Thread Manufacturing
Not All Threads Are Made Equal

Hi-Tech Seals and Hi-Tech Gaskets offer studs in a variety of diameters, lengths and threads per inch. All studs sold are processed using a thread rolling method. This is a process mainly used to create external threads.

Unlike a thread cutting process, thread rolling does not remove or cut away any of the blank’s material. Thread rolling is a cold-forming process in which threads are formed by rolling blanks between shaped hardened dies. The blank’s diameter is part way between the major and minor diameters of the dies’ threads. As the blanks rotate and advance through the dies, the dies displace the material to form the minor thread diameter or root. The displaced material is forced radially outwards to form the major thread diameter or crest.

Many industries today prefer thread rolled bolts for a variety of reasons. Thread rolling is capable of forming a wide variety of threads on many different materials. The process produces a smoother more uniformed thread. The cold forming that threads receive during the rolling process increases the threads tensile strength, shear strength, and resistance to fatigue. The typical tolerances on thread rolling threads are ±0.001”, with a tolerances of ±0.0006” being achievable. Thread rolling also has a unique ability to maintain accuracy of the original set up during long runs of high-speed productions, while taking less time.

To learn more about the diameter, lengths and threads per inch available contact your Hi-Tech Seals or Hi-Tech Gasket representative or visit: http://www.hitechseals.com/products/studs_parts.asp?lang
Technically Speaking

Identifying the Correct Moulding Technique

With the development of mass production, moulding interchangeable parts became a critical and advantageous process. Prior to mass production, all components were unique and equipment was manufactured by highly skilled craftsmen. Moulding allowed manufacturers to produce large volumes of replica parts for new equipment and repair purposes.

In 1839, Charles Goodyear developed the first processable natural rubber compound, paving the way for rubber moulding. His simple compound included natural rubber, sulfur, and an inorganic accelerator (white lead).

Today, there are five primary moulding techniques used by rubber and plastic manufacturers. Techniques include compression moulding, transfer moulding, injection moulding, cast moulding, and extruding. Each technique has its distinct advantages and disadvantages;

<table>
<thead>
<tr>
<th>Technique</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>Compression Moulding</td>
<td>• Minimal material waste</td>
<td>• More labour intensive</td>
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<tr>
<td></td>
<td>• Economical tooling costs</td>
<td>• Longer cure &amp; cycle time</td>
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<tr>
<td></td>
<td>• Best for small quantities</td>
<td>• Loose tolerances</td>
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<tr>
<td></td>
<td>• Good for large diameter components</td>
<td></td>
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<tr>
<td>Transfer Moulding</td>
<td>• Minimal excess flash</td>
<td>• More expensive moulds vs. compression</td>
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<tr>
<td></td>
<td>• Good for complex &amp; delicate parts</td>
<td>• High in material waste</td>
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<tr>
<td></td>
<td>• Tight tolerances vs. compression</td>
<td></td>
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<tr>
<td>Injection Moulding</td>
<td>• Less excess flash</td>
<td>• Highest tooling costs</td>
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<tr>
<td></td>
<td>• Good for complex &amp; delicate parts</td>
<td>• High in material waste</td>
</tr>
<tr>
<td></td>
<td>• Low labour costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Excellent for high volumes</td>
<td></td>
</tr>
<tr>
<td>Cast Moulding</td>
<td>• Most economical tooling costs</td>
<td>• Loose tolerances</td>
</tr>
<tr>
<td></td>
<td>• Ideal for small runs</td>
<td>• Relatively labour intensive</td>
</tr>
<tr>
<td></td>
<td>• Easy to manipulate material properties</td>
<td>• Longer cycle &amp; cure times</td>
</tr>
<tr>
<td>Extrusion</td>
<td>• Least complex moulds</td>
<td>• Simple Shapes</td>
</tr>
<tr>
<td></td>
<td>• Low mold &amp; die costs</td>
<td>• Minimum runs</td>
</tr>
<tr>
<td></td>
<td>• Typically lower unit cost</td>
<td>• Loose tolerances</td>
</tr>
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</table>

Hi-Tech Seals works with a select group of manufacturers, specialized in unique materials/compounds, dimensional parameters, and moulding techniques to bring our clients the best option for their application. Over the next five Technically Speaking articles we will look at the various moulding processes.
Did you know...

Hi-Tech Seals packages our sealing components in UV resistant black bags. UV resistant bags maximize the shelf life of sealing components as exposure to UV light can decrease the components’ physical characteristics and increase brittleness over time.

Conflict-free minerals

Armed conflict and human rights concerns in the Democratic Republic of the Congo, Angola, Burundi, the Central Africa Republic, the Republic of the Congo, Uganda, Sudan (South Sudan), Tanzania, and Zambia have drawn attention to the raw material mining practices within these regions. Related materials include Tantalum, Tin, Gold, and Wolframite (Tungsten).

Many companies and nations have taken a stand on the conflict by refusing to use these “conflict minerals”. Recent US legislation, the Dodd-Frank Wall Street Reform and Consumer Protection Act, has banned the use of conflict minerals from being supplied within the United States. Hi-Tech Seals certifies those products supplied by our company are conflict free.

Boucherville’s 10th Anniversary

Hi-Tech Seals opened their fourth and most eastern branch, Boucherville, in 2003. We would like to congratulate Justin Campeau, Pierre Couture and their team on 10 years of providing quality products and service. Thank you for your continued effort and dedication.

Hi-Tech Seals would like to thank our Quebec customers for their continued business and support over the past 10 years. We look forward to serving you for years to come.
**Installation Tools**

*Quick & Easy Installation!*

The seal installation tool bends the rod seal allowing it to safely move past threads and other glands. With an installation tool, you can save time and avoid damaging seals during the assembly process. These devices are available through Hi-Tech Seals.

All seal installation tools are for sale at **$25 / unit.**

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**High Performance Packing**

*A better extreme service packing*

High Performance Packing (HPP) is Hi-Tech Seals extreme service packing. High Performance Packing was developed for service in chemical injection pumps. It can also be utilized for service in extreme service pumps and valves. HPP sets feature a virgin PTFE top (female) and bottom (male) vee, with middle vees composed of a high fluorine content polymer compounded to give a much higher chemical resistant elastomer.

Samples are available upon request.

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**Hi-Tech Holiday Hours**

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<tr>
<td>Edmonton, AB</td>
<td>7:30 - 5:30 pm</td>
<td>7:30 - 1:00 pm</td>
<td>CLOSED</td>
<td>CLOSED</td>
<td>7:30 - 3:00 pm</td>
<td>CLOSED</td>
<td>780.438.6055</td>
</tr>
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<td>Calgary, AB</td>
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<td>403.720.2856</td>
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<td>CLOSED</td>
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<td>204.775.7881</td>
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<tr>
<td>Newmarket, ON</td>
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<td>8:00 - 3:00 pm</td>
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<td>905.715.2951</td>
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<tr>
<td>Boucherville, QC</td>
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<td>CLOSED</td>
<td>CLOSED</td>
<td>8:00 - 3:00 pm</td>
<td>CLOSED</td>
<td>450.655.7325</td>
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<tr>
<td>Conroe, TX</td>
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<td>8:00 - 1:00 pm</td>
<td>CLOSED</td>
<td>CLOSED</td>
<td>8:00 - 3:00 pm</td>
<td>CLOSED</td>
<td>936.206.3124</td>
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<tr>
<td>Hi-Tech Gaskets</td>
<td>8:00 - 5:00 pm</td>
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<td>CLOSED</td>
<td>CLOSED</td>
<td>8:00 - 3:00 pm</td>
<td>CLOSED</td>
<td>780.438.6055</td>
</tr>
</tbody>
</table>

Hi-Tech Seals offer an after-hours on-call service. If you have a sealing or gasket emergency, you are able to reach us through the numbers provided above. *Service charges apply.*

*From everyone at Hi-Tech Seals, we would like to wish you a happy and safe holiday season!*
Tech Talk

Enhancing Our Quality Control

Surface Roughness Tester

In June 2013, Hi-Tech Seals purchase a Shimana Surface Roughness Tester M/I. The surface roughness tester is used to measure the surface finish of metal, rubber or plastic machine-processed parts. To ensure a proper reading the surface tester’s sensor must be balanced perpendicularly to grooves created during the machining process. The sensor slides over the peaks and valleys of the grooves to generate an accurate surface roughness reading.

Hi-Tech Seals operates the surface roughness tester as a quality control instrument to ensure consistency among supplied machined parts. The surface tester is compatible with ISO, ANSI, DIN and JIS standards. It calculates corresponding parameters according to selected measuring conditions and clearly displays measurement parameters.

Depending on the industry, country or application, the measurement parameters and surface roughness requirements will vary. The surface tester measurements are accurate to +/- 10 percent. The display ranges for measurement parameters are:

- Ra, Rq: 0.025– 16.00 um /1.000-629.9 uinch
- Rz, Rt: 0.020-160.00 um /0.780-6299 uinch

Surface roughness tests are available on customer parts as per request. To learn more about surface finish testing contact your sales representative or email info@hitechseals.com.

Milestones

We are pleased to share with you employees that have achieved milestones in recent months.

**Five years of service:**
- Jenny Ong
- Rick Sackiw

**Ten years of service:**
- Jade Blatz
- Derek Thomas

**Fifteen years of service:**
- Stephanie Berrigan

From all of the staff at Hi-Tech Seals, we thank you for your hard work and dedication over the years.
Tech Talk

Hi-Tech Seals Word Search
Complete the word search below and be entered to win an Apple TV.

Please fax your responses to 780.409.9149 by January 15th, 2014.

Name: __________________________
Company: _________________________
Day Time Phone #: ________________

Congratulations to last edition’s word search winner, Kassandra Johnston.
Hi-Tech Seals Branches:

Bay #3, 5940 - 30 St. SE  |  Calgary, AB  |  T2C 1X8  |  Ph: 403.720.2856  |  Fax: 403.279.2662

445 Egesz St.  |  Winnipeg, MB  |  R2R 2V5  |  Ph: 204.775.7881  |  Fax: 204.775.7954

1180 Kerrisdale Blvd; Unit #8  |  Newmarket, ON  |  L3Y 8Z9  |  Ph: 905.953.9666  |  Fax: 905.953.8739

1450 Rue Nobel, Suite #20  |  Boucherville, QC  |  J4B 5H3  |  Ph: 450.655.7325  |  Fax: 450.655.7359

105 Gladstell St.  |  Conroe, TX  |  United States  |  77301  |  Ph: 936.206.3124  |  Fax: 936.756.0538

Hi-Tech Gasket Branch:

8760 50 Ave NW  |  Edmonton, AB  |  T6E SK8  |  Ph: 780.439.4894  |  Fax: 780.436.9502