



**Intact**

**Controls**

Transformer Industries L.L.C.



# Leading Manufacturer of Transformers

for nearly two decades.

[www.intacttransformer.com](http://www.intacttransformer.com)

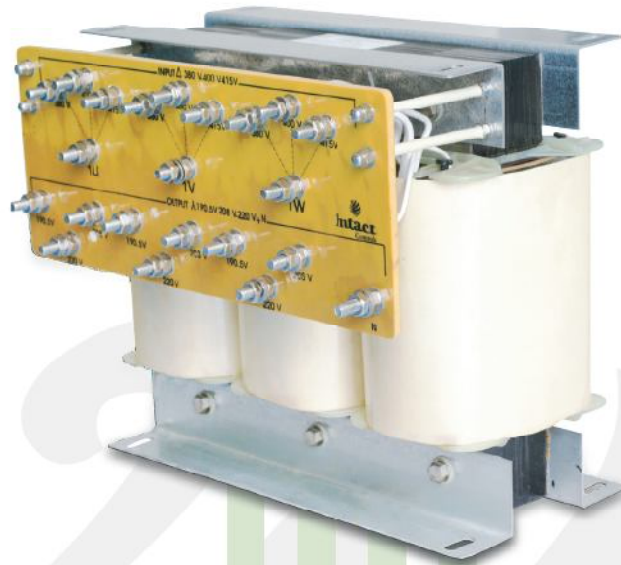
# Products

- Power and Distribution Transformers
- Control Transformers
- Current Transformers
- Portable Safety Transformers
- Cast resin Transformers
- Reactor Transformers
- Motor Starting Auto- transformers
- 400 Hz Transformers
- Automatic Voltage Stabilizers

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## World-Class Experts

Our successful experts are qualified from world-class accredited organizations around the world. Our professionals present state-of-the-art service in various fields with hands-on experience in designing and implementing any project in the G.C.C.



# About Intact Controls

As one of the region's leading engineering corporations, we take pleasure in introducing ourselves as a company, established in the sector of transformer for over a decade engaged in production of various types of dry and oil cooled transformers.

**SINCE** then Intact Controls Transformer Industries L.L.C has been a pioneer and has retained its leadership position in the management and application of Transformer Industry.

passion, inspiration and creativity. Our factories are equipped with the latest production and test facilities. Comprehensive component stocks are held to ensure fast deliveries of both standard and customized products.

We provide the world, with one stop diversified investment opportunities whilst building value with each step of the journey that involves integrity,

Our factory is based in Sharjah, U.A.E., promoted by technocrats, with branch offices in Dubai, U.A.E and Riyadh, K.S.A.





# Vision

Our mission is to become the leading transformers manufacturer in the GCC and gradually extend our wings to the other parts of the world, by continuing to introduce innovative products and quality services to the clients, observing highest ethical and professional standards in all business dealings, and treatment of its employees by ensuring profitable growth and by adding value through superior quality products, knowledge and commitment.

## Interesting Facts

Firmly believing on our core value of "commit and deliver", Intact Controls constantly strives to become a leading international group by providing a meaningful and satisfied consultancy and design right through our State-of-the-Art for making Power and Distribution transformers etc.

# Business Activity

Our professional executives having a depth of knowledge and obvious passion for the usage of design thinking help every business individually, injecting greater creativity into problem solving to deliver the specific need of every client.

## Applications

AIRPORTS

CONSTRUCTION INDUSTRIES

MARINE INDUSTRIES

SWITCHGEAR INDUSTRIES

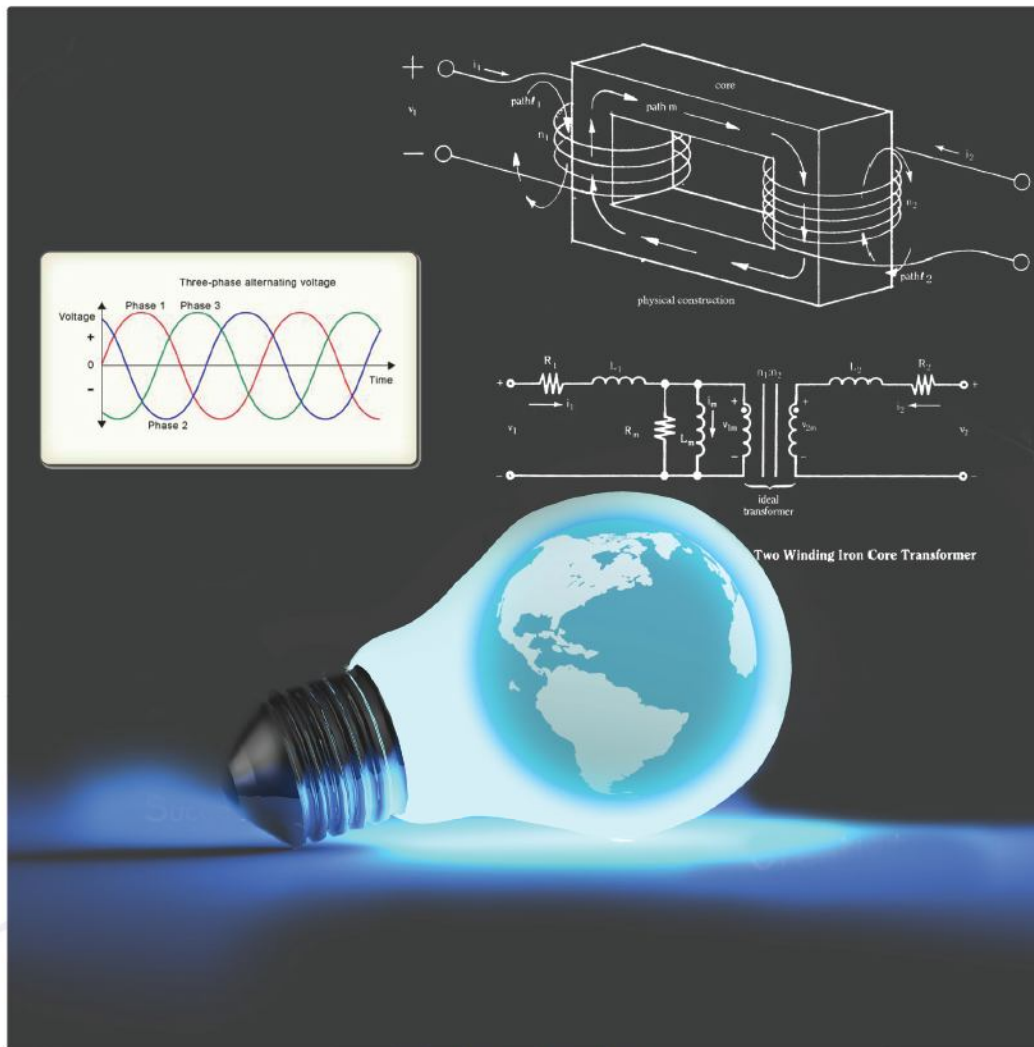
OIL FIELDS



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## Who can Benefit?

A technology-enabled management philosophy is to accelerate integration and installation of high-end products with the speed of now. All materials used to make transformers such as clamps, laminations, bobbins, winding wire, terminal blocks etc. are imported from the world recognized European brands. Our esteemed customers are from leading industries, marines, oil fields, control panel manufactures.



# Why Intact Controls?

At Intact Controls, we emphasize on professional integrated commitment that enables us to understand the need of client to ensure quality service.

Our premium quality services reflect an enthusiastic team of specialists and technocrats, equipped with not only the entrepreneurial spirit but also an in-depth understanding of clients' needs; enabling them to focus on innovative

methods, top of the line designs, effective, efficient and productive management and establishing an everlasting bond of trust and loyalty with our customers.

# Our strength

With many years of successful manufacturing experience and research and development, we have acquired the technology to manufacture Power and Distribution Transformer up to rating as under.

## Distribution Transformers:

Power rating up to 2000KVA  
Voltage rating up to 36KV

## Power Transformers:

Power rating up to 5MVA  
Voltage rating up to 36KV

We can provide special type transformers of impregnation dry type, Cast – resin and Oil immersed types as per the requirement of customers. Our range of transformers includes but are not limited to:

- Control Transformers
- Current Transformers
- Safety Transformers
- Auto Transformers
- Automatic voltage stabilizers
- Motor starting auto Transformers
- Rectifiers
- Cast Resin Transformers
- Reactor Transformers
- 400Hz Transformers

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## Our main features

- Product ranges from 50VA and up to 5MVA
- Computer aided design center
- Imported high quality materials
- State of the art technology
- Highly trained work force
- Dedicated sales and service team
- Competitive Prices





# Technical Specification of Transformers

## Voltage Regulation ( $\Delta v$ )

The voltage regulation of a transformer is the numerical difference between the rated secondary and the actual secondary voltage

$$\% \Delta v = \frac{V_{\text{No-load}} - V_{\text{Full load}}}{V_{\text{Full load}}} \times 100$$

## Impedance Voltage ( short Circuit voltage )

It is the voltage required to be applied to drive the rated current under short circuit condition. It is a vector sum resistance and reactance voltage.

## Insulation Level

It is a combination of the rated voltage, power frequency withstand voltage, impulse withstand voltage values which characterizes the insulation of the apparatus  
Basic insulation Level ( B.I.L ) is a term which includes the following characteristic of a transformer.

- Power frequency voltage withstand level.
- Lighting impulse voltage withstand level.
- Switch impulse voltage withstand level.

[ Applicable to transformer winding above 200KV ]

## Standards

Transformers are manufactured & tested in accordance with the following standards.

- IEC-60076 : Power transformers
- EN-61558-2-1 : For less than 5KVA
- EN-61558-2-2 : Control transformers
- EN-61558-2-4 : Isolating transformers for general use
- EN-61558-2-6 : Safety isolating transformers for general use
- EN-61558-2-12 : Constant voltage transformers
- EN-61558-2-13 : Low capacity auto transformers
- EN-61558-2-15 : Isolation transformer for medical use
- EN-61558-2-16 : Power supply unit
- EN-61558-2-17 : Switch mode power supply transformer
- EN-61558-2-18 : Transformers for medical application
- EN-60947-4-1 : Motor starting 3phase auto transformers
- EN-61558-2-20 : Reactors

## Windings

Windings are made with dual coated enameled copper wire round and rectangular type.

- Class B : Maximum temperature 130°C.
- Class F : Maximum temperature 155°C.
- Class H : Maximum temperature 180°C.

Insulation Class	Y	A	E	B	F	H	C
Maximum Temperature °C	90	105	120	130	155	180	>180

## Core

- CRGO lamination grade M6, Maximum guaranteed loss. 1.10W/Kg @ 1.5Tesla 50Hz
- CRGO lamination grade M6, Maximum guaranteed loss. 0.97W/Kg @ 1.5Tesla 50Hz
- CRGO lamination grade M6, Maximum guaranteed loss. 0.89W/Kg @ 1.5Tesla 50Hz
- CRGO lamination grade M6, Maximum guaranteed loss. 0.79W/Kg @ 1.5Tesla 50Hz





# Technical Specification of Transformers

## Vacuum Impregnation

All transformers are systematically impregnated with class F or Class H insulating varnish, in order to avoid moisture absorption, to stop wear due to vibration, to improve thermal exchange and to reduce the noise level.



## Dielectric Strength

The property of insulating material which enables it to withstand high voltages without detonation or failure is expressed in terms of minimum electric strength / electric stress which will cause breakdown. It is expressed in terms of breakdown voltage per unit thickness of dielectric.

$$E_{br} = \frac{V_{br}}{t} \quad \text{Where} \quad \begin{array}{l} E_{br} = \text{Breakdown stress KV/mm} \\ V_{br} = \text{Breakdown voltage, KV} \\ t = \text{Thickness of dielectric, mm} \end{array}$$



Reference values of Insulation level

Normal System voltage KV rms	Highest system voltage KV rms	One minute power frequency test voltage KV rms	Impulse test Voltage KV peak
3.3	3.6	16	45
6.6	7.2	22	60
11	12	28	75
15	17.5	38	95
22	24	50	125
33	36	70	170

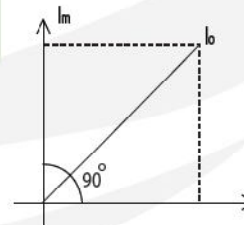
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## No-load Current

No-load current is equal to the vector sum of the magnetizing current ( $I_m$ ) and Hysteresis Current and eddy current ( $I_{h+e}$ ).

$$I_0 = \sqrt{I_m^2 + I_{h+e}^2}$$

The magnitude of No-load current is measured at rated voltage and 112.5% over voltage.



VECTOR DIAGRAM

## Percentage of Impedance

Percentage impedance is the vector sum of percentage reactance and percentage resistance

$$Z\% = \sqrt{x(\%)^2 + R(\%)^2}$$

$$R\% = \frac{\text{Calculated load loss in KW}}{\text{Rated KVA}} \times 100$$

$$I_{sc} (KA) = \frac{KVA \times V_1}{\sqrt{3} \times Z\% \times 100}$$

Where :

$I$  = Rated primary current  
 $V$  = Rated primary voltage  
 $Z$  = Impedance percentage

# Impregnated Single Phase Transformers

## Specifications

- Standard : According to EN-61558
- Open construction degree of protection IP-00
- Enclosure type Degree of protection IP-23, IP-44, IP-55 etc..
- Winding : Enameled copper wire Class F,B,H Galvanically isolated
- Temperature Class insulating materials :B
- Insulation Class :F
- Max ambient temperature : 25°C to 50°C
- Electrical protection Class :I
- Max temperature rise :95°C
- Insulation between PRI and SEC ( for V< 450V ) :4.8KV
- Frequency : 50Hz, 60Hz, 50/60Hz
- Fixing system : Through angles DIN 41307
- Type : Dry type, Vacuum impregnation



Standard voltages :

Primary : 100-110-120-127-200-208-220-230-240-250-277-380-400-415-440-460-480-500-600-660-690V

Secondary : 12-24-48-110-120-127-208-220-230-240-277-380-400-415-440-460-480-500-600-660-690V

Enclosure Type IP-44, IP-42, IP-23, IP-55, IP-56

Open Type IP-00

Model No.	Power ( KVA )	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
IT-500W	0.5	119	120	128	6.0
IT-1KW	1.0	132	150	114	10.4
IT-2KW	2.0	160	180	170	18.6
IT-3KW	3.0	187	192	180	23.8
IT-5KW	5.0	243	240	210	38.2
IT-5KE	5.0	243	240	210	38.2
IT-10KE	10	298	300	300	64.0
IT-15KE	15	258	300	330	77.8
IT-20KE	20	320	360	360	135.2
IT-30KE	30	320	360	380	152.4
IT-50KE	50	420	480	390	244.0

Suffix ' W ' for Wall enclosure and ' E ' for floor enclosure.

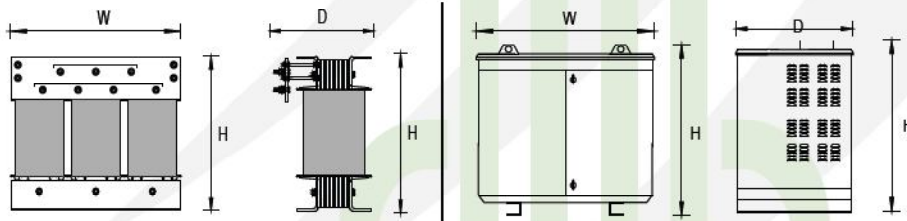
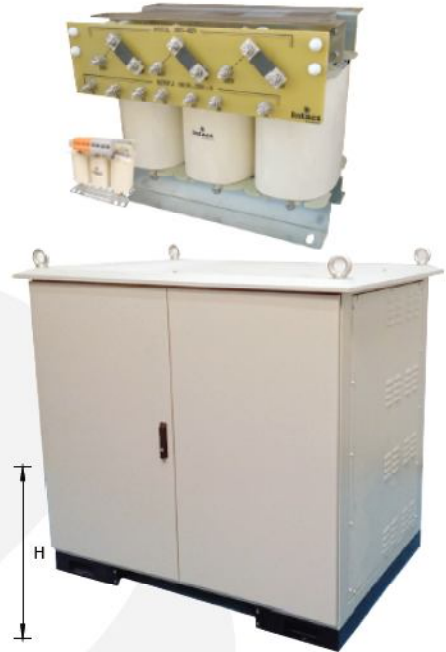
Model No.	Power ( KVA )	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
IT-50	0.05	77	75	88.2	1.2
IT-100	0.1	82	84	88	2.0
IT-150	0.15	94	96	88	2.8
IT-200	0.2	94	96	106	3.6
IT-300	0.3	107	120	109	5.0
IT-500	0.5	119	120	128	6.0
IT-1K	1.0	132	150	114	10.4
IT-2K	2.0	160	180	170	18.6
IT-3K	3.0	187	192	180	23.8
IT-5K	5.0	243	240	210	38.2
IT-10K	10	298	300	300	64.0
IT-15K	15	258	300	330	77.8
IT-20K	20	320	360	360	135.2
IT-30K	30	320	360	380	152.4
IT-50K	50	420	480	390	244.0

Note : Tolerance on the given dimension  $\pm 2$ mm

# Impregnated Three Phase Transformers

## Specifications

- Standard : According to EN-61558
- Open construction, degree of protection IP-00; Enclosure type, degree of protection IP-44, IP-23, IP-55 etc...
- Winding : Enamelled copper wire Class F, B, H Galvanically isolated
- Temperature class insulating materials : B
- Insulation Class : F; Max. ambient temperature : 25°C to 50°C
- Electrical protection class : I, Max temperature rise : 95°C
- Frequency : 50Hz, 60Hz, 50/60Hz
- Type : Dry type, vacuum impregnation
- Terminals : Screw type terminal block for Type 1, Bolt terminal for Type 2 ( M8, M10 etc...) and terminals are protected against corrosion



Standard voltages:

Primary : 200-208-220-230-240-250-280-320-380-400-415-440-460-480-500-600-660-690V

Secondary : 100-110-120-200-220-230-240-380-400-415-440-480-500-600-660-690V

Open type IP-00

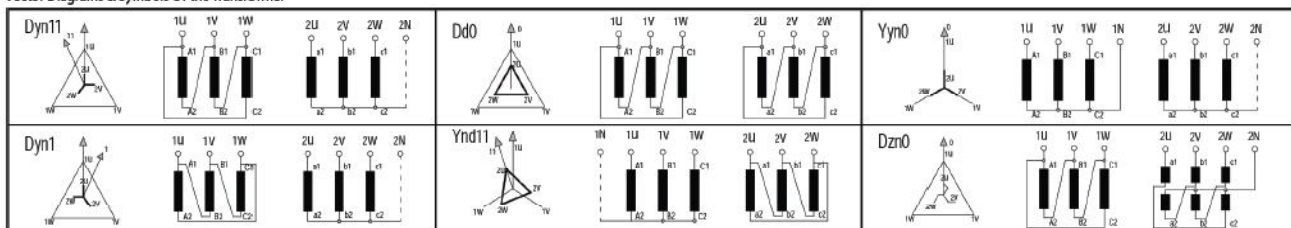
Dimensions No.	Power ( KVA )	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
IT3-50	0.05	110	120	60	1.6
IT3-100	0.1	130	150	70	3.2
IT3-1K	1	225	240	140	14.2
IT 3-5K	5	265	300	140	31.8
IT3-10K	10	370	360	220	69.0
IT3-15K	15	435	420	230	83.4
IT3-20K	20	360	420	285	89.3
IT3-25K	25	420	480	310	108.0
IT3-30K	30	420	480	320	116.5
IT3-40K	40	420	480	330	124.5
IT3-50K	50	420	480	325	194.2
IT3-100K	100	510	600	420	303.2
IT3-150K	150	770	900	570	510.0
IT3-200K	200	770	900	580	554.0
IT3-300K	300	880	1030	560	741.0
IT3-500K	500	990	1160	640	1010.0

Enclosure Type IP-44, IP-42, IP-23, IP-55, IP-56

Model No.	Power ( KVA )	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
IT3-1KW	1	500	325	250	21.8
IT3-5KE	5	500	480	330	46.8
IT3-10KE	10	560	540	390	89.0
IT3-15KE	15	725	590	490	119.0
IT3-20KE	20	835	690	540	147.0
IT3-25KE	25	825	690	540	157.0
IT3-30KE	30	825	690	540	165.5
IT3-40KE	40	825	690	540	173.5
IT3-50KE	50	825	690	540	243.2
IT3-100KE	100	510	600	420	303.2
IT3-150KE	150	1300	1220	890	608.0
IT3-200KE	200	1300	1220	890	680.0
IT3-300KE	300	1350	1250	990	1050.0
IT3-500KE	500	1610	1600	1050	1180.0
IT3-1000KE	1000	1860	1700	1200	2800.0
IT3-1500KE	1500	1970	1850	1250	3316.0
IT3-2000KE	2000	2000	2120	1800	3800.0
IT3-2500KE	2500	2100	2200	1900	4100.0

### Vector Diagrams & Symbols Of the Transformer

Suffix "W" for Wall enclosure and "E" for floor enclosure.





# Portable Safety Transformers

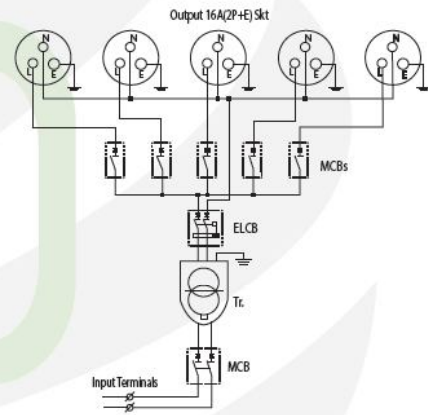
- Metal enclosure, IP-55, RAL 7032
- Dry type, Vacuum impregnated
- Temperature class insulating materials: B
- Terminals : Terminal blocks primary & Industrial socket all secondary
- MCB & ELCB protection at output
- CEE panel mounted receptacles, DIN VDE 0623, EN 60309-2



Standard voltages  
 Primary: 220-230-240-320-380-400-415-440-460-480-500-600-660-690V  
 Secondary: 110-115-220-230-240-380-400-415V

Model No.	Power ( KVA )	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
IT3-7KSES	7.5	750	480	410	31.8
IT3-10KES	10	750	480	410	69.0
IT3-15KES	15	790	580	500	83.4
IT3-20KES	20	790	580	500	89.3

Note : Tolerance on the given dimension ± 2mm

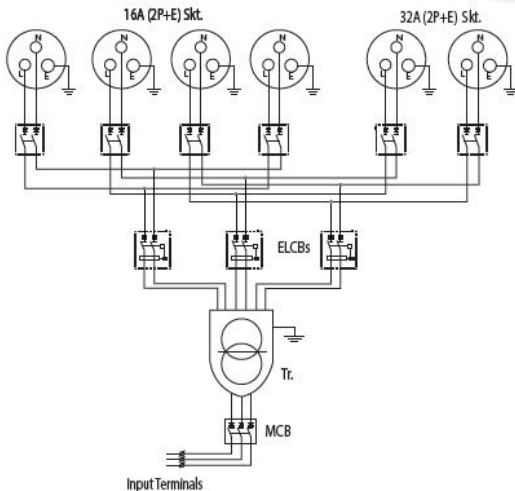


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Standard voltages  
 Primary: 220-230-240-320-380-400  
 Secondary: 110-115-220-230-240

Model No.	Power ( KVA )	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
IT-3KES	3	710	310	270	31.8
IT-5KES	5	710	310	270	69.0
IT-10KES	10	720	370	300	83.4
IT-15KES	15	720	370	300	89.3

Note : Tolerance on the given dimension ± 2mm



- Portable safety transformer for power tools
- Lighting & machinery application on construction sites
- Transformers & Enclosures shall conform to safety standards
- Number of sockets, its current ratings, ELCB/MCB ratings
- ELCBS are provided in order to avoid electrical shock

# Safety Transformers & Swimming pool Transformers

## Cast-Resin Encapsulated

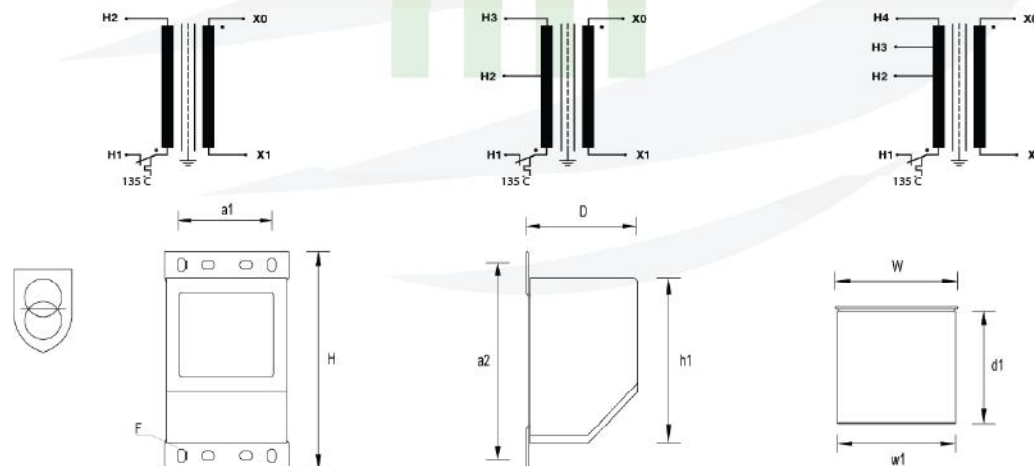
- Fiber encapsulated enclosure , protection index IP-55
- vacuum-pressure impregnation with thermo setting polyster resin
- Terminals : Bolt terminals ( M4, M6, M8...etc) at primary & Industrial socket at secondary
- MCB & ELCB protection at output
- Cast resin encapsulation
- Floor mounted yellow color fiber enclosure
- Cast resin encapsulation



Standard voltages					
Primary :		200-220-230-240V			
Secondary :		110-115V			
Model No.	Power ( KVA )	Overall Dimensions (mm)			Total Wt. Kg.
		Height (H)	Width (W)	Depth (D)	
IT-3KFE	3	410	360	285	32.3
IT-5KFE	5	520	425	410	61.0

- Lighting and machinery applications on building sites
- Housed in reinforced fiber glass enclosure providing safety security and durability
- Various power input / output voltages can be made on request.
- The sockets shall conform to DIN VDE 0623, EN 60309-2 and 40A, 2P, 30mA ELCB is provided at the output in order to avoid electrical shock
- Protection from fire hazard, air and water, Sealed type and easy to handle.
- Cable gland is provided for incoming cable access.

### Swimming Pool Transformers



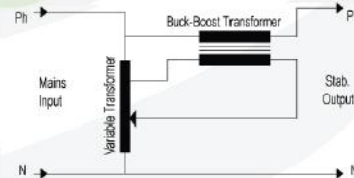
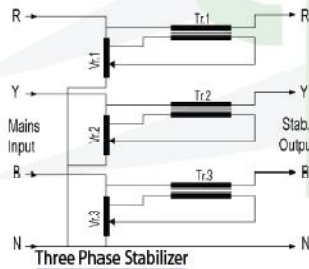
Model No.	Power ( W )	Primary Volt	Primary Amp.	Secondary Volt.	Secondary Amp.	No-Load Losses	Short-Circuit Voltage	Efficiency
						W	%	%
IT-300SP1	300 W	220 VAC	1.7	12 VAC	31.25	8.98	3.9	93
IT-300SP2	300 W	127- 220 VAC	2.95-1.7	12 VAC	31.25	8.98	3.9	93
IT-300SP3	300 W	220 VAC	1.66	12 VAC	31.25	8.98	3.9	93
IT-600SP1	600 W	220 VAC	3.41	12 VAC	62.5	18	2.9	95
IT-600SP2	600 W	127-220 VAC	5.91-3.41	12 VAC	62.5	18	2.9	95
IT-600SP3	600 W	220 VAC	3.38	12 VAC	62.5	18	2.9	95

# Automatic Voltage Stabilizer

Operation principle	Electromechanical by electronically controlled regulating transformer
Input voltage range	$\pm \pm 10\%$ , $\pm 15\%$ , $\pm 20\%$ , $\pm 30\%$
Output voltage regulation	$\pm 1\%$
Response time	< 1.5ms
Frequency	47 ~ 63Hz
Stabilization principle	Maintain each phase voltage stable irrespective of load balance
Power factor	>95%
Harmonic distortion	<1%
Efficiency	>96%
Protections	MCB in input, Under voltage and over voltage protection
Delay timer	10 sec to 30 min
Enclosure	Metal enclosure, Powder coated RAL 7032
Protection degree	IP-23, IP-44, IP-55
Includes	Signal Light
	Output voltmeter
	MCB
Options	Digital voltmeter, Ammeter and Frequency meter
	Under/ Over voltage cut off
	Overload protection
	Bypass Control switch
	Input circuit breaker



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Voltage Range : 200/115V, 208/120V, 220/127V, 380/220V, 400/ 230V, 415/240V, 440/254V, 480/277V

Model No.	Power (KVA)	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
SER3-10K	10.0	1310	520	640	35.6
SER3-15K	15.0	1310	520	640	45.0
SER3-20K	20.0	1310	520	640	182.0
SER3-30K	30.0	1840	670	820	197.0
SER3-50K	50.0	1840	670	820	215.0
SER3-100K	100.0	1920	720	860	256.0
SER3-125K	125.0	1920	720	860	264.0
SER3-150K	150.0	1920	720	860	284.0
SER3-175K	175.0	2100	790	900	335.0
SER3-200K	200.0	2100	790	900	355.0
SER3-300K	300.0	2400	840	930	415.0
SER-3-500K	500.0	2650	900	1000	500.0
SER3-630K	630.0	2700	940	1030	550.0
SER3-100K	1000	2900	1000	1100	640.0

Voltage Range : 200, 208, 220, 230, 240.

Model No.	Power (KVA)	Overall Dimensions (mm)			Total Wt. Kg.
		(H)	(W)	(D)	
SER-5K	5.0	860	480	680	35.6
SER-7K5	7.5	860	480	680	45.0
SER-10K	10.0	860	480	680	78.0
SER-12K5	12.5	860	480	690	95.0
SER-15K	15.0	900	690	490	105.0
SER-20K	20.0	1150	730	590	138.0
SER-25K	25.0	1150	730	590	156.0
SER-30K	30.0	1150	730	590	179.0
SER-40K	40.0	1250	750	630	195.0

Note: Tolerance on the given dimension  $\pm 2\text{mm}$



## “ Our Promise

*At Intact Controls we believe that quality means an appealing and enduring business. We are providing customer care service of products for all clients with a proven track record of success and improving efficiency. We are integrating these approaches, which provides results that exceed expectation of each individual.*

## Partners

As a leading company, we are very proud of our client relationships. Yes, our clients are our business partners, but they are also our neighbors.

And that means our commitment goes far beyond just getting the job done – it also extends to building communities, providing vital support to client operations and meeting goals beyond expectations.

Our focus is about consistent and unwavering professionalism, service and quality. And that's why many Intact Controls Transformer Industries L.L.C clients have retained their partnership with us.

We partner with our clients in a way that we provide them with the best of our quality products and maintain a long-term relationship.



Riyadh, K.S.A.

Dubai, U.A.E.

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