

Ultra High Purity Low Outgassing FFKM O-rings

UP Series

Description

Sunraz™ UP650D is an amber translucent product targeted specifically for PECVD and HDPCVD processes. It has also exhibited excellent performance in selecting etch processes. Sunraz™ UP650D has been specifically designed for low erosion and ultra-low particle generation in harsh plasma environments. It offers excellent thermal stability, very low outgassing as well as excellent elastic recovery and good mechanical strength properties and is well suited for both static and select dynamic sealing applications*. A maximum continuous service temperature of 300 °C is suggested. Ultrapure post-cleaning and packaging is standard for all Sunraz™ UP parts.

Suggested Applications

Ultra high purity low outgassing FFKM o-ring is well used in gas inlet or orifice seals, chamber lid seals, Isolation valve seals, selecting bonded gate valves and slit valve door seals.

Advantages

- Low erosion rate and ultra-low particle generation in oxygen and fluorine-based plasmas
- Excellent elastic recovery and low compression set properties
- Very low outgassing properties and metals content
- Excellent resistance to dry process chemistry
- Excellent thermal stability
- Cost save lot

Data Sheet

| Physical Properties | Test Method | UP650D | UP750D | UP800W |
|-------------------------|-------------|------------|------------|-------------|
| Color | - | Dark amber | Dark amber | Cream white |
| Hardness shore A | ASTM D2240 | 65 | 74 | 80 |
| 100% modulus (mpa) | ASTM D412 | 3.3 | 6.2 | 4.7 |
| Elongation at break (%) | ASTM D395B | 210 | 250 | 300 |
| Tensile strength (mpa) | ASTM D412 | 12.9 | 17 | 11.6 |
| Compression set (%) | ASTM D395B | 12.5 | 17 | 24.8 |
| Max long-term temp (°C) | - | 315 | 315 | 315 |

* Compression set tested 70 hr at 204 °C

* Other hardness shore A and physical properties can be custom made



Selecting the Correct Material

To choose and order the right FFKM materials, three requirements profiles must be examined before selecting the material.

1. Operating temperature:

At what temperature range will the seal be used in? How high are the minimum and maximum continuous temperatures?

2. Chemical resistance:

Which media must the seal be resistant against yet seal perfectly? Will there be interactions, such as for example use in both acids and alkalis? What temperatures do the media that need to be sealed off have? Will oils or grease be used when fitting?

3. Mechanical properties:

How will the seal be used? Will this be an inactive, stationary seal or will it be active and dynamic? For dynamic seals: How great is the mechanical stress? How often will the seal be moved? Seldom, regularly or continuously?

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