



ELASTOMER DESCRIPTIONS

CDM PRODUCT FAMILIES

PERFORMANCE	PADS	STRIPS	MATS
BEST	HR 79/80/81/82/83	HR / PF	PF 91/92/.../98/99
HIGH	CR 01/30/33/63/71	CR / RR	RR MT/42/43/45/46
MEDIUM	RC 13/15/17	RC / MF	MF 02/05

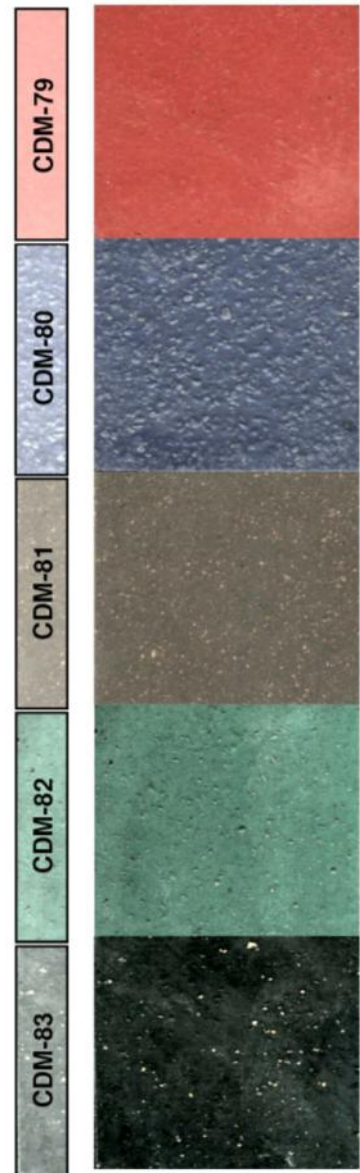
CDM-HR	High Resilience Natural Rubber
CDM-PF	Polyurethane Foam
CDM-CR	Classic Range - Corkelastomer
CDM-RR	Resin-Bonded Recycled Rubber
CDM-RC	Resin-Bonded Recycled Corkelastomer
CDM-MF	Microcellular Foam (EPDM)



ELASTOMER DESCRIPTIONS

CDM-HR: High Resilience Natural Rubber

- Base material:
 - Natural rubber with Cork inserts (to add damping)
- Mechanical properties:
 - Low r-factor (1.5 to 2.5)
 - Low internal damping
 - Low creep rate
 - Low water absorption
 - High Poisson effect (shape factor dependency)
 - **CDM-83** (highest grade) is reinforced with Kevlar fibers
- Typical Applications:
 - Discrete isolators (pads) in floating floors
 - Wall ties, Sway braces
 - Ceiling hangers
 - Base Building Isolation
 - Isolation strips for building elements
 - Mechanical Isolation
- Advantages:
 - High vibration isolation efficiency
 - Low resonance frequency
 - Weather-resistant
 - Long-term durability
 - CDM-83 Kevlar provides very high compression strength
- Disadvantages:
 - UV, Ozone, and Chemical sensitivity
 - Low internal damping (relative to other elastomers)
 - High price

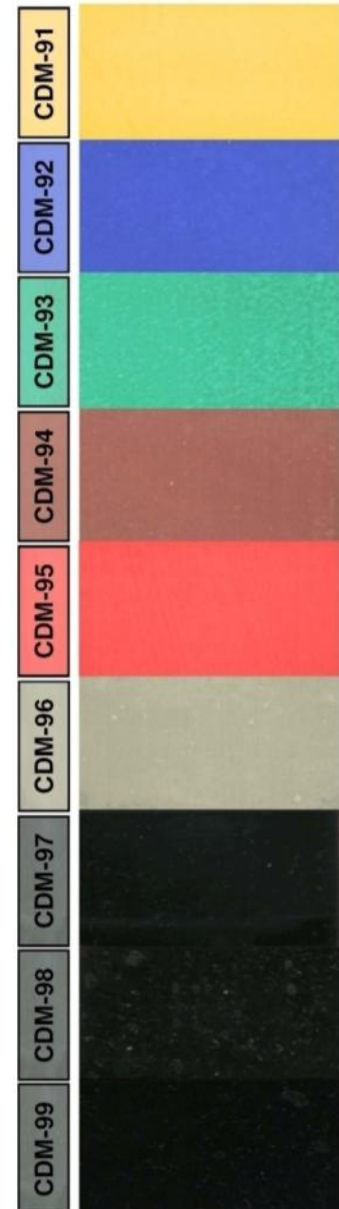




ELASTOMER DESCRIPTIONS

CDM-PF: Polyurethane foam

- Base material:
 - 100% Polyurethane Foam (mix of open & closed cells)
- Mechanical properties:
 - Low r-factor (1.3 to 2.5)
 - Reasonable internal damping
 - Lower densities have lower Poisson effect
(Low shape factor dependency, improved isolation by bulging)
- Typical Applications:
 - **MAT** and **STRIP** applications (especially at low densities)
 - Discrete isolators (especially **CDM-95** and above)
- Advantages:
 - High vibration isolation efficiency
 - Reasonable internal damping
 - Moderate price for discrete isolator systems
- Disadvantages:
 - Reactive with certain liquids like OH-solvents
(e.g. concrete water)
 - Requires plastic foil protection for wet concrete installations
 - Lower densities have more open cells
which absorb water and change material stiffness
 - High price for **MAT** and **STRIP** applications

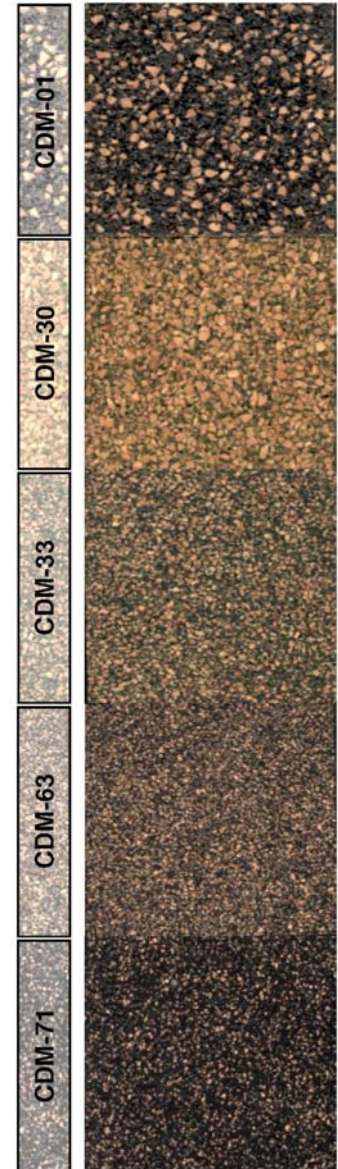




ELASTOMER DESCRIPTIONS

CDM-CR: Classic Range – Corkelastomer

- Base material:
 - Synthetic rubbers type SBR, NBR, NR
- Mechanical properties:
 - Moderate r-factor (2 to 3.5)
 - Reasonable internal damping
 - **CDM-71** (highest grade) is reinforced with Kevlar fibers
- Typical Applications:
 - Discrete isolators (pads) in floating floors
 - Wall ties & Sway braces
 - Ceiling hangers
 - Base Building Isolation (often **CDM-71**)
 - **STRIP** applications
 - Mechanical Isolation (CDM-63 for Transformers)
- Advantages:
 - Moderate vibration isolation efficiency
 - Reasonable internal damping
 - Overall good chemical resistance
 - Weather resistant properties (**CDM-63 & CDM-71**)
 - CDM-71 Kevlar provides very high compression strength
- Disadvantages:
 - Sensitive to UV and Ozone
 - Comparatively high creep rate (still less than 2%)

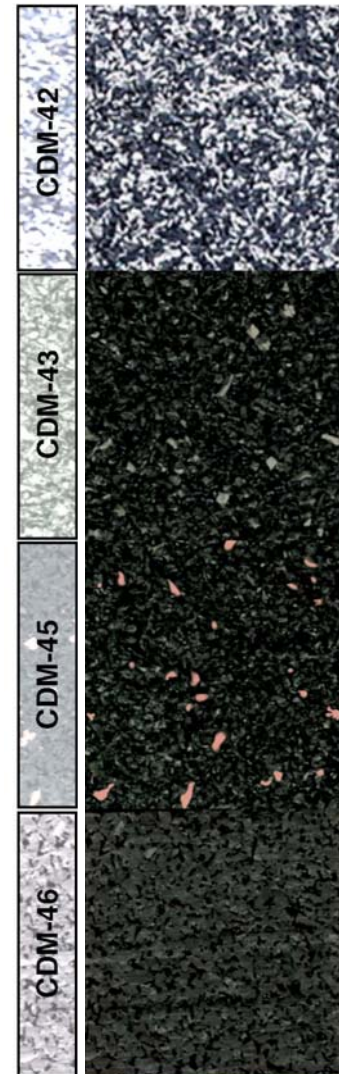




ELASTOMER DESCRIPTIONS

CDM-RR: Resin Bonded Recycled Rubber

- Base material:
 - SBR rubber granules bonded with PU binder
 - Recycled material from used vehicle tires
 - **CDM-42** includes a low density additive material
 - Reduces density and stiffness
 - Maintains reasonable tensile strength
 - Elongated granule shape
- Mechanical properties:
 - Good r-factor (2 to 3)
 - Low creep rate
 - Fatigue resistant
- Typical Applications:
 - **MAT** and **STRIP** applications
 - Base building isolation
 - Lateral impedance layers (“soil screens”)
- Advantages:
 - Recycled product
 - Wavy surface changes the shape factor to decrease r-factor
 - High ratio of quality / price
 - **CDM-42** offers the lowest density available in a recycled rubber material
- Disadvantages:
 - Porous material holds water

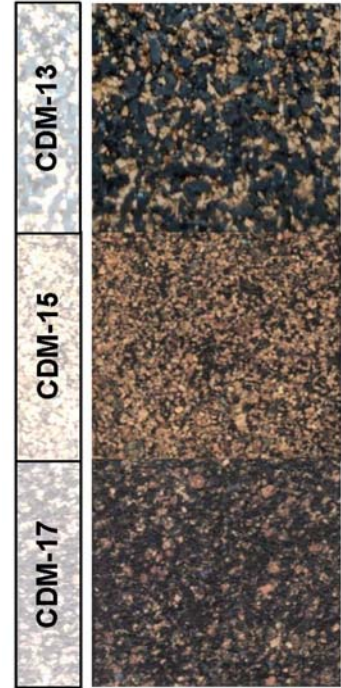




ELASTOMER DESCRIPTIONS

CDM-RC: Resin-Bonded Recycled Corkelastomer

- Base material:
 - Resin-bonded cork and rubber granules
 - Recycled material from production of **CDM-HR & CR**
- Mechanical properties:
 - Moderate to high r-factor (3 to 4.5)
- Typical Applications:
 - Discrete isolators (pads) in floating floors
 - Wall ties & Sway braces
 - Ceiling hangers
 - **STRIP** applications
 - **DAMPING SHEET** applications
- Advantages:
 - Recycled material
 - Good internal damping
 - Low density for impedance layers
 - Relatively low weight
 - Low price
- Disadvantages:
 - Relatively high r-factor

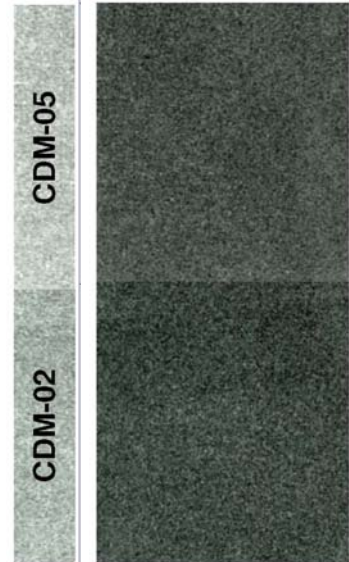




ELASTOMER DESCRIPTIONS

CDM-MF: Microcellular Foam (EPDM)

- Base material:
 - EPDM foam rubber
- Mechanical properties:
 - Good r-factor (2 to 3)
 - Reasonable damping
- Typical Applications:
 - **MAT & STRIP** applications
 - Base building isolation
 - Lateral impedance layers (“soil screens”)
- Advantages:
 - Closed cell material
 - Indoor or Outdoor applications
 - No change in stiffness when exposed to water
- Disadvantages:
 - High creep rate, caused by air diffusing very slowly out of the material when under pressure





ELASTOMER DESCRIPTIONS

Notes on Commonly Used Isolation Materials

Neoprene

The name “*neoprene*” is generally used to refer to synthetic rubbers, rather than natural rubbers. True neoprene was originally invented by DuPont in 1931 as a mixture based on polychloroprene. Typical neoprene has an r-factor of 2 to 3.

Compared to the r-factor of **CDM-HR Natural Rubber** materials (1.5 to 2.5) or **CDM-PF Polyurethane Foam (1.3 to 2.5)**, neoprene has a higher static and dynamic stiffness and therefore offers less isolation.

CDM-CR materials can be considered “*neoprene*” based on their r-factor (2 to 3.5). This material includes cork granules which have been added to increase internal damping. **CDM-71** and **CDM-62** are based on the chemical compound of neoprene. **CDM-62** is a special **CDM-CR** that was developed in the 1990s for use as OEM vibration isolation for Atlas Copco compressors worldwide.

Plastic Encapsulated Fiberglass

The Kinetics KIP isolator is a high-density matrix of compressed molded fiberglass; individually coated with a flexible, moisture-impervious elastomeric membrane, designed to allow controlled air movement in the fiber media. The pumping action of air between fibers provides viscous damping, reducing motion caused by transient shock and vibration. The KIP pad has a ratio of dynamic to static stiffness (r-factor) between 2 and 3, which is higher than natural rubber or polyurethane, which can be as low as 1.5, leading to lower resonant frequencies. Because of its construction, the KIP pad can only accept a compressive load and be applied in one orientation, whereas all of the CDM isolators can be applied in any orientation and can accommodate a moderate shear load. **CDM-CR** materials offer similar performance characteristics (r-factor and static and dynamic behavior).