

# Type 7 Transformer Pressure Rings

## Why Choose CK Insulam?



CK Rings are produced from the World's finest Beech Veneer, imported from European forests known for their quality soils and favorable climate.

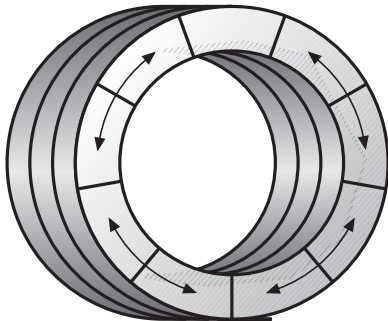
## Widely Accepted

- Manufactured in our Mt. Pleasant location for over 40 years
- Insulam LH widely accepted by utilities throughout the world
- Excellent dielectric properties

## Tangential Grain for Optimum Strength

- Tangential grain alignment developed specifically for power transformer pressure rings
- Strongest type insulating pressure ring in the industry
- Excellent stiffness and flexural strength combine to prevent movement during short circuit

## Tangential grain for optimum strength!



## Type 7—Laminae tangential to periphery

### Savings in Manufacturing

- Stability and stiffness combine to minimize after vapor phase coil tightening
- Vapor phase tolerant (no splitting)
- Excellent oil impregnation characteristics (no impregnation holes)
- Delivered ready to use. NO machining, NO holes, NO sanding required

### Lower Overall Cost

- Each ring custom manufactured to ID, OD, and thickness
- Higher strength permits optimized balance of ring thickness and design margin
- Can permit use of thinner rings vs. other materials and configurations
- Savings in oil, tank, core steel and losses



## Best in Industry Lead Times

CK Composites, located in Mount Pleasant, PA, can ship your custom manufactured rings in 2-3 weeks. And in case of emergency, we can ship in 2-3 days.

## Quality Laboratory

CK Composites has full in-house mechanical and electrical test capability for process quality control and verification of product specifications

## Supplier Recognition Awards

CK Composites has received praise for excellence in products and service from our customers, including "Outstanding Supplier Awards" from Fortune 500/ISO 9000 registered customers based on Quality, Delivery, and Cost.

## Engineering Design

Allan W. Bartek, P.E., President and his staff of mechanical, chemical and electrical engineers are available to assist with the design, using both in-house software and extensive transformer experience.



**CK Composites, Inc.**

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# Type 7 Transformer Pressure Rings

## Insulam LH77 From CK Composites

**Insulam LH** is a long established high voltage insulating material that was developed specifically for use in **power transformers**. It has been manufactured in our Mt. Pleasant facility for over 40 years. **Insulam** combines the dielectric properties and stability of thermosetting resins with the strength and toughness of wood fibers.

**Insulam LH** is made from selected beech wood veneers that are fused with our specialized phenolic

resin under high pressure and temperature to form a high strength laminate. Probably the most important feature of **Insulam LH** is that its maximum mechanical strength can be developed in any required direction to suit specific applications.

**Insulam LH77P72** tangential grain, high-density configuration was specifically developed to meet the special technical requirements of Power Transformers. It provides the optimum balance of high strength and ease of impregnation.

## Two Grades Available

**LH77P72:** A high density Insulam especially suited to high strength applications where high Flexural strength and Modulus are required such as top rings for medium to large transformers. Also where axial forces are high.

**LH77P60:** A medium density Insulam that may be used where flexural strength is not paramount. Examples of this are in lower rings. This is an economical alternative to cross grain, and high-density pressboard rings where scrap factors can be considerable.

**Availability:** All tangential grain Insulam products are custom manufactured to order within 2-3 weeks.\*

Sizes:

Grade	Diameter	Thickness
LH77P60	To 73" (110" avail.)*	to 5"+ **
LH77P72	To 73" (110" avail.)*	to 5"+ **

\* Some extra large sizes over 72" may require longer lead times. Contact our customer service department for details

\*\* Call customer service with requirements above 5"

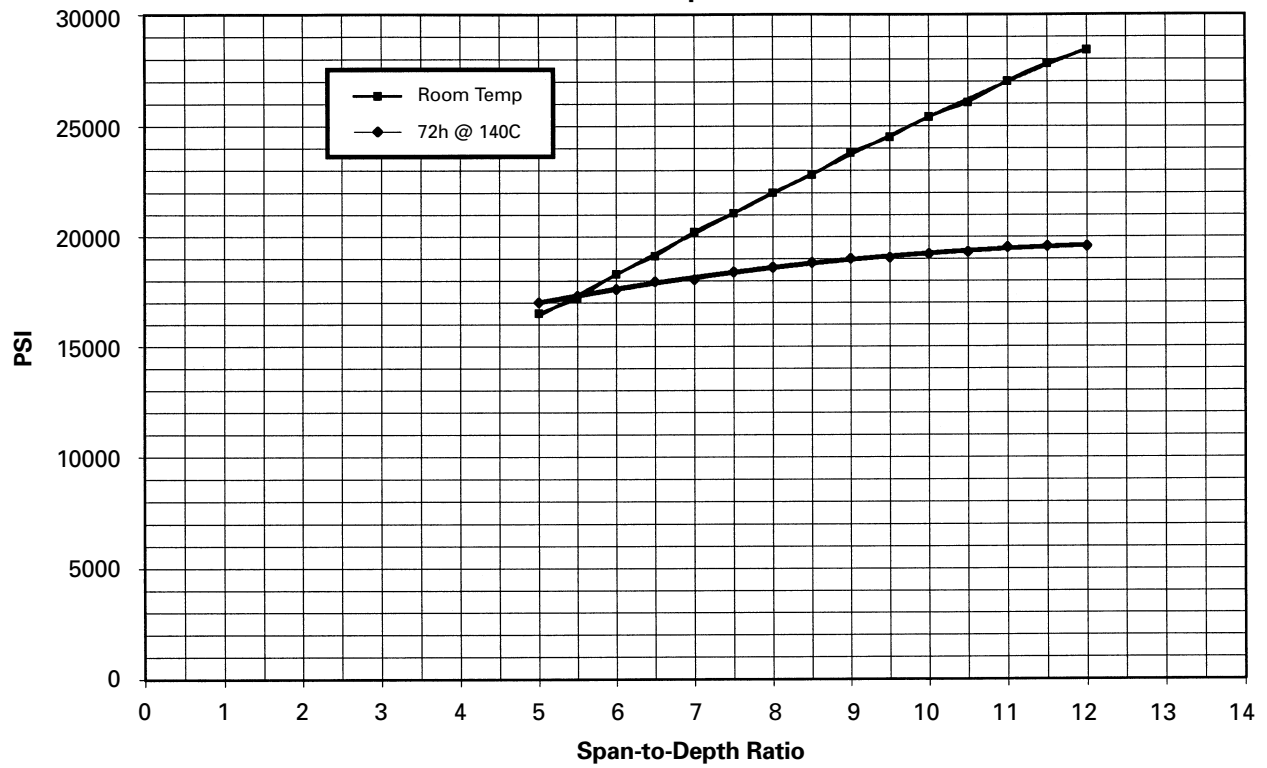
## Tangential Grain Ring Properties\*\*\*

Grade	LH77P72	LH77P60
Density (Lb/ft <sup>3</sup> )	72	60
Specific Gravity (g/cm <sup>3</sup> )	1.08-1.26	.90-1.05
Flexural Strength (PSI)	See Graph 1	See Graph 3
Modulus of Elasticity (PSI)	See Graph 2	See Graph 4
Compressive Strength Parallel to Laminations (PSI)	16000	14700
Operating Temp Continuous (°C)	105	105
Operating Temp Intermittent (°C)	140	140
Dielectric Strength 20C II (KV/in)	70	70
Dielectric Strength 90C II (KV/in)	60	60
Dielectric Constant	5 max.	5 max.
Oil Absorption (after drying)	15-20%	15-20%
Loss Tangent @50 Hz (Tan <i>d</i> )	<.02	<.02

\*\*\* Mechanical Properties will vary depending on Ring Diameter and configuration. Mechanical values at 90° C are about 70% of those shown.

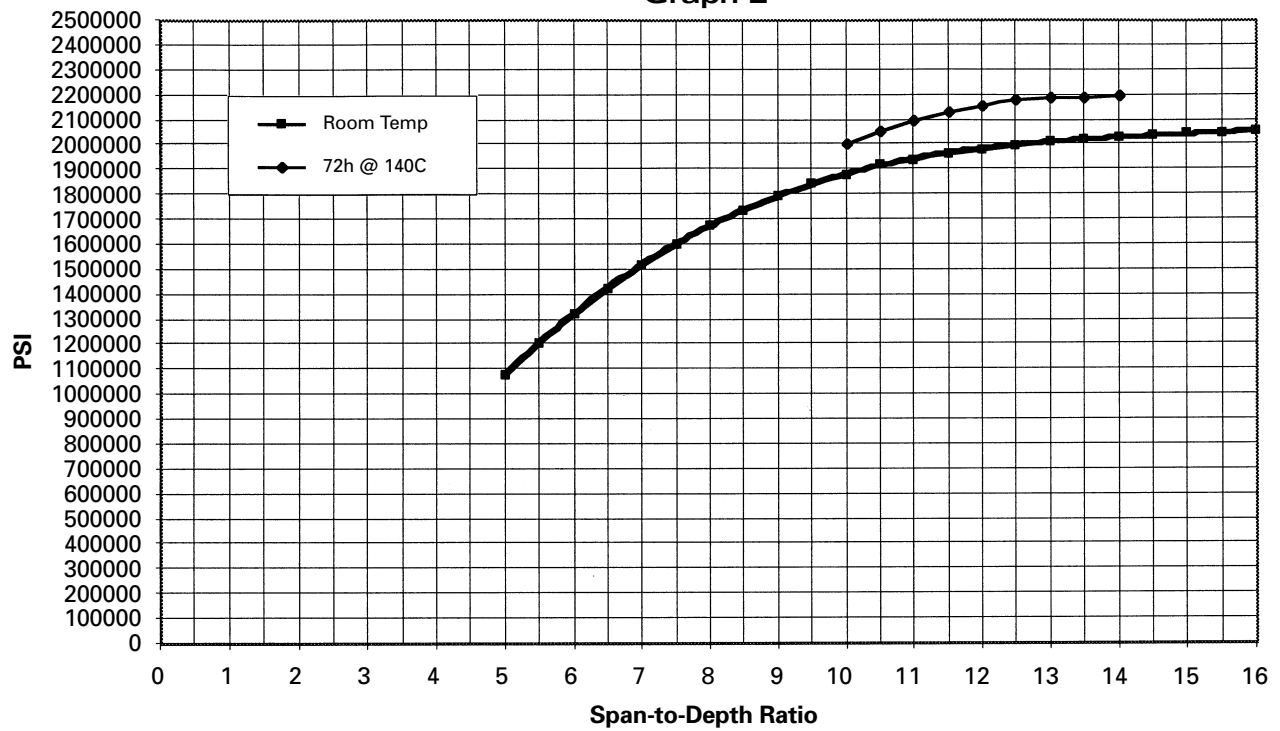
### Flexural Strength LH77P72

Graph 1



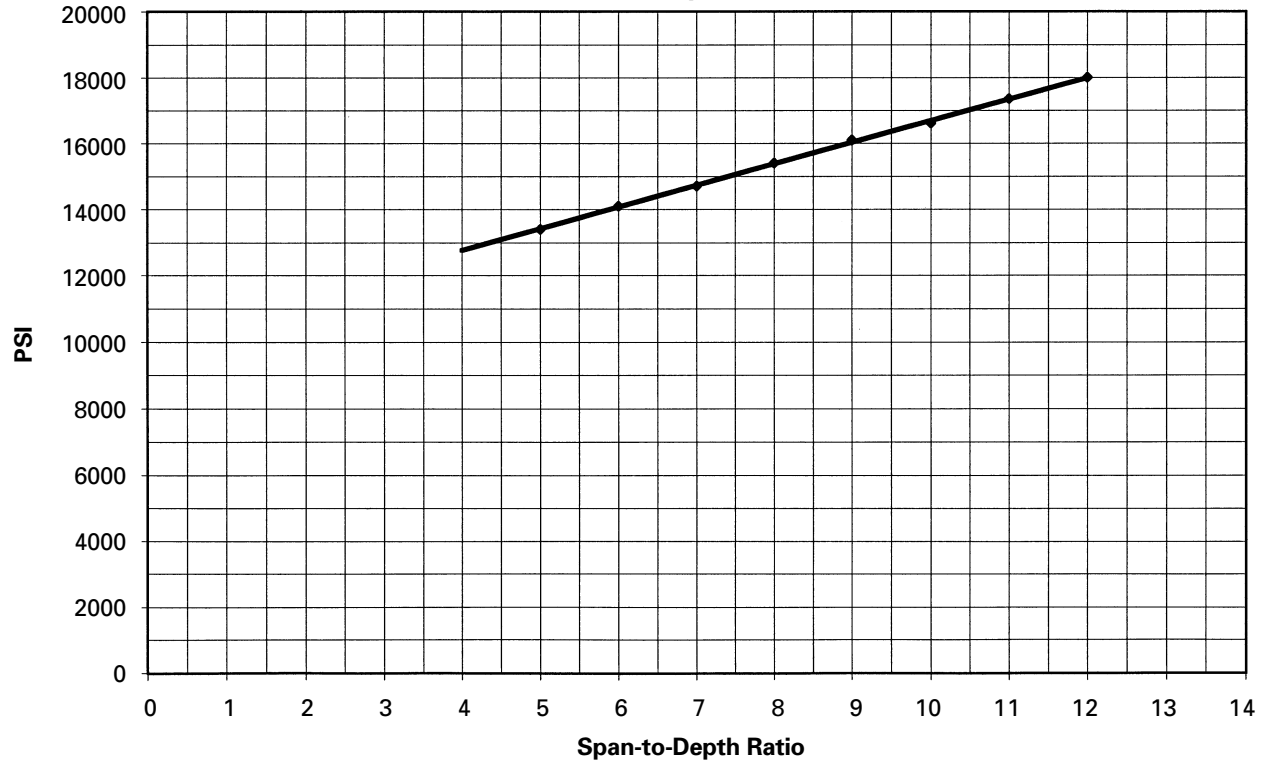
### Modulus of Elasticity LH77P72

Graph 2



### Flexural Strength LH77P60

Graph 3



### Modulus of Elasticity LH77P60

Graph 4

