

Preferred value series for resistors and capacitors

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Preferred component values are defined in British Standard BS 2488¹. Resistors and capacitors are available in a limited range of values, according to their manufacturing precision. The most common preferred value series is the E24 series; this and the E12, E6 and E3 series derived from it are listed below.

E24	E12	E6	E3
Appropriate for tolerance $\pm 5\%$ or narrower	Appropriate for tolerance $\pm 10\%$	Appropriate for tolerance $\pm 20\%$	Appropriate for tolerance wider than $\pm 20\%$
10	10	10	10
11			
12			
13	12	15	
15			
16			
18	18	22	22
20			
22			
24	27	33	
27			
30			
33	33	47	47
36			
39			
43	39	68	
47			
51			
56	56	82	
62			
68			
75	68	91	
82			
91			

The E24 series is most commonly used for resistors. If intermediate values are required, precision resistors are available with values from the E48, E96 and E192 series, also defined in BS 2488. Capacitor values are generally available in the E12, E6 or, occasionally, E3 series.

The full range of values obtainable from the preferred value series are those given by the decimal multiples or submultiples of the values listed above (i.e. multiplied by 10^N , where N is an integer number, chosen arbitrarily subject to technological limitations).

¹ BS 2488:1966 "Schedule of preferred numbers for the resistance of resistors and capacitance of capacitors for telecommunications equipment", amended January 1998.