

inertech, Inc.

innovative gasketing and sealing solutions.™

Thank you for your interest in Inertech's patented OPRA® technology. The information which follows should help you understand the OPRA® technology and we hope you will find the additional files and photos helpful in allowing your customer to picture the OPRA® style and to review the application parameters.

Background:

OPRA® stands for One Piece Reduced Area. The OPRA® gasket design has been developed in response to the use limitations and high cost of Inertech's LTC (Low Torque Composite) gaskets. OPRA® gaskets have a broad opportunity for sealing plastic flanges, and thin, flat face metal vessel flanges where all other PTFE based gaskets simply require an excessive assembly bolt load. Other products in this category include the GORE-TEX® TriGuard™ gasket, the Garlock® Stress Saver® gasket, our own LTC and LTC-NR gaskets, the K-C Multi-ring gasket, and some of the sheet materials believed to be capable of sealing such applications but requiring far too much load to be effective for such applications.

Material:

All OPRA® gaskets are 100% **INERTEX®** SQ-S Expanded PTFE Gasket Sheet. No skins to crack or delaminate, no elastomers to contaminate and lowers the overall cost to the end-user considerably from those other products mentioned above.

Concept:

A design patent has been granted for the OPRA® gasket which covers the unique approach of dramatically reducing the contact area of gaskets (approximately 67% reduction of gasket material) intended for low bolt load sealing applications including FRP, PVC piping and vessels. The reduced gasket area results in a proportionate reduction in the bolt load (Torque) necessary to affect and maintain a seal. OPRA® gaskets require less bolt torque than any other 100% PTFE type gasket. The minimum bolt torque for OPRA® gaskets is always on the low end of the torque range required for Garlock® Stress Saver® or GORE-TEX® TriGuard™. The LTC gasket is not being eliminated. The LTC and LTC-NR gaskets remain as the PTFE gaskets with the lowest minimum assembly torque required and are the only gaskets available on the market to seal effectively within the recommended torque ranges for most FRP and Plastic Piping Industry manufacturers.

Designs:

There are a variety of profiles machined or molded across plastic flanges. For example some plastic flange manufacturers fabricate their flanges with a:

- Smooth, flat flange sealing surface
- Flat sealing surface with concentric serrations machined across the flange face
- Flat sealing surface with one or more narrow concentric grooves machined into the flange face
- Flat sealing surface with one or two wide concentric grooves machined into the flange face

The narrow sealing ring on our LTC gasket typically prevented its use on flanges with machined grooves. The LTC-NR was designed to fit and seal on the wide array of flange profiles; however, because of its high cost and labor intensive manufacturing this has not been a widely accepted product. Because of the different issues, two different styles of OPRA® gaskets have been developed which have a much lower manufacturing cost, and are simple to fabricate:



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