

Principal Features of MELDIN® 1000

Excellent Chemical Resistance

Even at elevated temperatures, most MELDIN® 1000 grades have superior resistance to chemicals ranging from acids to oils and solvents to fuels, and even to high temperature steam. Plus the MELDIN® 1380 grade works well in applications that have food contact.

Good Dimensional Stability

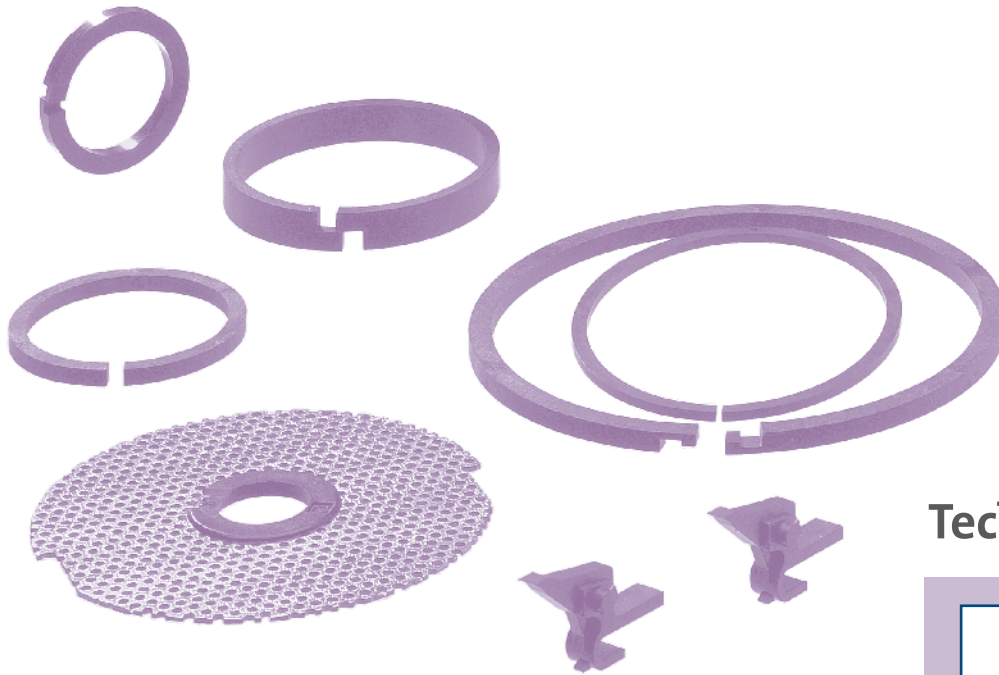
MELDIN® 1000 materials exhibit low coefficients of thermal expansion, which aid these components when functioning in close-clearance applications. In addition, these materials have low creep and low water absorption, which also allows designers to specify close clearances in moving mating components.

Structural Integrity

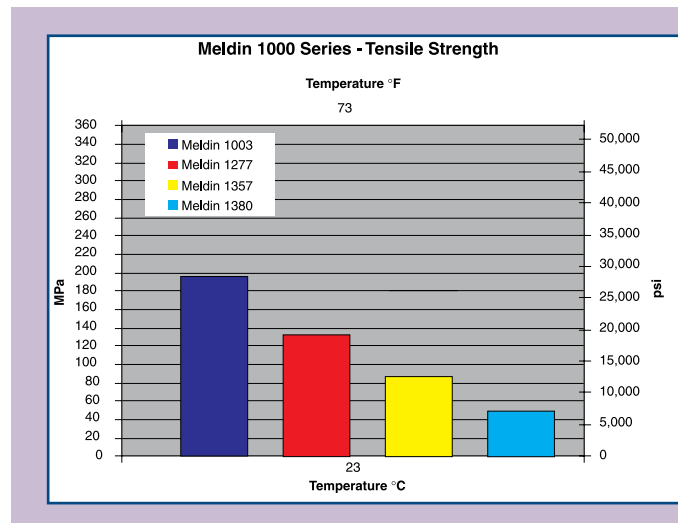
Components such as piston rings or seals made with MELDIN® 1000 materials offer excellent self-energizing qualities due to the materials' high strength and good rigidity. With a high strength-to-weight ratio, these products exhibit good durability and wear resistance.

Design Versatility

MELDIN® 1000 materials have properties that allow them to be designed into components ranging from structural components to dynamic bearing and sealing components. Their excellent physical, chemical, and thermal properties allow the MELDIN® 1000 grades to be the first material of choice for piston rings, thrust washers, and bushings.



Technical Graphs



MELDIN® 1000 Compounds



MELDIN® 1003

MELDIN® 1003 components offer the highest level of strength and rigidity for this product family. They maintain high chemical, tensile, and flexural properties even at elevated temperatures.

MELDIN® 1277

Specify MELDIN® 1277 when the product requirements call for structural integrity and low deformation. This material also exhibits good electrical insulative properties and dimensional stability.

MELDIN® 1357

MELDIN® 1357 offers the lowest wear rate and coefficient of friction, which makes it the best candidate for tribological applications. In addition, its self-lubricating properties allow it to operate quietly in dry operating environments.

MELDIN® 1380

Specify MELDIN® 1380 for use with soft mating surfaces that gall easily, such as stainless steel or aluminum. MELDIN® 1380 also complies with the FDA Title 21 CFR regulations for contact with articles intended for repeated use in contact with food.

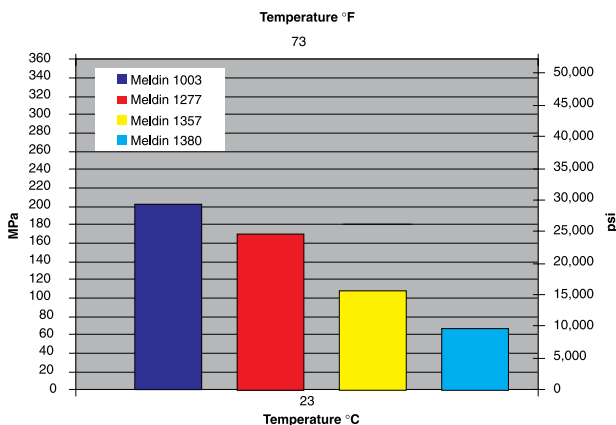
Product availability:

- Basic shapes
- Finished parts

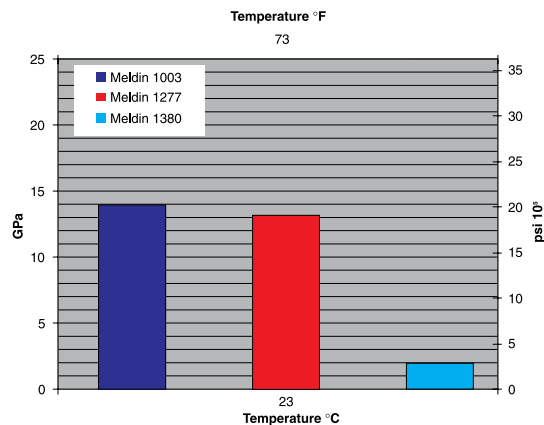
Manufacturing processes:

- Compression molding
- Injection molding
- Direct forming
- Machined parts

Meldin 1000 Series - Flexural Strength



Meldin 1000 Series - Flexural Modulus

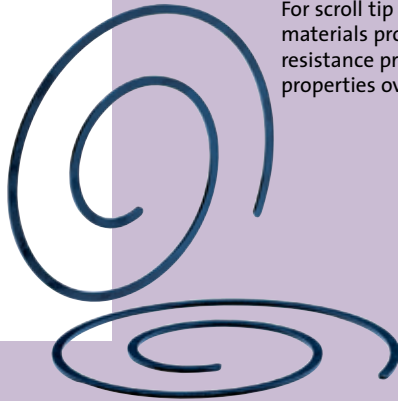


Applications of MELDIN® 1000



Compressor Scroll Tip Seals

For scroll tip seal applications, MELDIN® 1000 series materials provide some parts with superior wear resistance properties, and superior deformation properties over those of standard PTFE scroll tip seals.



Appliance Applications

MELDIN® 1000 series components are used in appliance applications due to their superior wear life and ability to operate without the need for any oils or lubricants. In addition, the MELDIN® 1380 grade complies with the FDA Title 21 CFR regulations for contact with articles intended for repeated use in contact with food.



Vehicle Components

In vehicle systems such as transmission bearings or thrust washers, as well as fuel pump bearings, MELDIN® 1000 series materials provide performance superior to metallic components. The MELDIN® 1000 series materials' wear resistance, coupled with their excellent chemical resistance, make them ideal materials for vehicle system components.

Typical Properties of MELDIN® 1000

| PROPERTY | TEST METHOD | ENGLISH (METRIC) | MELDIN® 1003 | MELDIN® 1277 | MELDIN® 1357 | MELDIN® 1380 |
|---|--------------|--------------------------------------|---------------|--------------|--------------|--------------|
| MECHANICAL @ RT | | | | | | |
| Tensile Strength | ASTM D638 | psi (MPa) | 25,500 (175) | 18,850 (130) | 12,500 (86) | 6,800 (46.8) |
| Tensile Modulus | ASTM D638 | psi x 10 ⁵ (GPa) | | | 4.5 (3.1) | 2.7 (1.8) |
| Elongation | ASTM D638 | % | 2.0 | 0.5 | 4.5 | 6.5 |
| Flexural Strength | ASTM D790 | psi (MPa) | 28,000 (193) | 24,650 (170) | 16,200 (112) | 9,500 (65.5) |
| Flexural Modulus | ASTM D790 | psi x 10 ⁵ (GPa) | 20.0 (13.8) | | | 2.6 (1.7) |
| Compressive Strength | ASTM D695 | psi (MPa) | 22,500 (155) | | 13,500 (93) | |
| Izod Impact Strength (notched) | ASTM D256 | Ft-lb/in (J/m) | 0.8 (43) | 1.59 (85) | | 0.8 (42.7) |
| THERMAL | | | | | | |
| Coefficient of Thermal Expansion | ASTM E831-93 | in/in/°F (m/m/°C) x 10 ⁻⁵ | 0.80 (1.4) | 1.39 (2.5) | 1.9 (3.4) | |
| Heat Deflection Temperature @ 264 psi (1.8 MPa) | ASTM D648 | °F (°C) | 500 (260) | 450 (232) | 450 (232) | 183 (84) |
| Thermal Conductivity | ASTM F433 | BTU in/hr ft ² °F (W/m°C) | 5.4 (0.75) | | | |
| ELECTRICAL | | | | | | |
| Surface Resistivity | ASTM D257 | Ohm | 150 | | | |
| GENERAL | | | | | | |
| Specific Gravity | ASTM D792 | — | 1.57 | 1.65 | 1.44 | 1.47 |
| Water Absorption | ASTM D570 | % | 0.03 | 0.01 | | 0.2 |
| 300°F (149°C) | | | | | | |
| Tensile Strength | ASTM D638 | psi (MPa) | 10,000 (69) | | 5,600 (38) | |
| Elongation | ASTM D638 | % | 2.5 | | | |
| Compressive Strength | ASTM D695 | psi (MPa) | 5,500 (38) | | 4,500 (31) | |
| 400°F (204°C) | | | | | | |
| Tensile Strength | ASTM D638 | psi (MPa) | 6,750 (46) | | 3,400 (23) | |
| Elongation | ASTM D638 | % | 2.8 | | | |
| Compressive Strength | ASTM D695 | psi (MPa) | 3,400 (172.3) | | 3,300 (23) | |