# NEWI

Moisture-Proof Seal Non-Metallic Grease Injection Fitting Safety Relief Vent

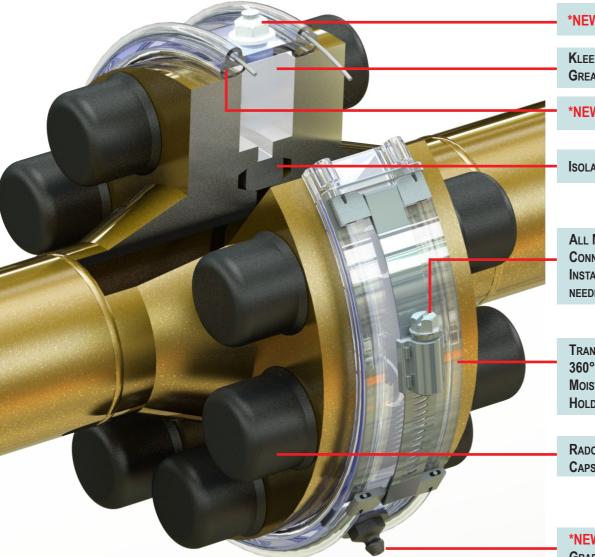




RADOLID® BOLT PROTECTION CAPS • KLEERGEL® CORROSION INHIBITOR GREASE -SEE PAGE 3

ISO 9001:2015 CERTIFIED COMPANY - FM537405 WWW.APSONLINE.COM

# **Kleerband® Flange Protectors:**



\*NEW\* SAFETY RELIEF VENT

KLEERGEL® CORROSION INHIBITING GREASE

\*NEW\* Moisture-Proof D-Seal

ISOLATING GASKET

ALL METAL WORMGEAR SCREW
CONNECTION FOR EASE OF
INSTALLATION (NO SPECIAL TOOLS
NEEDED FOR INSTALLATION) \*PATENTED

TRANSPARENT POLYBAND ALLOWS 360° CONTINUOUS INSPECTION WITH MOISTURE-PROOF SEAL THAT CAN HOLD UP TO 4 LBS. OF PRESSURE

RADOLID® NUT & BOLT PROTECTION CAPS

\*NEW\* Non-METALLIC, INDUSTRIAL GRADE GREASE INJECTION FITTING

**NEW Moisture-Proof Seal** 

**NEW Non-Metallic Grease Injection Fitting** 

**NEW Safety Relief Vent** 

Controlling corrosion and being aware of its damaging effects is paramount in pipeline maintenance. With the use of Kleerband<sup>®</sup> Flange Protectors, Radolid® nut & bolt protection caps, and Kleergel<sup>®</sup> corrosion inhibiting grease, flanges and hardware remain safe from



hazardous and unsightly corrosion that can cause leakage, failure, or even shutdown of equipment. The down time, coupled with the cost of cutting and welding a new flange, replacing flange bolts, nuts and seals, can become very expensive.

The Kleerband<sup>®</sup> Flange Protectors are designed to protect flange face, studs, and gaskets on raised face, full face, and ring joint flanges from atmospheric corrosion

encountered in chemical plants, refineries, gas plants, offshore platforms, onshore oil fields, metering stations, water and wastewater plants, pump stations, and underground pipelines.

Kleerband<sup>®</sup> Flange Protectors are also designed for use on cathodically isolated flanges to prevent foreign matter from shorting out or bridging over an isolating gasket. All Kleerband<sup>®</sup> Flange Protectors are equipped with an exclusive safety relief vent and non-metallic grease injection fitting that assures complete loading of flange cavities. The extruded, transparent polyband allows continuous visual inspection without removal of the protector and provides a moisture-proof seal that can hold up to 4 lbs. of pressure. In addition, it is non-corroding, providing many years of service life and is completely reusable.

# Why try and protect flanges the old way when APS has the new, clear advantage to prevent corrosion



APS presently manufactures Kleerband® Flange Protectors to fit all ANSI flanges 150# series to 2500# series up to 144" diameter. Also available are Flange Protectors to fit API 2000# to 15,000# flanges, API Integral flanges, API obsolete flanges, and AWWA flanges. Available in standard 1 1/2" and 2 1/2" widths. Wider widths available in original design upon request.

### Shrink Sleeves



Shrink sleeve flange shields consist of multiple components (i.e., shrink sleeve, skirting, mastic filler material, masking tape), require numerous tools for installation (i.e., propane tank, torch, hose, regulator, knife, rags, approved solvent, temperature measuring device, hammer, screwdriver, pliers), along with safety equipment (i.e., gloves, goggles and a fire watch), and extra time and personnel to properly install. Due partly to its

many installation steps, it is an awkward and complicated method of flange protection. Once installed, flanges cannot be inspected for corrosion without removal of the shrink sleeves and the necessity to repeat the entire installation process. In addition, shrink sleeves are very expensive and must be burned or cut off for removal.

Tape products must be wrapped completely around the circumference of the flange, though not all flanges can be accessed in this manner. Tape covered flanges are not easily filled and usually result in voids in the flange cavity where condensation forms. Tape products, besides trapping moisture, are non-fillable and not inspectable, making it necessary to cut away and dispose of this non-reusable means of protection.

## **Tapes**



### Wax Fillers



Wax and epoxy fillers are both messy and difficult to apply. These fillers require many tools and are extremely time-consuming. Wax must be melted and poured into a form until it hardens. Epoxy must be injected under high pressure, or troweled on the flanges, leaving potential voids. Both wax and epoxy fillers have a tendency to shrink and separate from the flange surface over time, allowing moisture to migrate between the filler and the flange causing hidden corrosion growth. Once installed, wax and epoxy fillers are non-inspectable for corrosion, and are messy and difficult to remove and dispose of safely.

# **Stainless Steel Flange Protectors**The 7100 series flange protector is manufactured

with 22 gauge 304L or 316L stainless steel band. stainless steel worm-gear strap, and grease



fitting. This standard coupling is practically indestructible and is appropriate for extreme temperatures. APS

Flange Protectors are manufactured according to ANSI B16.5 specifications up to 24". Above 24", please provide the specifications of your flange including the circumference.

Specifications:
Kleerband® Flange Protectors are manufactured of 100% virgin vinyl compound. The polyvinyl chloride resin used to make this compound, as well as the plasticizers and all of the other ingredients, have been granted approval by the FDA in accordance with regulations.

**Compound Physical Evaluation** 

Hardness - Shore A (± 3) - instantaneous	75
- 10 second delay	
Specific Gravity (± .02)	1.20
Tensile Strength (PSI)	2200
100% Modulus (PSI)	1000
Elongation (%)	420
Low Temperature Brittleness (°F)	40
Operating Temperature (°F)	Min13
Operating Temperature (°F)	Max.+167

# **APS' Radolid<sup>®</sup> Protection Caps:**

Radolid® are used to eliminate corrosion of nuts and bolts, thus allowing quick removal when necessary. These caps are easily installed by being pressed on to the bolted joint by hand. The barbed edge snaps in place, preventing the caps from accidentally being removed. Manufactured of high density black or white UV-resistant polyethylene, these caps are reusable and will keep nuts and bolts corrosion free for years. (APS recommends coating the nuts, studs and bolt heads with APS Kleergel® Corrosion Inhibitor Grease for added protection.)



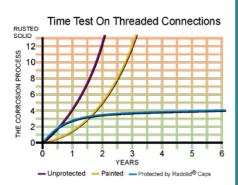
# Kleergel® Corrosion Inhibitor

Grease is non-flammable, non-staining, non-toxic and able to maintain good viscosity over wide temperature ranges (-50°F to 500°F). This high-performance synthetic grease is NSF H-1 "food-grade" approved and can be utilized on potable water systems or food processing equipment without contaminating the water or other products. Kleergel® has optical clarity, is 100% waterproof, dielectric and will not damage wood, leather, plastic, fabrics, metals or painted surfaces. Enhanced with special anti-wearing, anti-rusting and anti-oxidative additives, Kleergel® increases machinery life expectancy and reduces energy consumption by decreasing friction.



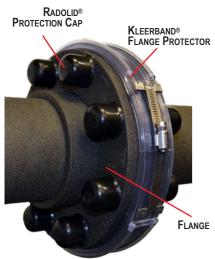
# Independent **Laboratory Corrosion Test Results Show** the Importance of Good Flange and Nut & Bolt **Protection**

# Radolid® Nut Cap Exposure Test





**Protects The Entire Flange** 



Certified copy of test results available on request.

# Flange Protection Corrosion Test

Flange assembly #1 was plain and unprotected. Flange #2 was protected with a Kleerband Flange Protector and Radolid Nut Caps. Testing consisted of 1000 hours ASTM B 117-18 salt fog exposure.

(Actual test result documents available upon request.)

**#1 Unprotected Flange** 



0-Hours

1000-Hours Disassembled

#2 Protected Flange



12 13 10





End result: Flange, nuts and bolts badly corroded making flange seal failure possible and maintenance difficult at best.





End result: Flange, nuts and bolts in good repair with seal integrity safe for years and maintenance able to be achieved with efficiency.

Kleerband® Flange Protectors prevent this type of damage from occurring. Typical cost to replace and repair this 12" ANSI 600# flange full face or RTJ gasket with nuts and bolts is \$1,450.00.



## **ORDER INSTRUCTIONS**

Kleerband® Flange Protectors

- Flange Size
- Pressure Class
- Type: ANSI or API

## Radolid® Protection Caps

- Bolt diameter
- Width across flat of nut
- Special length caps, if required
- · Color, if other than black

### Kleergel® Corrosion Inhibitor Grease

- 14 oz cartridge
- 35 lb pail

## OTHER PRODUCTS AVAILABLE

- Flange Isolating Gasket Kits
- Integra® Series Gaskets
- · Casing Spacers & End Seals
- ApogeeAero® Roller Casing Spacers
- Bore & Duct Bank Spacers
- Innerlynx® Modular Mechanical Seals
- Wall Sleeves
- Foreman Nite Caps
- UBolt-Cote® & Atlas Pipe Support® Pads
- IsoJoint® Monolithic Isolating Joints
- Safety Spray Shields



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