



## Toroidal Assemblies **Vertical Mounting Brackets** for EI Replacement

### Features

- Replace EI Transformers
- Increase Power
- Increase Power Density
- Decrease Stray Fields

### Application

- Electrical Equipment
- Electronic Equipment



Bulletin # 1

**Custom**  
APPLICATION

Custom Capabilities > Packaging/Assembly > Vertical Mounting Brackets > EI Replacement

### Description

Toroidal transformers offer several significant benefits over conventional EI transformers, including higher efficiency, quieter operation, lower stray magnetic fields and higher power density. Toroidal mounting usually consists of a single bolt through the center of the transformer. Standard EI transformers typically mount with four bolts. This Custom Application Bulletin describes two applications where EI transformers had originally been specified, but needs for more power and desires for other toroidal benefits coupled with a requirement to fit into the same area and mounting holes, required the vertical mounting of toroidal transformers.

Toroidal transformers are lower-volume than EI transformers, but occupy space differently. The height to diameter ratio of toroids can be designed from 1:1 to 1:5 with 1:2 being the most magnetically and electrically efficient. The ability to have a low-profile suits many volume-efficient applications. The applications

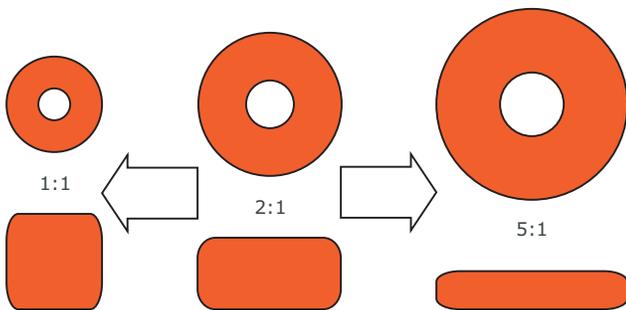
described in this bulletin both where originally developed with EI transformers which are block-like components that were taller than wide. Without adjacent vertical support, to fit toroids required a mechanical adaptor, a bracket.

The brackets include mounting holes in the same positions as the EI transformers they replace. This allows for possible transformer retrofitting of existing equipment and does not require a revised chassis design. Termination styles remained the same for these transformers as well, simplifying assembly changes for the upgrade to toroidals.

Both of these applications happened to be isolation transformers in medical electronic equipment, which require low leakage current. The applications also required significantly higher power than the original EI transformers could supply. Both also had requirements for low stray magnetic fields from the transformers because of sensitive near-by circuitry.

PLITRON toroidal transformers lowered leakage current in the final products while increasing power and lowering temperature-rise. The Vertical mounting brackets allowed the improved toroidal transformers to fit into the existing designs with minimal changes.

Toroidal vertical mounting brackets suit many applications where EI transformers had been used, or where space constraints simply require their use. Applications include electrical and electronic equipment in any industry or market. Also, these brackets can be used on many types of toroidal magnetics including power, isolation and matching transformers, plus autoformers and inductors.



Toroidal's Flexible Width to Height Ratio: Same Power - Different Shape



Standard EI Transformer



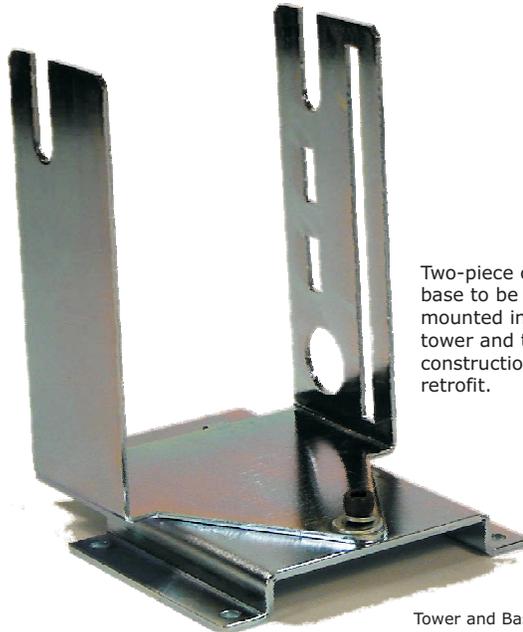
Vertical Mounting Bracket

Mounting Holes

Mounting Holes



Application	Medical Injector System	Medical Microbiology Analyzer
Power	1200 VA	1300 VA
Input	2 x 110 VAC 50/60 Hz	2 x 100, 110, 115, 120 VAC 50/60 Hz
Output	100 VAC	115 VAC
Terminations	Universal MATE-N-LOK	Phoenix Transformer Terminals
Mounting	"U" Bracket, plated steel. Transformer center potted with threaded insulated bushing.	"U" Tower and Base, plated steel. Transformer center potted with threaded insulated bushing.



Two-piece construction allows base to be separated and mounted independently of tower and toroid. This eases construction and speeds retrofit.

Tower and Base Mount

### Products & Custom Capabilities

#### Standard Products

##### Standard Power Toroidal Transformers

Broad range  
Approved  
15VA to 1.5kVA

##### Toroidal Isolation Transformers for Medical Equipment

100VA to 12.5kVA  
International medical approvals

##### Printed Circuit Mount Toroidal Power Transformers

Triple output  
Encapsulated  
20VA to 160VA

##### Toroidal Audio Transformers

Tube Output  
Tube Power  
Electrostatic  
Chokes  
LoNo Power for Solid-State  
25, 70 & 100V Distribution

##### Power Isolation Units

Medical  
Commercial/Industrial

#### Custom Capabilities

##### Power Toroidal Transformers

Computer aided design solutions  
From 8VA to 120kVA  
Various mechanical mounting arrangements  
Designed to the world's safety approvals

##### Current Transformers

High accuracy  
Single or multiple core versions  
Saddle bracket or encapsulated  
High isolation

##### Inductors

To 150 mH  
To 300 A  
1.75" to 18" dia.  
Gapped cores

##### Other

Three phase  
Power conditioning  
Packaging / Assembly  
Autoformers  
Connectors  
Cases

#### Warranty and Suitability

PLITRON products are warranted against materials and manufacturing defects for a period of five years from date of shipment to Customer. There are no representations made or warranties given as to the application and use of the product by the Customer. It is the responsibility of the Customer to ensure the suitability of the product for the intended application. PLITRON is not responsible for any damage of any nature whatsoever to ancillary circuitry, equipment or property due to use of the product.

Specifications subject to change without notice.

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### PLITRON R&D

PLITRON has a research team dedicated to improving and expanding toroidal technology. We engage in fundamental research and have developed new methods to both quantify and enhance transformer performance.



NBT power transformers substantially attenuate differential and common mode noise, eliminating requirements for external circuits such as low-pass filters.



PLITRON's Imin technology reduces in-rush currents to 1/4 of standard toroids. This eliminates the need for soft-start circuits, relays, PTCs or large breakers.



LONO technology effectively eliminates any audible noise in the power transformer regardless of line conditions, including DC offset and over-voltage. PLITRON can quantify and specify noise performance to NC (noise criterion) standard curves.



Toroidal transformers are typically 1/10th the magnetic field of standard EI transformers. LoSTRAY technology further reduces magnetic emissions from the transformer without the use of shields, or "belly-bands".



UST is a highly effective electrostatic screen which capacitively couples high frequency noise to ground while maintaining the best possible inter-winding transfer at power frequencies.



**Custom**  
**APPLICATION**

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