



HANNA RUBBER COMPANY

RMA Extrusion Tolerances

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America's First Choice for Rubber & Plastic Products

Hanna Rubber Company has been providing products and service to its construction, automotive, military and government customer base since 1925.

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Table 13

STANDARD CROSS-SECTIONAL TOLERANCES

For outside diameters, inside diameters, wall, width, Height, and general cross-sectional dimensions of extrusions

RMA Class	1 High Precision	2 Precision	3 Precision
RMA Drawing Designation	E1	E2	E3
Dimensions (in Millimeters)			
Above - Up To	±	±	±
0 - 1.5	0.15	0.25	0.40
1.5 - 2.5	0.20	0.35	0.50
2.5 - 4.0	0.25	0.40	0.70
4.0 - 6.3	0.35	0.50	0.80
6.3 - 10	0.40	0.70	1.00
10 - 16	0.50	0.80	1.30
16 - 25	0.70	1.00	1.60
25 - 40	0.80	1.30	2.00
40 - 63	1.00	1.60	2.50
63 - 100	1.30	2.00	3.20

RMA Class	1 High Precision	2 Precision	3 Commercial
RMA Drawing Designation	E1	E2	E3
Dimensions (in Inches)			
Above - Up To	±	±	±
0 - .06	0.006	0.010	0.015
.06 - .10	0.008	0.014	0.020
.10 - .16	0.010	0.016	0.027
.16 - .25	0.014	0.020	0.031
.25 - .39	0.016	0.027	0.039
.39 - .63	0.020	0.031	0.051
.63 - .98	0.027	0.039	0.063
.98 - 1.57	0.031	0.051	0.079
1.57 - 2.48	0.039	0.063	0.098
2.48 - 3.94	0.051	0.079	0.126

Note: Tolerances on dimensions above 100mm (3.94) should be agreed upon by supplier and user.

General cross-sectional dimensions below 1mm (0.04) are impractical.

In general, softer materials and those requiring a post cure need greater tolerances.

Table 16

CUT LENGTH TOLERANCES FOR UNSPLICED EXTRUSIONS

RMA Class	1 Precision	2 Commercial	3 Non-Critical
RMA Drawing Designation	L1	L2	L3
Length (in Millimeters)			
Above - Up To	±	±	±
0 - 40	0.7	1.0	1.6
40 - 63	0.8	1.3	2.0
63 - 100	1.0	1.6	2.5
100 - 160	1.3	2.0	3.2
160 - 250	1.6	2.5	4.0
250 - 400	2.0	3.2	5.0
400 - 630	2.5	4.0	6.3
630 - 1000	3.2	5.0	10.0
1000 - 1600	4.0	6.3	12.5
1600 - 2500	5.0	10.0	16.0
2500 - 4000	6.3	12.5	20.0
4000	0.16%	0.32%	0.50%

RMA Class	1 Precision	2 Commercial	3 Non-Critical
RMA Drawing Designation	L1	L2	L3
Length (in Inches)			
Above - Up To	±	±	±
0 - 1.6	0.03	0.04	0.06
1.6 - 2.5	0.03	0.05	0.08
2.5 - 4.0	0.04	0.06	0.10
4.0 - 6.3	0.05	0.08	0.13
6.3 - 10.0	0.06	0.10	0.16
10.0 - 16.0	0.08	0.13	0.20
16.0 - 25.0	0.10	0.16	0.25
25.0 - 40.0	0.13	0.20	0.40
40.0 - 63.0	0.16	0.25	0.50
63.0 - 100.0	0.20	0.40	0.63
100.0 - 160.0	0.25	0.50	0.80
160.0	0.16%	0.32%	0.50%

Note: Special consideration will have to be given to both extremely soft and high tensile stocks.

Table 18

SPLICED LENGTH TOLERANCES

RMA Class	1 Precision	2 Commercial	3 Non-Critical
RMA Drawing Designation	S1	S2	S3
Length (in Millimeters)			
Above - Up To	±	±	±
0 - 250	3.2	6.3	7.1
250 - 400	4.0	7.1	8.0
400 - 630	5.0	8.0	9.0
630 - 1000	6.3	9.0	10.0
1000 - 1600	8.0	10.0	11.2
1600 - 2500	10.0	11.2	12.3
2500 - over	12.5	12.5	16.0

RMA Class	1 Precision	2 Commercial	3 Non-Critical
RMA Drawing Designation	S1	S2	S3
Length (in Inches)			
Above - Up To	±	±	±
0 - 10	0.13	0.25	0.28
10 - 16	0.16	0.28	0.32
16 - 25	0.20	0.32	0.36
25 - 40	0.25	0.36	0.40
40 - 63	0.32	0.40	0.45
63 - 100	0.40	0.45	0.50
100 - over	0.50	0.50	0.53

Table 33

CROSS-SECTIONAL TOLERANCES FOR EXTRUDED CLOSED CELL SILICONE

RMA Class	3	
RMA Drawing Designation	SEC-3	
Millimeters (Metric)		
Above - Included		
0 - 6.3		+ 0.8 - .04
6.3 - 12.5		+ 1.25 - .08
12.5 - 25.0		± 1.6
25.0 - 38.0		± 2.5
38.0 - 50.0		± 3.2
50.0 and over multiply by		0.05
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RMA Class	3	
RMA Drawing Designation	SEC-3	
Inches		
Above - Included		
0 - .25		+ 0.032 - .016
.25 - .50		+ .050 - .032
.50 - 1.00		± .063
1.00 - 1.50		± .100
1.50 - 2.00		± .125
2.00 and over multiply by		0.002

Table 36

IRREGULAR & CORED CROSS-SECTIONAL TOLERANCES

For irregular and cored shapes of extruded, expanded, closed-cellular rubber.
 Class 1 tolerances in table below are recommended only for high volume, tight products for automotive applications.

RMA Class	1*	2	3
RMA Drawing Designation	BEC 1	BEC 2	BEC 3
Millimeters (Metric)			
Above - Included	±	±	±
0 - 6.3	0.40	0.50	0.63
6.3 - 12.5	0.63	1.00	1.25
12.5 - 25.0	1.25	2.00	2.50
25.0 - 40.0	2.00	3.20	4.00
40.0 and over multiply by	0.06	0.08	0.10
Inches			
Above - Included	±	±	±
0 - .25	0.016	0.020	0.025
.25 - .50	0.025	0.040	0.050
.50 - 1.0	0.050	0.080	0.100
1.0 - 1.6	0.080	0.125	0.160
1.6 and over multiply by	0.060	0.080	0.100

* Class 1 tolerances should not be applied to the softer grades of material -- below 63 kPa (9 psi) compression deflection.

Table 37

RECTANGULAR AND REGULAR CROSS-SECTIONAL TOLERANCES (width, thickness, or diameter)

For cored, rectangular, or other regular shapes of extruded, expanded, closed-cellular rubber.

RMA Class	1	2	3
RMA Drawing Designation	BER 1	BER 2	BER 3
Millimeters (Metric)			
Above - Included	±	±	±
3.2 - 12.5	0.80	0.80	1.00
12.5 - 25.0	1.25	1.25	2.00
25.0 - 50.0	1.60	2.00	4.00
50.0 - 80.0	2.50	3.20	5.00
80.0 and over multiply by	0.06	0.08	0.10
Inches			
Above - Included	±	±	±
.125 - .50	0.032	0.032	0.040
.50 - 1.0	0.050	0.500	0.080
1.0 - 2.0	0.063	0.080	0.160
2.0 - 3.15	0.100	0.125	0.200
3.15 and over multiply by	0.060	0.080	0.100

Table 38

CUT LENGTH TOLERANCES

For all extruded, expanded, closed-cellular rubber products.

RMA Class	1*	2	3
RMA Drawing Designation	BEL 1	BEL 2	BEL 3
Millimeters (Metric)			
Above - Included	±	±	±
0 - 80	1.60	1.60	3.20
80 - 160	3.20	3.20	6.30
160 - 315	6.30	6.30	12.50
315 - 630 **	mult. by .02	12.50	25.00
630 - 1250 **	mult. by .02	25.00	50.00
1250 and over multiply by	0.02	0.03	0.04
RMA Class			
1*			
2			
3			
RMA Drawing Designation			
BEL 1			
BEL 2			
BEL 3			
Inches			
Above - Included	±	±	±
0 - 3.15	0.063	0.063	0.125
3.15 - 6.3	0.125	0.125	0.250
6.3 - 12.5	0.250	0.250	0.500
12.5 - 25.0 **	mult. by .02	0.500	1.000
24.0 - 50.0 **	mult. by .02	1.000	2.000
50.0 and over multiply by	0.02	0.030	0.040

* Class 1 tolerances should not be applied to the softer grades of material -- below 63 kPa (9 psi) compression deflection.

** Accurate measurement of long lengths is difficult because these materials stretch or compress easily. Where close tolerances are required on long lengths, a specific technique should be agreed upon between purchaser and manufacturer.

Table 39

INSIDE DIAMETER TOLERANCES

For inside diameter of extruded closed-cellular rubber tubings.

RMA Class	1	2	3
RMA Drawing Designation	BET 1	BET 2	BET 3
Millimeters (Metric)	Tolerance (All plus, no minus)		
Above - Included			
0 - 12.5	+ 1.6	+ 1.6	+ 3.2
12.5 - 25.0	2.5	3.2	6.3
25.0 - 50.0	5.0	6.3	10.0
50.0 - 100.0	6.3	10.0	12.5
100.0	10.0	12.5	16.0
RMA Class	1	2	3
RMA Drawing Designation	BET 1	BET 2	BET 3
Inches	Tolerance (All plus, no minus)		
Above - Included			
0 - .50	+ .063	+ .063	+ .125
.50 - 1.0	0.100	0.125	0.250
1.0 - 2.0	0.200	0.250	0.400
2.0 - 4.0	0.250	0.400	0.500
4.0	0.400	0.500	0.630

Table 40

WALL THICKNESS TOLERANCES

For extruded closed-cellular tubings.

RMA Class	1	2	3
RMA Drawing Designation	BEW 1	BEW 2	BEW 3
Millimeters (Metric)			
Under 16.0	+ 1.6	+ 3.2	+ 5.0
16.0 and over	3.2	5.0	6.3
RMA Class			
	1	2	3
RMA Drawing Designation			
	BEW 1	BEW 2	BEW 3
Inches			
Under 0.63	+ .063	+ .125	+ .200
0.63 and over	.125	.200	.250

Table 41

CUT LENGTH TOLERANCES

For all types of sponge, dense extruded products.

RMA Class		1	2	3	
RMA Drawing Designation		SLD 1	SLD 2	SLD 3	
Millimeters (Metric)					
Above	-	Included			
0		1700	± 6.4	± 9.5	± 12.7
1700		4500	12.7	19.1	25.4
4500		6000	19.1	25.4	50.8
6000	TO BE DETERMINED BY MUTUAL AGREEMENT OF CUSTOMER				
RMA Class					
RMA Drawing Designation					
Inches					
Above	-	Included			
0		66	± .25	± 0.38	± 0.50
66		177	.50	.75	1.00
177		236	.75	1.00	2.00
236	TO BE DETERMINED BY MUTUAL AGREEMENT OF CUSTOMER				