Mechanical Properties of Knitted Wire Meshes

KnitMesh® Technologies
Protecting People, Property and our Planet

Mesh No.	Material	Wire Diameter (mm)	Stitch Size (mm)	No. of Filaments	Weight (g/m²)	Wire Breaking Strength (N)	Material Tensile Strength (≈ N/mm²)	Mesh Tensile Strength (kN/m)
1	SS 304	0.1	7	1	34	6	750	0.8
2	SS 304	0.15	7	1	76	13	750	1.9
3	SS 304	0.28	5	1	372	46	750	9.2
4	SS 304	0.28	7	1	266	46	750	6.6
5	SS 304	0.28	10	1	186	46	750	4.6
6	SS 304	0.28	5	2	744	46	750	18.5
7	SS 304	0.28	7	2	531	46	750	13.2
8	SS 304	0.28	10	2	372	46	750	9.2
9	SS 304	0.28	20	1	93	46	750	2.3
10	SS 304	0.35	7	1	415	72	750	10.3
11	SS 304	0.5	7	1	847	147	750	21.0
12	*SS 304 and Dyneema®	0.15 0.5	7	2	275	450	3,400	120.0

** Constructed from a combination of SS 304 and Dyneema® yarn. Customised to meet application-specific requirements.*

Knitted wire mesh is highly flexible and can absorb the impact of high-velocity projectiles by deflecting on contact. This behaviour enhances its mechanical performance, making it significantly stronger in practice than the values shown in the table.

*** Mesh is manufactured to meet specific customer requirements.*

**** The data in this table is representative and provided to indicate typical properties.*

Quality Assurance

KnitMesh Technologies is accredited to: ISO 9001, ISO 14001, ISO 45001, PAS 99, and IATF 16949.

For further information, please contact our technical team:

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Please See the Reverse Side for Typical Mechanical Strength Data >

Mechanical Strength of Knitted Wire Mesh

0.28mm Ø stainless steel mesh:

- Each individual wire has a tensile strength of ~5 kgf
- Tested successfully to ~200 kgf of distributed load - see charts below
- A 1m x 1m sheet typically withstands up to ~650 kgf before breaking

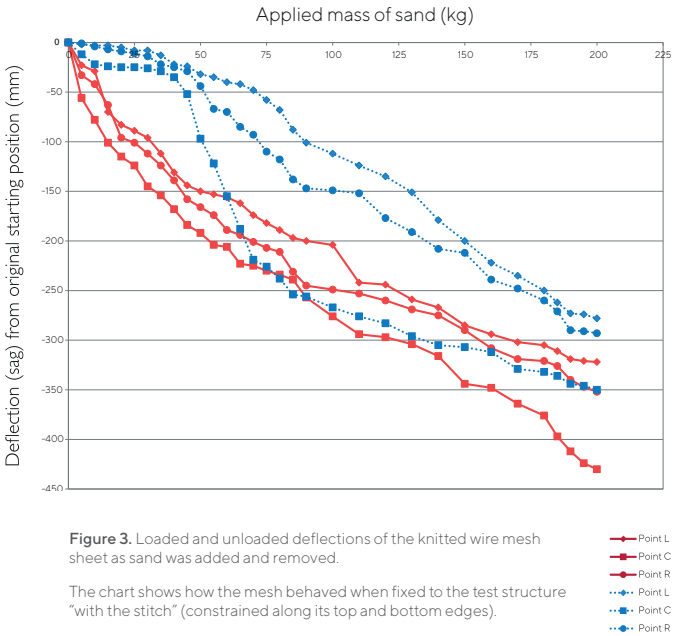

Figure 3. Loaded and unloaded deflections of the knitted wire mesh sheet as sand was added and removed.

The chart shows how the mesh behaved when fixed to the test structure "with the stitch" (constrained along its top and bottom edges).

The solid red lines show the deflection under load, while the dotted blue lines show the deflection after unloading (relaxed position).

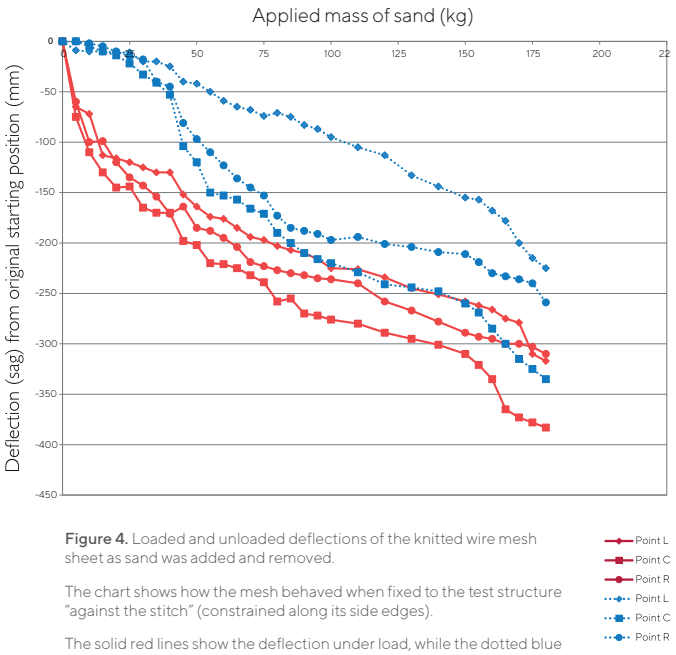

Figure 4. Loaded and unloaded deflections of the knitted wire mesh sheet as sand was added and removed.

The chart shows how the mesh behaved when fixed to the test structure "against the stitch" (constrained along its side edges).

The solid red lines show the deflection under load, while the dotted blue lines show the deflection after unloading (relaxed position).

0.50mm Ø stainless steel mesh:

- Higher tensile capacity per wire
- Tested successfully to ~500 kgf of distributed load - see charts below
- A 1m x 1m sheet successfully loaded to ~2,000 kgf before breaking

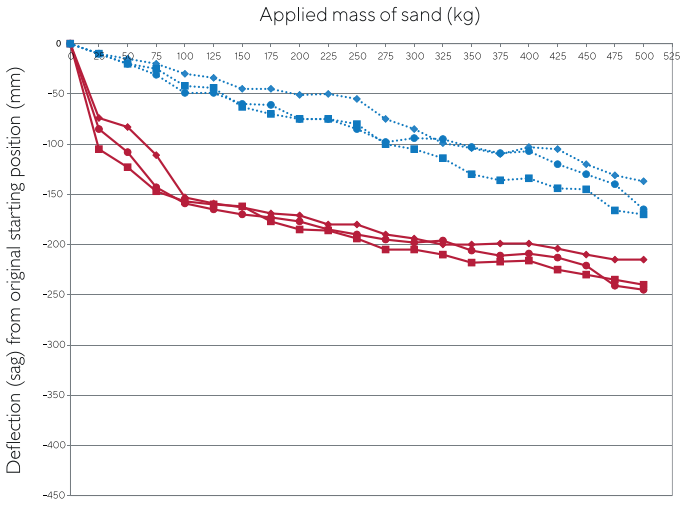

Figure 5. Loaded and unloaded deflections of the knitted wire mesh sheet as sand was added and removed.

The chart shows how the mesh behaved when fixed to the test structure "with the stitch" (constrained along its top and bottom edges).

The solid red lines show the deflection under load, while the dotted blue lines show the deflection after unloading (relaxed position).

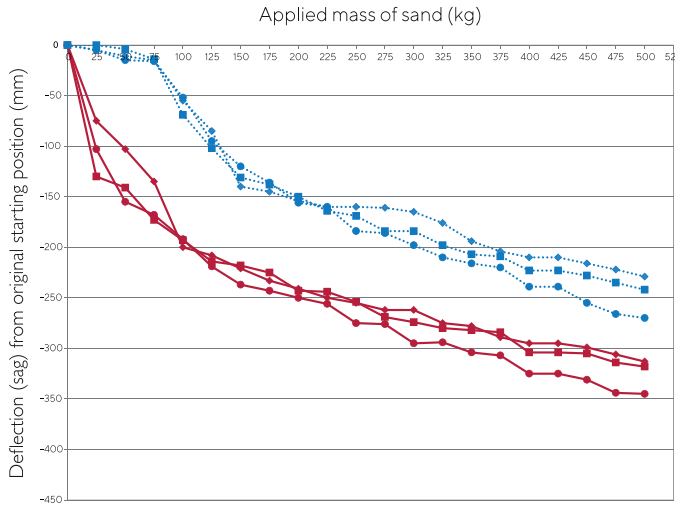

Figure 6. Loaded and unloaded deflections of the knitted wire mesh sheet as sand was added and removed.

The chart shows how the mesh behaved when fixed to the test structure "against the stitch" (constrained along its side edges).

The solid red lines show the deflection under load, while the dotted blue lines show the deflection after unloading (relaxed position).