

Quality Clause 240305 - O-Ring Requirements (08/09/18)

Parker O-rings are preferred and the Supplier shall provide Parker O-rings when the required O-ring is available from Parker. If Parker does not provide the O-ring required by Rolls-Royce the Supplier shall provide certification documents, as required below, from the original manufacturer.

Materials: O-rings shall meet the minimum requirements of ASTM D2000 M3CH 714 A25 B14 E016 E036 unless otherwise specified.

Age Requirements:

O-rings delivered per this order shall not be more than 8 quarters old upon receipt at Rolls-Royce as calculated from the cure date.

The maximum shelf life will not be greater than 5 years unless the manufacturer certifies shelf life per ARP 5316. If ARP 5316 shelf life requirements are certified, Rolls-Royce applies a maximum shelf life period of 10 years (40 quarters).

Special Sized O-rings:

In cases where special sized / spliced O-rings are called for, the cord material can be provided by manufacturers other than Parker provided the certification documents for cord material can be provided.

The spliced joint shall have a biased cut of 45 degrees and shall be vulcanized. No "butt" joints are allowed. All spliced joints shall be visually inspected. Any signs of joint separation will be cause for rejection. Steps in the joint are not to exceed .006". Cross section at any point in the joint shall not exceed the tolerance specified for the parent material. Only one (1) splice is allowed per O-ring.

Special "Fully Molded" O-Rings: The use of a "serpentine mold" to produce "fully molded" O-rings is not permitted. 100% dimensional inspection, in accordance with ISO 3601-3, and 100% visual inspection using a 3X lighted glass is required.

All "fully molded" O-rings shall be individually packaged in a Kraft heat seal bag marked with ASTM number, batch number, and cure date by quarter and year.

Each batch of material used for special "fully molded" O-rings requires testing two test slabs to the minimum requirements of ASTM D2000 M3CH 714 A25 B14 E016 E036 Z1, where Z1 is a compression set test 22hrs @ 100°C (ASTM D395 Method B) with requirements of 18% max. One test slab is to be delivered to Rolls-Royce Quality with a copy of the test results.

Packaging:

O-rings with inner diameters exceeding 13" shall be coiled and packaged as shown in SAE AMS2817. All other standards O-rings may be bulk packaged.

Dimensional Tolerances:

"Special sized" and "fully molded" O-ring cross sections and inside diameter tolerances shall be in accordance with Rolls-Royce drawing number A000SK01-55 unless otherwise specified.

Inspection:

O-rings shall be dimensionally inspected. For special "fully molded" O-rings, each O-ring in the lot shall be dimensionally inspected (100% dimensional inspection). For all other O-rings, sample dimensional inspection methods shall be performed in accordance with ISO 3601-3. Dimensional inspection results are to be reported to Rolls-Royce (see "Certification"). At a minimum, the range of actual dimensions (high and low) is to be reported.

Certification:

With each lot of O-rings, the Supplier shall furnish Rolls-Royce with certification of dimensional inspection and material characteristics as required by ASTM D2000. The certification document shall be the Supplier's format. It shall include at a minimum: purchase order (PO) number, quantity of O-rings being certified, ASTM number, material batch number, cure date by quarter and year, material test results (specified and actual), and dimensional results. If more than one batch of elastomer is used to produce the PO quantity, then certifications shall be provided for each batch. Each certificate shall be signed by the certified testing laboratory.