



## SUPERSOFT URETHANE SHEETS & STRIPS



- Low creep rate compared to other polymers (rubber, neoprene, silicone etc.)
- Superior damping coefficient over a very wide temperature range.
- Can absorb shock efficiently for millions of cycles.
- Temperature Ranges: -15°C to +98°C.

This material is a soft visco-elastic polymer. Visco-elastic means that a material exhibits properties of both liquids (viscous solutions) and solids (elastic materials).

It has the properties of a thermoset, polyether-based, polyurethane material. The material combines shock absorption, good memory, vibration isolation and vibration damping characteristics. In addition it is a very effective acoustic damper and absorber. While many materials exhibit one of these characteristics, it combines all of them in a stable material with a long fatigue life.

### Specification

Ordering Information	ST	30	500	1
	Product Code	Hardness (Shore 00)	Sheet Size	Thickness (mm)
		30 = Soft 50 = Medium 70 = Hard	Standard Sheet Size 500x500mm	2.5, 3, 4, 5, 6, 8, 10, 12, 18, 25.  Other thickness available on request

Supersoft Urethane Sheet Size	
Part Number	Dimensions (mm)
STxx-2003002.5	200 x 300 x 2.5
STxx – 500 – 3.0	500 x 500 x 3.0
STxx – 500 – 4.0	500 x 500 x 4.0
STxx – 500 – 5.0	500 x 500 x 5.0
STxx – 500 – 6.0	500 x 500 x 6.0
STxx – 500 – 8.0	500 x 500 x 8.0
STxx – 500 – 10.0	500 x 500 x 10.0
STxx – 500 – 12.0	500 x 500 x 12.0
STxx – 500 – 18.0	500 x 500 x 18.0
STxx – 500 – 25.0	500 x 500 x 25.0

#### Gelmecc UK

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## SUPERSOFT URETHANE SHEETS & STRIPS

### Material Properties

Property				Units
Shore Hardness	30	50	70	Shore 00
Tensile Strength at Break	5.87	8.64	14.52	Kg/cm <sup>3</sup>
% Elongation at Break	882	568	399	%
Tensile Elastic Stress at 100% Strain	1.26	1.79	4.66	Kg/cm <sup>3</sup>
Tensile Elastic Stress at 200% Strain	2.56	3.86	8.95	Kg/cm <sup>3</sup>
Tensile Elastic Stress at 300% Strain	3.87	5.65	11.69	Kg/cm <sup>3</sup>
Compressive Stress at 20% Strain	0.45	0.85	2.11	Kg/cm <sup>3</sup>
Compressive Stress at 50% Strain	6.07	7.4	16.34	Kg/cm <sup>3</sup>
Tear Strength	7.81	8.72	11.69	Kg/cm <sup>3</sup>
Bulk Modulus	-	2.86	-	gPascal
Static Coefficient of Friction (on polished steel)	15.8	10.4	4.1	-
Kinetic Coefficient of Friction (on polished steel)	3.3	2.6	2.5	-
Density	1.368	1.36	1.358	gm/c c
Specific Gravity	1.372	1.364	1.363	-
Optimum Temperature Range*	-15	to	98	°C
Glass Transition Temperature	-38.7	-37.4	-34.7	°C
Flash Ignition Temperature	-	317	-	°C
Self Ignition Temperature	-	417	-	°C
Flammability Rating (Flame Retardant versions available to special order)	V-1 / V-2	V-1 / V-2	V-1 / V-2	-
Resilience Test Rebound Height	2	11	22	%
Resilience Test Rebound Height***	16	18	25	%
Dielectric Strength	241	256	261	v/mil
Dynamic Young's Modulus at 5 Hz	6.34	7.4	8.45	Kg/cm <sup>3</sup>
Dynamic Young's Modulus at 15 Hz	9.51	10.67	11.41	Kg/cm <sup>3</sup>
Dynamic Young's Modulus at 30 Hz	13.1	14.79	16.7	Kg/cm <sup>3</sup>
Dynamic Young's Modulus at 50 Hz	17.33	19.02	21.14	Kg/cm <sup>3</sup>
Tangent Delta at 5 Hz Excitation	0.3	0.56	0.56	-
Tangent Delta at 15 Hz Excitation	0.38	0.58	0.6	-
Tangent Delta at 30 Hz Excitation	0.45	0.57	0.59	-
Tangent Delta at 50 Hz Excitation	0.35	0.5	0.55	-
Bacterial Resistance	-	No Growth	-	-
Fungal Resistance	-	No Growth	-	-
Heat Aging	-	Stable	-	-
Ultraviolet	-	Good	-	-
Ozone	Can Be Co	-	-	-
Chemical Resistance to Hydraulic Fluid	-	-1.4	-	%
Chemical Resistance to Kerosene	-	4.3	-	%
Chemical Resistance to Diesel	-	6.4	-	%
Chemical Resistance to Soap Solution	-	5	-	%
Acoustic Properties: Transmission in air	-	Greater than 40 <sup>^</sup>	-	dec/cm

\* Reduced strength and damping up to 120C. Increased spring rate down to glass transition temperature.

\*\* Underwriters Laboratory 94 Compatibility.

\*\*\* Modified for the effects of material tack.

<sup>^</sup> At 50 hertz. Transmission loss increases with frequency.

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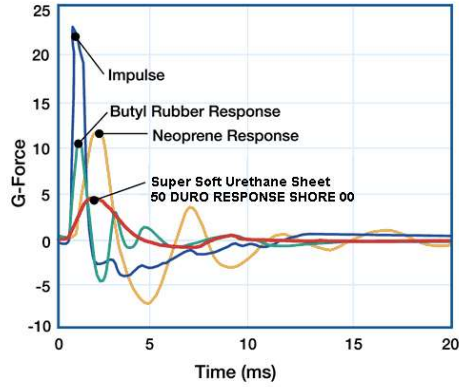
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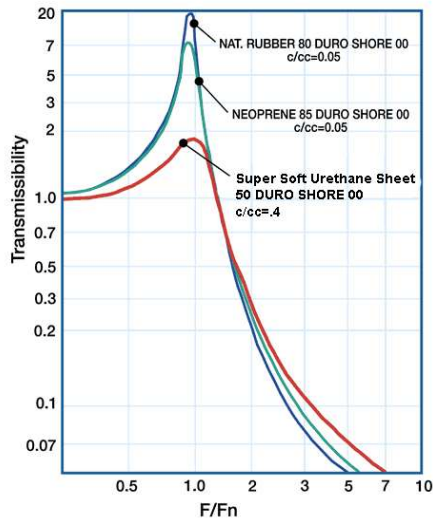
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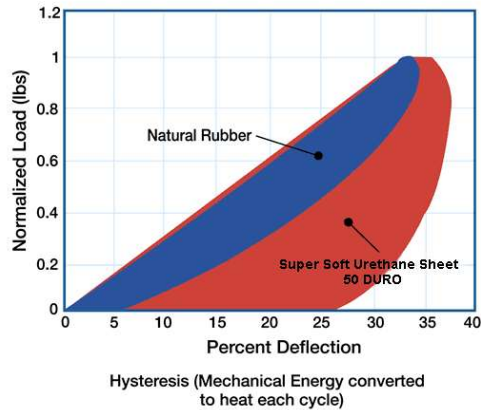
## SUPERSOFT URETHANE SHEETS & STRIPS



Time Delay Effect of Impulse (Shock) Response of Selected Materials



Ratio of Excitation Frequency to Natural Frequency



Hysteresis (Mechanical Energy converted to heat each cycle)

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