

# PETROCHEMICAL

Rubber Flexible Piping Systems  
For Pumps & Storage Tanks



A Proven Leader In Flexible Piping Technology

**Thorburn Flex Inc**



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

## Pump & Storage Tank Rubber Flexible Piping Systems



Thorburn 60TMH™ Flexpipe is a custom designed rubber piping system that replaces metal, rigid or flexible pipe and is used in lines requiring resistance to electrolysis, corrosion, abrasion and water hammering. 60TMH™ Flexpipe is specifically engineered for piping systems that require isolation and absorption of severe noise, vibration, misalignment, lateral deflection and flexing caused by thermal and mechanical movement.



### Advantages

- Sizes 25mm to 2000mm and pressures up to 500psi (35 bar) and full vacuum
- Continuous length up to 15m with standard ANSI or DIN flange bolting
- Accommodates misalignment & lateral deflection
- Added arches to handle axial movement
- Corrugated tube & cover available to augment flexibility
- Available in various elastomers to suit application and environmental conditions
- built in offset to facilitate installation & reduce stress on connecting equipment

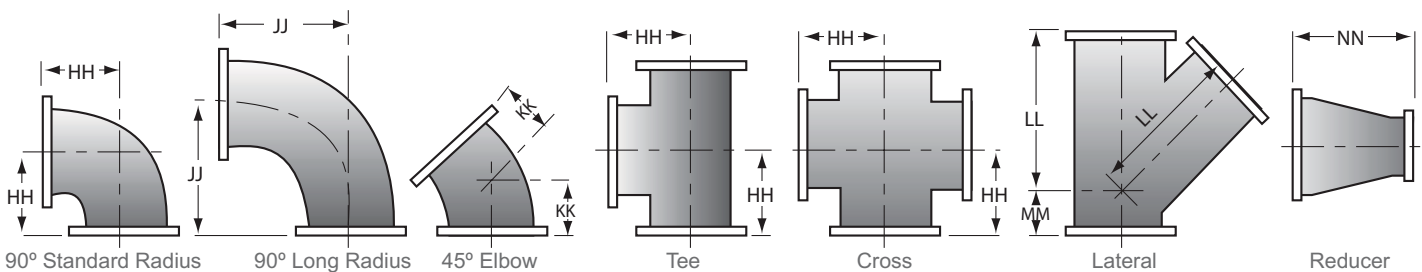
## Thorburn 60TMH™ Handcrafted Rubber Pipe Fittings



Thorburn's 60TMH™ special handcrafted rubber fittings are strong, rugged and flexible. They will reduce noise and vibration from pumps, compressors and other equipment and allow for misalignment where abrasion or corrosion will damage normal piping. Available with tangents and custom offset to absorb extreme angular or lateral deflection in tight spaces.

### Advantages

- Sizes up to 600mm & pressure up to 500psi (35 bar)
- Absorbs noise, vibration and ground settling
- Relieves pipe stress and strain & protects pump casing



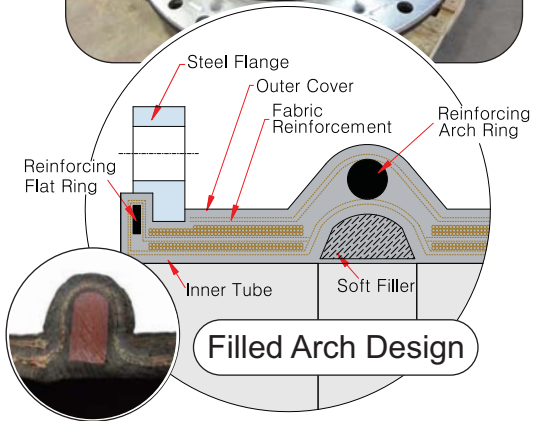
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## Thorburn Custom Rubber Expansion Joints

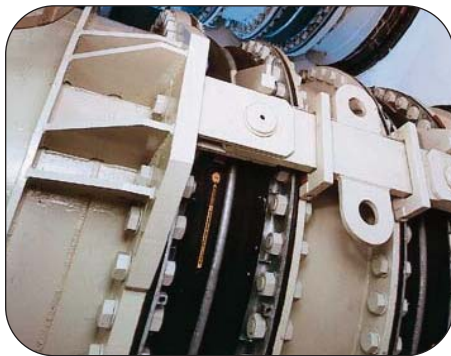
Thorburn's rubber expansion joints are capable of absorbing movement in all directions (axial lateral & angular), unexpected shock, ground settling and induced movements caused by pumps, blowers or other agitating equipment. Sizes from 25mm to 4000mm and pressures up to 500psi (35 bar) and full vacuum.

### Rubber Advantages

- **Built in Offset**  
Facilitates installation and absorbs ground settling
- **Superior abrasion, erosion & corrosion resistance**  
Ideal for sea water, slurry and other abrasive media
- **Filled arch design**  
For smooth unimpeded flow
- **Vibration and sound absorption with high resistance to shock**  
Absorbs transmission of vibration without stress
- **Freedom from embrittlement**  
Flexing keeps the rubber "alive" & eliminates flex induced cracking
- **Great recovery from movement**  
Continues to return to its original position



## Rubber Hinged/Gimbal Expansion Joints



Thorburn's Rubber Hinge Expansion Joints are typically used in sets of two or three, to absorb pipe movement in one or more directions in a single plane piping system. Each individual joint in the system is restricted to pure angular rotation by its hinges.

Thorburn's Rubber Gimbal Expansion Joints incorporate a pair of hinges connected to a common floating gimbal ring that provides for close control of movement imposed upon the bellows while supporting the dead weight of the piping system. Wind loading and shear loads are also transmitted through the gimbal structure.

### 42HPWH/62HPWH Hinge Advantages

- Angular motion in one plane only
- Eliminates pressure thrust forces
- No main anchors required
- Low forces on piping system
- Prevents torsion loads on rubber bellows
- Filled Arch Design Prevents Media Sediment buildup

### 42HPWG/62HPWG Gimbal Advantages

- Angular movement in more than one plane
- Eliminates pressure thrust forces
- No main anchor required
- Low forces on piping system
- Prevents torsion loads on rubber bellows
- Filled Arch Design Prevents Media Sediment Buildup



Thorburn Rubber Hinged Expansion Joint  
Demonstrating Deflection In one Plane



Thorburn Rubber Gimbal Expansion Joint  
Demonstrating Deflection In Multiple Planes





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## 42HPOX Custom Expansion Joints

### Storage Tank Settling Problems

Large above ground storage tanks impart heavy loads deep into the ground. This combination of compressible ground and storage weight results in tank settling. The amount of tank settling is not uniform due to varying soil conditions. A problem arises when rigid piping is connected to the storage tank. Relative changes in elevation occur over time between the storage tank and the connecting piping causing sizable shear and bending loads on the pipe storage tank interface. Unless these conditions are properly addressed, damage to the inter connecting piping and equipment will occur resulting in a major leak.

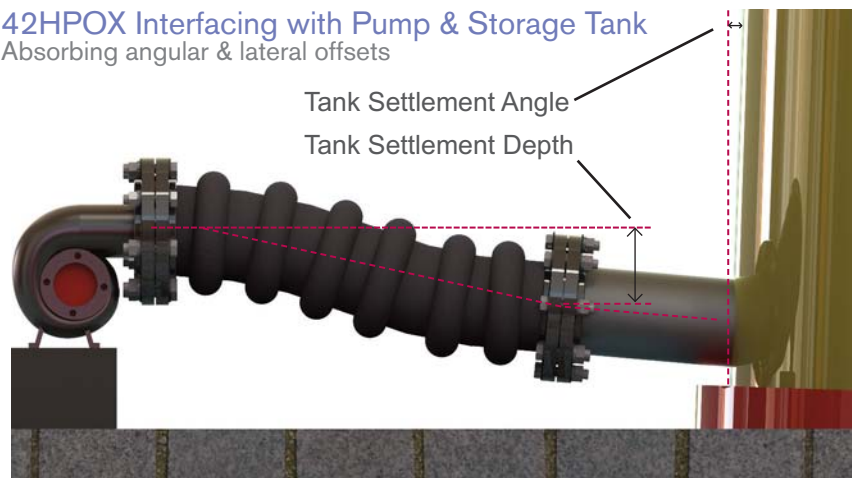


Major pipe to storage tank interface oil leak



### 42HPOX Interfacing with Pump & Storage Tank

Absorbing angular & lateral offsets



Thorburn's 42HPOX are custom rubber flexible pipes designed to replace rigid piping and absorb axial, lateral and angular movement caused by ground settling of storage tanks. Thorburn's 42HPOX can be manufactured with built in offsets, non parallel flanges with tangents to connect to existing storage tanks where angular and lateral offsets have occurred. Thorburn's 42HPOX can also be designed with multiple filled arches to provide smooth flow and prevent sediment build up in the arches.



Over 50 Years of Flexible Piping Experience  
Waiting To Serve You...