

# italtec

Technical Training Systems

## Electrical Engineering & Machines Lab

- Ø *WINDING MACHINES*
- Ø *VOLTAGE VARIATORS*
- Ø *SINGLE/THREE-PHASE TRANSFORMER*
- Ø *VARIABLE RESISTORS*
- Ø *SINGLE / THREE PHASE RLC LOADS*
- Ø *POWER SUPPLY MODULE*
- Ø *MOTOR ASSEMBLY KIT*
- Ø *CUT-AWAY MOTOR*
- Ø *TRANSFORMERS CONSTRUCTION KIT*



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### Motors Winding Machines

Winding machines for electric motor skein and rotor windings

#### IT.0467-1



Voltage  
220/380V; 50-  
60Hz;  
Weight: 80Kg.  
Dimensions mm  
660 x 810 x 740

#### Winding machines for electric motor skein

- N.1 Three-phase motor with clutch
- N.1 Presetting mechanical adding revolution counter with 5 figures with lever for last replacement to zero and for restatement of the decided number.
- N.1 Pairs of square mandrels.
- N.2 pairs of arbors dia. 40 & 80 mm with 6 slot.
- N.1 Faceplate diam. mm 500.
- Aluminium frame.
- Optional concentric arbors
- Optional microprocessor c.u.

#### IT.0467-7



Voltage  
220/380V; 50-  
60Hz;  
Weight net:  
155Kg.  
Dimensions mm  
830 x 620 x 1300

#### Winding machines for electric motor skein and rotor windings

- N.1 Three phase motor with incorporated clutch
- N.1 Electronic counter with microprocessor.
- N.1 Bobbin-holder type TC/RFR complete with column and box dia. mm 220.
- N.1 Faceplate dia. mm 400 with 4 slits;
- N.2 Struts for rotor fixing;
- N.1 Plier with fast locking and turning jaws;
- N.1 Safety guard according CE rules;
- Aluminium frame.
- Optional concentric arbors
- Optional control unit with microprocessor

### Transformers Winding Machines

Layer winding machine to produce low voltage transformer, coil, electromagnet and linear windings

#### IT.0461-3



#### Winding machine for linear windings without automatic wire guide

- N.1 Simple mechanical revolution counter with 5 figures
- N.1 Spindle from 1 to 13 mm
- N.1 Winding shaft diam. mm 10 complete with cones and nuts;
- N.1 Single phase motor anr rheostat 175W 220V.
- N.1 Safety guard
- Aluminium base
- Weight net: 13Kg
- Dimensions mm 450 x 400 x 580
- Optional accessory:*
- N.1 Bobbin holder TN for wires diam. mm 0,10-0,40
- N.1 Bobbin holder column

#### IT.0467-2



#### For low and medium voltage transformer, coils, electromagnet and motor windings.

- Max coil diameter : 1900 mm
- Max coil length: 300 mm
- Max torque : 650 kgm
- Speed : 0-373 rpm
- Motor : 4 HP
- Inverter with electronic foot-pedal
- Digital preset counter
- Electromagnetic brake
- Optional accessories:*
- Vice to grip transformer core
- Set of straight and concentric arbors
- Control unit with Microprocessor.

### Transformers and Motors - Hand Winding Machines

Winding machines for electric motor skein and rotor windings

#### IT.0463.A



*Optional accessory:*

- Set of straight arbors
- Set of concentric arbors

#### Winding machine to produce electric motor windings

- N.1 Faceplate diam. mm 286
- N.1 pairs of square mandrels mm 14
- N.2 Pairs of linear arbors with 6 grooves diam. 40/80mm;
- N.1 Mechanical revolution counter with 5 figures;
- N.1 Knob for locking of main shaft;
- Aluminium base
- Weight net: 5Kg
- Dimensions: mm 500 x 190 x 310

#### IT.0463.B



• Aluminium base;  
• Weight net: 10Kg;  
*Optional accessory:*

- Set of straight arbors
- Set of concentric arbors

#### Winding machines for electric motor skein and rotor windings

- N.1 Faceplate diam. 300mm;
- N.1 Pairs of square mandrels 14mm;
- N.2 Pairs of linear arbors diam. 40/80mm with 6 grooves;
- N.1 Mechanical counter with 5 figures;
- N.1 Spindle from 1 to 10mm;
- N.1 Bobbin holder TN for wires diam. 0,10 to 0,40mm;
- N.1 Bobbin holder column;
- N.1 Winding shaft diam. 10mm with cones and nut;
- Dimensions: 570x460x580mm

### IT.05XX

Voltage regulators allow to obtain any voltage smoothly and continuously variable from zero to the line voltage or higher.

All models are for laboratory use, realized with metallic box, output on security terminals and protected against short circuits or overcharge.

**Rated Current:**

Output current can be draw at any brush setting for a continuous duty.

**Ambient temperature:**

Current ratings apply up to 45°C

**Input /output voltages and max current:**

see the following pages

**Input Frequency:**

from 50 to 300Hz

- Single phase
- Three phase
- Optional meters (V, A, W)
- Manual or Motor driven
- Optional PLC for automatic variation based on programmable parameters
- Output power AC and DC, with isolation transformer according to EN 61558, EN 60742
- Versions: desktop, on wheels, wall mounting



### VOLTAGE REGULATORS SINGLE & THREE PHASE, DC

Variable transformers allows to obtain any voltage smoothly-variable from zero to the line voltage or higher.

All models are available motor driven or manual, realized on request in enclosed construction, available also with voltmeters, ammeters, power meters, analog or digital version.

**Construction**

Manufacturing standards designed and tested according to VDE-0552 EN 61010, EN 50081-1, EN 50082 and IEC 61558-2-14; designed as toroidal auto transformer under quality system UNI EN ISO 9003.

**Core**

All regulators use grain-oriented strip would silicon steel cores ensuring low losses and reduce magnetising current.

**Windings**

The winding, which is insulated from the core by precision moulded winding formers, comprises a single layer (class H wire) carefully wound to provide a flat surface for the brush-gear.

**Frames**

The wound core and brush gear are mounted on a cast aluminium frame providing strength combined with minimum weight.

**Brushgear**

Easily replaceable carbon units are used, the resistance of the brush being carefully calculated to limit the current circulating in the bridged turns. Brushes are mounted in robust brush carriers insulated from the shaft, and designed so that metal parts cannot come into contact with the winding in the event of brush fracture.



Version 3F/1F with transformer according to EN 61558 EN 60742 and outputs AC/DC



### Single phase voltage variators



Series	- Input - Output	Current	Power VA
0540	0-220V - 0-260V	0,9A - 2A	0,18k - 0,45k
0541	0-220V - 0-380V	1,2A - 4A	0,5k - 0,9k
0542	0-220V - 0-380V	2,8A - 9A	0,9k - 2k
0543	0-220V - 0-380V	5,2A - 15A	1,8k - 3,3k
0544	0-220V - 0-380V	9A - 25A	3,4k - 6k
0545	0-220V - 0-500V	18A - 96A	6k - 24k

### Three phase voltage variators



Series	- Input - Output	Current	Power VA
0546	0-220V - 0-450V	0,9A - 2,4A	0,9k - 1,4k
0547	0-220V - 0-480V	1,8A - 5,6A	0,9k - 2,7k
0548	0-220V - 0-480V	3,7A - 9A	1,8k - 6k
0549	0-220V - 0-480V	6,5A - 19A	5,4k - 9,9k
0550	0-220V - 0-480V	12,5A - 32A	10,5k - 17k
0551	0-220V - 0-500V	21A - 44A	16,5k - 24k
0552	0-220V - 0-500V	42A - 90A	24k - 50k

### OTHER POWER AND VOLTAGE AVAILABLE ON REQUEST

All Variac, single and three-phase, are available in industrial version or within an enclosure box, manually operated or motor driven.

Different option or meter are available like Voltmeter, Ammeter, Wattmeter analog or digital etc.

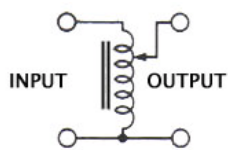


Manual version

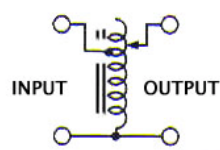


Motorized for "manual remote control" or "programmed control"

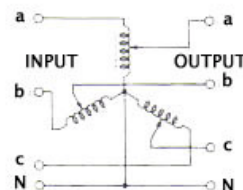
### Standard output and over voltage output



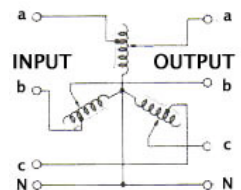
Single-phase connection



Over voltage connection  
(max output voltage is higher than max input voltage)



Three-phase star connection



Three-phase star with over voltage

## Single Phase Laboratory Voltage Variators

Code	Input <i>Alimentation</i>	Output <i>Sortie</i>	Current <i>Courant</i>	Power VA <i>Puissance VA</i>
IT.0541.2202	220V	0-220V	2,2A	500
IT.0541.2204	220V	0-220V	4A	900
IT.0541.2902	220V	0-280V	2A	560
IT.0541.2603	230V	0-260V	3A	780
IT.0541.2802	230V	0-280V	2A	560
IT.0541.3801	380V	0-380V	1,2A	500
IT.0542.2309	230V	0-230V	9A	2000
IT.0542.2804	230V	0-280V	4A	1100
IT.0543.2314	230V	0-230V	14A	3200
IT.0543.2807	230V	0-280V	7,5A	2100
IT.0544.2325	230V	0-230V	25A	5700
IT.0544.2812	230V	0-280V	12,5A	3500
IT.0545.2332	230V	0-230V	32A	7400
IT.0545.2623	230V	0-260V	23A	6000
IT.0545.2823	230V	0-280V	23A	6500

## Three phase laboratory voltage variators

Code	Input <i>Alimentation</i>	Output <i>Sortie</i>	Current <i>Courant</i>	Power VA <i>Puissance VA</i>
IT.0546.4002	400V	0-400V	2A	1350VA
IT.0546.4501	380V	0-450V	1A	780VA
IT.0547.2204	220V	0-220V	4,2A	1500VA
IT.0547.2802	220V	0-280V	1,8A	900VA
IT.0547.4802	380V	0-480V	2A	1680VA
IT.0547.4003	400V	0-400V	3	2070VA
IT.0547.4502	400V	0-450V	2,5	2070VA
IT.0547.4802	400V	0-480V	2A	1680VA
IT.0548.2209	220V	0-220V	9A	3300VA
IT.0548.2804	220V	0-280V	3,7A	1800VA
IT.0548.3809	380V	0-380V	9A	5900VA
IT.0548.4904	380V	0-480V	4A	3300VA
IT.0548.4009	400V	0-400V	9A	6000VA
IT.0548.4804	400V	0-480V	4A	3300VA
IT.0549.2219	220V	0-220V	19A	7200VA
IT.0549.2812	220V	0-280V	12,5A	6000VA
IT.0549.4906	380V	0-480V	6,5A	5400VA
IT.0549.4014	400V	0-400V	14A	9600VA
IT.0549.4807	400V	0-480V	7,5A	6300VA
IT.0550.2232	220V	0-220V	32A	12000VA
IT.0550.2822	220V	0-280V	22A	10500VA
IT.0550.4912	380V	0-480V	12,5A	10500VA
IT.0550.4025	400V	0-400V	25A	17000VA
IT.0550.4812	400V	0-480V	12,5A	10500VA
IT.0551.2244	220V	0-220V	44A	16500VA
IT.0551.2837	220V	0-280V	37A	18000VA
IT.0551.3836	380V	0-380V	36A	24000VA
IT.0551.4523	380V	0-450V	23A	18000VA
IT.0551.4921	380V	0-480V	21A	18000VA
IT.0551.4032	400V	0-400V	32A	22000VA
IT.0551.4523	400V	0-450V	23A	18000VA
IT.0551.4823	400V	0-480V	23A	19500VA
IT.0551.4036	400V	0-400V	36A	24000VA
IT.0551.4528	400V	0-450V	28A	24000VA
IT.0551.5021	400V	0-500V	21A	24000VA

### MOD.4190 MOD.4195

Single and Three phase transformer realized in didactical version.

Produced according to the standards EN 61558

Primary and secondary windings are divided in two or more sections to allow many possibilities of connection.

#### 1PH

- Primary windings: 230V (2x115Vac)
- Secondary windings: 115V (2x57,5Vac)

#### 3PH

- Primary windings: 400V (3x2x115V)
- Secondary windings: 200V (3x2x66,5V)
- Connections on standard 4 mm safety sockets
- Manual explaining theory and practice for laboratory experiment

#### Options:

Designed with -power and -voltage ratio (primary / secondary) on request

#### Standard power available

- Mod.4195 -1kW
- Mod.5195 -2kW
- Mod.6195 -3kW
- Mod.7195 -5kW
- Mod.8195 -8kW
- Mod.9195 -10kW
- (Other power on request)



Transformers are used in all power classes both in industry and in domestic appliances. They are used for the conversion of voltages and current.

This product gives an important instrument for the easy approach of the students with some simple but fundamental concepts of the electrical engineering. Primary and secondary windings are divided in several sections to allow many possibilities of connections, including zigzag.

Housed in a robust metallic case, it's easy to use and manage thank to the table-top unit format.

- Imprinted terminal boards with the synoptic..
- Protection against thermal overload
- All connections on 4 mm safety sockets included thermal contact.
- Manual explaining theory and practice for laboratory experiments

#### Didactical purpose

- Complete and simplified equivalent circuits;
- Measurement of the individual variables
- Transformation of current and voltage
- Measuring the rush current using an oscilloscope
- Measurement and calculation of the no-load values
- Measurement and calculation of the short-circuit values
- Measurements with a variable load R, L & C
- Determining the efficiency
- Evaluating the measured values
- Phase angle between primary and secondary windings and the effect of asymmetric loading in the circuit groups Yy, Yd, Yz, Dy

#### MOD.4190 Single Phase Transformer



Primary and secondary windings are divided in several sections to allow many possibilities of connections.  
Primary windings: 230V (2x115Vac)  
Secondary windings: 115V (2x57,5Vac)  
Power: 1000VA;  
Frequency: 50-60Hz;  
Dimensions: LxWxH: 50x30x25 cm;  
Weight: 9kg;

#### MOD.4195 Three-phase Transformer



Each primary and secondary windings are divided in two sections to allow many possibilities of connection (star, triangle and zig-zag).  
Primary windings: 400V (3x2x115V)  
Secondary windings: 200V (3x2x66,5V)  
Power: 1000VA;  
Frequency 50/60Hz;  
Dimensions: LxWxH: 50x30x25 cm;  
Weight: 12kg.

#### Options.

Depending on the specific requirements of the application transformers could be designed and supplied with power and voltages 'on request' for primary and secondary.

#### Accessories

A full range of accessories and options are available like measuring modules such as voltmeter, ammeter, power meter, connection cables and power supplies.

## VARIABLE RESISTORS

from 0 to 160/6600 watt

### R series

#### VARIABLE RESISTORS from 0 to 160/6600 watt

These table type variable resistors are indispensable aids, designed for varying d.c. and a.c. currents or voltages in a wide range of the electrical industry, such as testing the electric circuits of motor vehicles, application in the laboratory and education and other.

The units can be operated as a rheostat or potentiometers.

*Many other models available on request*

#### Applications

- Electrical industry
- Measure and control laboratory
- DIY
- Educational

#### Included accessories

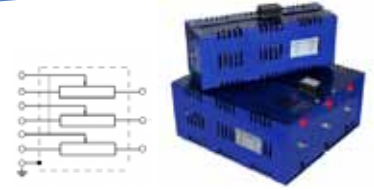
- User's manual

#### Safety standards:

- Construction according to EN61010-1
- Protection degree IP20



- Resistance tolerance:  $\pm 10\%$
- Insulation resistance:  $> 3 \times 10^7$  ohm, Earth resistance:  $< 0,1$ ohm
- Terminals allowed voltage: max. 600V ac/dc
- Allowed voltage between terminals (three phase): max 700V ac/dc
- Break down voltage against casing:  $> 2500$ V ac



Model	Resistance ( $\Omega$ )	I rated (A)	I max - (A) 15min.	max (W) 15min.	Size (mm) & weight (kg)	Description
R160-00-1R	1	13	18	320	Approx. 223x93x150 1,75 – 1,95	Small handy version. 160/320VA.
R160-10-3R3	3,3	7	10	320		
R160-20-10R	10	4	5,7	320		
R160-30-33R	33	2,2	3,1	320		
R160-40-100	100	1,25	1,8	320		
R160-50-330R	330	0,7	1,0	320		
R160-60-1k	1000	0,4	0,57	320		
R160-70-3k3	3300	0,22	0,31	320	Approx. 446x93x150 2,85 – 3,25	Usual loadings version. One resistance coil in a housing. 320 /640VA.
R320-00-1R	1	18	25	640		
R320-10-3R3	3,3	10	14	640		
R320-11-4R7	4,7	8,25	11,7	640		
R320-12-6R8	6,8	6,86	9,7	640		
R320-20-10R	10	5,7	8	640		
R320-21-15R	15	4,6	6,5	640		
R320-22-20R	20	4	5,7	640		
R320-30-33R	33	3,1	4,4	640		
R320-35-50R	50	2,5	3,5	640		
R320-40-100R	100	1,8	2,5	640	Approx. 446x165x150 5,0 – 5,8	High loadings version. Two parallel connected resistance coils, in a housing. Sliding pieces are mechanically and electrically connected. 640/1280VA.
R320-50-330R	330	1,0	1,4	640		
R320-60-1k	1000	0,57	0,8	640		
R320-70-3k3	3300	0,31	0,44	640		
R320-80-10k	10000	0,18	0,25	640		
R640-00-0R5	0,5	36	50	1300		
R640-10-1R6	1,6	20	28	1300		
R640-20-5R	5	11,4	16	1300		
R640-21-11R5	11,5	7,4	10,5	1300		
R640-30-16R5	16,5	6,2	8,7	1300		
R640-40-23R	23,3	5,2	7,6	1300		
R640-41-33R	33	4,4	6,2	1300		
R640-42-50R	50	3,6	5	1300		
R640-43-106R	106	2,4	3,5	1300		
R640-50-165R	165	2	2,8	1300		
R640-60-325R	325	1,4	1,9	1300		
R640-60-500R	500	1,1	1,6	1300		
R640-70-1k65	1650	0,63	0,9	1300		
R640-80-5k	5000	0,36	0,5	1300	Approx. 446x230x155 7,9 – 9,1	High loadings Three parallel connected resistors coils, in a housing. Sliding pieces are mechanically and electrically connected. 960/1920VA.
R960-00-0R33	0,33	54	76	1900		
R960-10-1R1	1,1	30	42	1900		
R960-20-3R33	3,33	17	24	1900		
R960-30-11R	11	9,3	13	1900		
R960-40-33R	33	5,4	7,6	1900		
R960-50-110R	110	3	4,2	1900		
R960-60-333R	333	1,7	2,4	1900		
R960-70-1k1	1100	0,98	1,4	1900	Approx. 446x230x155 7,9 – 9,1	Three phase version with resistance coils. 3 x 320 / 3x640VA.
R960-80-3k33	3330	0,54	0,76	1900		
RT320-00-1R	3 x 1	3 x 18	3 x 25	1900		
RT320-10-3R3	3 x 3,3	3 x 10	3 x 14	1900		
RT320-20-10R	3 x 10	3 x 5,7	3 x 8	1900		
RT320-30-33R	3 x 33	3 x 3,1	3 x 4,4	1900		
RT320-40-100R	3 x 100	3 x 1,8	3 x 2,5	1900		
RT320-50-330R	3 x 330	3 x 1,0	3 x 1,4	1900		
RT320-60-1k	3 x 1000	3 x 0,57	3 x 0,8	1900	800x500x25 32	Threephase 3300/ 6600VA
RT320-70-3k3	3 x 3300	3 x 0,31	3 x 0,44	1900		
RT320-80-10k	3 x 10000	3 x 0,18	3 x 0,25	1900		
R3300-00-4R5	3x4,5	27	40	6600		
R3300-10-10R	3x10	18	23	6600		
R3300-20-50R	3x50	6	8	6600		
R3300-40-330R	3x330	3,2	4,5	6600		



**Mod.6020/1/2-R**  
**Mod.6020/1/2-L**  
**Mod.6020/1/2-C**

*Resistive, Inductive, Capacitive Loads.*

*Variable from: 0 to 20kVA.  
Provided with silk screened front panel and with 4mm CE safety sockets.  
Tabletop version (up to 3kVA) and Wheeled version available.*

*For R models the evacuation of heat is obtained thanks to an electric ventilation; a grid is mounted to protect the fan.*

*Single-phase :*  
**220/230V 50/60Hz**

*Three-phase voltage:*  
**230/400V (delta/star) 50/60Hz**

*Power:*  
**All standard power available (other power on request):**

**Mod.3020/1/2 -0,3kW**  
**Mod.4020/1/2 -1kW**  
**Mod.5020/1/2 -2kW**  
**Mod.6020/1/2 -3kW**  
**Mod.7020/1/2 -5kW**  
**Mod.8020/1/2 -8kW**  
**Mod.9020/1/2 -10kW**  
**Mod.15020/1/2 -15kW**

*Dimensions:*  
**TTop: LxWxH: 50x30x28h cm.**  
**WH: LxWxH: 60x45x80h cm.**  
*English operation manual*  
*French operation manual*



X020-R

#### MOD.X020-R Resistive Load Module Variable 7 step

Module fitted with 9 resistors in three identical groups to realise balanced or unbalanced 3-phase loads (star & delta) and single-phase loads. Each phase can be independently varied in 7 uniform steps from 0 to max current value for full power. Single-phase and d.c. connection provides 21 regulation steps.

#### MOD.X020-15R Resistive Load Module Variable 15/45 step

Like previous but with 15/45 uniform steps, mono/3phase .



X021-R

#### MOD.X021-R Resistive Balanced Load Module Variable 20 step

Like the previous one but with 20 uniform steps from 5% to 100%; mono / 3phase, star & delta connection.

Six switches (5% 10% 15% 20% 25% 25%) allows the continuous growth of load, from 0 to 100% in steps of 5%.

#### MOD.X021-40R Resistive Balanced Load Module Variable 40 step

Like previous but with 40 uniform steps from 2,5% to 100% .



X022-R

#### MOD.X022-R Resistive Load Module fixed value (ie: 8KVA for Mod.8022-R)

Module fitted with 3 identical inductors to realise balanced 3-phase loads (star & delta) and single-phase loads.

#### MOD.X020-L Inductive Load Module Variable 7 step

Module fitted with 9 inductors in three identical groups to realise balanced or unbalanced 3-phase loads (star & delta) and single-phase loads. Each phase can be independently changed in 7 uniform steps from 0 to max current value of full load. Single-phase connection provides 21 regulation steps.

#### MOD.X020-15L Inductive Load Module Variable 15/45 step

Like previous but with 15/45 uniform steps mono 3phase.

#### MOD.X021-L Inductive Balanced Load Module Variable 20 step

Like the previous one but with 20 uniform steps from 5% to 100%; mono / 3-phase, star & delta connection. Six switches (5% 10% 15% 20% 25% 25%) allows the continuous growth of load, without interruption, from 0 to 100% in steps of 5%.

#### MOD.X021-40L Inductive Balanced Load Module Variable 40 step

Like the previous one but with 40 uniform steps from 2,5% to 100%.

#### MOD.X022-L Inductive Load Module fixed value (ie: 8000 VA for Mod.8022-L)

Module fitted with 3 identical inductors to realise balanced 3-phase loads (star & delta) and single-phase loads.



X020-L



X021-L



X022-L



MOD.X020-C

#### MOD.X020-C Capacitive Load Module Variable 7 step

Module fitted with 9 capacitors in 3 identical groups to realise balanced or unbalanced 3-phase loads (star & delta) and single-phase loads. Each phase can be independently changed in 7 uniform steps from 0 to max current value of full load. Single-phase connection provides 21 regulation steps.

#### MOD.X020-15L Capacitive Load Module Variable 15/45 step

Like previous but with 15/45 uniform steps mono 3phase.

#### MOD.X021-C Capacitive Balanced Load Module Variable 20 step

Like previous one but with 20 uniform steps from 5% to 100%; mono / 3-phase, star & delta connection. Six switches (5% 10% 15% 20% 25% 25%) allows the continuous growth of load, without interruption, from 0 to 100% in steps of 5%.

Tabletop or wheeled version available.

#### MOD.X021-40C Capacitive Balanced Load Module Variable 40 step

Like the previous but with 40 uniform steps from 2,5% to 100%.

Tabletop or wheeled version available.

#### MOD.X022-C Capacitive Load Module fixed value (ie: 8000 VA for Mod.8022-C)



MOD.X021-C

## MOD.3000

### Technical specifications

Provided with silk screened front panel and with 4mm CE safety sockets.

Input:  
400V - 3Ph+N+G

Variable outputs:  
3Ph 0 - 420V / 3A  
With 1 voltmeter and 3  
ammeters (on each phase)

1Ph 0 - 240V 3A  
With 1 voltmeter and 1  
ammeter

DC 0 - 230V / 2A  
With 1 voltmeter and 1  
ammeter

Fixed outputs:  
1Ph 230V / 10A  
With 1 ammeter  
DC 230V / 3A  
With 1 ammeter

Dimensions (LxWxH):  
140x40x40 cm

Weight:  
40 kg



The power supply module is able to give all the tensions level, AC (single-phase and three-phase) and DC, necessary for armatures and excitations of the whole range of electrical machines and brakes of the EMMS system.

The device is protected with general automatic circuit breaker with high sensitivity differential section (0,03A) and each single output is protected with its own magneto-thermal circuit breaker.

One mushroom emergency push button ensures the immediate cut off of all outputs in accident event or dangerous situations.

The instruments (voltmeters and ammeters) on the front panel can be supplied digital or analogue to give the immediate impression of the increasing or decreasing of the measure.

1 - Emergency Mushroom	2 - General switch	3 - Security Socket
4 - 3Ph variable output	5 - 1Ph variable output	6 - DC Variable Output
7 - DC Fix Output	8 - 1Ph fix output	9 - Voltmeters & ammeters

Mod.3004-02 -DC power supply  
0/230V 2A



Mod.3004-02-05 -DC/DC power supply  
0/230V-2A + 220V-5A



### Power supply - standard models:

Code	Three Phase Variable	Single Phase Variable	DC Variable	Single Phase Fix	DC Fix
Mod.0000	0-48V--10A	0-48V--10A	0-36V--5A	24V--10A	36V--10A
Mod.3000	0-420V--3A	0-240V--4A	0-230V--2A	230V--10A	220V--3A
Mod.4000	0-420V--5A	0-240V--5A	0-230V--2A	230V--10A	220V--5A
Mod.5000	0-420V--5A	0-240V--8A	0-230V--2A	230V--16A	220V--8A
Mod.6000	0-450V--8A	0-240V--10A	0-230V--2A	230V--16A	220V--10A
Mod.7000	0-450V--10A	0-240V--13A	0-240V--3A	230V--16A	220V--10A
Mod.8000	0-450V--13A	0-250V--16A	0-240V--5A	230V--16A	220V--15A
Mod.9000	0-450V--20A	0-250V--20A	0-240V--8A	230V--16A	220V--20A

In addition to standard solutions, other desk can be realized on request.

#### IT.0500-8-16-3

Provided with silk screened front panel and with 4mm CE safety sockets.

Input:  
380/400V 50/60hz -  
3Ph+N+G

Variable outputs:  
3Ph 0 - 450V / 8A  
- 1 voltmeter  
- 1 ammeters

DC 0 - 250V /16A  
- 1 voltmeter  
-1 ammeter

DC 0 - 250V /3A  
- 1 voltmeter  
-1 ammeter

#### Mod.3k-1801

#### IT.0541-CA-CC

Variable outputs:  
1Ph 0 - 250V /3A  
- 1 voltmeter  
-1 ammeter

DC 0 - 250V /3A  
- 1 voltmeter  
-1 ammeter



#### WHEELED POWER SUPPLY -1Phase /3Phase Ac & Dc

Equipped with four wheels, two of which are lockable.

The power supply module is able to give all the tensions level, AC (single-phase and three-phase) and DC.

The device is protected with general automatic circuit breaker with high sensitivity (0,03A)differential device ELCB (earth-leakage circuit breaker) Each single output is protected with its own magneto-thermal circuit breaker.

One mushroom emergency push button ensures the immediate cut off of all outp in case of dangerous situations.

A key switch is provided to give the super

The instruments (voltmeters and ammeters) can be analogue to give the immediate impression of the increasing or decreasing of the measure or digital.



#### TABLETOP POWER SUPPLY -1Phase /3Phase Ac & Dc



**Mod.3k-1801** •General protection with differential switch-mushroom emergency button and general consent key. •Double protection on each output with magnetothermal and with fuses. •Indicator lamps for voltage presence on each output. •Outputs with standard 4 mm safety bushings. •Analogue measuring instruments (optional digital instruments with high precision)

#### PORTABLE POWER SUPPLY



#### IT.0541-CA-CC

- DESK TOP PORTABLE POWER SUPPLY

Single-phase-ac and direct current, voltage variation, voltmeter and ammeter.

#### IT.0500-10-16

Provided with silk screened front panel and with 4mm CE safety sockets.

Input:  
380/400V 50/60hz -  
3Ph+N+G

Variable outputs:  
3Ph 0÷400V / 10A  
- 1 voltmeter  
- 1 ammeters

DC 0÷230V /16A  
- 1 voltmeter  
-1 ammeter

#### IT.0500T-5-5

Variable outputs:  
3Ph 0÷420V / 5A  
- 1 voltmeter -1 ammeter  
or Dc 0÷250V / 5A  
- 1 voltmeter -1 ammeter

1Ph 0÷240V / 5A  
- 1 voltmeter -1 ammeter  
or Dc 0÷220V / 5A  
- 1 voltmeter  
- 1 ammeter

#### IT.0500T4-5-10

outputs:  
3Ph 0÷450V / 5A

3Ph - 400V / 10A

DC - 0÷220V /5A  
DC 220V /10A



#### WHEELED POWER SUPPLY -1Phase /3Phase Ac & Dc

Equipped with four wheels, two of which are lockable.

The power supply module is able to give all the tensions level, AC (single-phase and three-phase) and DC.

The device is protected with general automatic circuit breaker with high sensitivity (0,03A) differential device ELCB (earth-leakage circuit breaker)

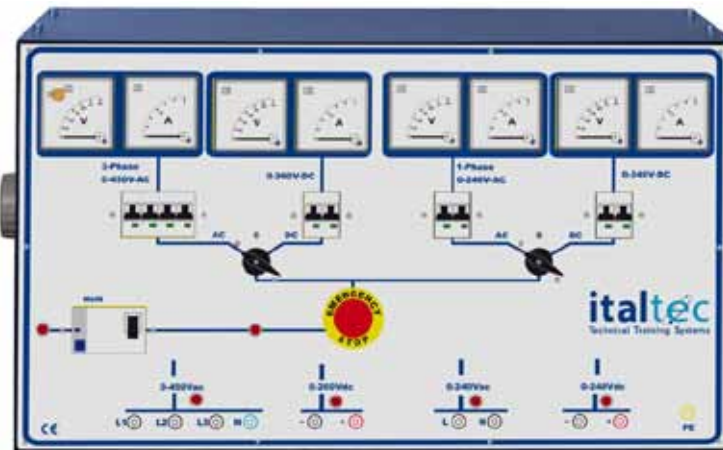
Each single output is protected with its own magneto-thermal circuit breaker. One mushroom emergency push button ensures the immediate cut off of all output in accident event or dangerous situations.

A key switch is also provided to give the supervisor consent to all the outputs.

The instruments (voltmeters and ammeters) on the front panel are analogue type to give the immediate impression of the increasing or decreasing of the measure.



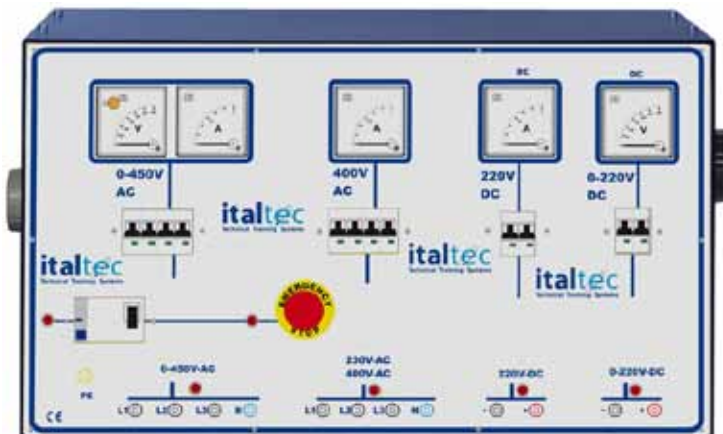
#### TABLETOP POWER SUPPLY -1Phase /3Phase Ac & Dc



#### IT.0500T-5-5

**Two active output**  
-3Ph 0÷420V/5A  
or Dc 0÷250V/5A  
  
-1Ph 0÷240V/5A  
or Dc 0÷220V/5A  
voltmeter and  
ammeter.

#### TABLETOP POWER SUPPLY -1Phase /3Phase Ac & Dc



#### IT.0500T4-5-10

**Four active output**  
- 3Ph 0÷440V/5A  
- 3Ph 400V/10A  
- Dc 220V/10A  
- Dc 0÷220V/5A  
- 2 voltmeter  
- 4 ammeter.

### IT.0500-13-5

Provided with 4mm CE safety sockets.

Input:  
380/400V 50/60hz -  
3Ph+N+G

Variable output -1:  
3Ph 0÷450V / 13A  
- 1 voltmeter - 1 ammeters

DC 0÷240V /13A  
- 1 voltmeter -1 ammeter

Variable outputs -2:  
DC 0÷230V /5A  
- 1 voltmeter -1 ammeter

### IT.0500T-3-3

Variable outputs:  
3Ph 0÷450V / 3A  
- 1 voltmeter -1 ammeter  
or Dc 0÷240V / 5A  
- 1 voltmeter -1 ammeter

1Ph 0÷240 / 3A  
- 1 voltmeter -1 ammeter  
or Dc 0÷220V / 3A  
- 1 voltmeter -1 ammeter

### IT.0500T-5-3

Variable outputs:  
3Ph 0÷450V / 5A  
- 1 voltmeter -1 ammeter  
or Dc 0÷240V / 6A  
- 1 voltmeter -1 ammeter

1Ph 0÷240V / 3A  
- 1 voltmeter -1 ammeter  
or -Dc 0÷220V / 3A  
- 1 voltmeter -1 ammeter

### WHEELED POWER SUPPLY -1Phase /3Phase Ac & Dc

Equipped with four wheels, two of which are lockable.

The power supply module is able to give all the tensions level, AC (single-phase and three-phase) and DC.

The device is protected with general automatic circuit breaker with high sensitivity (0,03A) differential device ELCB (earth-leakage circuit breaker)

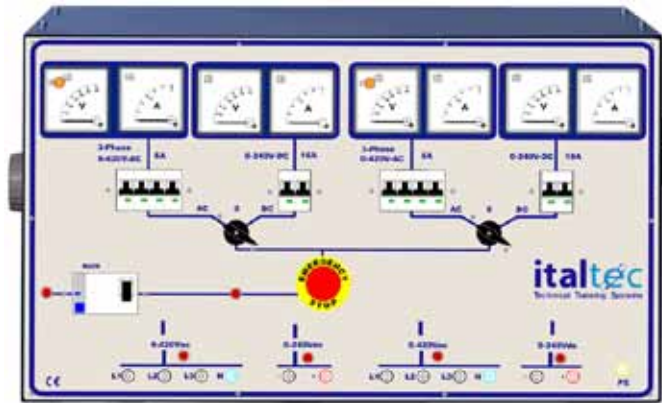
Each single output is protected with its own magneto-thermal circuit breaker.

One mushroom emergency push button ensures the immediate cut off of all outputs for dangerous situations.

A key switch is provided to give the supervisor consent to all the outputs. Instruments (voltmeters and ammeters) are intentionally analogue to give immediate impression of the increasing or decreasing of the measure.



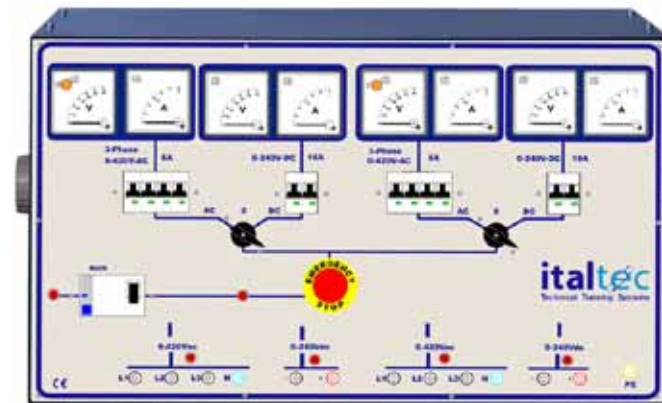
### TABLETOP POWER SUPPLY -1Phase /3Phase Ac & Dc



### IT.0500T-4-2

Two active outputs  
-3Ph 0÷450V - 3A  
or Dc 0÷240V - 5A  
  
-1Ph 0÷240V - 3A  
or Dc 0÷220V - 3A

### TABLETOP POWER SUPPLY -1Phase /3Phase Ac & Dc



### IT.0500T-5-3

Two active outputs  
-3Ph 0÷450V/5A  
or Dc 0-240V / 6A  
  
-1Ph 0÷240V/3A  
or Dc 0-220V /3A

## IT.0500T

Tabletop variable power supply 1Phase/D.C. + 3Phase/D.C.

Input:  
380-415V 50/60hz -  
3Ph+N+G

Provided with silk screened front panel and with 4mm CE safety sockets.

Single-phase, three-phase supply, direct current.  
With voltage variation for all output, complete set of instruments and safety equipments.  
Made of metal cabinet on casters, carefully treated and rust structure painted with epoxy paint. Commands and the outputs are mounted on the front panel which shows a clear screen printed synoptic with the internal circuitry.

The power input is on 5-pin connector in compliance with CE regulations.

Protections included:  
-Circuit breaker (MCB)

optional on request  
-Differential switch 0,03A  
-EMERGENCY-STOP mushroom pushbutton



### Power supply modules

are able to give all the tensions level, AC (single-phase and three-phase) and DC. The device is protected with general automatic circuit breaker on input and each single output is protected with its fuses.

The instruments (voltmeters and ammeters) on the front panel are intentionally analogue type to give the immediate impression of the increasing or decreasing of the measure.



Left section can be used as 3Phase or 1Phase AC and can also be switched to DC  
Right section can be used as 1Phase AC or switched to DC

Code	3-Ph Variable	1-Ph Variable	DC Variable	1-Ph Variable	DC Variable
IT.0500T-ELV	0-48V - 15A	0-28V - 15A	0-70V - 15A	0-49V - 15A	0-49V - 15A
IT.0500T-2-4	0-420V - 2A	0-240V - 2A	0-250V - 5A	0-240V - 4A	0-230V - 4A
IT.0500T-3-5	0-420V - 3A	0-240V - 3A	0-250V - 5A	0-240V - 4A	0-230V - 4A
IT.0500T-5-5	0-420V - 5A	0-240V - 5A	0-250V - 10A	0-240V - 5A	0-230V - 5A
<b>IT.0500T-5-10</b>	<b>0-420V - 5A</b>	<b>0-240V - 5A</b>	<b>0-250V - 10A</b>	<b>0-230V - 10A</b>	<b>0-220V - 10A</b>
IT.0500T-8-8	0-420V - 8A	0-240V - 8A	0-250V-10A	0-240V - 8A	0-230V - 8A
IT.0500T-8-10	0-420V-8A	0-240V - 8A	0-250V-10A	0-240V - 10A	0-230V - 10A
IT.0500T-10-10	0-450V-10A	0-240V - 10A	0-250V-10A	0-240V - 10A	0-230V - 10A
IT.0500T-10-4	0-450V-10A	0-250V-10A	0-250V-10A	0-240V - 4A	0-230V - 4A
IT.0500T-5-14	0-450V-5A	0-250V-5A	0-250V-10A	0-240V-14A	0-230V - 14A
IT.0500T-13-10	0-450V-13A	0-250V-13A	0-250V-10A	0-240V - 10A	0-230V - 10A
IT.0500T-14-4	0-450V-14A	0-250V-14A	0-250V-20A	0-240V-4A	0-230V - 4A

optional digital instruments available on request

## IT.0500

*Wheeled variable power supply 1Phase/D.C. + 3Phase/D.C.*

*Input:  
380-415V 50/60hz -  
3Ph+N+G*

*Provided with silk screened front panel and with 4mm CE safety sockets.*

*Single-phase, three-phase supply, direct current. With voltage variation for all output, complete set of instruments and safety equipments.*

*Made of metal cabinet on casters, carefully treated and rust structure painted with epoxy paint. Commands and the outputs are mounted on the front panel which shows a clear screen printed synoptic with the internal circuitry.*

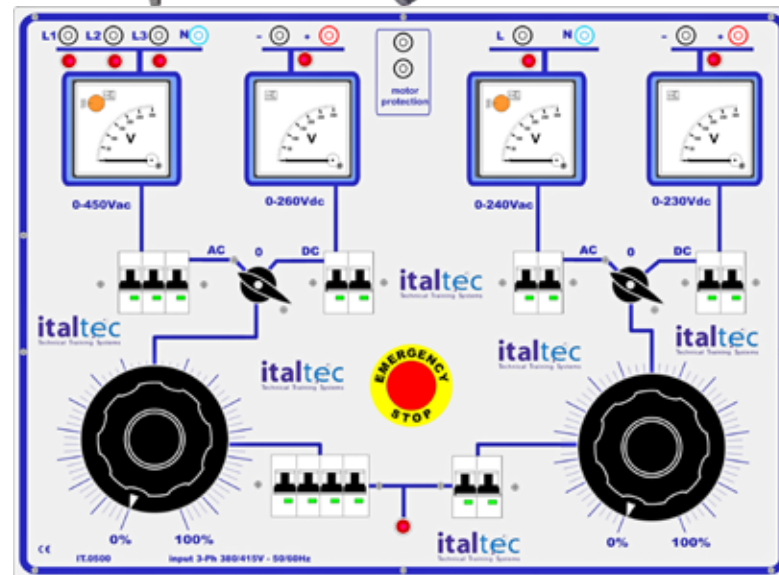
*The power input is on 5-pin connector in compliance with CE regulations.*

*Protections included:  
-Circuit breaker (MCB)*

*optional on request  
-Differential switch 0,03A  
-EMERGENCY-STOP mushroom pushbutton  
-Fuses*



Power supply module is able to give all the tensions level, AC (single-phase and three-phase). **Equipped with four wheels, two of which are lockable.**



The device is protected with general automatic circuit breaker and with high sensitivity differential section (0,03A). Each single output is protected with its own magneto-thermal circuit breaker or with fuses. The instruments (voltmeters and ammeters) on the front panel are intentionally analogue type to give the immediate impression of the increasing or decreasing of the measure.

Code	3-Ph Variable	1-Ph Variable	DC Variable	1-Ph Variable	DC Variable
IT.0500-ELV	0-48V - 15A	0-28V - 15A	0-70V - 15A	0-49V - 15A	0-49V - 15A
IT.0500-2-4	0-420V - 2A	0-240V - 2A	0-250V - 4A	0-240V - 4A	0-230V - 4A
IT.0500-3 -5	0-420V - 3A	0-240V - 3A	0-250V - 5A	0-240V - 5A	0-220V - 5A
IT.0500-5 -5	0-450V - 5A	0-250V - 5A	0-250V - 10A	0-240V - 5A	0-220V - 5A
IT.0500-8 -8	0-450V - 8A	0-250V - 8A	0-250V - 10A	0-240V - 8A	0-220V - 8A
IT.0500-10-10	0-450V - 10A	0-240V - 10A	0-250V - 20A	0-240V - 10A	0-220V - 10A
IT.0500-14-4	0-450V - 14A	0-250V - 14A	0-250V - 20A	0-240V - 4A	0-230V - 4A
IT.0500-25	0-450V - 25A	0-250V - 25A	0-250V - 20A		

## IT.0501

*Wheeled variable power supply 3Phase/D.C. + 3Phase/D.C.*

*Input:  
380-415V 50/60hz -  
3Ph+N+G*

*Provided with silk screened front panel and with 4mm CE safety sockets.*

*Single-phase, three-phase supply, direct current. With voltage variation for all output, complete set of instruments and safety equipments. Made of metal cabinet on casters, carefully treated and rust structure painted with epoxy paint. Commands and the outputs are mounted on the front panel which shows a clear screen printed synoptic with the internal circuitry.*

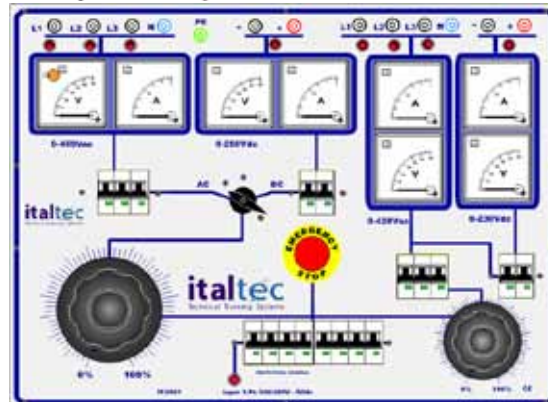
*The power input is on 5-pin connector in compliance with CE regulations.*

*Protections included:  
-Circuit breaker (MCB)*

*optional on request  
-Differential switch 0,03A  
-EMERGENCY-STOP mushroom pushbutton  
-Fuses*



Power supply module is able to give all the tensions level, AC (single-phase and three-phase). **Equipped with four wheels, two of which are lockable.**



It.0501



It.0501D

The device is protected with general automatic circuit breaker and with high sensitivity differential section (0,03A). Each single output is protected with its own magneto-thermal circuit breaker or with fuses.

The instruments (voltmeters and ammeters) on the front panel are intentionally analogue type to give the immediate impression of the increasing or decreasing of the measure.

Code	3-Ph Variable	1-Ph Variable	DC Variable	3-Ph Variable	DC Variable
IT.0501-ELV	0-48V - 15A	0-28V - 15A	0-70V - 15A	0-49V - 15A	0-49V - 15A
IT.0501-4-2	0-420V - 4A	0-240V - 4A	0-250V - 5A	0-420V - 2A	0-230V - 2A
IT.0501-5 -3	0-420V - 5A	0-240V - 5A	0-250V - 10A	0-420V - 3A	0-230V - 3A
IT.0501-6 -4	0-450V - 6A	0-250V - 6A	0-250V - 10A	0-420V - 4A	0-230V - 5A
IT.0501-8 -3	0-450V - 8A	0-250V - 8A	0-250V - 10A	0-420V - 3A	0-230V - 5A
IT.0501-10-5	0-450V - 10A	0-240V - 10A	0-250V - 20A	0-420V - 5A	0-230V - 5A
IT.0501-13-3	0-450V - 13A	0-250V - 13A	0-250V - 20A	0-420V - 3A	0-230V - 5A
IT.0501-14-3	0-450V - 14A	0-250V - 14A	0-250V - 20A	0-420V - 3A	0-230V - 5A



### IT.0504D

Tabletop variable power supply 3Phase/D.C. + 3Phase/D.C.

Input:  
380-415V 50/60hz -  
3Ph+N+G

Provided with silk screened front panel and with 4mm CE safety sockets.

Single-phase, three-phase supply, direct current.  
With voltage variation for all output, complete set of instruments and safety equipments.  
Made of metal cabinet on casters, carefully treated and rust structure painted with epoxy paint. Commands and the outputs are mounted on the front panel which shows a clear screen printed synoptic with the internal circuitry.

The power input is on 5-pin connector in compliance with CE regulations.

Protections included:  
-Circuit breaker (MCB)  
-Fuses

optional on request  
-Differential switch 0,03A  
-EMERGENCY-STOP mushroom pushbutton



Power supply module is able to give all the tensions level, AC (single-phase and three-phase) and DC. **Tabletop.**



The device is protected with general automatic circuit breaker a .Each single output is protected with its own magneto-thermal circuit breaker or with fuses.

The instruments (voltmeters and ammeters) on the front panel can be analogue type or digital. --

-----**Power and Current on request**----

1	Knob	voltage regulation knob
2	General	general MCB.
3	0÷450Vca	variable 3-phase output. It can be used also as 1-Ph
4	0÷230Vdc	variable DC output 10/25A
5	380/400Vca	fixed AC 3-Ph output
6	48Vdc	fixed DC output
7	-12 e +12Vdc	fixed DC output
8	230Vca	fixed AC output
9	0÷220Vdc	variable DC output 2/4A

Code	3-Ph Variable	1-Ph Variable	DC Variable	DC Variable
IT.0504D-10-2	0-450V - 10A	0-240V - 10A	0-250V - 10A	0-230V - 2A
IT.0504D-13-2	0-450V - 13A	0-240V - 13A	0-250V - 20A	0-230V - 2A
IT.0504D-14-4	0-450V - 14A	0-250V - 14A	0-250V - 20A	0-230V - 4A
IT.0504D-17-4	0-450V - 17A	0-250V - 17A	0-250V - 20A	0-230V - 4A
IT.0504D-24-2	0-450V - 24A	0-250V - 24A	0-250V - 20A	0-230V - 2A
IT.0505D-28-2	0-450V - 28A	0-250V - 28A	0-250V - 20A	0-230V - 2A

IT.0450.EM

IT.0454.EM

### GENERAL FEATURES

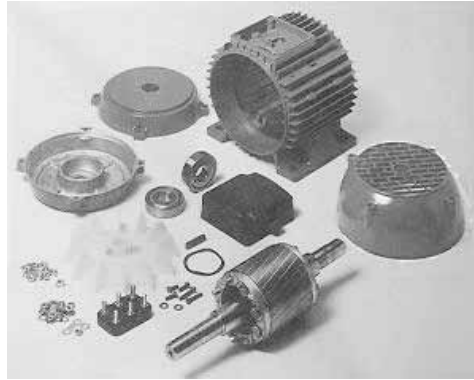
This range of kits allows the design and the construction of single and three-phase motor.

Each kit includes all the parts necessary for this purpose, such as stator, rotor, coils, covers, bearings, etc.

Manual with theory and calculation is also included with each kit.



### IT.0450.EM THREE PHASE INDUCTION MACHINES KIT



#### Composition:

1 stator casing made of die-cast aluminium, 1 squirrel cage rotor made of die-cast aluminium, with shaft and bearings, 2 shields, 1 fan, 1 fan housing, 1 terminal block with six terminals and related cover

#### Machine kit contain:

- No.1 bag of screws
- No.1 ring
- No.2 bearings
- No.1 terminal
- No.1 winding kit
- No.1 stator
- No.1 rotor
- No.4 rods
- No.2 shields
- No.1 fan
- No.1 fan cover
- No.1 seal terminal
- No.1 terminal cover
- No.1 cover
- No.1 o-ring terminal

### IT.0454.EM ASSEMBLY KIT FOR 4 MOTORS CONSTRUCTION



#### Complete with following motors:

Squirrel cage three-phase induction motor, 2 poles, 0.75kW;  
Squirrel cage three-phase induction motor, 4 poles, 0.75kW;  
Squirrel cage three-phase induction motor, 6 poles, 0.75kW;  
Squirrel cage single-phase induction motor, 4 poles, 0.75kW;

#### Each motor kit contain:

- No.1 bag of screws
- No.1 ring
- No.2 bearings
- No.1 terminal
- No.1 winding kit
- No.1 stator
- No.1 rotor
- No.4 rods
- No.2 shields
- No.1 fan
- No.1 fan cover
- No.1 seal terminal
- No.1 terminal cover
- No.1 cover
- No.1 o-ring terminal

The single-phase motor kit contain, in addition:

- No.1 capacitor

### Sectioned Electrical Machines

#### GENERAL FEATURES

These machines are cut away models to show rotor, stator, windings ball bearing, poles and fan.

They are sectioned about at 90° allowing all the main components to be demonstrated clearly and pedagogically.



#### MOD.3040SEC

Three phase induction motor squirrel cage type. Industrial version 90 degree cutted with protected surfaces and painted with different colors to show all internal details.

Dimensions: LxPxH: 35x18x20 cm;  
Weight: 7 kg.



#### MOD.3050SEC

Three phase slip ring induction motor (motor-alternator). Industrial version 90 degree cutted with protected surfaces and painted with different colors to show all internal details.

Dimensions: LxPxH: 35x18x20 cm;  
Weight: 8 kg.



#### MOD.3070SEC

Three phase synchronous generator, (motor-alternator). Industrial version 90 degree cutted with protected surfaces and painted with different colors to show all internal details.

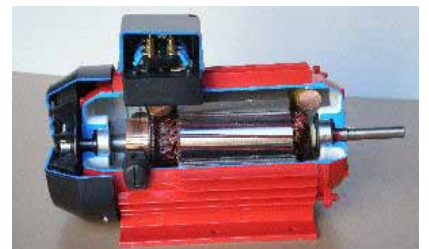
Dimensions: LxPxH: 35x18x20 cm;  
Weight: 7 kg.



#### MOD.3140SEC

D.C. shunt machine. (DC Motor-Generator). Industrial version 90 degree cutted with protected surfaces and painted with different colors to show all internal details.

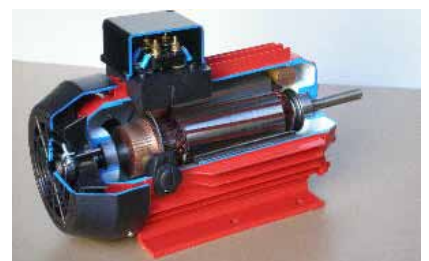
Dimensions: LxPxH: 35x18x20 cm;  
Weight: 7 kg.



#### MOD.3160 SEC

D.C. compound machine. (DC Motor-Generator). Industrial version 90 degree cutted with protected surfaces and painted with different colors to show all internal details.

Dimensions: LxPxH: 35x18x20 cm;  
Weight: 7 kg.



#### 3195SEC

CUTAWAY MODELS OF ELECTRICAL MACHINES-  
**Three phase distribution transformer**  
Complete of robust metallic base with rubber feet.



### KITS FOR TRANSFORMER ASSEMBLY

#### GENERAL FEATURES

This range of kits allows the design and the construction of single and three-phase transformers.

Each kit includes all the parts necessary for this purpose.

Copper is not included

Manual with theory and calculation is also included with each kit.



Single-phase transformer



#### IT.0459.EM ASSEMBLY KIT FOR TRANSFORMERS CONSTRUCTION

Complete with:

Single-phase 200VA transformer;  
Single-phase 600VA transformer;  
Single-phase 1000VA transformer;

Three- phase 300VA transformer;  
Three- phase 600VA transformer;  
Three- phase 1000VA transformer;

English operation/instruction manual

Each kit contain:

- no.1 insulation paper part
- No.4 screws and nuts for securing core
- no.4 angular
- no.1 mammoth 6-position terminal
- no.2 screws and nuts for fixing clamp
- No.1 laminations set

#### IT.0454.01.02 TRANSFORMERS CONSTRUCTION KIT

##### Single-phase transformer:

1 insulating card,  
8.5 kg of laminations,  
2 terminal blocks,  
2 covers made of tropicalized iron-sheet with fixtures;

-

##### Three-phase transformer:

3 insulating cards,  
9 kg of laminations  
2 terminal blocks,  
2 covers made of tropicalized iron-sheet with fixtures;

- no.1 insulation paper part
- No.4 screws and nuts for securing core
- no.4 angular
- no.1 mammoth 6-position terminal
- no.2 screws and nuts for fixing clamp
- No.1 laminations set

Three- phase transformer



### Single Phase Transformers



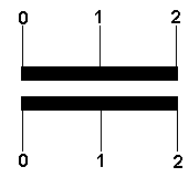
Standard C.E.I. 14/8 issue 1162 IEC 726 TM series transformers up to 4kVA are built with "cloak" type nucleus (Fig.2) for higher power units the transformers are built with "column" type nucleus as Fig.3

On request the dimensions can be varied according to available space.

#### Necessary data for order:

- power in V.A.
- voltage and frequency of supply line;
- secondary voltage
- ambient temperature
- working ambience.

- primary voltage 0/230/400V
- Secondary low voltage: 12-0-12; 0-12-24; 24-0-24; 0-24-48;
- Secondary main voltage 55-0-55; 0-55-110; 110-0-110; 0-110-220;
- Insulation class: E
- Protection: IP00; (Open execution)
- Frequency: 50/60 Hz
- Electrical protection class I
- Impregnation with resin - Tropicalised



Wiring diagram

### Three Phase Transformers



Standard C.E.I. 14/8 issue 1162 IEC 726 The three phase transformers are normally built with connection of the phases in star form and with the secondary neutral accessible

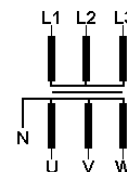
On request all possible connections  
Dimensions can be varied according to available space.

#### Necessary data for order:

- power in V.A.
- voltage and frequency of supply line;
- secondary voltage
- ambient temperature
- working ambience.

#### Series production:

- Primary voltage between 0 to 600V
- Secondary voltage: between 0 to 600V
- Insulation class: B
- Protection: IP00;
- Frequency: 50/60 Hz
- Electrical protection class I
- Impregnation with resin ; - Tropicalised



Wiring diagrams primary/secondary

### Isolating Single Phase Transformers



Standard C.E.I. 14/8 issue 1162 IEC 726

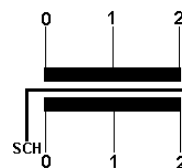
TM-IS series includes single phase transformers in which the main and secondary windings are electrically separated by means of an electrostatic screen, with the aim of reducing the danger of an accidental contact between the earth and the parts under voltage or the metallic parts which can be put under voltage in presence of the insulation failure. This transformer, up to 4kVA is built with "cloak" type nucleus (Fig.2). For higher power the transformers are built with "column" type nucleus as Fig.3. On request the dimensions can be varied according to available space.

#### Series production:

- Primary voltage between 50 to 600V
- Secondary voltage: between 0 to 600V
- Insulation class: E
- Protection: IP00; (Open execution)
- Frequency: 50/60 Hz
- Electrical protection class I
- Impregnation with resin
- Tropicalised

#### Necessary data for order:

- power in V.A.
- voltage and frequency of supply line;
- secondary voltage
- ambient temperature
- operating conditions



Wiring diagrams  
primary/secondary

### Three Phase Isolating Transformers



Standard C.E.I. 14/6-96-2 IEC 742 - EN 60742

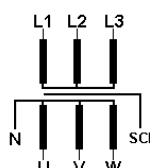
The Safety Transformers T3F-S are designed for supplying very low voltage circuits. The nominal secondary voltage must not exceed 50V. The three phase transformers are normally built with connection of the phases in star form and with the secondary neutral accessible. On request all possible connections. Dimensions can be varied according to available space.

#### Series production:

- Primary voltage between 115 to 500V
- Secondary voltage: between 15 to 500V
- Insulation class: B
- Protection: IP00; - Open execution
- Frequency: 50/60 Hz
- Electrical protection class I
- Impregnation with resin
- Tropicalised

#### Necessary data for order:

- power in V.A.
- voltage and frequency of supply line;
- secondary voltage
- ambient temperature
- operating conditions



Wiring diagrams  
primary/secondary

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