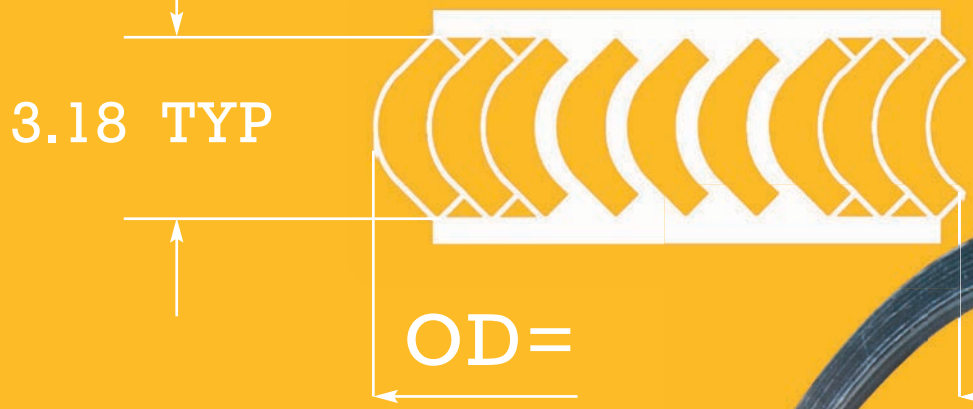
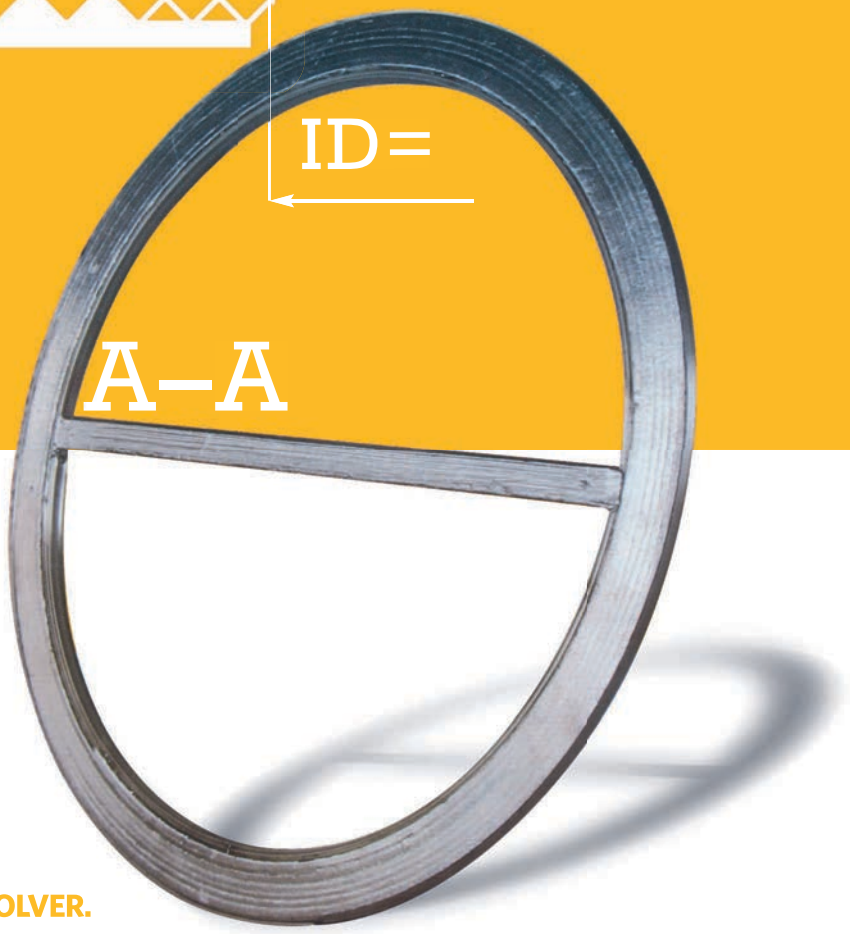
THE ONE CONSTANT IS CHANGE

Flexitallic®



Detail A–A



change™

PROVEN TECHNOLOGY, PROVEN PROBLEM SOLVER.

CHANGE HISTORY

IT'S MADE LIKE NO OTHER,

SEALS LIKE NO OTHER,

AND PERFORMS 60% LONGER!

CHANGE, IT'S SAFE.

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.

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 heat exchanger gasket that's designed to deliver a seal with the most dynamic recovery. Today there are thousands of Change gaskets in service. Change is manufactured with proprietary equipment, using a 5 x thicker metal spiral and a unique laser welding process that penetrates completely through the winding wire so it requires no outer ring. Best of all, it's proven to perform without fail at least 60% longer than any other heat exchanger gasket, CGI spiral wound, double jacketed, CMG, or kammprofile.

AND THAT'S A GAME CHANGER.

THE Change GASKET IS AVALABLE WITH A LOCATING RING IN ALL SIZES – UPON REQUEST

CHANGE GASKET BENEFITS

Features/Benefits	Spiral Wound Gasket	Flexpro (kammprofile)	CHANGE Gasket
Blowout Resistant	🟢	🟢	🟢
Excellent Tightness	🟢	🟢	🟢
Excellent Recovery	Yes, improved with HT Inc X750	🔴	🟢
Cyclic Conditions	Yes, HT Inc X-750 Recommended	🔴	🟢
Good Handleability	🔴	🟢	🟢
Low Seating Stress	Not in all sizes/Pressure Ratings	🟢	🟢
Use on Nubbin, when centred	🔴	🔴	🟢
Flexibility Sealing Pipe Flanges	🟢	Potential Issue	🟢
Potential to: Reduce Complexity by Eliminating Spring Washers	Only with HT Inc X750	🔴	🟢
Potential to: Reduce Man Hours *Required for Re-Torque*	Only with HT Inc X750	🔴	🟢
Potential to: Reduce Man Hours by Eliminating Hot Torquing	Only with HT Inc X750	🔴	🟢

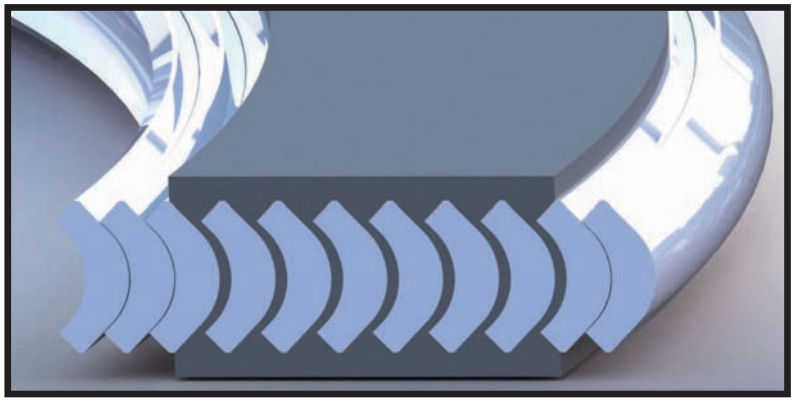
COMPRESSION VS. RECOVERY AT 124MPa (18,000 psi) GASKET STRESS

Gasket Style	% compression	% recovery
Change	30	34
CGI X-750HT	24	34
CGI, 316SS	30	26
DJ	28	7
Kammprofile	25	6

change™

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

ASME m	2.5
ASME Y	6,400 psi (44.1 MPa)
PVRC Gb*	1,124 psi (7.75 MPa)
PVRC a*	0.25
PVRC Gs*	16.1 psi (0.11 MPa)

***Austenitic St.St. 300 series/FG**

Available Materials	**Winding Materials**	304, 316L, 347SS & Inconel 625 available in 3.20mm (0.125") and 4.50mm (0.177")
		Model and Inconel X750 are available in 3.20mm (0.125") only
	Filler & Facing Materials	Flexicarb SEL (other grades of flexible graphite available on request)
		PTFE, Thermiculite® (TH855) and Corriculite® also available
Locating	**Carbon Steel outer guide ring - other metals available**	
Dimensions	**Minimum Diameter**	25.4mm (1") ID
	Maximum Diameter	2540mm (100") ID - for larger diameters contact Applications Engineering
Thickness across wire	**3.20 up to 600mm Dia (0.125" up to 24")**	
	4.50 above 600mm Dia (0.177" above 24")	
Maximum Recommended Radial Width	**25.4mm (1") for larger widths contact Applications Engineering**	
Minimum Radial Width	**9.5mm (3/8") for narrower widths contact Applications Engineering**	
Shapes	**Round up to 2540mm (100") or small oval up to 600mm (24")**	

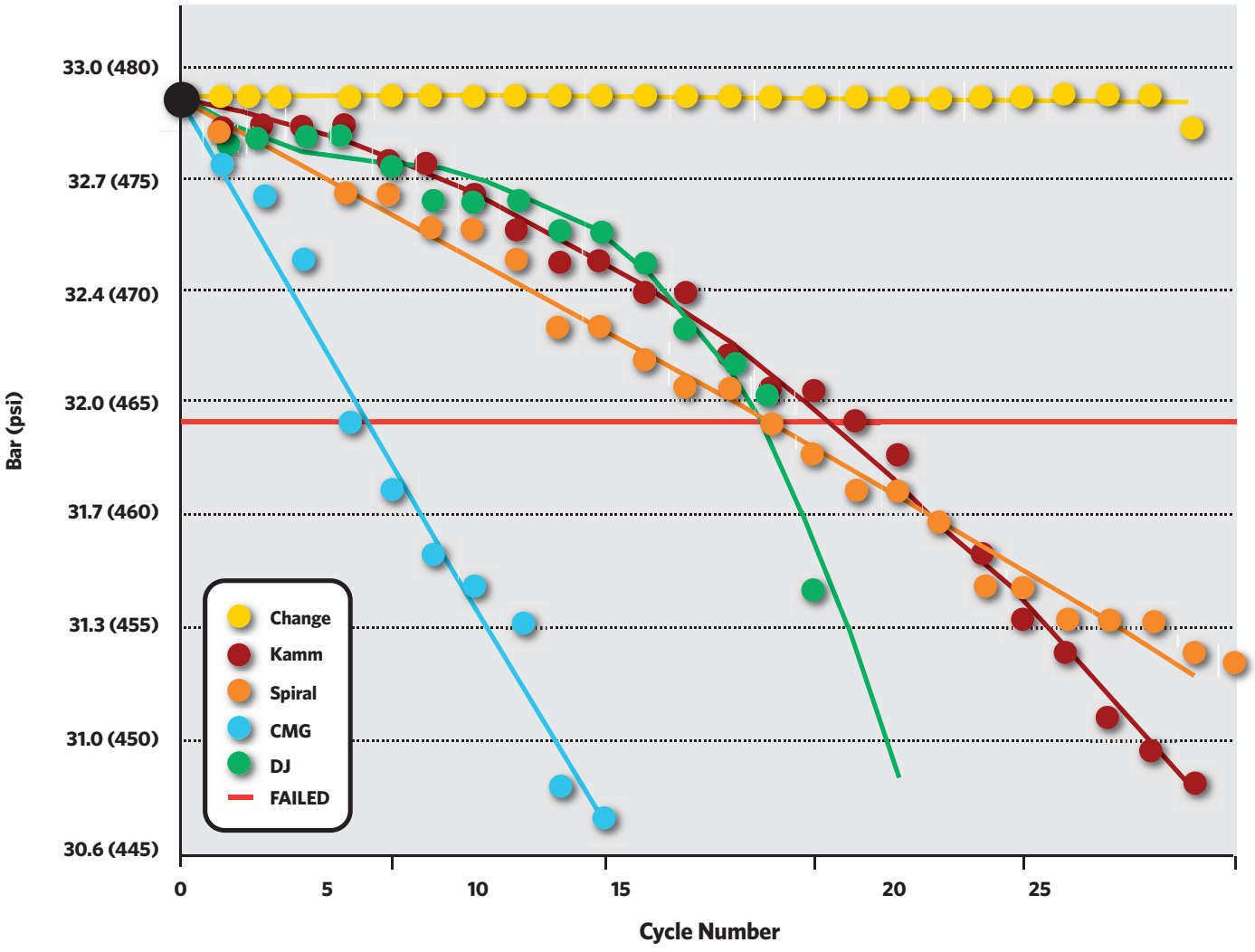
THERMAL TEST CYCLE - 24 CYCLES

USA 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, ANSI B16.5 WNRF, ASTM A B16 Studs
- Thermal Cycle Phase
  - Purge and Heat up to 302°C (608°F) at 3.5°F/ min (temp chosen so oxidation would not skew results)
  - Pressurize to 480 psi (33 bar)
  - Hold 1 hr and measure pressure decay
  - Unassisted Cooling to Ambient
  - Re-heat up to 302°C
  - Repeat 24 times unless gross failure occurs
  - Approximately 24 hours per cycle
- Max allowable P drop: 14.5 psi (1 bar) over the full test

PRESSURE VS. CYCLE NUMBER

Across a 24-day, 24-cycle pressure vs thermal cycle test at 302°C (608°F) replicating industry application conditions, the Change gasket lost a total of 1.5 psi (0.1 bar), comfortably meeting the test pass rate, and outperforming every other gasket material. See graph below.



SUCCESSFUL APPLICATION, FERTILIZER INDUSTRY

- Superheat Exchanger
- Change gaskets installed October 2013 and "have withstood" 15 thermal cycles from ambient to 462°C (865°F) 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: 462°C (865°F), 1.04 MPa (150 psi)
- 36" (914.4mm) OD, 304 SS wire, Thermiculite
- Replaced Double Jacketed style that failed after 3 cycles

SUCCESSFUL APPLICATION, REFINING

- Application cycles from ambient to 379°C (715°F)
- 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" (1600mm) diameter Change gasket, 3.52 MPa (510 psi)

SUCCESSFUL APPLICATION, CHEM PROCESSING

- Molten Sodium
- Operating Conditions: 0.104 MPa (15 psi), 182°C (360°F) with short term cycling to 815°C (1500°F)
- 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 2012
- 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 427°C (800°F), 0.62 MPa - 1.48 MPa (90psi - 215psi)
- Replaced standard spiral wound gaskets

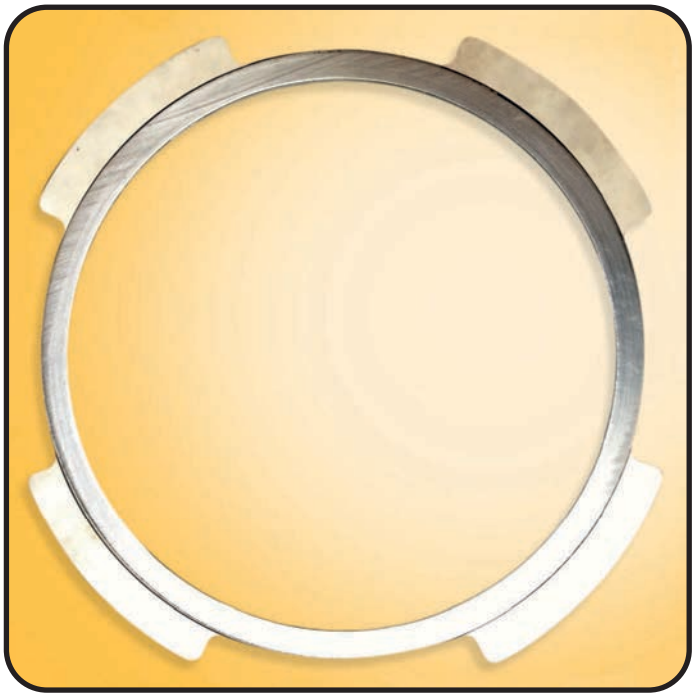
SUCCESSFUL APPLICATION, SEALING OVER NUBBIN

- Double Jacketed (DJ) gasket continuously leaked in this exchanger sealing Steam at 343°C (650°F), 2.24 MPa (325 psi)
- Change gasket dimensioned to centre and seal over existing nubbin
- Per the refinery's Sr. Maintenance Engineer, it has been "working without leaks" since July 2013

Flexitallic®

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 extremely well, especially thermal cycles
- Crush resistant; no inner ring/compression stop required
- Fits most – if not all – flange arrangements
- Available in most industrial metals
- Fire safe to API 6FB
- TA LUFT approved (in accordance with VDI Guideline 2440)



A GASKET THAT'S
BETTER THAN ANY GASKET ON THE MARKET.
EVEN OURS!

change™

Give us with your toughest application.

change™

Flexitallic®

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