

THE ONE CONSTANT IS CHANGE

Flexitallic[®]



Detail A-A

chang 

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.

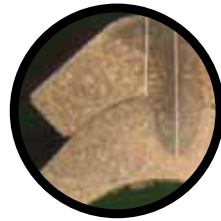


THE CHANGE GASKET. UNIQUELY MANUFACTURED.



SHAPE

- > + 5 X 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 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 5 X 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 IS
AVAILABLE WITH A LOCATING
RING IN ALL SIZES—
UPON REQUEST.



CHANGE GASKET BENEFITS

Features	Spiral Wound Gasket	Flexpro (kammprofile)	CHANGE Gasket
Blowout Resistant			
Excellent Tightness			
Excellent Recovery	Yes, improved with HT Inc X-750		
Cyclic Conditions	Yes, HT Inc X750 Recommended		
Good Handleability			
Low Seating Stress	Not in all Sizes/Pressure Ratings		
Use on Nubbin, when centered			
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: Improve safety by Eliminating Hot Torquing	Only with HT Inc X750		

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

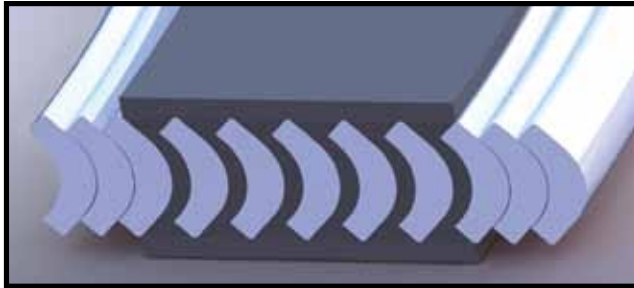
Gasket Style	% compression	% recovery
Change	30	34
CGI X-750HT	24	34
CGI, 316SS	30	26
DJ	26	7
Kammprofile	25	6

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.

GASKET CONSTANTS

CROSS SECTIONAL CUTAWAY



Wound like a spiral. Faced like a kammprofile

ASME m	2.5
ASME Y	6,400 psi
PVRC Gb	1,124 psi
PVRC a	0.25
PVRC Gs	16.1 psi

Available Materials	Standard Windings	304 & 316 available in 0.125" and 0.177". 347 & Inc 625 available in 0.177" only. Monel also available
	Filler & Facing	Flexible graphite - Standard PTFE and Thermiculite (TH855) also available
Locating	Carbon Steel outer guide ring; tabs for larger OD	
Dimensions	Minimum Diameter	1" ID
	Maximum Diameter	80" ID
Thickness	0.125" UP TO 24"	
	0.177" ABOVE 24"	
Option of 0.125" between 24 to 40" (engineering discretion) 0.020" facing , all gaskets		
Maximum Radial Width	Up to 20" ID	3/4"
	20" to 40" ID	1/2"
	40" to 80" ID	1"
Minimum Radial Width	3/8"	
Round, Small (up to 24") oval		



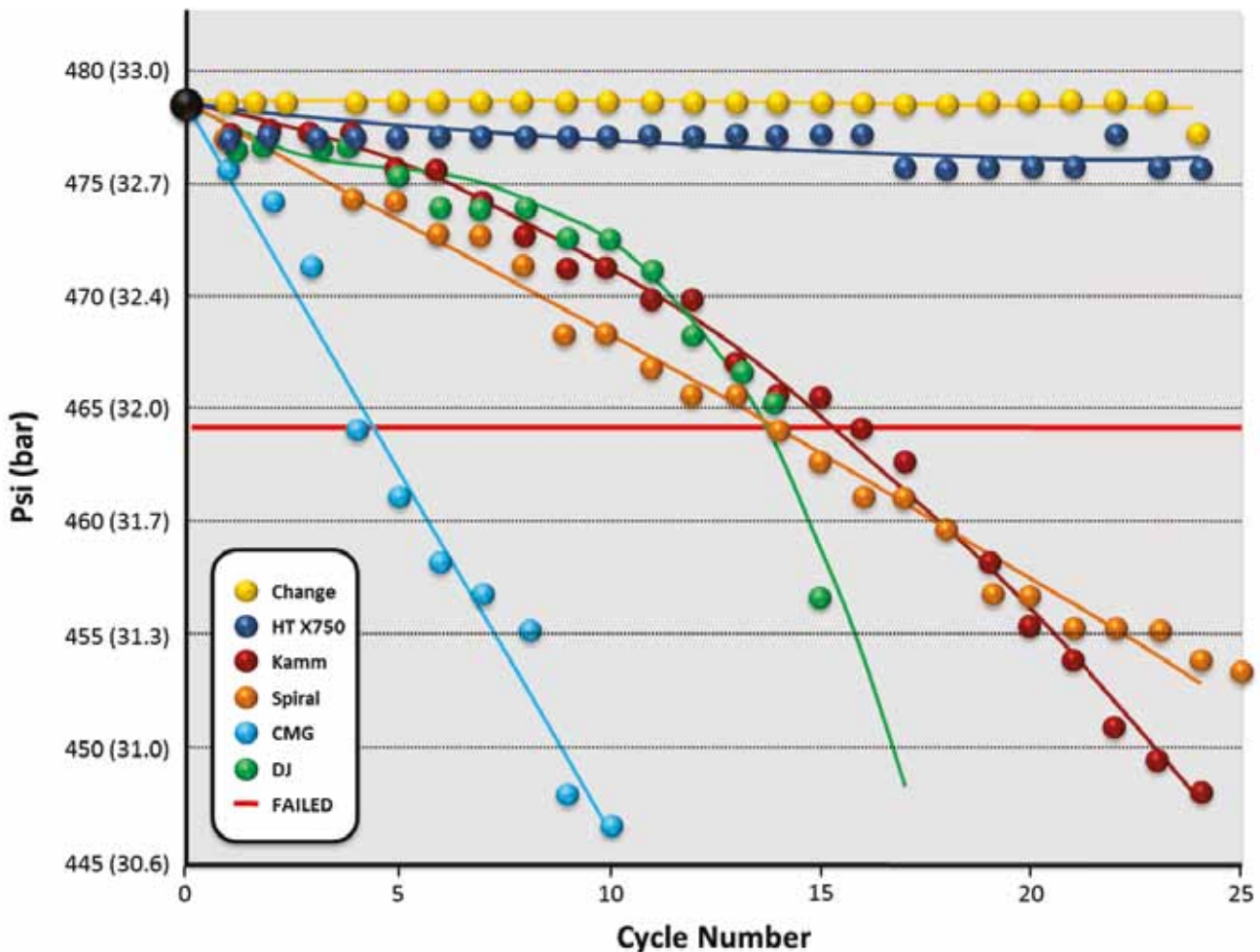
THERMAL CYCLE TEST- 24 CYCLES

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° C) 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 (302° 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.**

chang ⊕

Give us your toughest application.



change

Flexitallic[®]

UNITED KINGDOM | FLEXITALLIC LTD.

Scandinavia Mill
Hunsworth Lane
Cleckheaton BD19 4LN United Kingdom
Phone: + 44 1274 851273
Fax: + 44 1274 300303
flexitallic.eu

Branches also in Aberdeen, Middlesbrough,
Ellesmere Port and Cardiff

TO REQUEST WHITE PAPER GO TO
www.flexitallic.eu

UNITED ARAB EMIRATES | FLEXITALLIC LLC

Amenity Centre, Tower Number 2,
10th Floor, Office 4
Al Hamra Industrial Area, Ras Al Khaimah
Phone: + 971 (0)7 243 4305
flexitallic.ae

SAUDI ARABIA | FLEXITALLIC MIDDLE EAST LLC

Al-Aujam Industrial City
6790-Al Badia, Unit No. 1
32656-2462
Phone: +966 13 8089635
Fax: +966 13 8089634
flexitallic.sa

USA | FLEXITALLIC L.P.

6915 Highway 225
Deer Park, TX 77536
Phone: +1 281 604 2400
Fax: +1 281 604 2415
flexitallic.com

KAZAKHSTAN | Novus Sealing Caspian LLP

a Flexitallic Joint Venture
7v Atambayev St.
Atyrau 060005
REPUBLIC OF KAZAKHSTAN
Phone: +7 7122 309936
Fax: +7 7122 309937
novussealingcaspian.kz

SINGAPORE | FLEXITALLIC LTD.

Singapore Branch
Level 42 Suntec Tower Three
8 Temasek Boulevard
SINGAPORE 038988
Phone: +65 68663638
flexitallic.eu

CANADA | AGS FLEXITALLIC, INC.

4340 - 78 Avenue
Edmonton, Alberta T6B 3J5
Phone: +1 780 466 5050
Fax: +1 780 465 1177
agsflexitallic.com

CHINA | FLEXITALLIC GASKET TECHNOLOGIES

Building A, No. 1868
Wujiang Economic & Technological Development Zone
Guangming Road
Wujiang, 45200 Suzhou PRC
Phone: +86 512 6303 2839
china.flexitallic.com

FRANCE | SIEM SUPRANITE

250 bis, rue du Faubourg Saint-Honoré
75008 PARIS
Phone: +33 1 48 88 88 88
Fax: +33 1 47 66 88 44
siem.fr

GERMANY | FLEXITALLIC GmbH

Nikolaus-Otto-Str.2
D-40721 Hilden
GERMANY
Phone: +49 (0) 2103 33388-0
Fax: +49 (0) 2103 33388-29
flexitallic.de