When we invented the spiral wound gasket in 1912, there was nothing like it. 100 years later, we introduced the Change gasket—an incredibly resilient metal-wound gasket that’s designed to deliver the most dynamic seal ever. Today there are thousands of Change gaskets in service. Change is manufactured with proprietary equipment, using a 5X thicker metal spiral and a unique laser welding process that penetrates completely through the winding so it requires no inner or outer ring. Best of all, it’s proven to perform without fail at least 60% longer than any other gaskets, CGI Spiral Wound, Double Jacketed, CMG, or Kammprofile. AND THAT’S A GAME CHANGER.

THE CHANGE GASKET. UNIQUELY MANUFACTURED.

SHAPE
> + 5X Thickness Change
> 304 – 316L & Others
> Develops a Uniquely Solid Gasket

LASER WELDED
> Higher unit adhesion
> Pin point accuracy
> Solid unit construction

ENGINEERED LIKE NOTHING ELSE. TO PERFORM LIKE NOTHING ELSE.

THE CHANGE GASKET IS AVAILABLE WITH A LOCATING RING IN ALL SIZES—UPON REQUEST.
# CHANGE GASKET BENEFITS

<table>
<thead>
<tr>
<th>Features</th>
<th>Spiral Wound Gasket</th>
<th>Flexpro (kammprofile)</th>
<th>CHANGE Gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blowout Resistant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent Tightness</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Excellent Recovery</td>
<td>Yes, improved with HT Inc X-750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclic Conditions</td>
<td>Yes, HT Inc X750 Recommended</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Handleability</td>
<td></td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Low Seating Stress</td>
<td>Not in all Sizes/Pressure Ratings</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Use on Nubbin, when centered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility Sealing Pipe Flanges</td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce Complexity by Eliminating Spring Washers</td>
<td>Only with HT Inc X750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce Man Hours Required for Re-Torque</td>
<td>Only with HT Inc X750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve safety by Eliminating Hot Torquing</td>
<td>Only with HT Inc X750</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### COMPRESSION VS. RECOVERY AT 18,000 PSI (124 MPa) GASKET STRESS

<table>
<thead>
<tr>
<th>Gasket Style</th>
<th>% Compression</th>
<th>% Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>CGI X-750HT</td>
<td>24</td>
<td>34</td>
</tr>
<tr>
<td>CGI, 316SS</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>DJ</td>
<td>26</td>
<td>7</td>
</tr>
<tr>
<td>Kammprofile</td>
<td>25</td>
<td>6</td>
</tr>
</tbody>
</table>

The high level of stored energy gives the Change gasket extremely high recovery. In a compression test against other gaskets, the Change gasket recovered almost five-times better than Kammprofile and DJ gaskets.
### CROSS SECTIONAL CUTAWAY

Wound like a spiral. Faced like a kammprofile

---

### GASKET CONSTANTS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ASME m</td>
<td>2.5</td>
</tr>
<tr>
<td>ASME Y</td>
<td>6,400 psi</td>
</tr>
<tr>
<td>PVRC Gb*</td>
<td>1,124 psi</td>
</tr>
<tr>
<td>PVRC a*</td>
<td>0.25</td>
</tr>
<tr>
<td>PVRC Gs*</td>
<td>16 psi</td>
</tr>
</tbody>
</table>

* 304SS/FG

---

### Available Materials

| Standard Windings        | 304, 316L, 347SS, & Inconel 625 available in 0.125”, and 0.177”
|                        | Monel, and Inconel X750 are available in 0.125” only
| Filler & Facing         | Flexible graphite - Standard
|                        | PTFE and Thermiculite also available

### Locating

- Carbon Steel outer guide ring - other metals available

### Dimensions

<table>
<thead>
<tr>
<th>Minimum Diameter</th>
<th>1” ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Diameter</td>
<td>90” ID for larger diameters contact engineering</td>
</tr>
</tbody>
</table>

### Thickness

<table>
<thead>
<tr>
<th>0.125” UP TO 24”</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.177” ABOVE 24”</td>
</tr>
</tbody>
</table>

### Maximum Recommended Radial Width

- 1” for larger widths contact engineering

### Minimum Radial Width

- 3/8” for narrower widths contact engineering

### Shapes

- Round, Small (up to 24”) oval
Across a 24-day, 24-cycle pressure vs thermal cycle test at 608°F (302º C) replicating industry application conditions, the Change gasket lost just 1.5 PSI total, never coming close to the failure point. It outperformed every other gasket tested by at least nine days. And there’s no telling how long it would have kept going if we hadn’t stopped the test.

**THERMAL CYCLE TEST- 24 CYCLES**

Refinery specified rig and test represents the potential typical number of temperature fluctuations on a refinery over 4 years with no re-torque

- 4” Class 300, RF, B16 studs
- Thermal Cycle Phase
  - Purge and Heat up to 608°F (302 ºC) at 3.5°F/min (temp chosen so oxidation would not skew results)
  - Pressurize to 480 psi
  - Hold 1 hr
  - Unassisted Cooling to Ambient
  - Repeat 24 times unless gross failure occurs
  - Approximately 24 hours per cycle
- Record pressure drop every cycle
- Max allowable P drop: 14.5 psi

**PRESSURE VS. CYCLE NUMBER**

Across a 24-day, 24-cycle pressure vs thermal cycle test at 608°F (302º C) replicating industry application conditions, the Change gasket lost just 1.5 PSI total, never coming close to the failure point. It outperformed every other gasket tested by at least nine days. And there’s no telling how long it would have kept going if we hadn’t stopped the test.
SUCCESSFUL APPLICATION, FERTILIZER INDUSTRY

- Superheater exchanger
- Change gaskets installed October 2013 and “have withstood” 15 thermal cycles from ambient to 865°F (462°C) during the first 9 months of service
- Per operations, they are “still performing well and remain in service.”
- NO RE-TORQUING OR HOT TORQUING HAS BEEN REQUIRED
- NOx gas & steam
- Continuous operating conditions: 865°F (462°C), 150 psi
- 36” OD, 304 SS wire, Thermiculite
- Replaced Double Jacketed style that failed after 3 cycles

SUCCESSFUL APPLICATION, REFINING

- Application cycles from ambient to 715°F (379°C)
- Typically experience 28 thermal cycles between major outages requiring several gasket replacements
- Change in service since April 2013 with no issues to date and has already out-performed all previously attempted gaskets
- 63” diameter Change gasket, 510 psi

SUCCESSFUL APPLICATION, CHEM PROCESSING

- Molten Sodium
- Operating conditions: 15 psi, 360°F (182°C) with short term cycling to 1500°F (815°C)
- Flexible graphite tanged sheet caused a fire
- Change gasket safely and effectively sealing several WNRF to Lap Joint NPS flanged connections since November 2013

SUCCESSFUL APPLICATION, BOILER MANWAYS

- This steel mill converted all boiler manways to Change gaskets in March 2013
- The inherent resiliency of a Change gasket reacts ideally to changing loads when a boiler ramps up or down, expected or not
- Improved handling on larger diameter gaskets
- Replacing graphite Spirals & tanged sheet

SUCCESSFUL APPLICATION, STEAM PIPING SYSTEM

- Change gasket sealing all steam piping and headers since February 2013 in this pulp & paper mill
- 800°F (427°C), 90 - 215 psi
- Replaced standard Spiral Wound gaskets

SUCCESSFUL APPLICATION, SEALING OVER NUBBIN

- Double Jacketed (DJ) gasket continuously leaked in this exchanger sealing steam at 650°F (343°C), 325 psi
- Change gasket dimensioned to center and seal over existing nubbin
- Per the refinery’s Sr. maintenance engineer, it has been “working without leaks” since July 2013
CHANGE SUMMARY

- Construction is more robust than a Spiral and Kammprofile
- Compression is more consistent than a Spiral and Kammprofile
- Creep is VERY low
- Recovery is VERY high
- Seals with exceptional tightness, especially thermal cycles
- Crush resistant; no inner ring/compression stop required
- Fits most - if not all - flange arrangements
- Available in all industrial metals

A GASKET THAT’S BETTER THAN ANY GASKET ON THE MARKET. EVEN OURS.
Give us your toughest application.

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