



Omniseal Solutions
SAINT-GOBAIN

BEYOND
the boundaries of possible



LIFE SCIENCE CASE STUDY

SURGICAL HANDPIECES





OMNISEAL® SPRING-ENERGIZED SEALS

Surgical Handpieces

Ronelle Decker July 2021

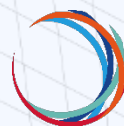
LIFE SCIENCE HIGH SPEED LONGER LIFETIME

Environment

Omniseal Solutions™ offers several different solutions and materials for the surgical hand piece market which includes orthopedic, dental, ophthalmology, plastic surgery, laparoscopic and general surgery. The market is broad and includes orthopedic hand drills, saws, burrs that are electric, pneumatic and battery-powered devices - all with unique needs. There are additional options including laser surgery, cryosurgery (liquid nitrogen) and ultrasonic energy powered devices. The surgical market continues to move to minimally invasive surgery so smaller devices are needed but other advancements such as higher power (RPMs) and lighter weight, precision hand pieces are also required.

Challenge

Most hand pieces require internal electronics protection during operation. Smaller seals and bearings for minimally invasive devices require smaller components that can be maintained at higher speeds. There are a wide range of speeds depending upon the application up to 400,000 rpms for dental and orthopedic drills from 1,000 to 100,000 rpms. Some applications require longer running times than others so each surgical hand piece is unique and requires custom design and material.



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Material and custom designs are created for even wear and alignment for long service life. These solutions have been compounded and tested for sealing, wear and friction along with sterilization resistance to provide customer optimal performance.



Solution

Omniseal spring-energized seals and O-rings have material properties to protect internal electronics during operation. High speed surgical devices need to be easy to handle and lightweight which we provide custom materials and designs including self-lubricating materials like our Meldin bearings.

As the surgical market continues to move to minimally invasive surgery our custom, small Omniseal parts continue to be a valuable engineering offer for innovative surgical and medical device designs.

A longer service = a longer lifetime of medical protection for your doctor and you.

Benefits

- Small and lightweight designs and material options
- Materials that are dry running and self-lubricious
- Materials and designs for wear and friction control
- Materials that are resistant to sterilization requirements



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Design Expertise & Tailor-made Solutions for Your Critical Applications

Omniseal Solutions™ is a global engineering leader with over 65 years of historical legacy, relentlessly dedicated to the design and manufacture of precision sealing and material solutions that protect critical applications in the most demanding environments and passionately driven to push *Beyond the Boundaries of Possible*.



○ About the Author

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