

SELECTING THE BEST DIAPHRAGM

Limits of the Chemical Compatibility Guide

This information is compiled from numerous sources and believed to be reliable to this date. It is intended as a guideline to be used with all available information to determine suitability of elastomers and wetted portions of Wilden pumps for various applications. We suggest thorough research which should include known applications when determining pump construction. This chart is to be used at your discretion and risk. The accuracy of these ratings cannot be guaranteed.

Selecting the Best Diaphragm

In the absence of previous experience (which is always the best guide) elastomer material must be selected from available resistance charts. The [Wilden Chemical Resistance Guide](#) is compiled from numerous reliable sources and crosschecked, however, it is only intended as an additional source of information. Diaphragm life not only depends on a diaphragm's chemical compatibility with the process fluid but also on the diaphragm's ability to flex. Diaphragm life will vary depending on the abrasiveness of your process fluid, temperature, size of diaphragm, pumping media, and lift conditions. Consult your authorized Wilden distributor regarding which diaphragm material will work best for your application requirements. Caution: Temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult engineering guides for chemical compatibility and temperature limits. It must be emphasized that none of these figures are absolute and are only general guidelines.

The ratings given on this web page are a guide and do not constitute a warranty of any kind, expressed or implied, with respect to the performance of the materials Wilden Pump & Engineering LLC. offers in any specific application.

Diaphragm Technology

We refined diaphragm technology and innovated major technological advancements through modern design techniques, destructive testing, and critical analysis. Wilden offers [Tetra-Flex™ technology](#) as the longest-lasting PTFE diaphragm in the industry.

Wilden engineered the [Tetra-Flex™](#) to excel in difficult applications. Many Wilden pumps are placed in harsh environments and require a diaphragm designed for severe duty. The key to diaphragm life is to minimize stress concentration. Wilden was successful in minimizing diaphragm stress with a unique design that dissipates stress. As shown in our Finite Element Analysis (FEA), stress has all but been eliminated.

Wilden also developed [Ultra-Flex™ technology](#) to make it the longest lasting rubber compound diaphragm in the industry. Ultra-Flex™ technology incorporates revolutionary design concepts, which reduce internal stress. The reduction of this stress is the key to long diaphragm life.

Rubber

Rubber diaphragms are molded with natural rubber and man-made additives to increase the diaphragm's chemical resistance and/or flexing characteristics. A nylon fabric mesh is positioned within rubber diaphragms during the molding process to strengthen the diaphragm while dispersing stress.

- Neoprene - A low cost general-purpose diaphragm for non-aggressive applications.
- Buna-N® - Low cost diaphragm for petroleum/oil-based fluids.
- Nordel® (EPDM) - Good flex life at extremely low temperatures.
- Viton® - Good flex life at extremely high temperatures. Handles aggressive fluids such as aromatic or chlorinated hydrocarbons and acids.

