

# torroidal transformers





# advantages

## HIGH ELECTRICAL EFFICIENCY

The continuously wound core of the toroidal transformer has no air gap, resulting in a stacking factor of 95% of its theoretical weight. Since all the windings are symmetrically spread over the entire round gapless core, a higher flux density is possible (toroidal transformers operate at flux densities of 16 to 18 kilogauss, while traditional laminated transformers operate at 12 to 14 kilogauss). The magnetic flux is in the same direction as the grain oriented silicon steel core, thus achieving very high electrical efficiencies. Typical efficiency figures for toroidal transformers are 95%. Also, because of low magnetizing current, a toroid requires only 10% of the off load power required by conventional transformers.

## SMALL SIZE AND WEIGHT

A product of the high efficiency of toroidal transformers is reduced size and weight. Typically 50% lighter, and smaller than conventional laminated transformers. Furthermore, the diameter to height ratio of a toroid can easily be varied (as long as the cross sectional is held constant) to suit the mechanical design - great for low profile equipment.

## LOW STRAY MAGNETIC FIELDS

Toroids have no air gaps, and windings are uniformly wound around the core, which results in insignificant amounts of magnetic radiation. This eliminates the need for special shielding and makes toroidal transformers especially suitable for applications in sensitive electronic equipment, such as low level amplifiers, medical equipment, and CRTs.

## REDUCED TRANSFORMER HUM

The absence of an air gap typically provides an 8:1 reduction of induced noise. In addition, the windings enveloping the coil effectively reduce magnetostriction - the main source of the familiar 'hum' found in standard vertically laminated transformers.

## LOW OPERATING TEMPERATURE

SALZER toroids have Fe losses measured typically as 1.1 w /kg. These low losses provide cooler operating temperatures and low magnetizing current.

## EASY TO MOUNT

A single center screw quickly and easily mounts a toroidal transformer. Compared to laminated transformer mounting this cuts down on parts as well as assembly time in your product.



# about

## Description

The Standard Power Transformer Line of toroids is characterized by its tight regulation, for applications where off load voltages are a concern; and very low temperature rise, which is useful for high ambient operating conditions, or where instantaneous power - in excess of rating - is required.

## Approvals

All standard line products are UL recognised and CSA approved, and carry the respective labels. General Requirements, Canadian Electrical Code, part II; and C22.2 #66-1988, Specialty Transformers Standard. In addition, 50 Hz transformers are constructed to the commercial requirements of European approval agencies. such as VDE. Primary leadouts are double insulated.

## Inputs

Type 1: 240 VAC at 50 Hz.

Type 7: Dual 115 VAC Windings, series or parallel connected for 115 or 230 VAC at 50/60 Hz.

Type 5: Dual 0-100-120 VAC windings, series or parallel connected for 100, 120, 220 or 240 VAC at 50/ 60Hz.

## Insulation

Primary to secondary: Polyester tape - class B (130°C), three layers minimum. Meets the test requirement of >2.5 kV for 1 minute, 50 Hz transformers: >4kV. Interwinding secondary (where required) and outer insulation: Polyester tape, two layers minimum.

## Temperature Rise

Maximum 40 C. At maximum rated load, continuous.

## Outputs

See output table of part number code.

Dual secondaries are bifilar wound where possible for optimum coupling, and theoretically perfect balancing.

## Output Tolerance

Better than 3%, at full load.

## Load Regulation

See VA rating/Regulation chart, part number code. Figures given are for 60 Hz operation, for 50 Hz operation figures increase slightly. Consult factory.



# about

## Mounting

Standard : Supplied with 1 steel cup disk, 2 neoprene washers, a bolt, nut and flat washer.

Potted Centre : Epoxy compound potted centre, drilled. Supplied with base insulating washer.

Vertical Bracket : Supplied mounted to a steel bracket with standard hardware.

## Leads

Standard: Magnet wire self leads are PVC sleeved (surface printed UL VW1, CSA 105'C), .031 wall. Stripped 6mm.

Finished length: 200mm.

Optional\*: Stranded tinned copper wire (CSA TEW, UL-1015, 105'C). Stripped 6mm. Finished length 350mm.

## Thermal Protection

Optional\* : Normally closed thermal switch in series with primary (or) separate lead outs with insulated stranded wire (yellow/green), auto resetting or a one shot thermal fuse. Both open at 120°C core temperature. UL/CSA listed components.

## Electrostatic Screen

Optional\* : To reduce captive coupling, and / or create physical barrier, between primary and secondary. Copper foil laminated between polyester tape. Wound over primary, Terminated at one end by insulated stranded wire (green/yellow).

## Magnetic Shield

Optional\* : To attenuate stray magnetic fields. Multiple layers of grain oriented silicon steel laminated between insulation. Wrapped around circumference of transformer. Increases OD by approx. 1mm.

## \*Options

Items marked' (screen shields, thermal switch, and stranded leads) are subject to a minimum order of 10 units.

## Mechanical

Typical size and weights listed in the chart are for 117 VAC 60 Hz transformers. For 50 Hz transformers, size and weight increase slightly.

## Part Number Code

Call SALZER for assistance in structuring part numbers.

# applications

## Standard Power Transformer Line

A broad range of high quality, UL and CSA approved, torroidal transformers. Designed for general purpose applications.

## OEM Power Transformer Line

OEM power transformer line An economy version of the Standard Line. UL and CSA approved. Single, dual or multi-tapped primaries. 50 to 1500 VA.

## Isolation Transformers

A standard line of transformers to electrically isolate equipment from line. Medical (UL544, IEC60I) and Commercial series.

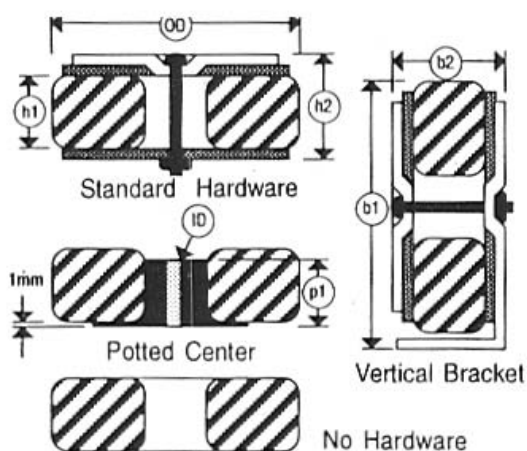
## Audio Output Transformers

A standard line of output transformers for sound distribution. SALZER has also developed a wide range of custom audio output transformers, including tube output.

## Custom Transformers

Computer-aided design solutions for your demanding applications. To 10 kVA.

## Mounting



## Size and Weights

VA	00	h1	h2	Kg	p1	10	b1	b2
8	55	25	30	0.25	15	5	16	32
15	63	33	37	0.35	23	5	75	39
30	70	33	38	0.45	23	5	75	40
50	80	38	45	0.90	28	5	100	47
80	97	35	39	1.00	25	5	100	42
120	95	43	47	1.20	33	5	100	49
160	110	45	50	1.80	35	5	116	52
225	110	50	55	2.20	40	5	116	57
300	110	57	62	2.60	47	5	116	64
500	135	63	67	4.00	53	6.6	150	69
625	145	78	83	5.00	68	6.6	150	85
750	150	80	85	5.50	70	6.6	150	87
1000	160	80	85	6.30	70	12	170	87
1500	200	75	80	11.70	65	12	210	83

For 117 VAC 60 Hz transformers.  
For 50 Hz transformers, size and weight increase slightly.

# Ordering

## Ordering Code

0	8	I	0	2	6	0	0	0
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VA Rating Regulations			Input		Output			Leads	
<b>CODE</b>	<b>PWR VA</b>	<b>REG %</b>	<b>CODE</b>	<b>APPLICATION DESCRIPTION</b>	<b>CODE</b>	<b>VAC RMS</b>	<b>AVAILABILITY</b>	<b>CODE</b>	<b>DESCRIPTION</b>
99	8	22	1	INDIAN 240 VAC 50Hz	10	6 6		0	MAGNET WIRE
00	15	20	7	NORTH AMERICAN/EUROPEAN 115/230VAC 50-60 Hz	11	9 9		1	200 mm, 6 mm stripped STRANDED*
01	30	18	5	GLOBAL (optional) 100/120/220/240VAC 50-60 Hz	12	12 12			350 mm, 6 mm stripped
02	50	13	<b>Screen/Shield*</b>		13	15 15			
03	80	12	<b>APPLICATION DESCRIPTION</b>		14	18 18			
04	120	11	0	NONE	15	22 22			
05	160	8	1	ELECTROSTATIC SCREEN*	16	25 25			
06	225	7	2	MAGNETIC SHIELD*	17	30 30			
07	300	6	3	BOTH SCREEN & SHIELD*	18	35 35			
08	500	4	<b>Output Current Rating RMS</b>		19	33 33			
09	625	4	The part number above, 08I026000,		26	40 40			
10	750	4	would describe a 500 VA transformer with 240 VAC @ 50 Hz input;		25	45 45			
11	1000	4	2 x 40 VAC outputs @ 6.25A each;		33	50 50			
12	1500	4	standard mounting hardware; and no options		42	55 55			
					52	60 60			
					28	110 -			
					50	117 -			
					29	220 -			
					30	240 -			
					53	175 175			
					<b>Output Current Rating RMS</b>				
					= VA Rating / # of Outputs / Rated VAC				
					<b>Thermal Protection*</b>				
					<b>CODE</b>				
					<b>DESCRIPTION</b>				
					0	NONE			
					1	THERMAL SWITCH*			
						auto resetting			
					2	THERMAL FUSE*			
						one shot			
					<b>Mounting</b>				
					<b>CODE</b>				
					<b>DESCRIPTION</b>				
					0	Metal Disk, 2 Neoprene washers, Bolt, Nut & Flat washer			
					1	NONE			
					2	Epoxy Compound Potted and Drilled			
					3	Vertical Bracket			

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