

HCS Washers

The new washer system

GPT

an EnPro Industries company

INNOVATIVE ENGINEERING FOR CORROSION PROTECTION

As part of the development of the VCFS Firesafe system, GPT had to overcome the potential of the loss of bolt load during the burn process of the API 6FB test. Therefore we developed the new X37 hardened coated steel washer system that withstood those demands.

Now we are pleased to offer the X37 washers for all our isolating kits which mitigates the potential of washer damage under excessive torque value. Coupled with removing the ability to install the washers incorrectly thereby eliminating one of the primary possible losses of isolation properties. This new development can be used with any isolation gasket and will make the GPT Isolation Kit the most secure option for your needs.



COATED WASHER DEFINITION

» Metal

- Grade 1050 Steel
- Heat treated per ASTM -436 Specification
- Quenched and tempered for hardening
- Hardness of Rockwell C scale 38-45 (HRC 38-HRC 45)

» Coating

- The formulation consists of a corrosion resistant pre-treatment and multiple coats of a resin bonded modified PTFE coating with hardening agents
- The formulation provides a high dielectric, lubrication, and an overall strong and durable coating
- Dielectric of ~1000 volts/mil
- Maximum working temperature of 482°F (250°C)
- Minimum working temperature of -40°C

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COATED WASHER TESTING

- » Both single and dual coated washers maintain very high levels of electrical isolation even after multiple bolt-ups
- » General industry practice requires minimum isolation value of 2-3 Mohms
- » A single coated washer per nut will provide more than sufficient electrical resistance, however this condition is not recommended due to lack of redundancy and isolation degradation seen in subsequent bolt-ups
- » Hi-visibility yellow makes them easy to spot as HCS type washers

COATED WASHER TESTING

- » Isolation Values for Test Series 1:
 - Flange to Flange isolation remained at 200 Gohms during all three boltups
 - The Flange to Bolt isolation remained at 200 Gohms during all three bolt-ups
- » Isolation Values for Test Series 2:
 - Flange to Flange isolation
 - Bolt-up #1 - 70 Gohms
 - Bolt-up #2 - 40 Gohms
 - Bolt-up #3 - 20.3 Gohm
 - Flange to Bolt isolation
 - Bolt-up #1 - 158 Gohms
 - Bolt-up #2 - 153 Gohms
 - Bolt-up #3 - 81.8 Gohms

COATED WASHER SYSTEM

- » Replace glass reinforced epoxy isolation washers
- » Not susceptible to breakage due to point loading or over torque
- » Cannot be installed backwards
- » Low friction coating puts more scaling load on the gasket

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INS 13 009 Rev00