

## TOLERANCES AND MANUFACTURING CRITERIA

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1) **BRITISH AND EUROPEAN STANDARDS**

Unless specific instructions are given to the contrary, **the Company will manufacture components to the tolerances specified in the appropriate British / European Standard i.e.**

Compression springs – EN 13906-1 – Tols to EN 15800 Grade 3 (latest issue)

Tension springs - BS 1726 Part 2 (2002) Grade 2

Torsion springs - BS 1726 Part 3 (2002)

NOTE: - Variable diameter compression spring tolerances will be calculated using the average.

Further details are available upon request.

2) **GENERAL** Where no standard exists for a particular product the following tolerances will be applied:-

a) **Flat Clips and Wire Forms** - Linear dimensions +/- 0.5mm ( 0.020") per 100mm ( 3.937")

i.e. 55mm = +/-0.5mm. 187mm = +/-1.0mm. 323mm = +/- 2.0mm.

Angles +/- 5 Degrees

b) **Circlips – Round Wire Ring Type**

General controlling tolerances will be:-

General wire ring. Diameter tolerance, +/-2.5% of coil diameter. Minimum tolerance, +/- 0.3mm

Rings to fit in a bore. Diameter tolerance, +5%, -Nil of coil diameter. Minimum tolerance, + 0.6mm

Rings to fit over a shaft. Diameter tolerance, +Nil, -5% of coil diameter. Minimum tolerance, - 0.6mm

Helix, 1.5 x the wire diameter.

GAP – Unless otherwise specified the gap tolerance will be the diameter tolerance x 3.1416

c) **Power Springs / Rewind Springs** - In the absence of other agreed tolerances, the following general control shall be applied - 1mm (0.040") per 100mm (3.937") i.e. 55mm = +/- 1mm, 187mm = +/- 2mm.

3) **BLOCK TOLERANCES**

Block Tolerances originally intended for machined parts are inappropriate for coiled springs, clips and wire forms. Unless specifically instructed in writing by the customer, **BLOCK TOLERANCES WILL BE DISREGARDED** and replaced by the appropriate tolerance specified in paragraphs '1' and '2' above.

4) **MANUFACTURE TO SAMPLE OR SPECIFICATION**

Unless specifically instructed in writing by the customer, **the measured size of a sample or the size given in a specification will be taken to represent the mean dimension required and appropriate tolerances specified in paragraphs '1' or '2' above will be applied to those dimensions. It is the responsibility of the Customer to detail dimensions of importance. All other characteristics will be taken as reference only.**

5) **MATING PARTS**

In all cases **customers are particularly advised to specify the dimensions of any closely related parts** e.g. shaft diameters over which the spring is required to fit and/or hole diameters in which the spring is required to fit. Grip fit, tight fit, clearance fit: etc, specifications are subjective and will not be accepted.

6) **MATERIAL SPECIFICATION**

**No undertaking can be made to supply components to the same material specification as that of a customer supplied sample, unless the material specification is provided in full by the customer.**

7) **PERFORMANCE**

**No responsibility can be accepted by the company for the actual performance, life cycle or fitness for purpose of components supplied.**