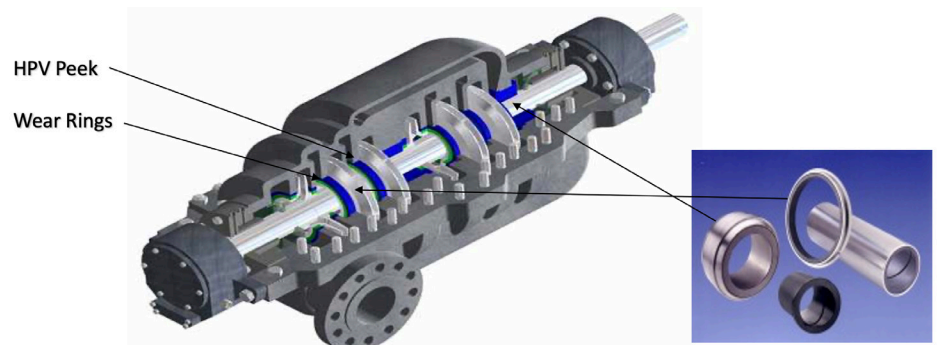


PUMP COMPONENTS

POLYMER COMPONENTS IN ROTATING EQUIPMENT

INSTALLATION OF POLYMER WEAR RINGS ON A HORIZONTAL SPLIT CASE MULTI-STAGE PUMP

For years, the pump industry has had problems with centrifugal pumps. The continual wear of shaft wear rings and bushings machined from conventional soft metals has been an issue. Thermoplastics have been developed to improve service life and quality of these products based on the pump operating temperature(s). Now, new wear rings and bushings can be molded and machined from proprietary high modulus polymers to improve the pump stability and operation.



APPLICATION OF POLYMER BUSHINGS

PROBLEM: Corrosion problems existed in a fertilizer plant in the water pumps (Worthington) feeding the heat exchangers. Water with a PH of 3-4 damaged the bronze bushings in less than 6 months.

SOLUTION: Based on previous customer test results, the customer decided to replace the bronze bushings in the pump box with CA30 Peek and CA30 Peek HT.

BENEFITS: Filled Peek materials offer better wear resistance, better chemical resistance to acidified water, and extended the active time of the pumps. Another benefit was reducing the tolerances to prevent the recirculation. These improved pumps have been operating at maximum efficiency for over 24 months.



| Inner Diameter (in) | Peek HT Tolerance (in) | API Tolerance |
|------------------------|---------------------------|------------------|
| 4.001-5.000 | 0.0065 | 0.015 |
| 5.001-6.000 | 0.008 | 0.017 |
| 6.001-7.000 | 0.009 | 0.018 |
| 7.001-8.000 | 0.01 | 0.019 |
| 8.001-9.000 | 0.0105 | 0.02 |
| 9.000-12.000 | 0.012 | 0.022 |

