Spiral Wound Gasket Description

[Structure]

1. Spiral Wound Gasket Feature & Construction

The Spiral wound gasket is the ideal gasket in the semi-metallic category. The effects of pressure and temperature fluctuations, the temperature difference across the flange face, along with flange rotation, bolt stress relaxation and creep, demand a gasket with adequate flexibility and recovery, to maintain a seal under variable working conditions. The spiral wound gasket meets these reqirements.

Widely used in the petrochemical, power plant, shipbuilding and oil refining industries where a cryogenic to high temperature and high pressure is required.

- Resistance to high temperature and high pressure.
- Superior resilience with allows the gasket to adjust automatically to change in operating conditions, like pressure and thermal shocks, vibrants, etc.
- Excellent sealing performance even on irregular flange surface finishes.
- Designed to diversified dimensions and shapes(round, oval, square, diamond, etc) with economical costs.
- Various hoop & filler materials available for specific operating conditions.

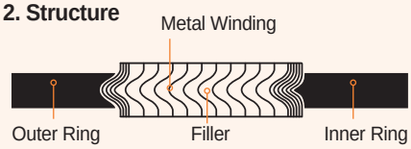
Spiral Wound Gasket 설명

Spiral Wound Gasket은 Semi-Metallic Gasket의 일종이며 Sealing성이 우수하고, 교환이 용이한 매우 이상적인 Gasket으로 발전소용, 정유공업용, 석유화학공업, 조선공업 등에 사용되어지며 재질에 따라 극저온에서 고온, 고압에 이르기까지 광범위하게 적용하고 있다.

박판의 금속재(Metal Winding)와 내약품성과 내열성이 뛰어난 충진재(Filler)가 단면이 "V" 형태로 나선형으로 감아 양끝을 용접하여 만든 Gasket로서 아래와 같은 우수한 기능을 가지고 있다.

- 고온, 고압에 사용가능
- 압력, 온도, 진동 등 운전조건의 변화에 적응하는 능력이 우수
- 불균일한 플랜지면에서도 뛰어난 씰성
- 원형 또는 타원형 등 어떠한 치수라도 경제적인 가격으로 제작 가능
- 특수한 운전조건에 따라 Metal Winding 및 Filler의 재질을 선택하여 제작 가능

2. Structure



3. Metal Winding and Filler

- The unique structure of alternate plies of perfomed winding metal strip and a soft non-metallic filler materials with "V" shape allows superior resiliency and self-adjustment.
- The soft non-metallic fillers having good chemical resistance & heat resistance are necessarily flush with the metal widing on both contact faces of the gasket, thus producing a smooth sealing surface.

금속박판과 충진재의 역할

- 박판의 Metal Winding(Hoop)과 Filler의 재질이 "V" 형태의 단면을 유지하여 구조상 압축이 되어 복원하려는 탄성을 가지고 있다.
- 내약품성과 내열성을 기본으로 하는 Filler재를 적용하여 상대방 플랜지면과 접촉하여 밀봉 (Sealing) 작용을 한다.

Note

1. At winding formation in cross section, it's recommended to make filer somewhat protrudent over hoop that Filler parts(actual sealing ranges) to be touched on both flange faces. (the width of filler material > the width of winding strip)
*2. Heat resistance shall be selected by filler materials (**STARFOIL®**, **STARFLON®**, Non-asbestos, etc)*

[How to Order Spiral Wound Gasket]

JIC NO.□□-□-□-□-□-□-□-□-□

3 8 NON-ASBESTOS — (A) (B) (C) (D) (E) (F) (G)

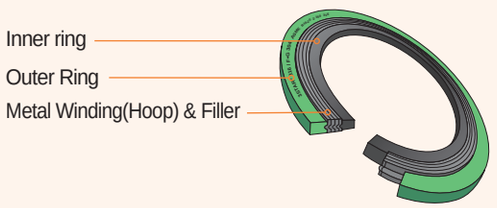
(A)	**Outer Ring**	
	0	No Outer Ring
	3	With Outer Ring
(B)	**Metal Winding**	
	4	S.S 304
	6	S.S 316
	8	Others
(C)	**Inner Ring**	
	None	No Inner Ring
	R	With Inner Ring
(D)	**Filler Material**	
	SF	STARFOIL®
	TF	STARFLON®
	NA	NA Filler
	NGLN	NA+ STARFOIL® +NA
	CGC	CERAMIC+ STARFOIL®+ CERAMIC
	HT	STARPITE®
	HTG	STARPITE®+ STARFOIL®+ STARPITE®

(E)	**Inner Ring Material**	
(F)	**Outer Ring Material**	
	None	No Outer Ring
	SS	Low Carbon Steel
	304	S.S 304
	As per table A	Others
(G)	**Metal Winding**	
	None	S.S 304, 316
	As per table A	Others
	SS	Low Carbon Steel
	304	S.S 304
	As per table A	Others

Table A .
Material Code of Inner and Outer Ring

Material	Code	Material	Code
Low Carbon Steel	SS	S.S 321	321
S.S 304	304	S.S 430	430
S.S 316	316	Titanium	TI
S.S 316L	316L	S.S 304L	304L
S.S 347	347	MONEL	MO
NICKEL	NI	ALUMINIUM	AL
INCONEL 600	INC600	INCOLOY 800	IN800

EX) JIC-3834-R-SF-304-SS means Graphite with 304 winding and inner & outer ring type.
=Winding(Hoop) SS304, Filler : STARFOIL®, Inner Ring : SS304, Outer Low carbon steel



4. When recommend the use of Outer Ring

- To make Gasket centering with flanges.
- To protect Gasket Body
- To prevent over compression damage which might occur due to the high available bolt loading.

5. When recommend the use of Inner Ring

- Under high pressure & temperature in process fluids.
- To protect accumulation of solids, reduce turbulents flow of process fluids and minimize erosion of flange faces.
- When bigger size gasket required.
- When the use of **STARFOIL®**, **STARFLON®** filler materials. (to prevent over compression damage)

Note

1. The Inner Ring materials should be used the same or the better grade out of winding metal materials.
2. Inner rings are mandatory for the use at raised face, full face, male & female flanges to prevent damages to the gasket ore and inner windings especially, at the applications once inward buckling ever encountered.

Semi-Metallic Gaskets

Spiral Wound Gasket Description

[How to Handle and use big sized Semi Metallic Gaskets]

1. Carrying

Specified workers required when carrying big size gasket to prevent deformation and it shall be moved in even interval for safety protection.

Diameter	1500mm Under	2000mm Under	2500mm Under	3000mm Under	3500mm Under	3500mm Over
Min. Worker	2	3	4	6	7	8

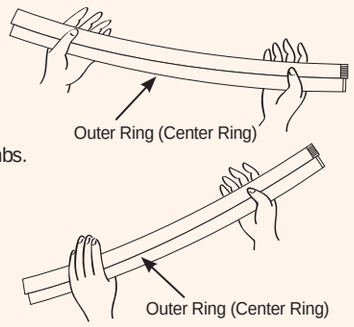
대구경 가스켓 운반 방법

대구경 가스켓의 수평 이동 시에는 가스켓의 조립 이탈을 방지하기 위하여 적정 인원이 동일한 간격으로 위치하여 운반하여 주십시오.

2. Grid Method

a. Horizontally
Keeping your palm horizontal, place the gasket on the palms and then firmly but softly hold it with your thumbs.

b. Vertically
keep your palms vertically and hold the gasket with thumbs and remaining firmly so as not to drop it.



* Treating : Gasket must not be thrown and fallen

대구경 가스켓 운반 시 쥐는 방법

a. 수평 상태에서 쥐는 법

양손 바닥을 수평으로 해서 가스켓을 받치고, 엄지 손가락으로 가볍게 가스켓을 눌러 주십시오.

b. 수직 상태에서 쥐는 법

양손 바닥을 수직으로 하고, 가스켓은 떨어지지 않을 정도로 가볍게 엄지 손가락과 나머지 손가락으로 유지하여 주십시오.

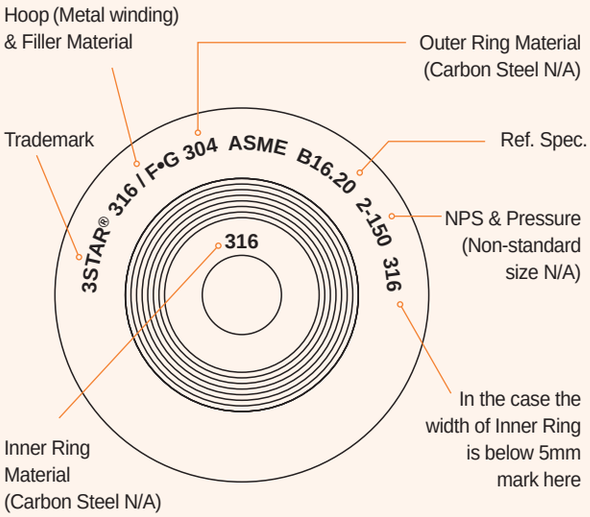
3. Storage and Precautions

- Please do not put any of heavy things on top of the gasket.
- Please do not storage in unstable and vibration conditions.
- Please avoid direct sunlight and keep in cool place, caring of humid and dust.
- Please observe first & first out process.
- Please pile up old gasket on top and using firstly, new one storages in bottom.

대구경 가스켓 보관 및 적재 시 주의 사항

- 대구경 가스켓의 상단에 중량물을 올리지 마십시오.
- 바닥이 불균일하거나 진동이 많은 장소에 가스켓을 적재하지 마십시오.
- 직사광선을 피하고 습기와 먼지가 없는 서늘한 장소에 보관 하십시오.
- 선입 선출 : 새로 들여온 것은 아랫쪽에 적재를 하고, 오래된 것은 위쪽에 적재를 하여 오래된 것을 먼저 사용하도록 하십시오.

[Spiral Wound Gasket Marking]



[Recommended Compressed Thickness(RCT)]

Gasket Thickness	RCT
3.2	2.4 ~ 2.6
4.5	3.2 ~ 3.4
6.4	4.6 ~ 4.8

[Recommended Gasket Thickness]

Gasket Thickness	Flange Diameter
4.5mm	~ Ø 1000
6.4mm	Ø 1000 ~

[Recommended Design Parameters]

Item / Winding Material	Gasket Factor M	Min. Design Seating Stress Y(psi / MPa)	Sketches
Carbon Steel	2.50	10,000 / 69	
Stainless and Nickel-base alloys	3.00	10,000 / 69	