

## EURO-COMPOSITES® GROUP Mechanical Properties of ECA Honeycomb

### Test Specimen Thickness 12,7 mm / 0.5 inch

Product designation				Compression		Plate Shear							
						L-direction				W-direction			
cell size mm	- density kg/m <sup>3</sup>	(μm)	(38)	bare		strength		modulus		strength		modulus	
				strength MPa	strength MPa	min	typ	min	typ	min	typ	min	typ
ECA	3.2	-	29	0,54	0,80	0,52	0,62	22	27	0,28	0,38	12	16
ECA	3.2	-	48	1,90	2,10	1,16	1,32	38	48	0,62	0,72	24	30
ECA	3.2	-	64	3,70	4,50	1,48	1,78	50	64	0,82	0,97	30	38
ECA	3.2	-	64	3,10	3,90	1,60	1,90	60	68	0,94	1,05	38	44
ECA	3.2	-	80	4,70	5,50	1,95	2,35	68	80	1,05	1,25	38	48
ECA	3.2	-	96	6,60	7,44	2,45	2,80	86	96	1,42	1,68	56	68
ECA	3.2	-	123	10,00	11,80	2,90	3,35	98	118	1,76	1,94	71	84
ECA	3.2	-	128	11,30	12,88	2,95	3,40	104	128	1,78	2,05	74	87
ECA	3.2	-	144	13,20	15,20	3,05	3,50	110	128	1,90	2,20	80	94
ECA	3.2	-	200	23,00	26,60	3,60	4,00	120	138	2,20	2,70	84	98
ECA	4.0	-	29	0,60	0,80	0,45	0,56	18	26	0,26	0,34	11	14
ECA	4.0	-	48	2,26	2,68	1,06	1,20	34	42	0,56	0,68	22	28
ECA	4.0	-	64	3,90	4,65	1,44	1,70	48	58	0,80	0,90	30	40
ECA	4.0	-	80	5,10	5,70	1,90	2,50	66	78	0,98	1,26	36	44
ECA	4.0	-	123	9,30	10,80	3,40	3,85	110	125	1,86	2,10	58	68
ECA	4.0	-	128	10,00	11,50	3,50	3,90	115	130	1,90	2,20	60	70
ECA	4.0	-	144	13,00	16,00	3,60	4,00	120	135	2,00	2,40	70	82
ECA	4.8	-	32	0,90	1,15	0,58	0,76	23	31	0,36	0,42	16	22
ECA	4.8	-	48	2,60	2,85	0,98	1,14	34	40	0,56	0,66	22	28
ECA	4.8	-	64	3,40	4,40	1,70	2,00	52	64	0,92	1,14	34	46
ECA	4.8	-	72	4,10	4,90	1,70	2,00	52	64	0,95	1,20	37	46
ECA	4.8	-	96	8,40	9,00	2,26	2,56	78	84	1,32	1,48	46	56
ECA	4.8	-	96	7,30	8,00	2,52	2,85	88	94	1,44	1,68	56	64
ECA	6.4	-	24	0,54	0,70	0,34	0,52	14	20	0,18	0,26	11	14
ECA	6.4	-	32	0,80	1,06	0,54	0,76	22	32	0,30	0,40	12	20
ECA	6.4	-	50	2,15	2,60	1,00	1,26	30	44	0,56	0,72	20	28
ECA	6.4	-	64	3,40	4,60	1,54	1,92	54	66	0,79	1,10	32	40
ECA	9.6	-	24	0,52	0,66	0,32	0,52	13	21	0,16	0,26	9	14
ECA	9.6	-	32	0,68	1,06	0,56	0,77	18	30	0,29	0,38	11	17
ECA	9.6	-	48	1,80	2,20	1,15	1,30	30	41	0,66	0,80	20	26
ECA	12.8	-	32	0,75	0,95	0,46	0,56	16	20	0,26	0,30	9	12
ECA	12.8	-	64	2,80	3,40	1,60	1,82	52	64	0,88	1,15	26	36
ECA	19.2	-	24	0,50	0,62	0,50	0,60	11	16	0,22	0,28	9	11
ECA	19.2	-	32	0,70	0,92	0,60	0,80	18	28	0,32	0,48	14	22
ECA-R	4.8	-	29	0,60	0,85	0,31	0,42	9	14	0,32	0,44	14	24
ECA-R	4.8	-	48	2,30	2,80	0,66	0,74	18	24	0,72	0,82	36	44
ECA-R	4.8	-	64	3,80	4,60	0,72	0,84	22	26	0,90	1,04	48	56
ECA-R	6.4	-	48	2,30	2,80	0,66	0,74	15	22	0,72	0,78	33	42
ECA-R	6.4	-	56	2,80	4,10	0,74	0,94	18	24	0,78	0,92	36	46
ECA-R	6.4	-	64	3,20	4,50	0,82	0,92	21	26	0,92	1,02	40	56

Tested at room temperature. -R = overexpanded.

This table comprises data of ECA honeycomb obtained from testing specimens of 12,7 mm at RT. The data is based on results gained from experience and tests and is believed to be accurate yet without acceptance of liability for loss or damage incurred and attributable to reliance thereon as conditions of use lie outside our control. The user is responsible to perform own tests to determine the suitability of this product for its intended application. For design calculation, minimum values will be supplied on demand.

Additional densities and configurations may be available upon request.

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**EURO-COMPOSITES® GROUP Mechanical Properties of ECA Honeycomb**

**Test Specimen Thickness 12,7 mm / 0.5 inch**

Product designation				Compression		Plate Shear							
cell size - density inch pcf (mil)				bare		L-direction				W-direction			
				strength		strength		modulus		strength		modulus	
				PSI		PSI		KSI		PSI		KSI	
min		typ		min	typ	min	typ	min	typ	min	typ		
ECA	1/8	-	1.8 (1.5)	78	116	75	90	3.2	3.9	41	55	1.7	2.3
ECA	1/8	-	3.0 (2.0)	275	304	168	191	5.5	7.0	90	104	3.5	4.3
ECA	1/8	-	4.0 (2.0)	536	652	214	258	7.2	9.3	119	141	4.3	5.5
ECA	1/8	-	4.0 (3.0)	449	565	232	275	8.7	9.9	136	152	5.5	6.4
ECA	1/8	-	5.0 (3.0)	681	797	283	341	9.9	11.6	152	181	5.5	7.0
ECA	1/8	-	6.0 (3.0)	957	1078	355	406	12.5	13.9	206	243	8.1	9.9
ECA	1/8	-	7.7 (3.0)	1449	1710	420	486	14.2	17.1	255	281	10.3	12.2
ECA	1/8	-	8.0 (3.0)	1638	1867	428	493	15.1	18.6	258	297	10.7	12.6
ECA	1/8	-	9.0 (3.0)	1913	2203	442	507	15.9	18.6	275	319	11.6	13.6
ECA	1/8	-	12.5 (3.0)	3333	3855	522	580	17.4	20.0	319	391	12.2	14.2
ECA	5/32	-	1.8 (2.0)	87	116	65	81	2.6	3.8	38	49	1.6	2.0
ECA	5/32	-	3.0 (2.0)	328	388	154	174	4.9	6.1	81	99	3.2	4.1
ECA	5/32	-	4.0 (3.0)	565	674	209	246	7.0	8.4	116	130	4.3	5.8
ECA	5/32	-	5.0 (3.0)	739	826	275	362	9.6	11.3	142	183	5.2	6.4
ECA	5/32	-	7.7 (4.0)	1348	1565	493	558	15.9	18.1	270	304	8.4	9.9
ECA	5/32	-	8.0 (4.0)	1449	1667	507	565	16.7	18.8	275	319	8.7	10.1
ECA	5/32	-	9.0 (4.0)	1884	2319	522	580	17.4	19.6	290	348	10.1	11.9
ECA	3/16	-	2.0 (2.0)	130	167	84	110	3.3	4.5	52	61	2.3	3.2
ECA	3/16	-	3.0 (2.0)	377	413	142	165	4.9	5.8	81	96	3.2	4.1
ECA	3/16	-	4.0 (3.0)	493	638	246	290	7.5	9.3	133	165	4.9	6.7
ECA	3/16	-	4.5 (3.0)	594	710	246	290	7.5	9.3	138	174	5.4	6.7
ECA	3/16	-	6.0 (3.0)	1217	1304	328	371	11.3	12.2	191	214	6.7	8.1
ECA	3/16	-	6.0 (4.0)	1058	1159	365	413	12.8	13.6	209	243	8.1	9.3
ECA	1/4	-	1.5 (2.0)	78	101	49	75	2.0	2.9	26	38	1.6	2.0
ECA	1/4	-	2.0 (2.0)	116	154	78	110	3.2	4.6	43	58	1.7	2.9
ECA	1/4	-	3.1 (3.0)	312	377	145	183	4.3	6.4	81	104	2.9	4.1
ECA	1/4	-	4.0 (3.0)	493	667	223	278	7.8	9.6	114	159	4.6	5.8
ECA	3/8	-	1.5 (3.0)	75	96	46	75	1.9	3.0	23	38	1.3	2.0
ECA	3/8	-	2.0 (3.0)	99	154	81	112	2.6	4.3	42	55	1.6	2.5
ECA	3/8	-	3.0 (3.0)	261	319	167	188	4.3	5.9	96	116	2.9	3.8
ECA	1/2	-	2.0 (5.0)	109	138	67	81	2.3	2.9	38	43	1.3	1.7
ECA	1/2	-	4.0 (5.0)	406	493	232	264	7.5	9.3	128	167	3.8	5.2
ECA	3/4	-	1.5 (5.0)	72	90	72	87	1.6	2.3	32	41	1.3	1.6
ECA	3/4	-	2.0 (5.0)	101	133	87	116	2.6	4.1	46	70	2.0	3.2
ECA-R	3/16	-	1.8 (2.0)	87	123	45	61	1.3	2.0	46	64	2.0	3.5
ECA-R	3/16	-	3.0 (2.0)	333	406	96	107	2.6	3.5	104	119	5.2	6.4
ECA-R	3/16	-	4.0 (2.0)	551	667	104	122	3.2	3.8	130	151	7.0	8.1
ECA-R	1/4	-	3.0 (2.0)	333	406	96	107	2.2	3.2	104	113	4.8	6.1
ECA-R	1/4	-	3.5 (2.0)	406	594	107	136	2.6	3.5	113	133	5.2	6.7
ECA-R	1/4	-	4.0 (2.0)	464	652	119	133	3.0	3.8	133	148	5.8	8.1

Tested at room temperature. -R = overexpanded.

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