

Seal and Protect Against NVH (Noise, Vibration and Harshness) with ND Gasketing with ND Mastics and Expandables

The world can be a rough place. The environment bombards us constantly with water, dust, noise and pollutants. While we can weather these hazards with only a little inconvenience if necessary, we also rely heavily on sealing technologies to help keep these intrusions out of our homes and transportation vehicles and to protect delicate electrical devices against environmental damage caused by these factors.

Because of the importance of controlling our living and working environments and keeping our high tech tools and toys working properly, more and more investment has been made in the area of sealing technologies to protect against environmental infiltration.

Depending on the situation, environmental infiltration can lead to:

- energy inefficiency in heating and cooling systems,
- dangerous gas seepage,
- corrosion or decay from moisture leaks,
- mechanical inhibition from dust or dirt encrustation,
- functional inadequacy due to air leaks (in the case of hydraulic and compressed air devices),
- or just plain aggravation owing to lack of noise insulation.

Now ND Industries has developed a line of advanced Gasketing using mastics and expandable rubber products that can effectively prevent harmful environmental infiltration by filling voids that can cause leaks while also providing insulation against related problems like noise and vibration.

The ND Gasketing Processes

ND Gasketing can be used to fill holes and gaps, seal against leakage, and provide protection against noise, vibration and harshness (NVH). ND Gasketing can be provided to meet virtually any design criteria as:

- an extruded product,
- a die cut product – in standard, complex, or custom shapes and sizes,
- fly cut washers, or
- can be injection molded (co-molded) directly onto the part.

ND Expandable Gasketing can be co-molded (Pre-Applied) to parts,

- improving J.I.T. (Just-In-Time) Delivery in high speed applications,
- eliminating stamping and die cutting, reducing handling, labor and material waste, and
- improving overall product quality.

ND can die cut Mastics and Expandables to your requirements or can supply bulk product to your preferred die cutter.

ND Pre-Applied Gasketing has **no size limitation** and parts gasketed with ND Mastics and Expandables **can be shipped in bulk**. ND Gasketing materials are available in a variety of polymers, which allows a wide choice of characteristics such as:

- softness,
- flexibility,
- temperature resistance, and
- chemical resistance.

ND Gasketing Materials – ND Mastics and Expandables

ND Mastics and Expandables (Gasketing Materials) can be custom formulated to meet your specifications. ND Gasketing Materials are available in:

- expandable,
- non-expandable,
- crushable, and
- non-crushable formulations.

ND Expandables offer heat activated expansion rates ranging from 100% to 400%, swelling to fill the cavity it is placed in, and can be formulated to meet your expansion volume and rate requirements.

ND Expandables are used in a wide variety of applications providing economical solutions for the prevention of metal-to-metal contact, vibration, and noise-related problems and ensuring firm joints and providing extra sealing material to fill gaps and leak paths produced by stamped holes or difficult alignments

An excellent anti-flutter compound, ND Expandables can be provided as an extruded product made in standard, custom, or complex die cut shapes and thicknesses, to meet customer requirements, and are available in crushable or non-crushable formulations. ND Expandables can be pre-applied to your parts by ND Industries or purchased for application during your assemblies.

ND Expandable extrusions are ready-to-use in an uncured form and can be applied, or bonded upon the application of heat, to any metal surface. When heat is applied to ND Expandables, generally in a paint bake oven, a reaction takes place that causes the material to expand and adhere to the metal surfaces, creating a seal while filling all space between the metals.

When used between two layers of sheet metal, the material acts as an insulator from moisture, air, dust, and noise. When used as backing for sheet metal panels it seals, prevents flutter, reduces vibration, and dampens sound.

The ND Expandable Mastic material is:

- stable,
- non-volatile,
- non-staining
- resistant to most chemicals,
- compatible with production phosphatizing and paint systems, and
- has a long shelf-life.

In a cured or uncured state, ND Expandables secure the intended area from penetration by moisture, gases, dust, sound, and vibration. ND Expandables will provide some metal-to-metal bonding once fully cured and offer excellent adhesion to metal substrates - without additional adhesives or tape..

Particular formulations of ND Expandables meet or exceed the performance requirements of the following automotive specifications:

DaimlerChrysler - MS-CD451 Type E,
 MS-CD466 Type E
 Ford Motor Co. - ESB-118P11-A
 General Motors - GM3640M, 9984188

ND Crushable Mastics:

- **cost less than silicone,**
- **can be used in painting operations where silicone cannot,**
- **and consistently provide reliable gap filling and sealing, even in high temperature applications.**

ND Crushable Mastics can be provided as an extruded product that is specially formulated for fastening and sealing operations that require holes and gaps to be filled and sealed. ND Crushable Mastics can be formed in a variety of shapes, sizes, and dimensions, and can be applied to your parts by ND Industries or purchased for application during your assemblies or by your preferred die cutter. **ND Crushable Mastics are available in expandable and non-expandable formulations.**

ND Crushable Mastics' crushable properties enable them to evenly fill and seal holes, gaps, and other voids. Bolts, nuts, stampings, or virtually any other item that would benefit from a seal is a candidate for gasketing with ND Crushable Mastics.

Using resources specifically designed for this product, ND Industries is capable of bonding Crushable Mastic formulations to a variety of substrates.

Another common use of ND Crushable Mastics is to form a loose seal. In this case, ND forms the material to specifications and the end user or assembler sets the mastic on the gap prior to torquing the fastener into place.

ND Crushable Mastics are generally used in applications where a considerable clearance has been designed into a part, thus leaving voids, gaps, and spaces which can

be penetrated by gases, water, dust, and other substances. A gasket formed by ND Crushable Mastics eliminates these problems by filling the balance of the hole with a material that prevents the passage of these contaminants.

ND Crushable Mastics **can be exposed to temperatures of up to 400°F without losing their sealing qualities.** And, easy to assemble, gasketing with ND Crushable Mastics requires no special tools for application by the end user.

ND Crushable Mastics are stable, with a long shelf life and will not stain metal, fabric, or other surfaces.

ND can specially formulate ND Crushable Mastics to meet customer specifications (e.g. - penetrometers, tolerances, etc.) and will work with you to produce tolerances lower than any other crushable mastic supplier.

ND Crushable Mastics can be extruded in a wide range of diameters and lengths and is easy to incorporate into high-volume production functions, requiring minimal employee training for efficient use.

Particular formulations of the ND Crushable Mastic Sealer meet or exceed the performance requirements of the following automotive specifications and or standards:

DaimlerChrysler. - MSCD-69, MSCD-64
Ford Motor Co. - ESB-M4G87-A
General Motors - GM 1131M Type A or B