Isolation transformers couple FM or LPTV power across the base insulator of an AM broadcast station transmitting tower, with little or no effect on the AM base impedance and no mismatch into the FM antenna feed line. An isolation transformer is especially desirable for feeding high impedance AM radiators or towers that are part of a directional array where “bazooka” isolation systems would have adverse effects.
IT Series Models 404, 425, 426, 427, and 430
Isolation Transformers

Model 404 Isolation Transformer

Each isolation transformer is supplied with a weather shield fitted with a 2-inches pipe flange on the bottom to accommodate a mounting pipe. This isolation transformer is designed to be used in a pressurized system with dry gas passing through the unit with a recommended pressure of 3-5 PSI not to exceed 10 PSI. Each Type 404 isolation transformer is factory tested to operate anywhere in the 88 to 108 MHz FM band with no adjustment necessary. LPTV isolation transformers require custom design and manufacturing to achieve high isolation and low VSWR. A horn gap is installed for lightning protection. Both the input and output have a DC short circuit between the inner and outer conductor of the transformer.

Electrical Specifications

- Operating Frequency Range: 88 MHz to 108 MHz (other frequencies available on application)
- VSWR: 1.10:1, maximum
- Power Rating (FM): 10 kW
- Insertion Loss: < 0.05 dB, maximum
- AM Peak Voltage Rating: 7.5 kV
- AM Shunt Capacity: 100 pF (approx.)

Mechanical Specifications

- Input Connection: 1 5/8 inch EIA, male
- Tank Diameter: 6.125 inch | 15.56 cm
- Rain Shield: 12 inch | 30.48 cm
- Overall Height: 72 inch | 182.88 cm
- Weight including Stand: 112 lbm | 50.80 kg
- Recommended Pressurization: 3 to 5 PSI
- Maximum Pressurization: 10 PSI

Note: In a continuing effort to improve products, ERI reserves the right to change specifications and features.
IT Series Models 404, 425, 426, 427, and 430

Isolation Transformers

Model 425, 426, 427 Isolation Transformers

Each isolation transformer is supplied with a weather shield fitted with a cradle fitted with a 3-inch pipe flange on the bottom to accommodate a mounting pipe and two stainless steel straps to secure the tank to the mounting cradle. This isolation transformer is designed to be used in a pressurized system with dry gas passing through the unit with a recommended pressure of 3-5 PSI, not to exceed 10 PSI. A horn gap is installed for lightning protection. For lightning protection heavy duty DC short circuits between the inner and outer conductors of both the input and output.

Electrical Specifications

<table>
<thead>
<tr>
<th></th>
<th>Model 425</th>
<th>Model 426</th>
<th>Model 427</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Frequency Range:</td>
<td>88 MHz to 108 MHz (factory tuned to specified frequency, other frequencies on application)</td>
<td>88 MHz to 108 MHz (factory tuned to specified frequency, other frequencies on application)</td>
<td>88 MHz to 108 MHz (factory tuned to specified frequency, other frequencies on application)</td>
</tr>
<tr>
<td>VSWR:</td>
<td>&lt; 1.05:1 at tuned operating frequency ± 500 kHz</td>
<td>&lt; 1.05:1 at tuned operating frequency ± 500 kHz</td>
<td>&lt; 1.05:1 at tuned operating frequency ± 1 MHz</td>
</tr>
<tr>
<td>Power Rating (FM):</td>
<td>25 kW</td>
<td>40 kW</td>
<td>50 kW</td>
</tr>
<tr>
<td>Insertion Loss:</td>
<td>&lt; 0.05 dB, maximum</td>
<td>&lt; 0.05 dB, maximum</td>
<td>&lt; 0.05 dB, maximum</td>
</tr>
<tr>
<td>AM Peak Voltage Rating:</td>
<td>30 kV</td>
<td>30 kV</td>
<td>30 kV</td>
</tr>
<tr>
<td>AM Shunt Capacity:</td>
<td>60 to 70 pF (approx.)</td>
<td>60 to 70 pF (approx.)</td>
<td>60 to 70 pF (approx.)</td>
</tr>
</tbody>
</table>

Mechanical Specifications

<table>
<thead>
<tr>
<th></th>
<th>Model 425</th>
<th>Model 426</th>
<th>Model 427</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Connection:</td>
<td>3 1/8 inch EIA, male</td>
<td>3 1/8 inch EIA, female</td>
<td>6 1/8 inch EIA, female</td>
</tr>
<tr>
<td>Output Connection:</td>
<td>3 1/8 inch EIA, female</td>
<td>3 1/8 inch EIA, female</td>
<td>6 1/8 inch EIA, female</td>
</tr>
<tr>
<td>Length of Transformer:</td>
<td>44 inch</td>
<td>44 inch</td>
<td>60 inch</td>
</tr>
<tr>
<td>Tank Diameter:</td>
<td>28 inch</td>
<td>28 inch</td>
<td>28 inch</td>
</tr>
<tr>
<td>Weight including Stand:</td>
<td>256 lbm</td>
<td>300 lbm</td>
<td>325 lbm</td>
</tr>
<tr>
<td>Recommended Pressurization:</td>
<td>3 to 5 PSI</td>
<td>3 to 5 PSI</td>
<td>3 to 5 PSI</td>
</tr>
<tr>
<td>Maximum Pressurization:</td>
<td>10 PSI</td>
<td>10 PSI</td>
<td>10 PSI</td>
</tr>
<tr>
<td>Mounting:</td>
<td>Supplied with cradle fitted with a 3-inch pipe flange on bottom and two stainless steel straps to secure tank to mounting cradle.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: [1] In a continuing effort to improve products, ERI reserves the right to change specifications and features. [2] Designed for gas pass operation with recommended pressurization. [3] FM input and output connections shown are those used when Isolation Transformer is NOT mounted on the AM Tower, above the base insulator. Contact ERI for instructions on proper mounting on the “hot” side of AM towers.
**IT Series Models 404, 425, 426, 427, and 430**

**Isolation Transformers**

Model 430 Isolation Transformers

The Model 430 is a high-power, broad-band version of isolation transformer within ERI's full line of isolation transformers. The Model 430 was developed for use across the entire commercial FM frequency band, in order to allow multiplexed Master FM Antenna system to be mounted on AM transmission towers.

The transformer's passive design is free of critically tuned resonating elements, which results in an excellent match and low insertion loss over the wide operating range. Conservatively rated at 70 kilowatts, the Model 430 is perfectly suited for operation in multiplexed broadcasting configurations. In addition, the rugged design makes the Model 430 well-suited for harsh environmental conditions. The Model 430 is designed to be used within pressurized systems and includes other features such as a spark gap for lightning protection, a weather shield, and an integrated support stand for ease of installation.

### Electrical Specifications

- **Operating Frequency Range:** 92 MHz to 108 MHz
- **VSWR:** 1.10:1, maximum
- **Power Rating (FM):** 70 kW
- **Insertion Loss:** < 0.05 dB, maximum
- **AM Peak Voltage Rating:** 30 kV
- **AM Shunt Capacity:** 150 pF (approx.)

### Mechanical Specifications

- **Input Connection:** 6 1/8 inch EIA, male
- **Flange to Flange Length:** 79.125 inch | 200.98 cm
- **Tank Diameter:** 26 inch | 66.04 cm
- **Tank Diameter at flanged end:** 29 inch | 73.66 cm
- **Overall Height:** 58.625 inch | 148.91 cm
- **Weight including Stand:** 625 lbm | 283.50 kg
- **Recommended Pressurization:** 3 to 5 PSI
- **Maximum Pressurization:** 10 PSI

*Note: In a continuing effort to improve products, ERI reserves the right to change specifications and features.*

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*Shield Assembly*

29 in | 73.66 cm

58.625 in | 148.91 cm

25 in | 63.50 cm

46 in | 116.84 cm

54 in | 137.16 cm

90.125 in | 228.92 cm

79.125 in | 200.98 cm
About Electronics Research, Inc.

Founded in 1943, Electronics Research, Inc. delivers high quality, innovative, integrated solutions to broadcasters across the U.S. and around the world. Our dedicated staff of engineers, designers, fabricators, and project managers take pride in contributing to your success by providing AM, FM, VHF, UHF, BRS-EBS, and Mobile Media broadcast systems including the industry’s best antenna, transmission line, filter and combining, and tower and structural support systems. In addition to manufacturing the full range of broadcast system components and installation accessories, ERI offers all of the engineering and field services needed to plan, install, optimize, and maintain your broadcast facility. We are your single source for broadcast solutions.

Broadcast Antenna Systems
- ROTOTILLER® FM Radio Antenna
- LYNX™ Dual Input for IBOC FM Radio Antenna
- 1105 Circularly Polarized FM Radio Antenna
- 100 Low Power Circularly Polarized FM Radio Antenna
- FM Low Power Horizontally Polarized Educational FM Radio Antenna
- P300/P350 Series Vertically Polarized FM Radio Antenna
- 1180 and 1090 Series Broadband Panel FM Radio Antenna
- SLIMWING™ Batwing VHF Television Antenna
- CRUCIS™ Crossed Dipole VHF Television Antenna
- STINGRAY™ Broadband Panel VHF Television Antenna
- TRASAR® High Power Traveling Wave Television Antenna
- AGW Guided Wave Quick-Deploy Emergency UHF Television Antenna
- STINGRAY™ Broadband Panel UHF Television Antenna
- ALP Low and Medium Power UHF Television Antenna
- AL PLUS Low and Medium Power UHF Television Antenna
- AL8 Low Power UHF Television Antenna
- VELA™ Low Power Vertically Polarized Broadband UHF Television Antenna
- HMD BRS-EBS Antenna
- SHADOWMASTER® Shadow-Filling BRS-EBS Antenna

Transmission Line Systems
- MACXLine® Rigid Transmission Line with Bellows
- HELIAX® Air- and Foam-dielectric Coaxial Cable
- HELIAX® Standard Elliptical Waveguide
- GUIDELine® Circular Waveguide
- Standard Rectangular Waveguide
- Dehydrators and Pressurization Equipment

Filter and Combining Systems
- FM Radio Filter and Combining Systems
- UHF and VHF Television Filter and Combining Systems
- DAB Filter and Combining Systems
- Mobile Media Filter and Combining Systems
- RF Components
- System Monitoring and Protection Components

Structural Support Systems
- Guyed Towers
- Self-Supporting Towers
- Roof-top Antenna Support Structures
- Specialty Structures and Custom Antenna Supports

RF and Structural System Services
- RF Field and Engineering Services
- Installation and Structural Engineering Services