

## **HONEYCOMB NOMEX®**

*Product details*

### **Description**

Nomex® is an aramid polymer with molecular structure particularly stable. The paper Nomex® is obtained from different forms of aramid polymer. Non metallic honeycombs are manufactured from high temperature resistant aramid paper formed into a honeycomb structure and coated with a phenolic resin.

The combination of aramid paper and phenolic resin gives commercial and aero grade of honeycomb in nomex with superior strength, toughness and chemical resistance. The honeycomb cell shapes is normally hexagonal for optimum mechanical properties. It can also be over-expanded to produce a rectangular cell shape and provide improved drapeability for the production of curved parts.

### **Key Features**

- Outstanding resistance to corrosive attack by chemicals
- High mechanical strength at low densities
- Fire retardant and self extinguishing
- Excellent resistance to impact damage and moisture
- Low smoke and toxic gas emission
- Highly resistant to fungal growth
- Good dielectric properties, transparent radio and radar waves
- Low thermal conductivity

### **Applications:**

Nomex is used in aerospace market (helicopters blades, interior panels, flooring, flaps, engine nacelles) and into industrial markets (marine and all transportation, interior panels, flooring, racing boats shell, radar reflectors, precisional optical system, automotive part).

### **Dimension:**

The standard dimensions are mm1250x2500. We can also make different sizes on request. General tolerances -50 / + 100mm

Thickness chosen by the customer: minimum 1.5 mm up to 500 mm depending on the type of cell.

Tolerance Thickness : standard +/- 0.12 mm (+/- 0.05mm with extracost)

### **Designation**

The complete description of the honeycomb provides:

Alloy: description of the commercial grade (A10) or aero grade (A1 or HRH10)

Density: weight of the material expressed in pounds / cubic feet or kg / m<sup>3</sup>

Cell: distance between two sides of the hexagon (mm or fraction of an inch); Also in version OX = rectangular

Tolerances +/- 17% industrial type A10 - +/- 10% aero grade A1 or HRH10

## Mechanical properties

### HRH-10 / A1 Aramid Fiber/Phenolic Resin Honeycomb

Honeycomb Designation Material – CellSize – Density  USA EU		Compressive				Plate Shear						
		Bare		Stabilized		L Direction			W Direction			
		Strength psi		Strength psi		Modulus ksi	Strength psi		Modulus ksi	Strength psi		Modulus ksi
Hexagonal		typ	min	typ	min	typ	typ	min	typ	typ	min	typ
HRH-10-1/16-3.4	A1- 1.5 - 54	195	160	205	170	20	155	125	6.0	85	65	2.9
HRH-10 – 1/8 – 1.8	A1 - 3 - 29	105	85	115	95	8	90	75	3.8	50	40	1.5
HRH-10 – 1/8 – 3.0	A1 - 3 - 48	290	235	325	270	20	175	155	6.5	100	85	3.5
HRH-10 – 1/8 – 4.0	A1 - 3 - 64	520	400	575	470	28	255	225	8.6	140	115	4.7
HRH-10 – 1/8 – 5.0	A1 - 3 - 80	700	560	770	620	37	325	275	10.2	175	150	5.4
HRH-10 – 1/8 – 6.0	A1 - 3 - 96	1050	850	1125	925	60	385	330	13.0	200	170	6.5
HRH-10 – 1/8 – 8.0	A1 - 3 - 128	1675	1370	1830	1450	78	480	400	16.0	260	210	9.5
HRH-10 – 1/8 – 9.0	A1 - 3 - 144	2000	1525	2100	1600	90	515	425	17.5	300	250	11.0
HRH-10 – 3/16 – 1.5	A1 - 5 - 24	85	70	95	80	6	65	50	3.0	35	28	1.6
HRH-10 – 3/16 – 1.8	A1 - 5 - 29	120	95	130	105	8	90	75	3.8	50	40	1.9
HRH-10 – 3/16 – 2.0	A1 - 5 - 32	135	110	150	130	11	95	80	4.3	55	45	2.1
HRH-10 – 3/16 – 3.0	A1 - 5 - 48	275	235	325	270	20	175	140	6.5	100	85	3.4
HRH-10 – 3/16 – 4.0	A1 - 5 - 64	500	430	540	470	28	245	215	7.8	140	110	4.7
HRH-10 – 3/16 – 6.0	A1 - 5 - 96	935	780	1020	865	60	420	370	13.0	225	200	6.5
HRH-10 – 1/4 – 1.5	A1 - 6 - 24	80	65	90	75	6	70	55	3.0	35	25	1.3
HRH-10 – 1/4 – 2.0	A1 - 6 - 32	120	100	130	105	11	95	80	4.2	45	36	2.0
HRH-10 – 1/4 – 3.1	A1 - 6 - 50	285	240	310	265	21	185	160	6.5	90	75	3.0
HRH-10 – 1/4 – 4.0	A1 - 6 - 64	440	360	480	390	28	250	205	8.0	125	100	3.5
HRH-10 – 3/8 – 1.5	A1 - 8 - 24	95	75	105	80	6	70	55	3.0	35	25	1.5
HRH-10 – 3/8 – 2.0	A1 - 8 - 32	140	115	155	125	11	90	72	3.7	55	36	2.4
HRH-10 – 3/8 – 3.0	A1 - 8 - 48	255	210	270	225	17	200	160	6.5	100	80	3.0
HRH-10 – 3/4 – 1.5	A1 - 19 - 24	70p	50p	80p	55p	7p	70p	55p	3.4p	35p	25p	1.7p
<b>OX-Core</b>												
HRH-10/OX- 3/16 – 1.8	A1 - 5 – 29 OX	100	80	110	90	7	50	40	2.0	60	50	3.0
HRH-10/OX- 3/16 – 3.0	A1 - 5 – 48 OX	320	260	350	285	17	105	95	2.5	120	100	6.0
HRH-10/OX- 3/16 – 4.0	A1 - 5 – 64 OX	600	500	650	550	26	130	105	4.6	150	130	8.4
HRH-10/OX – 1/4 – 3.0	A1 – 6 - 48 OX	350	280	385	310	17	110	90	3.0	135	110	6.0

The values are indicative and do not represent constraint.

These products are also available in verisone A10 (= COMMERCIAL GRADE). The performances are similar to those of type A1 or HRH10 (= AERO GRADE), but may be slightly less than the minimum as subject to less restrictive specifications.

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