATP080**	935	725	1240	560	685	15	300	II
100	**ATP100**	935	725	1240	560	685	15	348	II
125	**ATP125**	935	725	1240	560	685	15	335	II
160	**ATP160**	935	725	1240	560	685	15	410	II
200	**ATP200**	1100	895	1425	640	855	15	542	II
250	**ATP250**	1100	895	1425	640	855	15	697	II
315	**ATP315**	1100	895	1425	640	855	15	792	II
400	**ATP400**	1100	895	1425	640	855	15	882	II
500	**ATP500**	1240	1100	1615	820	1060	15	1100	II
630	**ATP630**	1240	1100	1615	820	1060	15	1300	II
800	**ATP800**	1240	1100	1615	820	1060	15	1470	II

II



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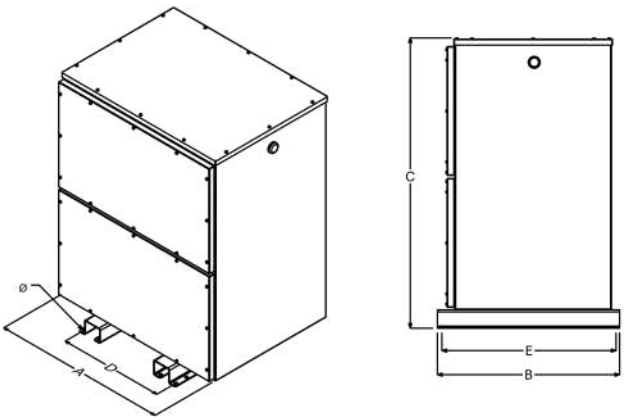


Cabling

POWER (kVA)	REF.	ATC - CABLE GLANDS		ATP - PRESSES	
		Ø max. (mm)	Quantity	Ø max. (mm)	Quantity
3	**ATx003**	PG-21	2	PG-21	2
4	**ATx004**	PG-21	2	PG-21	2
6	**ATx006**	PG-21	2	PG-21	2
8	**ATx008**	PG-21	2	PG-21	2
10	**ATx010**	PG-21	2	PG-21	2
12	**ATx012**	PG-21	2	PG-29	2
16	**ATx016**	PG-29	2	PG-29	2
20	**ATx020**	PG-29	2	PG-29	2
25	**ATx025**	PG-38	2	PG-29	2
31	**ATx031**	PG-38	2	PG-29	2
40	**ATx040**	PG-38	2	PG-29	3
50	**ATx050**	PG-38	2	PG-29	3
63	**ATx063**	PG-38	2	PG-29	3
80	**ATx080**				
100	**ATx100**				
125	**ATx125**				
160	**ATx160**				
200	**ATx200**				

(*) x= S: IP00
x= C: IP23
x= P: IP65

Protection and fuses

POWER (kVA)	REF.	PRIMARY PROTECTIONS (A) (D/Am) 400 V	SECONDARY PROTECTIONS (A) (C/Gg) 230 V	PRIMARY PROTECTIONS (A) (D/Am) 230 V	SECONDARY PROTECTIONS (A) (C/Gg) 400 V
3	**ATx003**	6	7	10	4
4	**ATx004**	8	10	16	5
6	**ATx006**	10	12	20	8
8	**ATx008**	16	20	25	10
10	**ATx010**	20	25	32	12
12	**ATx012**	25	30	40	16
16	**ATx016**	32	40	50	20
20	**ATx020**	40	50	63	25
25	**ATx025**	50	60	80	32
31	**ATx031**	63	63	100	40
40	**ATx040**	80	100	125	50
50	**ATx050**	80	125	160*	63
63	**ATx063**	100	150	200*	80
80	**ATx080**	125	200	250*	100
100	**ATx100**	160	250	300*	125
125	**ATx125**	200	300	400*	160
160	**ATx160**	250	400	500*	200
200	**ATx200**	300	500	600*	250
250	**ATx250**	400	600	800*	300
315	**ATx315**	500	750	1000*	400
400	**ATx400**	630	1000	1200*	500
500	**ATx500**	800	1200	1600*	630
630	**ATx630**	1000	1500	2000*	800
800	**ATx800**	1200	2000	2500*	1000
1000	**ATx1000**	1600	2500	3000*	1000

(*) x= S: IP00
x= C: IP23
x= P: IP65

(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

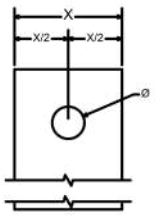
Terminals

CONNECTION		MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE	POWER (kVA)	
Type	**Size**		**(Nm)**	**Primary**	**Secondary**
B3	2,5	4	0,4 - 0,6	3	
	6	10	0,8 - 1,2	4 - 12	4 - 6
	10	16	1,2 - 1,8	16 - 20	8 - 12
	16	25	1,2 - 2,0	25 - 31	16 - 20
	25	35	2,0 - 3,0		25 - 31
R2	M10	150	27	40 - 160	40 - 160
P1	40 mm (x1)Ø11 mm	240	27 (M10)	200	
P2	60 mm (x2)Ø13 mm	480		250 - 500	250
P3	80 mm (x4)Ø13 mm	640	45 (M12)	630	315 - 500
	100 mm (x4)Ø13 mm	1000		800	630
	120 mm (x4)Ø13 mm	1800		1000	800 - 1000

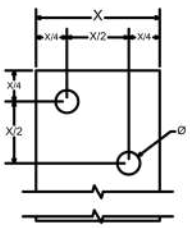
B3

R2

P1



P2



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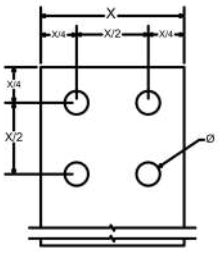


Certification UL (Optional)

Certificate number 20181127-E354573.
UL Category XORU2/8 (Transformer, Construction Only - Component).
Powers from 1 to 200kVA.
Maximum voltage 600V USA (UL) and 750V Canada (CSA).
Only IP00.

TORYTRANS

Three-phase auto-transformer neutral generator

Three-phase autotransformers to generate an artificial neutral.

Protection index according to installation needs:
- IP00 without enclosure.
- IP23 enclosure for indoor location.
- IP65 enclosure for outdoor use.

Applications

- Generate an artificial neutral in all installations that do not have one and it is necessary to connect single-phase loads between phase and neutral.
- Optionally, voltage-reducing or lifting sockets can be added to compensate for voltage drops in the installation cables.

POWER
3 ÷ 100 kVA

PRI VOLTAGE
3 x 400 V

SEC VOLTAGE
3 x 400 V + N

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-13

Certifications

CE UKCA

Optional: cULus

INDUSTRIAL SECTOR
Series ATN

NEUTRAL GENERATOR

Power source

OF SINGLE-PHASE LOADS in networks without neutral with a maximum imbalance between phases of 33%.

Connection

TERMINALS IP20 that protect against direct voltage contact, up to 50kVA in IP00/23 and 40kVA in IP65.

Most economical equipment

TO GENERATE NEUTRAL in networks with only three phases.

Varnishing

COMPLETE AND ROBUST that protects it from moisture, dust and corrosion.

UL

MARKED cURus optional up to 100kVA.

SERIES ATN

AUTOTRANSFORMER
THREE-PHASE ARTIFICIAL
NEUTRAL GENERATOR

V0_10/24

TORYTRANS

NEUTRAL GENERATOR

SERIES ATN

Technical specifications

POWER
3 ÷ 100 kVA

PRI VOLTAGE
3 x 400 V

SEC VOLTAGE
3 x 400 V + N

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE

(IP00)	40 °C
(IP23)	30 °C
(IP65)	30 °C

THERMAL CLASS
F (155 °C)

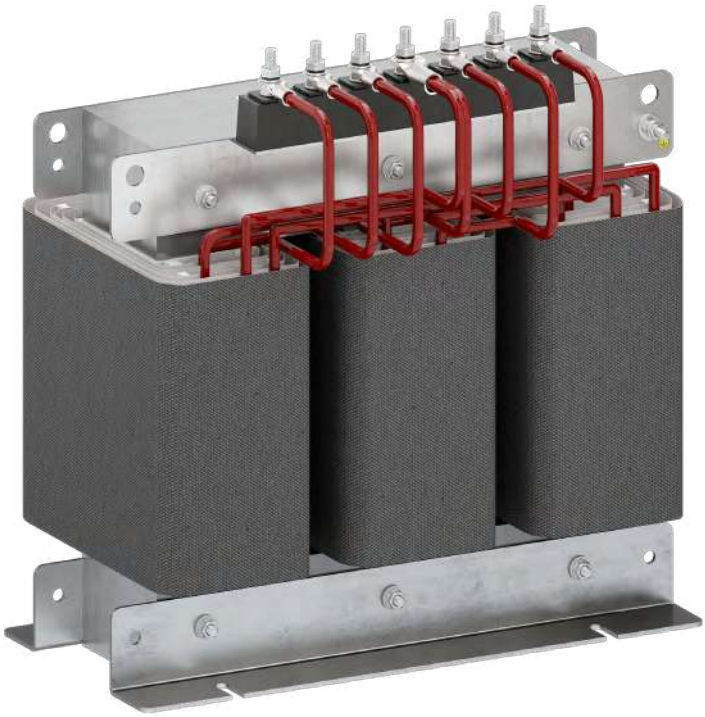
PROTECTION INDEX
IP00, IP23, IP65

ELECTRIC SHOCK PROTECTION
Class I

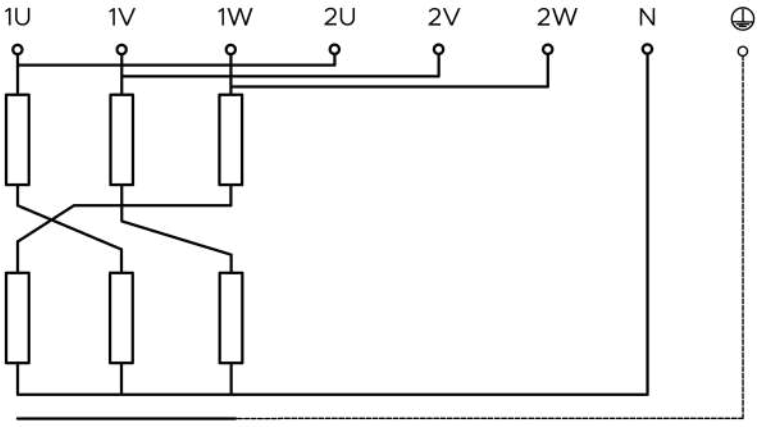
TEST VOLTAGE
3 kV

CONNECTION
ZN0

THREE-PHASE AUTOTRANSFORMER ARTIFICIAL NEUTRAL GENERATOR



Electric **schematic**



NEUTRAL GENERATOR

Technical data - standard models

TOTAL POWER III (kVA)	LOAD POWER II (kVA)	REFERENCE			INTENSITY (A)
		IP00	IP23	IP65	
3	1	ATNS003	ATNC003	ATNP003	4,3
5	1,6	ATNS005	ATNC005	ATNP005	7,2
8	2,6	ATNS008	ATNC008	ATNP008	11,6
10	3,3	ATNS010	ATNC010	ATNP010	14,5
12	4	ATNS012	ATNC012	ATNP012	17,3
16	5,3	ATNS016	ATNC016	ATNP016	23,1
20	6,6	ATNS020	ATNC020	ATNP020	28,9
25	8,3	ATNS025	ATNC025	ATNP025	36,1
31	10,3	ATNS031	ATNC031	ATNP031	44,8
40	13,3	ATNS040	ATNC040	ATNP040	57,8
50	16,6	ATNS050	ATNC050	ATNP050	72,3
63	21	ATNS063	ATNC063	ATNP063	91,0
80	26,6	ATNS080	ATNC080	ATNP080	115,6
100	33,3	ATNS100	ATNC100	ATNP100	144,5

IP00

IP23

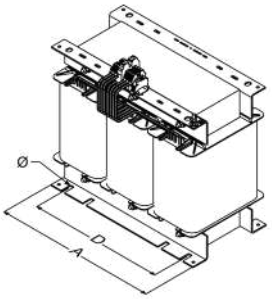
IP65

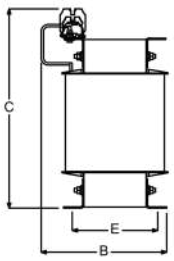
NEUTRAL GENERATOR

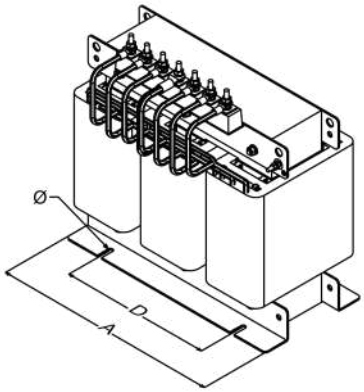
INDUSTRIAL SECTOR
Series ATN

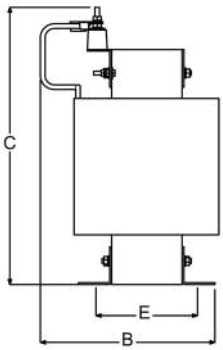
Dimensions - IP00

TOTAL POWER III (kVA)	LOAD POWER II (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
			A	B	C	D	E	Ø		
3	1	**ATNS003**	180	100	210	140	82	7	8,5	I
5	1,6	**ATNS005**	240	110	252	200	90	7	11,5	I
8	2,6	**ATNS008**	300	120	300	200	100	11	21	I
10	3,3	**ATNS010**	300	130	300	200	110	11	24,5	I
12	4	**ATNS012**	300	150	300	200	120	11	30	I
16	5,3	**ATNS016**	300	170	300	200	140	11	37	I
20	6,6	**ATNS020**	360	150	370	320	120	11	42,5	I
25	8,3	**ATNS025**	360	170	375	320	140	11	55	I
31	10,3	**ATNS031**	360	190	375	320	160	11	67,5	I
40	13,3	**ATNS040**	420	180	450	350	150	11	76	I
50	16,6	**ATNS050**	420	210	450	350	180	11	103	I
63	21	**ATNS063**	480	220	500	400	185	11	130	II
80	26,6	**ATNS080**	480	200	660	400	170	13	147	II
100	33,3	**ATNS100**	480	220	660	400	190	13	180	II





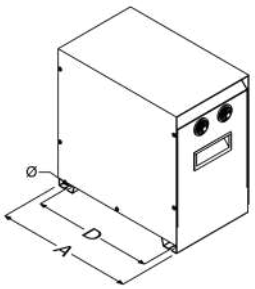


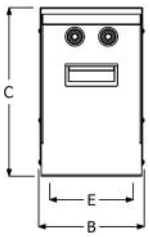


Dimensions - IP23

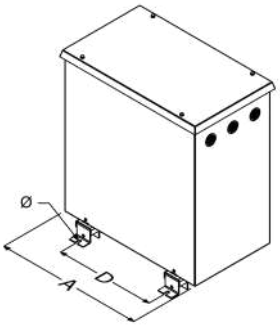
TOTAL POWER III (kVA)	LOAD POWER II (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE	WHEEL
			A	B	C	D	E	Ø			
3	1	**ATNC003**	240	150	245	205	125	7	11,5	I	
5	1,6	**ATNC005**	310	190	305	265	165	7	16,5	I	
8	2,6	**ATNC008**	380	230	375	325	205	7	19	I	
10	3,3	**ATNC010**	380	230	375	325	205	7	32,5	I	
12	4	**ATNC012**	380	230	375	325	205	7	37,5	I	
16	5,3	**ATNC016**	380	230	375	325	205	7	45	I	
20	6,6	**ATNC020**	475	345	540	320	320	10	55,5	II	Included
25	8,3	**ATNC025**	475	345	540	320	320	10	68	II	Included
31	10,3	**ATNC031**	475	345	540	320	320	10	80,5	II	Included
40	13,3	**ATNC040**	545	385	635	350	360	10	92	II	Included
50	16,6	**ATNC050**	545	385	635	350	360	10	119	II	Included
63	21	**ATNC063**	615	425	710	400	400	10	150	II	Included
80	26,6	**ATNC080**	775	575	940	480	550	10	182	III	(*)
100	33,3	**ATNC100**	775	575	940	480	550	10	215	III	(*)

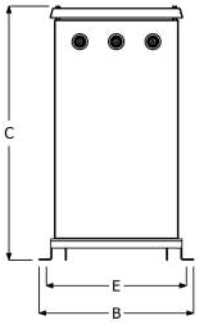
I



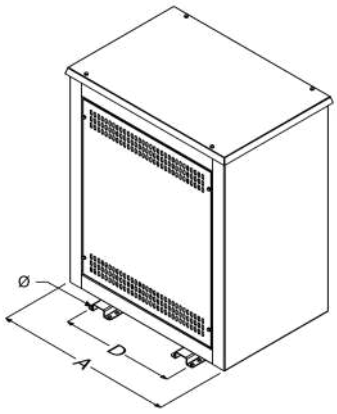


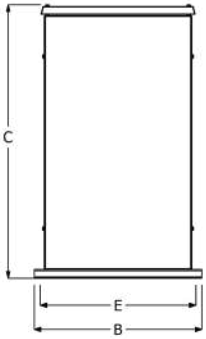
II



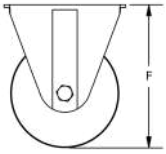


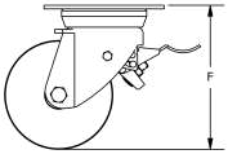
III





(*) Rueda Opcional		
Código	Tipo	F (mm)
ACC00203	Fija	97
ACC00431	Giratoria	97



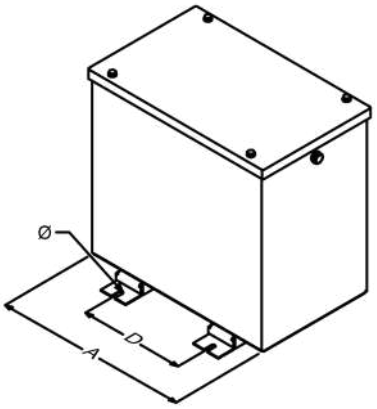


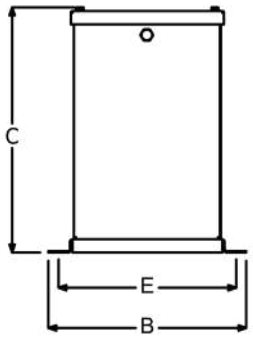
NEUTRAL GENERATOR

INDUSTRIAL SECTOR
Series ATN

Dimensions - IP65

TOTAL POWER III (kVA)	LOAD POWER II (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
			A	B	C	D	E	Ø		
3	1	**ATNP003**	410	305	375	200	285	8	20	I
5	1,6	**ATNP005**	490	340	500	200	320	8	34,5	I
8	2,6	**ATNP008**	490	340	500	200	320	8	38	I
10	3,3	**ATNP010**	490	340	500	200	320	8	43	I
12	4	**ATNP012**	490	340	500	200	320	8	50,5	I
16	5,3	**ATNP016**	580	380	565	320	355	10	60	I
20	6,6	**ATNP020**	580	380	565	320	355	10	72	I
25	8,3	**ATNP025**	580	380	565	320	355	10	80,5	I
31	10,3	**ATNP031**	650	415	640	350	395	10	98	I
40	13,3	**ATNP040**	650	415	640	350	395	10	125	I
50	16,6	**ATNP050**	810	555	890	400	535	10	170	I
63	21	**ATNP063**	810	555	890	400	535	10	186	I
80	26,6	**ATNP080**	810	555	890	400	535	10	220	I
100	33,3	**ATNP100**	810	555	590	400	535	10	265	I





Cabling and protection

TOTAL POWER III (kVA)	LOAD POWER II (kVA)	REF.*	ATNC - CABLE GLANDS		ATNP - PRESSES		PRIMARY PROTECTIONS (A)	SECONDARY PROTECTIONS (A)
K=13	K=20		Ø max. (mm)	Quantity	Ø max. (mm)	Quantity	(D/Am)	(C/Gg)
3	1	**ATNx003**	PG-21	2	PG-21	2	6	4
5	1,6	**ATNx005**	PG-21	2	PG-21	2	8	6
8	2,6	**ATNx008**	PG-29	2	PG-21	2	12	10
10	3,3	**ATNx010**	PG-29	2	PG-21	2	16	12
12	4	**ATNx012**	PG-29	2	PG-21	2	20	16
16	5,3	**ATNx016**	PG-29	2	PG-29	2	25	20
20	6,6	**ATNx020**	PG-38	2	PG-29	2	32	25
25	8,3	**ATNx025**	PG-38	2	PG-29	2	40	32
31	10,3	**ATNx031**	PG-38	2	PG-29	2	50	40
40	13,3	**ATNx040**	PG-38	2	PG-29	2	63	50
50	16,6	**ATNx050**	PG-38	2	PG-29	3	80	63
63	21	**ATNx063**	PG-38	2	PG-29	3	100	80
80	26,6	**ATNx080**	PG-48	2	PG-29	3	125	100
100	33,3	**ATNx100**	PG-48	2	PG-29	3	160*	125

(*) moulded case type magnetothermal switch adjust magnetic trip to x10 In.

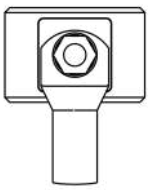
(*) x= S: IP00
x= C: IP23
x= P: IP65

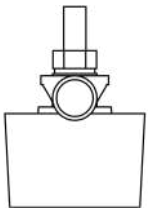
Terminals

CONNECTION		MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE	POWER (kVA) - ATNC		POWER (kVA) - ATNP	
Type	**Size**		**(Nm)**	**Primary**	**Secondary**	**Primary**	**Secondary**
B3	2,5 mm^2	4	0,4 - 0,6	3 - 10	3	3 - 8	
	6 mm^2	10	0,8 - 1,2	12 - 20	5 - 10	10 - 16	3 - 8
	10 mm^2	16	1,2 - 1,8	25	12 - 16	20	10 - 12
	16 mm^2	25	1,2 - 2,0	31 - 40	20	25 - 31	16
	25 mm^2	35	2,0 - 3,0		25 - 40		20 - 31
	35 mm^2	50	2,5 - 3,5	50	50	40	40
R2	M10	150	27	63 - 100	63 - 100	50 - 100	50 - 100

B3

R2





Certification UL (Optional)

Certificate number 20181127-E354573.
UL Category XORU2/8 (Transformer, Construction Only - Component).
Maximum voltage 600V USA (UL) and 750V Canada (CSA).
Only IP00.

6 CHANGE OF PHASE

a. Series TTM
b. Series TMT

7 VOLTAGE MEASUREMENT

a. Series MT

CHANGING MEASURE

TORYTRANS

SECTOR
Industrial

CHANGE OF PHASE

TTM

Three-phase-single-phase transformer

1 ÷ 100 kVA
PRI: 3 x 400 V (Three-phase)
SEC: 230V (Single phase)

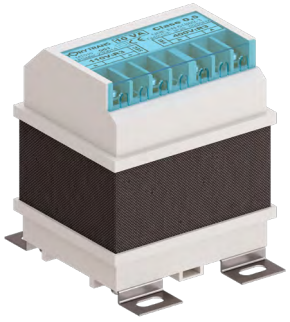
TMT

Single-phase-three-phase transformer

1.5 ÷ 12 kW
INPUT: 230V (Single phase)
OUTPUT: 3 x 400 V (Three-phase)

SECTOR
Industrial

VOLTAGE MEASUREMENT



MT

Measuring transformer

3 ÷ 150 VA Class 0.5
3 ÷ 150 VA Class 1
PRI: max. 690 V
SEC: 100 V

TORYTRANS

Three-phase - single-phase transformer

Isolation transformer that converts three-phase voltage 400 V into single-phase voltage 230 V.

Protection index according to installation needs:
- IP00 without enclosure.
- IP23 enclosure for indoor location.
- IP65 enclosure for outdoor use.

Applications

- Supply single-phase 230 V equipment with galvanic isolation in three-phase 400 V installations without neutral.
- Protection of equipment sensitive to electrical disturbances in telecommunications centres, data centres, backups, and computer servers.
- Generation of IT insulated neutral or TN-S and TN-C grounded neutral systems to avoid unwanted tripping of residual current circuit breakers.

POWER
1 ÷ 100 kVA

PRI VOLTAGE
3 x 400 V

SEC VOLTAGE
2 x 230 V

Regulatory

Power ≤ 25 kVA
IEC/UNE-EN 61558-1

Power > 25 kVA
IEC/UNE-EN 60076-11

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TTM

CHANGE OF PHASE

Power source

OF SINGLE-PHASE LOADS
in three-phase networks
without neutral.

Connection

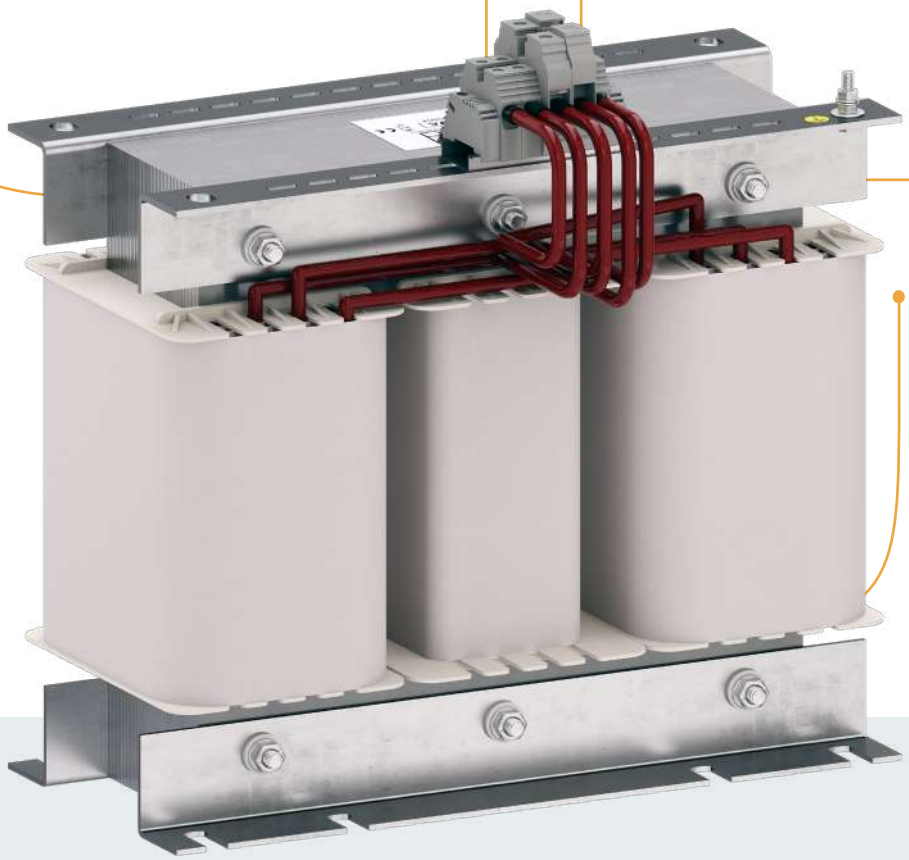
TERMINALS IP20 that protect against direct voltage contact, up to 20kVA in IP00/IP23 and 16kVA in IP65.

Minimise

IMBALANCE in the three-phase network connection caused by high-power single-phase loads.

Varnishing

COMPLETE AND ROBUST
that protects it from moisture, dust and corrosion.



Distribution

100% OF SINGLE-PHASE LOAD in three phases with 25%-50%-25% distribution.

SERIES TTM

TRANSFORMER
THREE-PHASE - SINGLE-PHASE

V0_10/24

TORYTRANS

CHANGE OF PHASE

SERIES TTM

Technical specifications

POWER
1 ÷ 100 kVA

PRI VOLTAGE
3 x 400 V (Three-phase)

SEC VOLTAGE
2 x 230 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
(IP00) 40 °C
(IP23) 30 °C

THERMAL CLASS
F (155 °C)

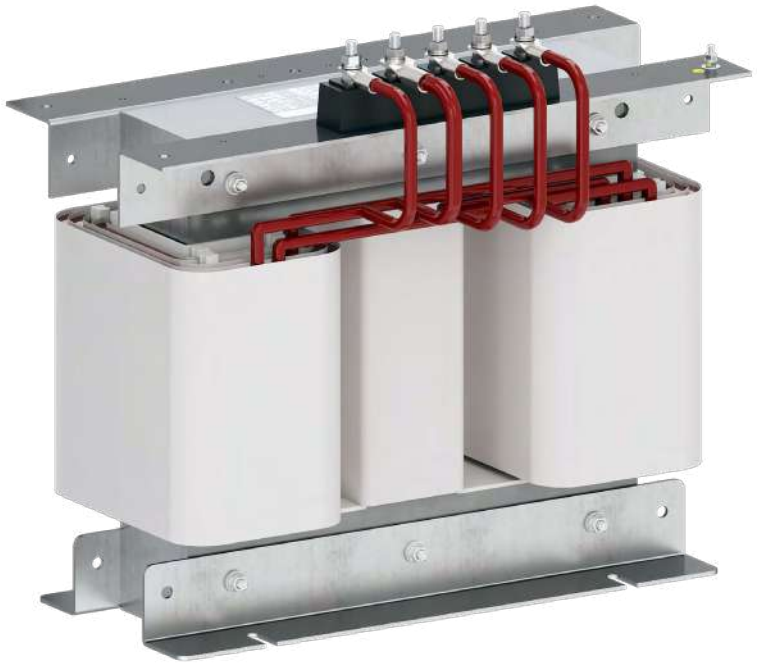
PROTECTION INDEX
IP00, IP23

ELECTRIC SHOCK PROTECTION
Class I

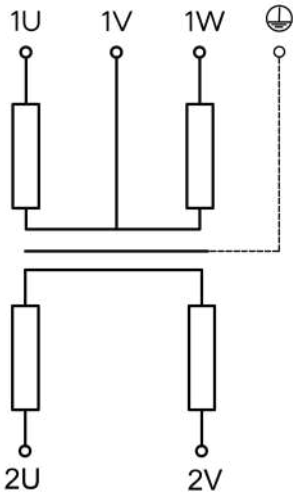
TEST VOLTAGE
4 kV

CONNECTION
V - V inverted

THREE-PHASE - SINGLE-PHASE TRANSFORMER



Electric **schematic**



Technical data - standard models

POWER (kVA)	REFERENCE			INTENSITY (A)			
	IP00	IP23	IP65	Primary			Secondary
				Phase U	Phase V	Phase W	
1	TTMS001	TTMC001	TTMP001	1,4	2,9	1,4	4,3
2	TTMS002	TTMC002	TTMP002	2,9	5,8	2,9	8,7
3	TTMS003	TTMC003	TTMP003	4,3	8,7	4,3	13,0
4	TTMS004	TTMC004	TTMP004	5,8	11,6	5,8	17,4
5	TTMS005	TTMC005	TTMP005	7,2	14,5	7,2	21,7
6	TTMS006	TTMC006	TTMP006	8,7	17,3	8,7	26,1
8	TTMS008	TTMC008	TTMP008	11,6	23,1	11,6	34,8
10	TTMS010	TTMC010	TTMP010	14,5	28,9	14,5	43,5
12	TTMS012	TTMC012	TTMP012	17,3	34,7	17,3	52,2
16	TTMS016	TTMC016	TTMP016	23,1	46,2	23,1	69,6
20	TTMS020	TTMC020	TTMP020	28,9	57,8	28,9	87,0
25	TTMS025	TTMC025	TTMP025	36,1	72,3	36,1	108,7
31	TTMS031	TTMC031	TTMP031	44,8	89,6	44,8	134,8
40	TTMS040	TTMC040	TTMP040	57,8	115,6	57,8	173,9
50	TTMS050	TTMC050	TTMP050	72,3	144,5	72,3	217,4
63	TTMS063	TTMC063	TTMP063	91,0	182,1	91,0	273,9
80	TTMS080	TTMC080	TTMP080	115,6	231,2	115,6	347,8
100	TTMS100	TTMC100	TTMP100	144,5	289,0	144,5	434,8

IP00

IP23

IP65

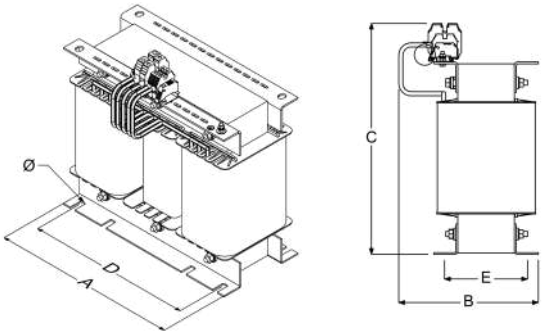
CHANGE OF PHASE

INDUSTRIAL SECTOR
Series TTM

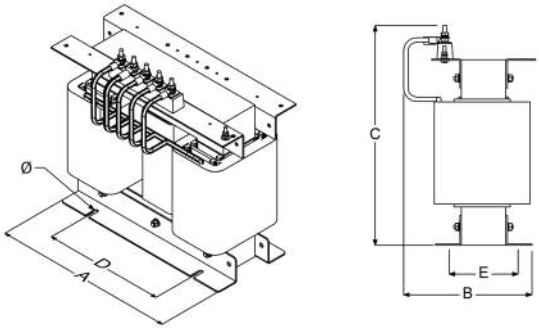
Dimensions - IP00

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
1	**TTMS001**	240	142	252	200	120	7	20	I
2	**TTMS002**	300	130	300	200	110	11	27	I
3	**TTMS003**	300	170	300	200	150	11	42	I
4	**TTMS004**	360	170	360	320	140	11	54	I
5	**TTMS005**	360	180	360	320	150	11	62	I
6	**TTMS006**	360	190	370	320	170	11	72	I
8	**TTMS008**	420	200	420	350	170	11	90	I
10	**TTMS010**	420	220	420	350	190	11	107	I
12	**TTMS012**	480	200	480	400	165	11	113	I
16	**TTMS016**	480	250	480	400	215	11	160	I
20	**TTMS020**	655	295	595	400	230	13	198	I
25	**TTMS025**	655	305	595	400	240	13	222	II
31	**TTMS031**	655	325	595	400	260	13	256	II
40	**TTMS040**	655	355	595	400	290	13	309	II
50	**TTMS050**	600	300	800	400	240	13	340	III
63	**TTMS063**	600	320	800	400	280	13	418	III
80	**TTMS080**	660	360	870	480	310	13	540	III
100	**TTMS100**	720	360	940	480	305	13	610	III

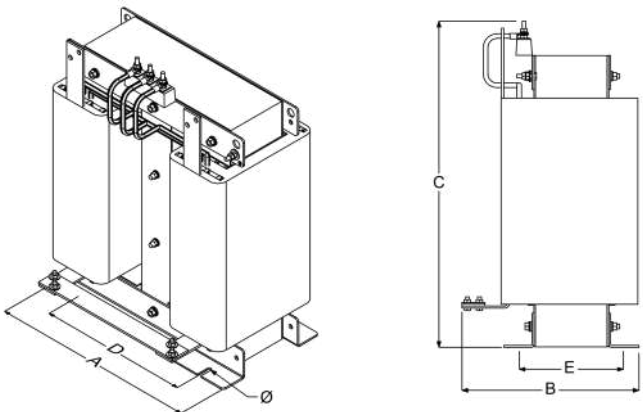
I



II



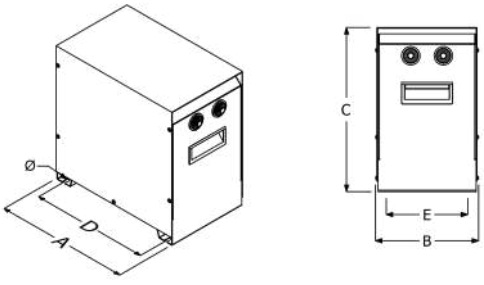
III



Dimensions - IP23

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE	WHEEL
		A	B	C	D	E	Ø			
1	**TTMC001**	310	190	305	265	165	7	25	I	
2	**TTMC002**	380	230	375	325	205	7	35	I	
3	**TTMC003**	380	230	375	325	205	7	50	I	
4	**TTMC004**	475	345	540	320	320	10	67	II	Included
5	**TTMC005**	475	345	540	320	320	10	75	II	Included
6	**TTMC006**	475	345	540	320	320	10	85	II	Included
8	**TTMC008**	545	385	635	350	360	10	106	II	Included
10	**TTMC010**	545	385	635	350	360	10	124	II	Included
12	**TTMC012**	615	425	710	400	400	10	134	II	Included
16	**TTMC016**	615	425	710	400	400	10	180	II	Included
20	**TTMC020**	775	575	940	480	550	10	235	III	(*)
25	**TTMC025**	775	575	940	480	550	10	260	III	(*)
31	**TTMC031**	775	575	940	480	550	10	295	III	(*)
40	**TTMC040**	775	575	940	480	550	10	350	III	(*)
50	**TTMC050**	775	575	940	480	550	10	375	III	(*)
63	**TTMC063**	775	575	940	480	550	10	455	III	(*)
80	**TTMC080**	930	710	1275	605	680	15	615	III	(**)
100	**TTMC100**	930	710	1275	605	680	15	685	III	(**)

I



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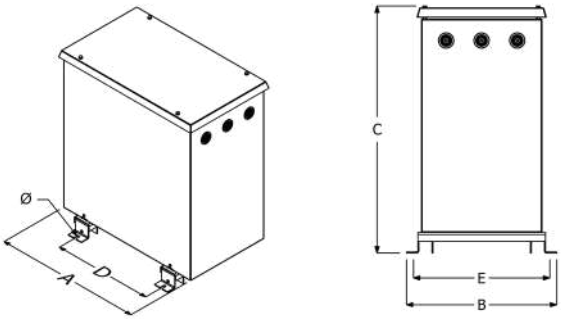

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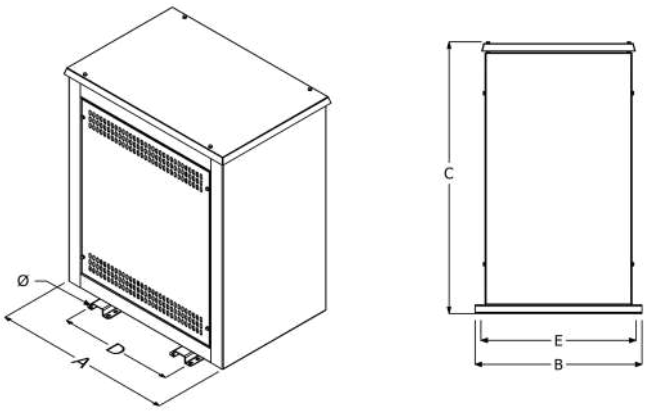
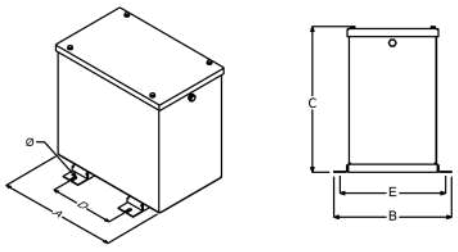


Dimensions - IP65

POWER (kVA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
1	**TTMP001**	490	340	500	200	320	8	41	I
2	**TTMP002**	490	340	500	200	320	8	56	I
3	**TTMP003**	580	380	565	320	355	10	72	I
4	**TTMP004**	580	380	565	320	355	10	80	I
5	**TTMP005**	580	380	565	320	355	10	90	I
6	**TTMP006**	650	415	640	350	395	10	112	I
8	**TTMP008**	650	415	640	350	395	10	130	I
10	**TTMP010**	810	555	890	400	535	10	152	I
12	**TTMP012**	810	555	890	400	535	10	200	I
16	**TTMP016**	935	725	1240	560	685	15	288	II
20	**TTMP020**	935	725	1240	560	685	15	312	II
25	**TTMP025**	935	725	1240	560	685	15	346	II
31	**TTMP031**	935	725	1240	560	685	15	400	II
40	**TTMP040**	935	725	1240	560	685	15	430	II
50	**TTMP050**	935	725	1240	560	685	15	508	II
63	**TTMP063**	1100	895	1425	640	855	15	665	II
80	**TTMP080**	1100	895	1425	640	855	15	736	II
100	**TTMP100**	1100	895	1425	640	855	15	850	II

I



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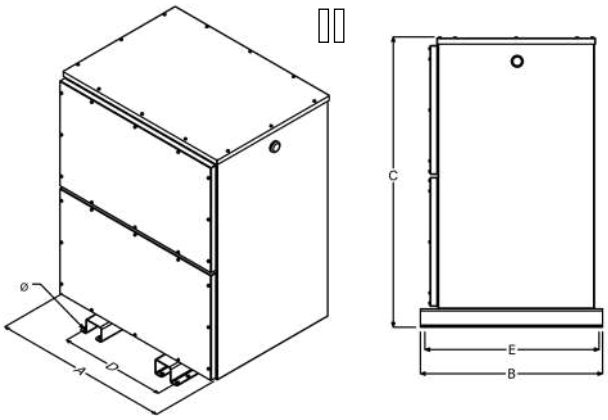


Cabling and protection

POWER (kVA)	REF.	TTMC - CABLE GLANDS		TTP - PRESSES		PRIMARY PROTECTIONS (A)	SECONDARY PROTECTIONS (A)
		Ø max. (mm)	Quantity	Ø max. (mm)	Quantity	(D/Am)	(C/Gg)
1	**TTMx001**	PG-29	2	PG-21	2	4	4
2	**TTMx002**	PG-29	2	PG-21	2	8	8
3	**TTMx003**	PG-29	2	PG-29	2	10	12
4	**TTMx004**	PG-38	2	PG-29	2	16	16
5	**TTMx005**	PG-38	2	PG-29	2	16	20
6	**TTMx006**	PG-38	2	PG-29	2	20	25
8	**TTMx008**	PG-38	2	PG-29	2	25	32
10	**TTMx010**	PG-38	2	PG-29	3	32	40
12	**TTMx012**	PG-38	2	PG-29	3	40	50
16	**TTMx016**	PG-38	2			50	63
20	**TTMx020**	PG-48	3			63	80
25	**TTMx025**	PG-48	3			80	100
31	**TTMx031**	PG-48	3			100	125
40	**TTMx040**	PG-48	3			125	160
50	**TTMx050**	PG-48	3			160*	200
63	**TTMx063**	PG-48	3			200*	250
80	**TTMx080**					250*	315
100	**TTMx100**					315*	400

(*) moulded case type magnetothermal switch adjust magnetic trip to x10In

(*) x= S: IP00
x= C: IP23
x= P: IP65

CHANGE OF PHASE

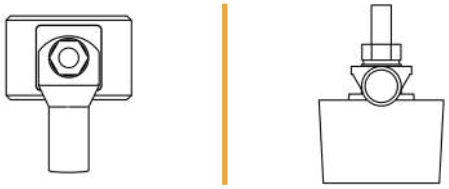
INDUSTRIAL SECTOR
Series TTM

Terminals

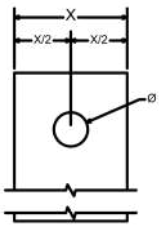
CONNECTION		MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE.	POWER (kVA)	
Type	Size		(Nm)	Primary	Secondary
	2,5 mm^2	4	0,4 - 0,6	1 - 3	1
	6 mm^2	10	0,8 - 1,2	4 - 8	2 - 3
	10 mm^2	16	1,2 - 1,8	10 - 16	4 - 5
B3	16 mm^2	25	1,2 - 2,0		6
	25 mm^2	35	2,0 - 3,0	20	8 - 10
	35 mm^2	50	2,5 - 3,5		12 - 16
	50 mm^2	75	6		20
R2	M10	150	27	25 - 100	25 - 40
P1	40 mm (x1)Ø11 mm	200	27 (M10)		50 - 63
P2	60 mm (x2)Ø13 mm	360	45 (M12)		80 - 100

B3

R2



P1



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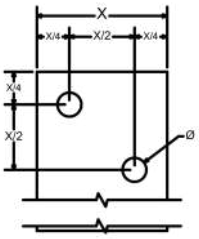


TORYTRANS

Single-phase - three-phase transformer

Single-phase-three-phase converter capable of transforming single-phase alternating current at 230 V into three-phase current at 400 V.

Series TMT with autotransformer without neutral and output voltage 3x400 V. Suitable for machines without input neutral.

Series TMTA with galvanically isolated transformer and 3x400 V Neutral output voltage. Suitable for any type of equipment or machine with input neutral.

Applications

- Powering professional machinery with three-phase motors such as circular and band saws, sanders, planers, shears, polishers and buffing machines, etc.
- Power supply for testing and validation of 400 V three-phase machines in 230 V single-phase installations.

POWER
1.5 ÷ 12 kVA

INPUT
230V (Single phase)

OUTPUT
3 x 400 V (Three-phase)

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-20
IEC/UNE-EN 61439-1
IEC/UNE-EN 61558-2-13

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TMT

CHANGE OF PHASE

Power source

OF THREE-PHASE LOADS
in single-phase networks.

Electrical connections

INSIDE THE CABINET eliminates risks of accidental electrical contact.

Electronic

CONVERTER and inductive voltage booster.

Circuit breaker

OF PROTECTION in the built-in entry.

Thermal protection

OF THE ELECTRONIC CONVERTER against overtemperature and overload.

SERIES TMT

TRANSFORMER
SINGLE-PHASE - THREE-PHASE

V0_10/24

TORYTRANS

CHANGE OF PHASE

SERIES TMT

Technical specifications

MOTOR POWER
1.5 ÷ 12 kVA

INPUT VOLTAGE
230V (Single phase)

OUTPUT VOLTAGE
3 x 400 V (Three-phase)

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
30 °C

PROTECTION INDEX
IP23

REFRIGERATION
AF

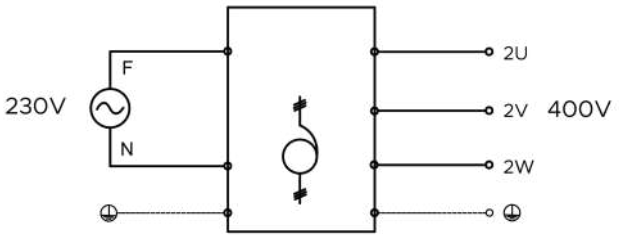
INPUT PROTECTION
Circuit breaker

INDICATOR LIGHT
Green (ON)

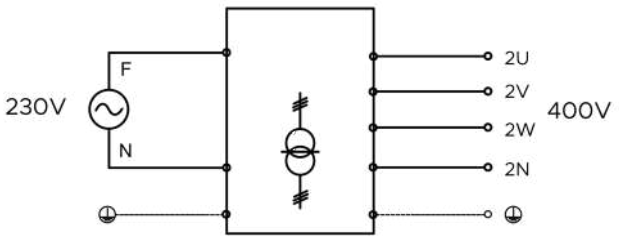
SINGLE-PHASE - THREE-PHASE TRANSFORMER

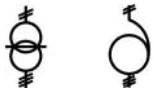
Electric **schematic**

TMT



TMTA





Technical data - standard models

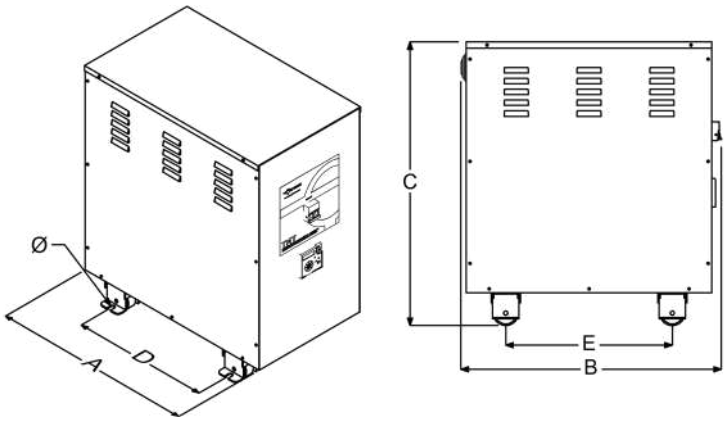
MOTOR POWER (kW)	MOTOR POWER (CV)	RATED POWER(VA)	REF. Auto transformer	REF. Transformer	INTENSITY (A) Input	INTENSITY (A) Output
0,75	1	1500	**TMT15**	**TMTA15**	6,5	2,2
1,5	2	3000	**TMT30**	**TMTA30**	13,0	4,3
2,2	3	4500	**TMT45**	**TMTA45**	19,6	6,5
3	4	6000	**TMT60**	**TMTA60**	26,1	8,7
4	5,5	8000	**TMT80**	**TMTA80**	34,8	11,6
7,5	10	12000	**TMT120**	**TMTA120**	52,2	17,3

Dimensions - Autotransformer (TMT)

POWER (kVA)	REF.	DIMENSIONS (mm) A	B	C	D	E	Ø	WEIGHT (kg)	TYPE
1500	**TMT15**	520	300	585	350	235	9	30	I
3000	**TMT30**	520	300	585	350	235	9	42	I
4500	**TMT45**	590	375	665	400	345	13	48	I
6000	**TMT60**	590	375	665	400	345	13	60	I
8000	**TMT80**	750	440	910	400	400	13	85	I
12000	**TMT120**	750	440	910	400	400	13	110	I

Dimensions - Transformer (TMTA)

POWER (kVA)	REF.	DIMENSIONS (mm) A	B	C	D	E	Ø	WEIGHT (kg)	TYPE
1500	**TMTA15**	520	300	585	350	235	9	60	I
3000	**TMTA30**	590	375	665	400	345	13	75	I
4500	**TMTA45**	590	375	665	400	345	13	90	I
6000	**TMTA60**	750	440	910	400	400	13	95	I
8000	**TMTA80**	750	440	910	400	400	13	120	I
12000	**TMTA120**	750	440	910	400	400	13	150	I



CHANGE OF PHASE

INDUSTRIAL SECTOR
Series TMT

Cabling

POWER (VA)	REF.	REF.	CABLE GLANDS		PRIMARY PROTECTIONS (A)	SECONDARY PROTECTIONS (A)
			Ø max. (mm)	Quantity	(Magnet. Curve C)	(C/Gg)
1500	**TMTA15**	**TMT15**	PG16	1	10*	3
3000	**TMTA30**	**TMT30**	PG16	1	25*	4
4500	**TMTA45**	**TMT45**	PG16	1	32*	6
6000	**TMTA60**	**TMT60**	PG48	3	40*	8
8000	**TMTA80**	**TMT80**	PG48	3	50*	10
12000	**TMTA120**	**TMT120**	PG48	3	63*	16

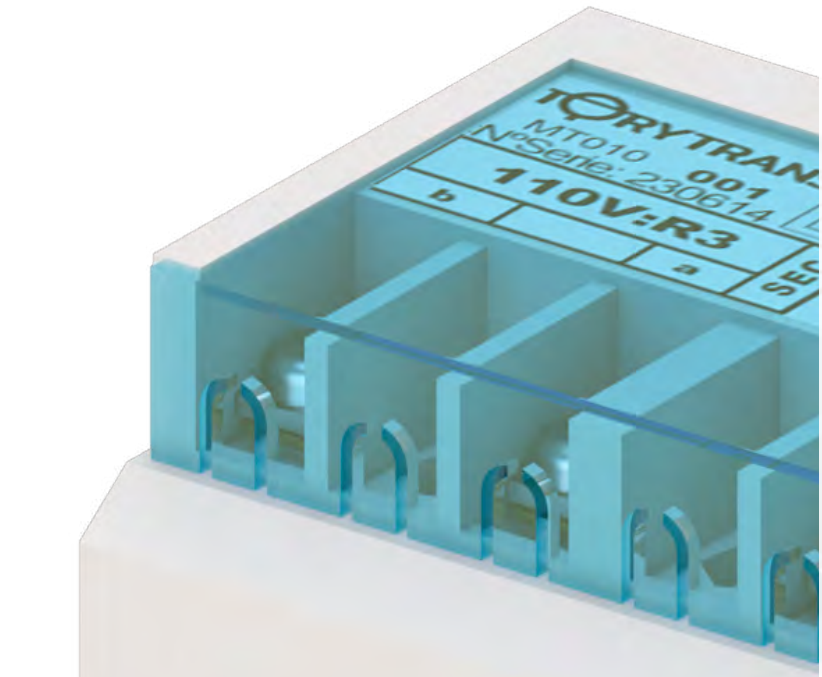
(*) incorporated.

Terminals

CONNECTION		MAX SECTION CONDUCTOR (mm^2)	MAX. TIGHTENING TORQUE	POWER (kVA)	
Type	Size		(Nm)	Input	Output
B3	2,5 mm^2	4	0,4 - 0,6	TMTA15	TMTA15-TMTA80
	4 mm^2	6	0,5 - 0,8		TMTA120
	6 mm^2	10	0,8 - 1,2	TMTA15-TMTA80	
	16 mm^2	25	1,2 - 2,0	TMTA120	

B3

TORYTRANS



Measuring transformer

Measuring transformers to reduce voltage to a safe value suitable for protection relays, analysers, and measuring equipment.

The accuracy class indicates the maximum voltage error in the transformation ratio.
- Class 0.5: error < 0.5% at the indicated power.
- Class 1: error < 1% at the indicated power.

Applications

- Class 0.5: Precision and pricing equipment.
- Class 1: Industrial measuring equipment.

POWER

3 ÷ 150 VA (Class 0.5)
5 ÷ 250 VA (Class 1)

PRI VOLTAGE

max. 720 V to be indicated

SEC VOLTAGE

100 V

Regulatory

IEC/UNE-EN 61869-3

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series MT

VOLTAGE MEASUREMENT

High precision

IN THE TRANSFORMATION RATIO
even in voltage and current transients.

Connection

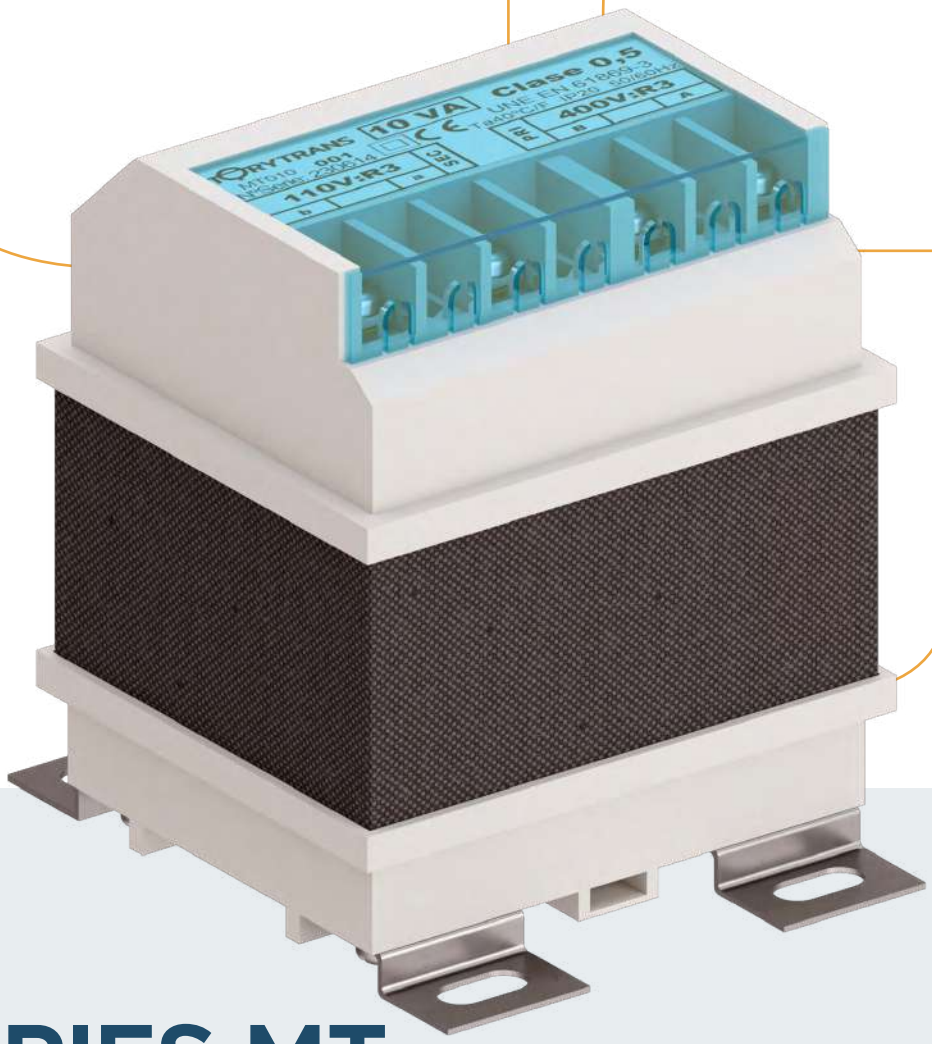
BY SCREW AND WASHER
pre-inserted pressure.

Isolate

AND SEPARATE THE CIRCUITS and measuring devices for high voltage lines.

Protects

THE USER from access to dangerous contact parts of the winding.



Enclosure

MADE OF POLYAMIDE V0 self-extinguishing technique, halogen and phosphorus free.

SERIES MT

MEASURING TRANSFORMER

V0_10/24

TORYTRANS

VOLTAGE
MEASUREMENT

SERIES MT

Technical specifications

POWER
(Class 0.5) 3 ÷ 150 VA
(Class 1) 3 ÷ 250 VA

PRI VOLTAGE
(to be indicated) max. 720 V

SEC VOLTAGE
100 V/√3

PRECISION
Class 0.5
Class 1

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

PROTECTION INDEX
IP20

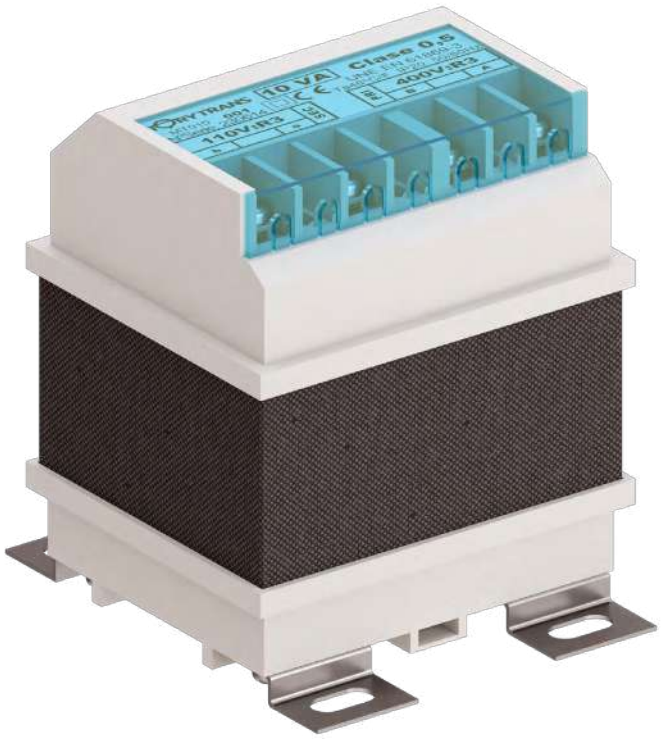
ELECTRIC SHOCK PROTECTION
Class II

TEST VOLTAGE
4 kV

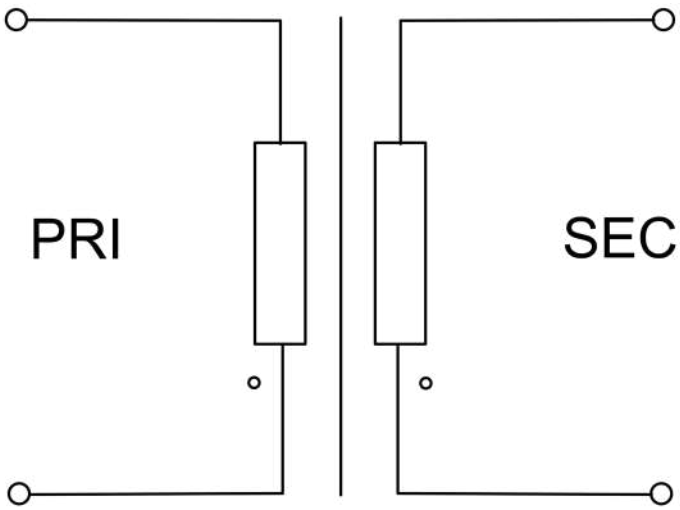
CONTINUOUS OVERVOLTAGE
> +20%

THERMAL INTENSITY
6 x I_N

MEASURING TRANSFORMER



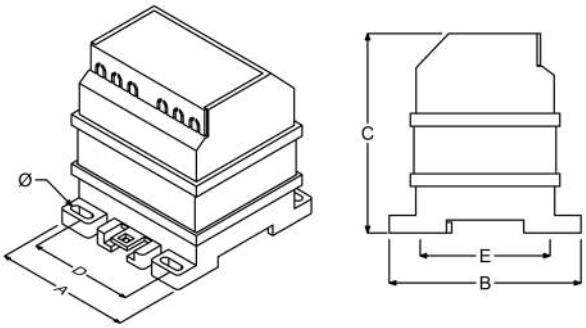
Electric **schematic**



Technical data - standard models

POWER (VA)		REFERENCES
Class 0,5	Class 1	
3	5	**MT003**
5	7,5	**MT005**
10	15	**MT010**
15	25	**MT015**
30	50	**MT030**
50	75	**MT050**
100	150	**MT100**
150	250	**MT150**

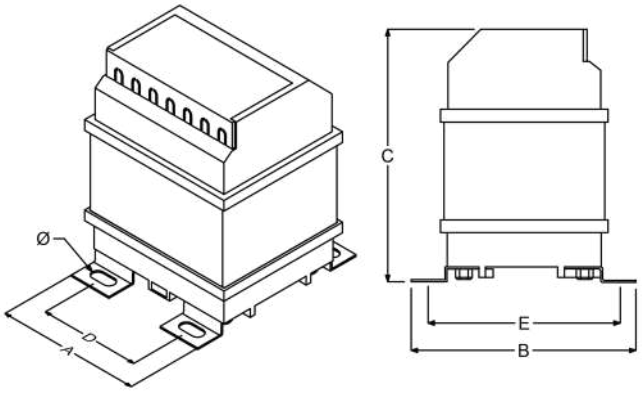
I



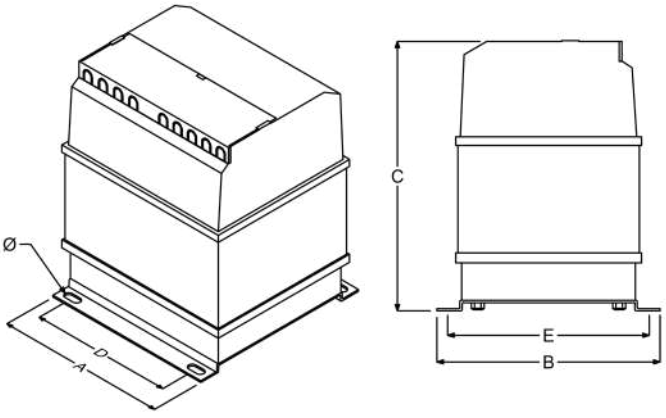
Dimensions

POWER (VA)		REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
Class 0,5	Class 1		A	B	C	D	E	Ø		
3	5	**MT003**	82	90	96	58	79	5,5x12	1,4	I
5	7,5	**MT005**	82	90	106	58	79	5,5x12	1,6	I
10	15	**MT010**	94	106	117	58	90	7x14	2,5	II
15	25	**MT015**	105	115	116	70	99	7x14	2,9	II
30	50	**MT030**	115	123	134	80	106	7x14	4,5	II
50	75	**MT050**	135	148	148	91	132	7x15	6,5	II
100	150	**MT100**	155	158	190	124	143	7x15	12,7	III
150	250	**MT150**	155	158	228	124	143	7x15	17,8	III

II



III



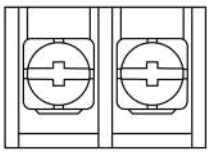
VOLTAGE MEASUREMENT

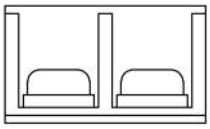
INDUSTRIAL SECTOR
Series MT

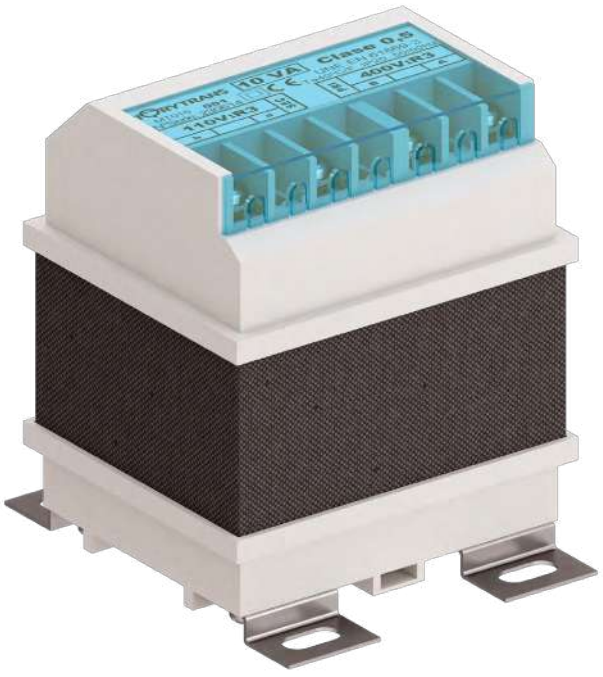
Terminals

CONNECTION		MAX. TIGHTENING TORQUE	POWER (VA) Class 0.5		POWER (VA) Class 1	
Type	Size	(Nm)	Primary	Secondary	Primary	Secondary
T1	M4	1,2	3 - 50	3 - 15	5 - 75	5 - 25
	M5	2	100 - 150	30 - 150	150 - 250	50 - 250

T1







8

LIGHTNING

a. Series TCL
b. Series EPL
c. Series CPE
d. Series EPC

LIGHTNING

TORYTRANS

LIGHTNING

TCL

Single-phase Pool transformer for LED lights (IP20)

30 ÷ 120 VA
PRI: 230 V
SEC: 12 V

EPL

Single-phase Pool transformer for LED lights (IP65)

70 ÷ 300 VA
PRI: 230 V
SEC: 12 V

CPE

Single-phase swimming pool transformer (IP20)

100, 300 and 600 VA
PRI: 230 V
SEC: 12 V

EPC

Single-phase swimming pool transformer (IP65)

100, 300 and 600 VA
PRI: 230 V
SEC: 12 ÷ 17V

TORYTRANS

Single-phase Pool transformer for LED lights (IP20)

Single-phase safety transformer with galvanic isolation between primary and secondary voltages, intended for powering LED spotlights in swimming pools, fountains, gardens, saunas, etc.

The windings are fully protected against impacts, dirt, pollution and moisture.
Prepared for installation in harsh environments.

Applications

- Intended for powering submersible LED spotlights in swimming pools and fountains.
- Power supply for surface-mounted LED spotlights in gardens, saunas, and wet rooms where installation regulations require a 12 V safety voltage.

POWER
30 ÷ 120 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-6

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series TCL

LIGHTNING

Guarantee the voltage

ADJUSTED TO THE LED within margins that ensure correct operation.

Extends life

OF THE LAMP and its optimum illumination.

Enclosure

MADE OF POLYAMIDE V0 self-extinguishing, halogen and phosphor-free technology prevents the user from accessing hazardous contact parts.

Connection

SCREW AND WASHER TERMINAL pre-inserted pressure.

Fixation

FAST via DIN rail.

SERIES TCL

POOL TRANSFORMER
FOR LED LIGHTS (IP20)

V0_10/24

TORYTRANS

LIGHTNING

SERIES TCL

Technical specifications

POWER
30 ÷ 120 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
30 °C

THERMAL CLASS
F (155 °C)

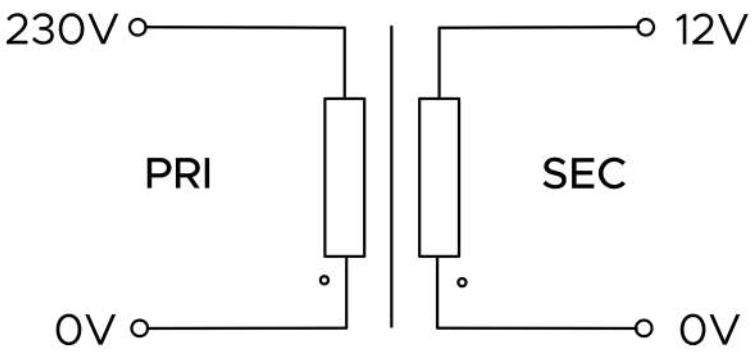
PROTECTION INDEX
IP20

ELECTRIC SHOCK PROTECTION
Class II

TEST VOLTAGE
4 kV

SINGLE-PHASE POOL TRANSFORMER FOR LED LIGHTS (IP20)

Electric **schematic**



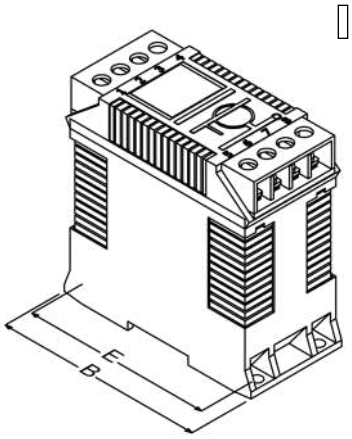
Technical data - standard models

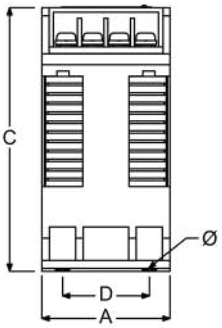
POWER (VA)	REFERENCES	INTENSITY (A)		LED LAMP	
		Primary	Secondary	Max. power	Power factor
30	**TCL30**	0,13	2,5	18 W	0,6
50	**TCL50**	0,22	4,2	30 W	0,6
75	**TCL75**	0,33	6,3	45 W	0,6
120	**TCL120**	0,52	10,0	70 W	0,6

Dimensions

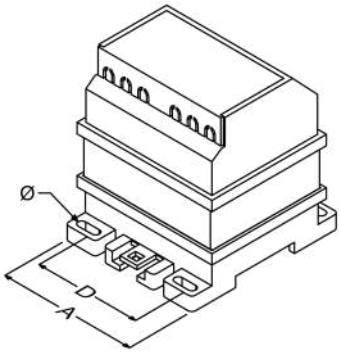
POWER (VA)	REF.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
30	**TCL30**	54	112	112	37	100	6	1,4	I
50	**TCL50**	54	112	112	37	100	6	1,6	I
75	**TCL75**	94	106	117	58	90	7x14	2,5	II
120	**TCL120**	105	115	116	70	99	7x14	2,9	II

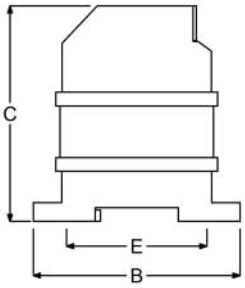
I





II





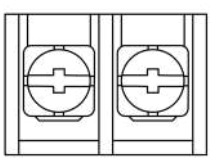
Cabling

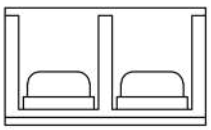
POWER(-VA)	REF.	MIN. SECTION PRIMARY CONDUCTOR (mm^2)	MIN. SECTION SECONDARY CONDUCTOR(mm^2)	PRIMARY PROTECTIONS (A) (T/D/Am)	SECONDARY PROTECTIONS (A) (F/C/Gg)
30	**TCL30**	0,5	0,5	0,25	2,5
50	**TCL50**	0,5	0,75	0,4	4
75	**TCL75**	0,5	1	0,5	6,3
120	**TCL120**	0,5	1,5	0,8	10

Terminals

CONNECTION		MAX. TIGHTENING TORQUE	POWER (VA)
Type	Size	(Nm)	
T1	M4	1,2	30 - 120

T1





TORYTRANS

Single-phase pool transformer for LED lights
(IP65)

Single-phase IP65 safety transformer with galvanic isolation between primary and secondary for powering LED spotlights in swimming pools, fountains, gardens, saunas, etc.

It guarantees the voltage adjusted to the LED within margins that ensure correct operation.

Applications

- For installations directly outside without an electrical cabinet. The watertight casing protects it from water jets from all directions and is completely dust-tight.
- Intended for powering submersible LED spotlights in swimming pools and fountains.
- Power supply for surface-mounted LED spotlights in gardens, saunas, and wet rooms where installation regulations require a 12 V safety voltage.

POWER
70 ÷ 300 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-6

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series EPL

LIGHTNING

Protected

AGAINST OVERHEATING AND OVERLOADS with an automatically resettable bimetallic thermal relay.

Protected

AGAINST SHORT CIRCUITS, incorporates a fuse of the appropriate calibre, accessible inside.

Enclosure

WATERTIGHT Polycarbonate with IP65 protection rating.

Terminal

GROUND with separation barrier between input and output connections.

Power strip

INTERNAL CONNECTION with cable glands included.

SERIES EPL

POOL TRANSFORMER
FOR LED LIGHTS (IP65)

V0_10/24

TORYTRANS

LIGHTNING

SERIES EPL

Technical specifications

POWER
70 ÷ 300 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

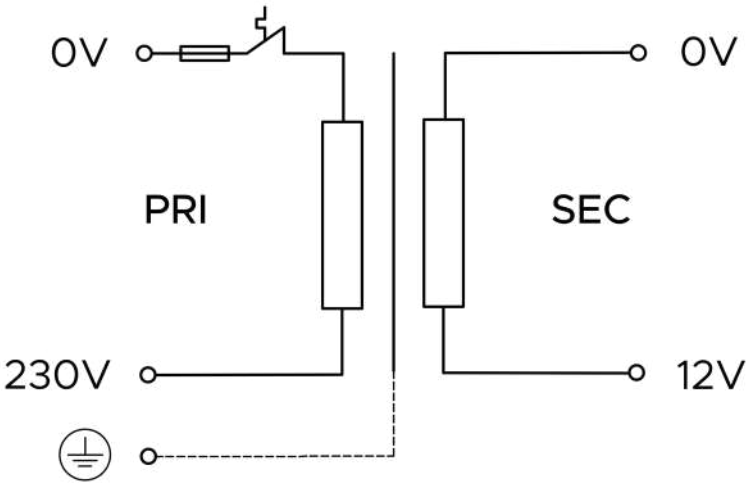
PROTECTION INDEX
IP65

ELECTRIC SHOCK PROTECTION
Class II

TEST VOLTAGE
4 kV

SINGLE-PHASE POOL TRANSFORMER FOR LED LIGHTS (IP65)

Electric **schematic**

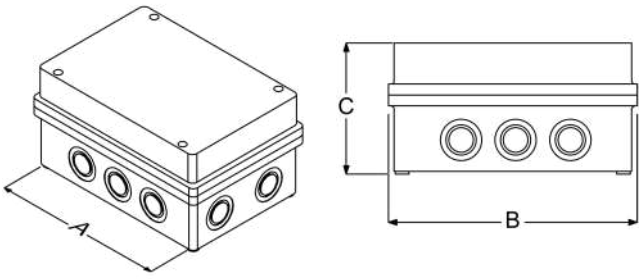


Technical data and dimensions

POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secondary
70	**EPL070**	0,3	5,8
130	**EPL130**	0,6	10,8
220	**EPL220**	1,0	18,3
300	**EPL300**	1,3	25,0

Fuses

POWER (VA)	FUSE 230 V	DIMENSIONS (mm)			WEIGHT (kg)
		A	B	C	
70	T 0.5 A	190	125	95	1,8
130	T 0.8 A	190	125	95	2,8
220	T 1.6 A	220	170	120	4,5
300	T 1.6 A	220	170	120	5,5



TORYTRANS

Single-phase swimming pool transformer (IP20)

Single-phase safety transformer with galvanic isolation between primary and secondary for supplying halogen spotlights in swimming pools, fountains, gardens, saunas, etc.

The windings are fully protected against impacts, dirt, pollution and moisture. Prepared for installation in harsh environments.

- Class I (CPExx1): With electrostatic screen between primary and secondary.
- Class II (CPRxx0): Double insulation between primary and secondary.

Applications

- Designed to power submersible halogen spotlights in swimming pools and fountains.
- Power supply for surface-mounted halogen spotlights in gardens, saunas and wet rooms where installation regulations require 12 V safety voltage.

POWER
100, 300 and 600 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-6

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series CPE

LIGHTNING

Protection

OF THE TERMINALS connection that prevents the risk of accident due to direct contact.

Regulation

BY CONNECTIONS IN THE PRIMARY which allows to correct the voltage drop between the transformer and the light, depending on the distance.

Enclosure

MADE OF POLYAMIDE V0 self-extinguishing, halogen and phosphor-free technology prevents the user from accessing hazardous contact parts.

Connection

SCREW AND WASHER TERMINAL pre-inserted pressure.

Core

COATED with antioxidant protection.

SERIES CPE

SINGLE-PHASE SWIMMING POOL TRANSFORMER (IP20)

V0_10/24

TORYTRANS

LIGHTNING

SERIES CPE

Technical specifications

POWER
100, 300 and 600 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

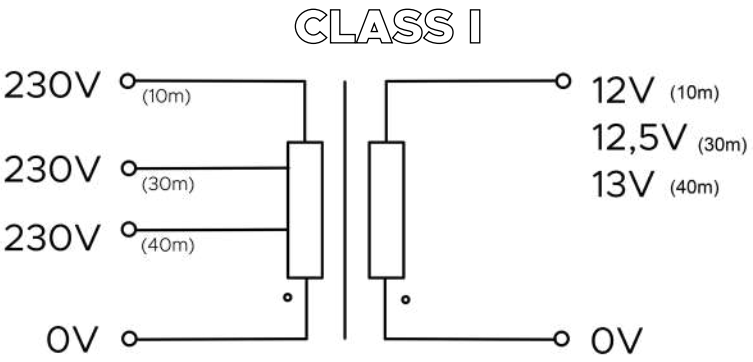
PROTECTION INDEX
IP20

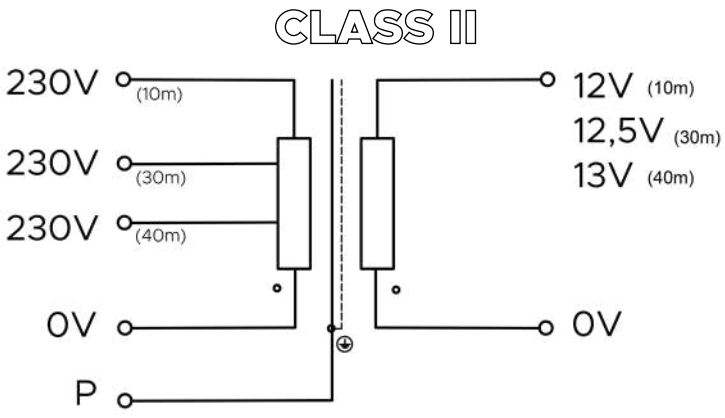
ELECTRIC SHOCK PROTECTION
Class II

TEST VOLTAGE
4 kV

SINGLE-PHASE SWIMMING POOL TRANSFORMER (IP20)

Electric **schematic**





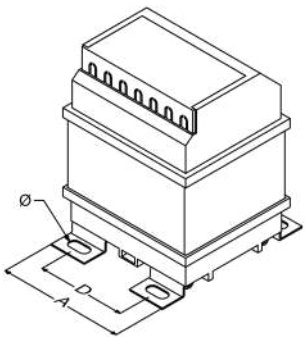
Technical data - standard models

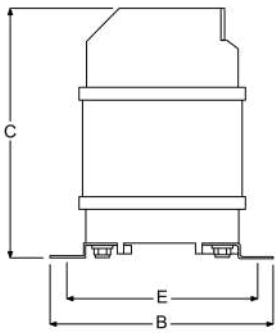
POWER (VA)	REFERENCES		INTENSITY (A)	
	Class I	Class II	Primary	Secondary
100	**CPE101**	**CPE100**	0,43	8,3
300	**CPEN301**	**CPEN300**	1,3	25
600	**CPE601**	**CPE600**	2,6	50

Dimensions - Vertical

POWER (VA)	REFS.	DIMENSIONS (mm)						WEIGHT (kg)	TYPE
		A	B	C	D	E	Ø		
100	**CPE10x**	94	106	105	58	90	7x14	1,7	I
300	**CPEN30x**	108	120	112	80	106	7x14	3,8	II
600	**CPE60x**	135	148	172	91	132	7x15	7,6	III

I





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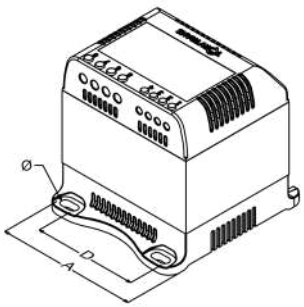
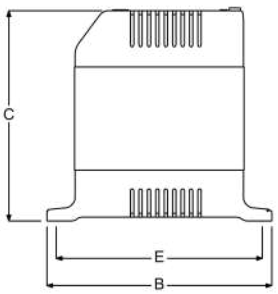
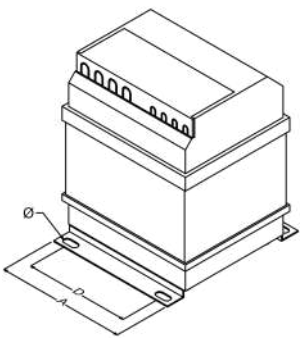
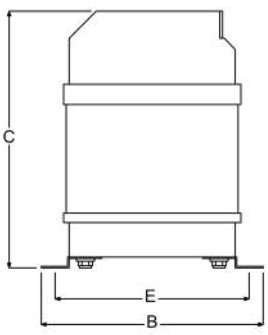




III





LIGHTNING

INDUSTRIAL SECTOR
Series CPE

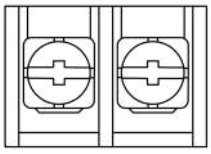
Protection

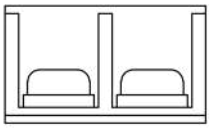
POWER (VA)	PRIMARY PROTECTIONS (A) (T/D/Am)	SECONDARY PROTECTIONS (A) (F/C/Gg)
100	0,63	8
300	1,6	25
600	3,15	50

Terminals

CONNECTION		MAX. TIGHTENING TORQUE	POWER (VA)	
Type	Size	(Nm)	Primary	Secondary
T1	M4	1,2	100 - 600	100
	M5	2		300 - 600

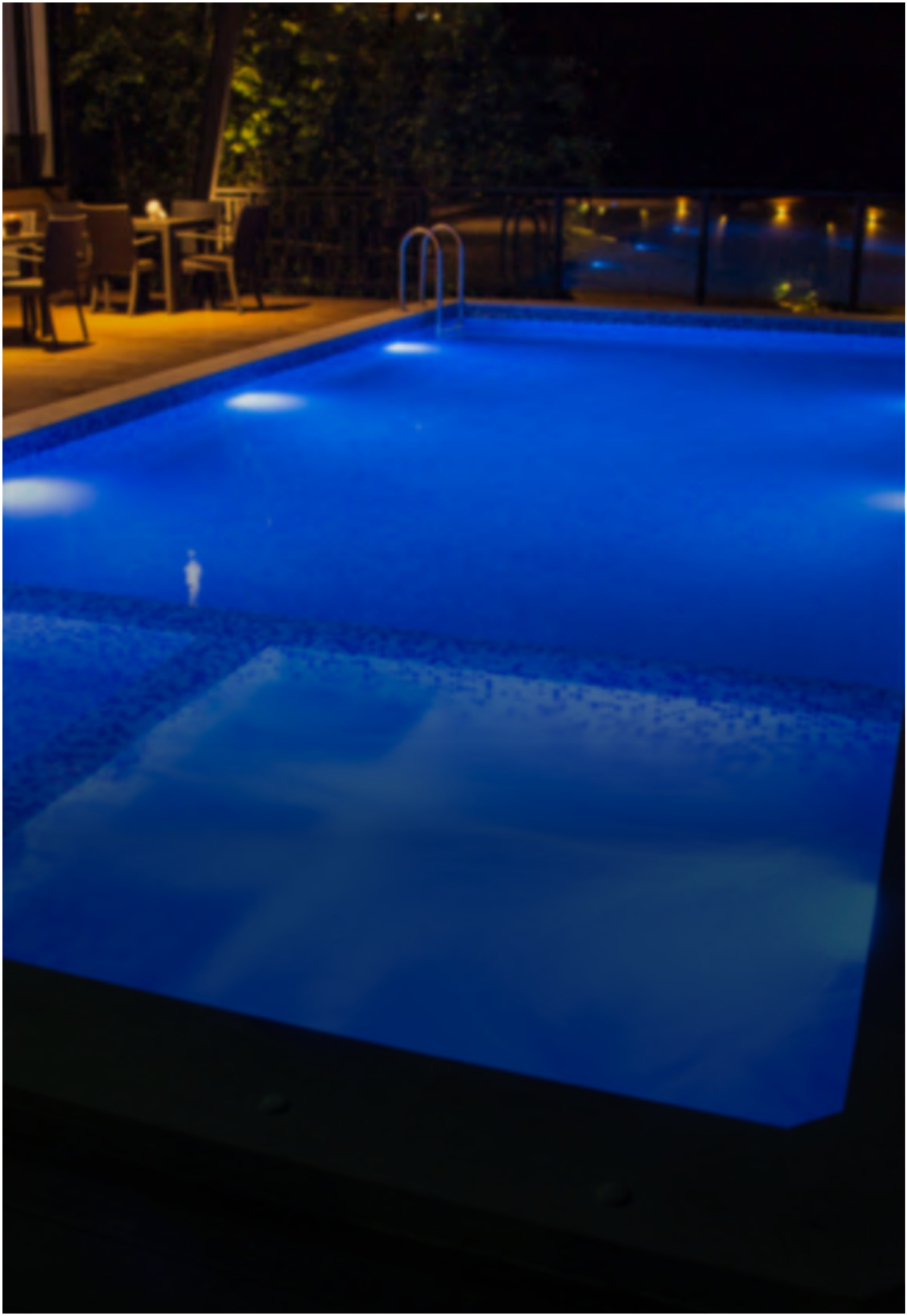
T1





Selection table

POWER TRANSFORMER	SPOTLIGHT POWER	DISTANCE BETWEEN SPOTLIGHT AND TRANSFORMER					
		For 6 mm² cable (CPE0100 2.5 mm²)			For 10 mm² cable (CPE0100 4 mm²)		
100 VA	100 W						
300 VA	300 W	1 - 6 m	6 - 15 m	12 - 24 m	1 - 10 m	10 - 25 m	24 - 40 m
600 VA	2 x 300 W						
230 V INPUT CONNECTION		0 - 3	0 - 2	0 - 1	0 - 3	0 - 2	0 - 1



TORYTRANS

Single-phase swimming pool transformer (IP65)

IP65 single-phase safety transformer with galvanic isolation between primary and secondary, intended for powering halogen spotlights in swimming pools, fountains, gardens, saunas, etc.

It guarantees the voltage adjusted to the LED within margins that ensure correct operation.

Applications

- For installations directly outside without an electrical cabinet. The watertight enclosure protects it from water jets from all directions and is completely dust-tight.
- Designed to power submersible halogen spotlights in swimming pools and fountains.
- Power supply for surface-mounted halogen spotlights in gardens, saunas and wet rooms where installation regulations require 12 V safety voltage.

POWER
100, 300 and 600 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 ÷ 14 V

Regulatory

IEC/UNE-EN 61558-1
IEC/UNE-EN 61558-2-6

Certifications

CE UKCA

INDUSTRIAL SECTOR
Series EPC

LIGHTNING

Protected

AGAINST OVERHEATING AND OVERLOADS with an automatically resettable bimetallic thermal relay.

Protected

AGAINST SHORT CIRCUITS, incorporates a fuse of the appropriate calibre, accessible inside.

Enclosure

WATERTIGHT Polycarbonate with IP65 protection rating.

Regulation

BY CONNECTIONS on the primary that allows correcting the voltage drop between the transformer and the light bulb, depending on the distance between both.

Power strip

INTERNAL CONNECTION with cable glands included. Ground terminal with separation barrier between input and output connections.

SERIES EPC

SINGLE-PHASE SWIMMING POOL TRANSFORMER (IP65)

TORYTRANS

LIGHTNING

SERIES EPC

Technical specifications

POWER
100, 300 and 600 VA

PRI VOLTAGE
230 V

SEC VOLTAGE
12 ÷ 14 V

FREQUENCY
50/60 Hz

AMBIENT TEMPERATURE
40 °C

THERMAL CLASS
F (155 °C)

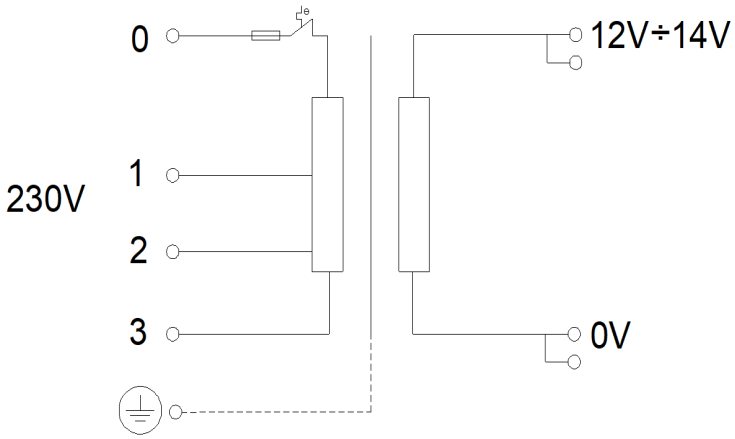
PROTECTION INDEX
IP65

ELECTRIC SHOCK PROTECTION
Class II

TEST VOLTAGE
4 kV

SINGLE-PHASE SWIMMING POOL TRANSFORMER (IP65)

Electric **schematic**

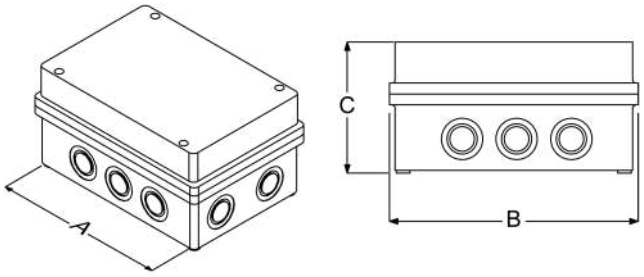


Technical data - standard models

POWER (VA)	REFERENCES	INTENSITY (A)	
		Primary	Secondary
100	**EPC100**	0,43	8,3
300	**EPC300**	1,3	25
600	**EPC600**	2,6	50

Dimensions

POWER (VA)	REF.	DIMENSIONS (mm)			WEIGHT (kg)
		A	B	C	
100	**EPC100**	190	125	95	2,9
300	**EPC300**	220	170	120	5,5
600	**EPC600**	220	170	120	11



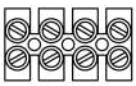
Protection

POWER (VA)	PRIMARY PROTECTIONS (A) (T/D/Am)	SECONDARY PROTECTIONS (A) (F/C/Gg)
100	0,63	8
300	1,6	25
600	3,15	50

Terminals

B2

CONNECTION		MAX. TIGHTENING TORQUE	POWER (VA)	
Type	Size	(Nm)	Primary	Secondary
B2	M4	1,2	100 - 600	100
	M5	2		300 - 600



Selection guide

REF.	CABLE SECTION (mm^2)	SPOTLIGHT POWER	DISTANCE BETWEEN SPOTLIGHT AND TRANSFORMER		
EPC100	2,5	100 W	1 - 8 m	10 - 16 m	16 - 25 m
	4	100 W	1 - 12 m	16 - 25 m	25 - 40 m
EPC300	6	300 W	1 - 6 m	6 - 14 m	14 - 20 m
	10	300 W	1 - 10 m	10 - 22 m	22 - 35 m
EPC600	6	2 x 300 W	1 - 6 m	6 - 14 m	14 - 20 m
	10	2 x 300 W	1 - 10 m	10 - 22 m	22 - 30 m
PRIMARY CONNECTION 230 V			**0 - 3**	**0 - 2**	**0 - 1**

TORYTRANS

SELECTION
GUIDE

Series TC, CSE, CSS, AME, AMS

For **general use**, select the nominal power according to the load and its power factor:

VA = W / Cos φ
VA = V x I

To **use as control transformer** of elements such as relays, contactors, solenoid valves, etc.:

1° Add up all the maintenance powers of the elements.
2° Multiply the result x 4.

The nominal power of the transformer is obtained **VA**.

Check that the instantaneous power of the selected transformer is greater than the simultaneous powers of the control elements.

Series CN, CNE, TTH, TTM

For **general use**, select the nominal power according to the load and its power factor:

kVA = W / Cos φ
kVA = V x I / 1000

For **loads with starting spikes or harmonics**, see “General Selection Guide”.

Series TT and AT

For **general use**, select the nominal power according to the load and its power factor:

kVA = W / Cos φ
kVA = √3 x V x I / 1000

For **loads with starting spikes or harmonics**, see “General Selection Guide”.

General selection **guide**

POWERED EQUIPMENT POWER		POWER REQUIRED FOR TRANSFORMER OR AUTOTRANSFORMER				
		3 to 5 Starts/hour		12 to 15 Starts/hour		
		Air-conditioning Cold storage rooms Compressors Mach. Tool	Turbines Transporters Pumps Presses	Air-conditioning Cold storage rooms Compressors Mach. Tool	Turbines Transporters Pumps Presses	Motor with frequency inverter
CV	KW	kVA	kVA	kVA	kVA	kVA
0,25	0,18	1	1	1	1	1
0,5	0,37	1	1	1	2	1
0,75	0,55	2	2	2	2	2
1	0,74	2	2	2	3	2
1,5	1,10	3	3	3	4	3
2	1,47	3	4	4	5	4
2,5	1,84	4	4	4	5	4
3	2,2	4	5	5	6	5
4	2,9	5	6	8	8	8
5	3,7	6	8	8	10	8
5,5	4,0	8	8	8	10	8
7,5	5,5	10	12	12	16	12
10	7,4	12	16	16	20	16
15	11,0	20	25	25	31	25
20	14,7	25	31	31	40	31
25	18,4	31	40	40	50	40
30	22,1	40	40	40	50	40
40	29,4	50	63	63	80	63
50	36,8	63	80	80	80	80
60	44,2	63	80	80	100	80
75	55	80	100	100	125	100
100	74	100	125	125	160	125
125	92	125	160	160	200	160
150	110	160	200	200	250	200
180	132	200	250	250	315	250
200	147	200	250	250	315	250
220	162	250	315	315	400	315
250	184	250	315	315	400	315
270	199	315	400	400	400	400

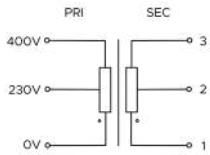
SELECTION

	Single-phase	Three-phase
Generic use isolation transformers. • Galvanic isolation between network and load. • Common mode disturbance attenuation 20 dB up to 0.8 kHz.	**CSE** **CN**	**TT** **TTH**
Ultra-isolation transformers with 1 and 3 screens. • High degree of galvanic isolation between network and load. • With common mode disturbance attenuation screen 60 dB up to 10 kHz.	**CN** **screen** **CUxP**	**TT** **TTH** **with screen**
Ultra-isolation K factor transformers for harmonics. • High degree of galvanic isolation between network and load. • With common mode disturbance attenuation screen 60 dB up to 10 kHz. • Recommended up to harmonic distortion factor K20.		**TTFK**
Ultra-isolation transformers harmonic cancellers. • TAC3 = Cancellation of homopolar harmonics (3° 9° ...) and attenuation of the rest. • TAC5 = Cancellation of odd harmonics (5° 7° ...). • High degree of galvanic isolation between network and load. • With common mode disturbance attenuation screen 60 dB up to 10 kHz. • Recommended up to harmonic distortion factor K20.		**TAC3** **TAC5** * See features in the Quality and Energy Efficiency Catalogue.

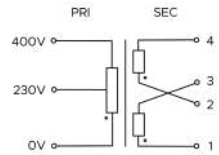
Electrical diagrams of galvanic isolation solutions and harmonic cancellation between Network and Load

Single-phase

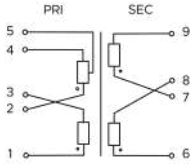
0-100 VA

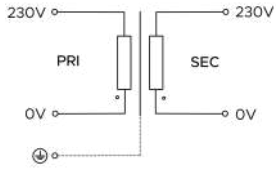


160-1600 VA

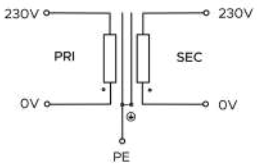


2000-5000 VA

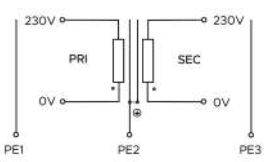




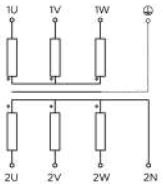
CU1P

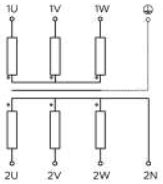


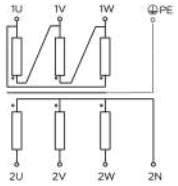
CU3P



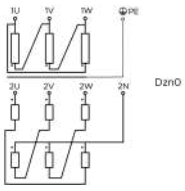
Three-phase



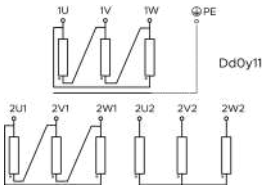




TAC3

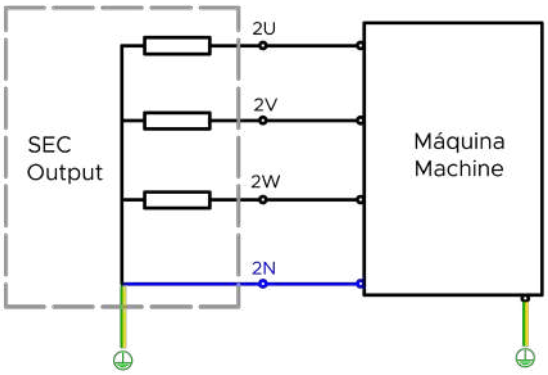


TAC5



Secondary connection diagrams of the isolation transformer according to the neutral regime required in the installation

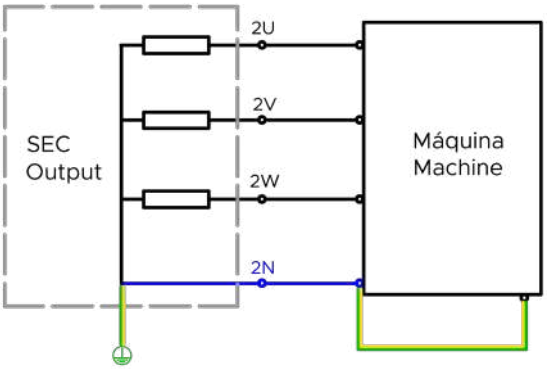
TT



Neutral SEC. connected to ground.

Machine direct to ground.

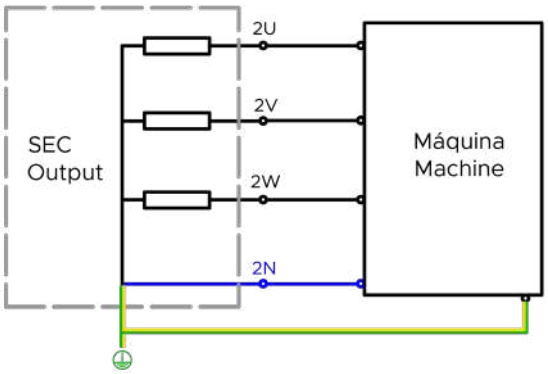
TN-C



Neutral SEC. connected to ground.

Machine ground and neutral together.

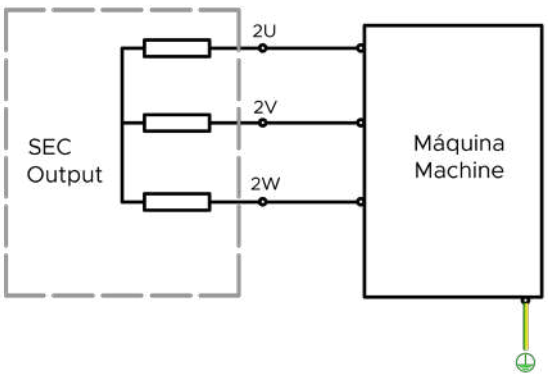
TN-S



Neutral SEC. connected to ground.

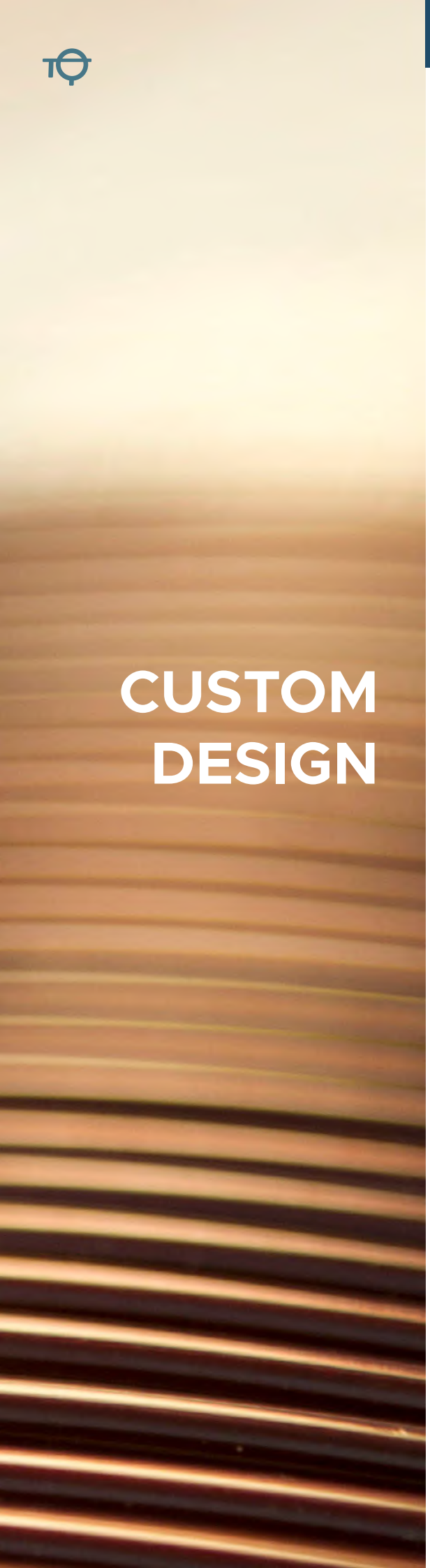
Machine ground and neutral separated.

IT



Neutral SEC. Isolated.

Machine direct to ground.

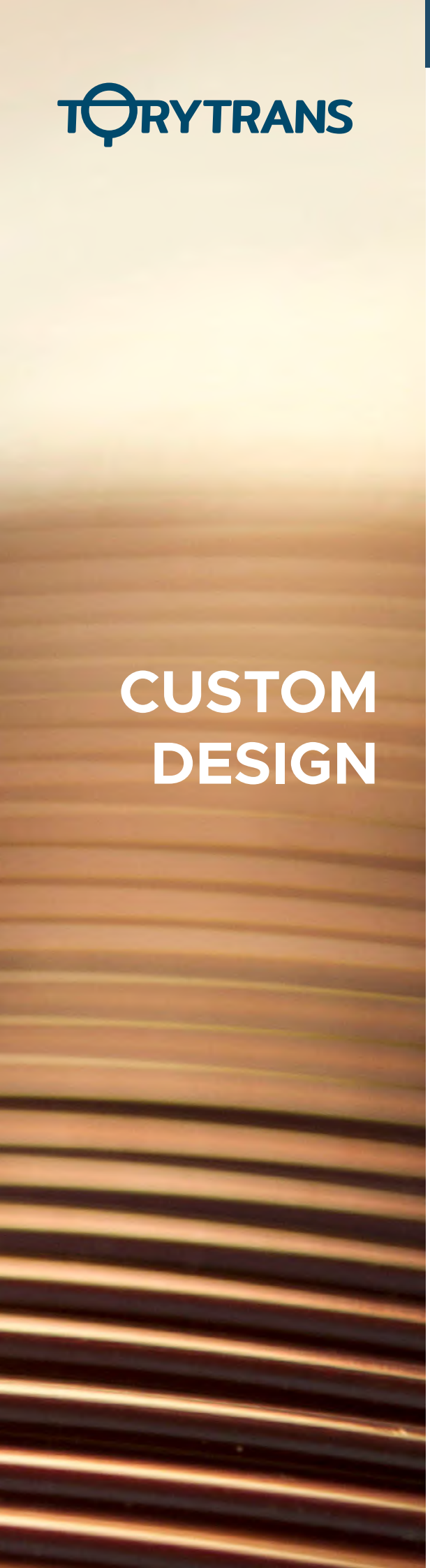


Technical characteristics
applicable to the design and manufacture of transformers and autotransformers

Electrical characteristics

- **Nominal power:** 100 VA ÷ 5000 kVA
- **Nominal voltage:**
  - Low voltage: up to 1100 V
  - Medium voltage: 3.6 ÷ 17.5 kV
- **Vector group:** Star, delta, zig-zag (0, 5, 6, 11, others)
- **Nominal frequency:** 50/60 Hz
- **High frequency:**
  - 2 ÷ 10 kHz Amorphous
  - > 10 ÷ 50 kHz Ferrite core
- **Isolation:** H180
- **dV/dt gradient:** Up to 10 kV/µs
- **Phase to ground voltage:**
  - LV 2500 Vpph-gnd
  - MV: 25000 Vpph-gnd
- **Insulation voltage:**
  - LV 1.1 kV
  - MV: 17.5 kV
- **Applied stress test:**
  - LV: 4 kV 1' 50Hz
  - MV: 38 kV 1' 50Hz
- **BIL test:** Up to 95kV 1.2/50µs
- **Short-circuit current:** Up to 200 kA 1'
- **Number of columns:** 1, 2 and 3 (optional shielded for common mode)
- **Number of phases:** 1, 2, 3 and neutral
- **Isolation:** Dry type VPI impregnation
- **Winding technology:**
  - Resin encapsulated, up to 100 kVA
  - VPI Impregnation
- **Service:** Interior and/or exterior
- **Safety class:** Class I, Class II, Class III
- **Degree of protection:** IP00, IP20, IP23, IP65

(*) Other technical characteristics may be considered according to customer specifications.



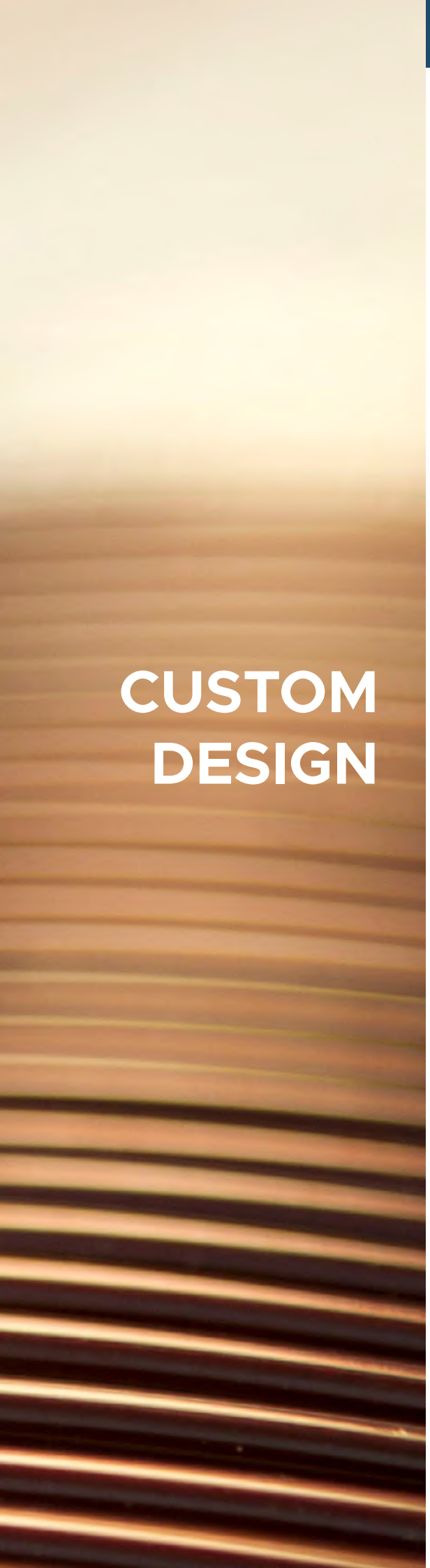
Terms of Service

- **Room temperature:** 50 °C / up to 80 °C depending on the application.
- **Installation altitude:** ≤ 1000 m / up to 4500 m.
- **Relative humidity:** ≤ 95%.
- **Climate class:** C2 Minimum operating, transport and storage temperature -25 °C.
- **Environmental class:** E1 Occasional condensation and limited contamination.
- **Fire class:** F0 - No fire risk considerations.
- **Seismic requirements:** Vertical acceleration ≤ 0.2 g.
- **Vibration level:** According to requested specification.
- **Protection against water or liquids:** Unprotected.
- **Special conditions:** Not protected against contamination by substances of biological or chemical origin, particles, excessive dirt or dust.

Applicable regulation

- UNE-EN IEC 61558-2-20
- UNE-EN IEC 60076-6
- UL 5085-1, UL 5085-2
- CAN/CSA C22.2 No. 66.1-06
- CAN/CSA C22.2 No. 66.2-06
- UL1446
- RoHS / REACH

(*) Other technical characteristics may be considered according to customer specifications.



Construction technologies applicable to the design and manufacture of transformers and autotransformers

ALUMINIUM OR COPPER WINDINGS DEPENDING ON APPLICATION, CURRENT AND FREQUENCY:

- Aluminium or copper windings depending on application, current and frequency.
- Grade 2 enamelled round wire with thermal class 200 °C.
- Grade 2 enamelled rectangular strip or double crossed strip with thermal class 220 °C.
- Glazed foil with smooth edge.
- Multiple Litz wire, enamelled and chain-wired.

MAGNETIC CORES ACCORDING TO APPLICATION, INDUCTANCE AND FREQUENCY:

- High permeability GO and GO magnetic sheet.
- NOGO magnetic sheet and NOGO high permeability.
- Ferrite, amorphous and nano-crystalline.

INSULATION CLASS: F155 °C o H180 °C according to the required thermal class.

CONNECTIONS: Pressure, screw, or plate terminals, depending on the nominal current.

IMPREGNATION: Vacuum and pressure (VPI) with epoxy resin base varnish and subsequent oven drying.

ANTI-CORROSIVE TREATMENTS: Up to grade C4M according to ISO12944.

TEMPERATURE SENSORS: PT100, NC thermal alarm and trip contacts, NTC, ...

OPTIONAL: Silent blocks, lifting eyes.

USEFUL LIFE: ≥ 20 years and MTBF 10^6 hours.

(*) Other technical characteristics may be considered according to customer specifications.

V0_10/24

TORYTRANS

CERTIFICATES
AND REGULATIONS

Product **certificates**

The equipment manufactured by Torytrans complies with current EU safety, health, and environmental protection legislation.

The equipment manufactured by Torytrans complies with current UK safety, health, and environmental protection legislation.

Equipment manufactured by Torytrans is guaranteed to meet product safety and quality standards in the United States and Canada.

Equipment manufactured by Torytrans is guaranteed to meet Canadian product safety and quality standards.

Company **certificates**

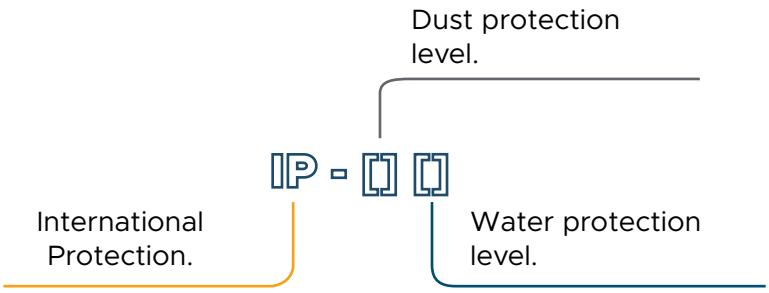
Torytrans has been assessed and certified as meeting the requirements of ISO 9001:2015 for the design and manufacture of inductive products.

Torytrans has been assessed and certified as meeting the requirements of ISO 14001:2015 for the design and manufacture of inductive products.

DEGREES
PROTECTION

Protection **index**

The IP protection rating refers to the international standard IEC 60529 Degrees of Protection, which describes the type of protection provided by enclosures that protect electrical equipment components against the ingress of foreign materials (dust, water, etc.).



The most common types of protection are:

IP00 No protection against accidental contact or entry of foreign objects. No special protection against water.

IP20 Protected from contact and against the entry of foreign objects larger than ø12.5 mm. No special protection against water.

IP21 Protected from contact and entry of foreign objects larger than ø12.5 mm. Protected from rainwater at an angle of up to 15° from vertical and dripping water.

IP23 Protected from contact and against the entry of foreign objects larger than ø12.5 mm. Protected from rainwater at an angle of up to 60° from vertical, for a period of not less than 5 minutes.

IP65 Completely protected from contact and dust ingress. Protected against water jets, from any angle, at an average of 12.5 L/min.

V0_10/24

Symbols

Circuit separation transformer

Safety transformer

Control transformer

Three-phase isolation transformer

Single-phase isolation transformer

Indoor use transformer

Medical transformer

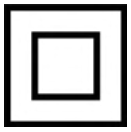
Single-phase autotransformer

Three-phase autotransformer

Protection against electric shock

Class I

Basic insulation plus protective ground connector.



Class II

Double or reinforced insulation, without provision for protective earth.

Commercial network

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Conditions of sale

The updated version of the General Conditions will be available to the public on the website www.torytrans.com

TORYTRANS

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