

ISO 3302-1 Classes and Tolerances for Extruded Rubber Products E Classes

Extruded rubber products require greater tolerances in manufacture than those produced by molding since the rubber undergoes die swell and, during subsequent vulcanization, shrinkage and deformation usually occur.

Deformation can be reduced by the use of supports during vulcanization, the nature of the support depending on the section being produced, and the degree of control required. Such features determine the class of tolerance applicable to given dimensions.

In the case of certain synthetic rubbers, extrusion class E1 tolerances are not directly obtainable.

Nominal cross-sectional dimensions of unsupported extrusions - Metric (mm)

Nominal Dimension		Class E1 High Quality	Class E2 Good Quality	Class E3 Non-critical
above	up to and including	±	±	±
0	1.5	0.15	0.25	0.4
1.5	2.5	0.2	0.35	0.5
2.5	4	0.25	0.4	0.7
4	6.3	0.35	0.5	0.8
6.3	10	0.4	0.7	1
10	16	0.5	0.8	1.3
16	25	0.7	1	1.6
25	40	0.8	1.3	2
40	63	1	1.6	2.5
63	100	1.3	2	3.2

Nominal cross-sectional dimensions of unsupported extrusions - Inches (in)

Nominal Dimension		Class E1 High Quality	Class E2 Good Quality	Class E3 Non-critical
above	up to and including	±	±	±
0	0.059	0.0059	0.0098	0.0157
0.059	0.098	0.0079	0.0138	0.0197
0.098	0.157	0.0098	0.0157	0.0276
0.157	0.248	0.0138	0.0197	0.0315
0.248	0.394	0.0157	0.0276	0.0394
0.394	0.63	0.0197	0.0315	0.0512
0.63	0.984	0.0276	0.0394	0.063
0.984	1.575	0.0315	0.0512	0.0787
1.575	2.48	0.0394	0.063	0.0984
2.48	3.937	0.0512	0.0787	0.126



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ISO 3302-1 Classification

ISO 3302-1 contains 11 classes of tolerance for extrusions in solid rubber. These classes are grouped into the following types of dimensions:

- Nominal cross-sectional dimensions of unsupported extrusions
- Nominal cross-sectional dimensions of mandrel-supported extrusions
- Outside dimensions (nominal diameters) of surface-ground extrusions
- Wall thickness of cut sections of extrusions
- Cut length of extrusions
- Thickness of cut sections of extrusions

Use the appropriate table below to determine actual tolerances. Both Metric (mm) and Inch (in) tables are shown.