



SPECIFICATION SHEET

VUL50-195

A Micro-Cellular Polyurethane Elastomer with a high dynamic load capability, based on a polyester-alcohol and naphthalenediisocyanate (NDI). It is particularly suited for spring elements with a progressive characteristic. Owing to its micro-cellular structure this material excels because of its volume compressibility.

Solid elastomeric spring elements cannot be volume-compressed. These material therefore require sufficient space for uninhibited deformation. This is particularly obvious for compression in a hydraulic pot.

Under compression between parallel plates and free lateral expansion, VULCAN will show a considerably smaller

diameter increase than rubber. Because of its cellular structure, VULCAN can be compressed until all cells are

eliminated and a homogeneous elastic structure is achieved.

VULCAN spring elements therefore achieve deflections up to 80% of their original height. The typical properties of polyurethane elastomers – high tensile strength and elongation, excellent notched impact resistance, high abrasion resistance, good low temperature flexibility and resistance to oils, greases, gasoline, ozone and ageing – are inherent to VULCAN where, in addition to volume compressibility, high resilience, high springing capacity – even after long term loading – low compression set and no cell wall stickiness are standard. Compressibility and the corresponding energy absorption of VULCAN can be tailored via the density.

VULCAN is primarily used in compression spring elements. Spring characteristics are determined by the dimension and the density. Higher densities provide for higher load bearing and energy absorption.

All VULCAN material has an approximately linear spring characteristic up to a compression strain of 35%. Higher deformations provide strong progressivity. A strain of 35% - related to the original height of a spring – is also the limit for static loads.

Static, preload, amplitude and frequency of the dynamic load have an important influence on the service life of a spring element. At deformation velocities in excess of 2m/sec. Dynamic hardening of the spring characteristic is noticeable. This is primarily caused by the cell structure and the enclosed gas volume. At higher frequencies the internal damping of the material produces heat. Research has provided temperature curves in VULCAN spring elements and the expected temperatures can be calculate depending upon frequency and amplitude.

Temperature Characteristics.

VULCAN spring characteristics show basically no change from 0- 100° C.

Temperatures below 0°C. provide for a little stiffening which becomes noticeable – without danger of break – as of 30°C. For use in still lower temperatures special formulations are offered. Generally, for dynamically loaded VULCAN spring elements an environmental temperature of 60°C should not be exceeded. A short term temperature of 120°C will not harm the spring elements.

Compatibility and Volume swell.

VULCAN is compatible with oils, grease, and other aliphatic hydrocarbons and resistant to ozone and ageing. Immersion in these materials will normally produce little or no swelling.

VULCAN is not, or only shortly resistant to hot water, steam, strong acidic or alkaline solutions, acidic or alkaline salt solutions and various other chemicals.

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Properties based on hardness

Mechanical properties	ISO Test	Unit					
Density	845	Kg/m ³	320	350	450	550	650
Tensile strength	37	mPa	2,5	3	4	6	7
Elongation at break	37	%	400	400	400	400	400
Tear propagation resistance	34	KN/m	7	8	12	16	20
Rebound resilience	4662	%	60	60	60	60	60
Compression set							
70 h / 23°C	815	%	3,0	3,0	3,0	3,0	3,0
24 h / 70°C	815	%		10,0	7,5	8,0	9,0

QUALITY ASSURED PRODUCTS WITH FULL TRACEABILITY

Care should be taken in selecting the most suitable quality for each application.

Advice is available but final responsibility remains with the customer.