

Dimensions, Material and Physical Properties and Performance Requirements of Through Hardened and Carbon Restored POWERLOK® and KLEERLOK® Bolts with a Special Crest Configuration

1. SCOPE

This standard covers the dimensions, material and physical properties, and performance requirements of through hardened and carbon restored POWERLOK® and KLEERLOK® bolts with a special configuration at the crest of the threads which for Ford purposes shall be known as a "CREST INTERFERENCE" thread.

As partial or complete decarburization of the thread or thread form seriously impairs the locking properties of the bolt, this condition is not permitted. Decarburization as permitted by ISO 898/1 is replaced in this standard by a requirement for carbon restoration as detailed in Clause 4.2.

NOTE: These bolts are designed to be used in normal ISO metric threaded holes in the range M6 to M12 inclusive.

1.1 REFERENCE

ISO 6157-3	Fasteners-Surface Discontinuities
ISO 6507-1	Metallic Materials - Vickers Hardness, Part 1: Test Method
ISO 898/1	Mechanical Properties of Fasteners - Part 1: Bolts, Screws and Studs
SAE/USCAR-8	Grain Flow Pattern for Bolts and Screws

2. DIMENSIONS

The dimensions of the Crest Interference thread shall be as specified in Figure 1 and Table 1 prior to application of a protective coating. Parts already coated shall be checked with the protective coating removed. These parts shall be inspected and areas of thread damage avoided.

Figure 1.

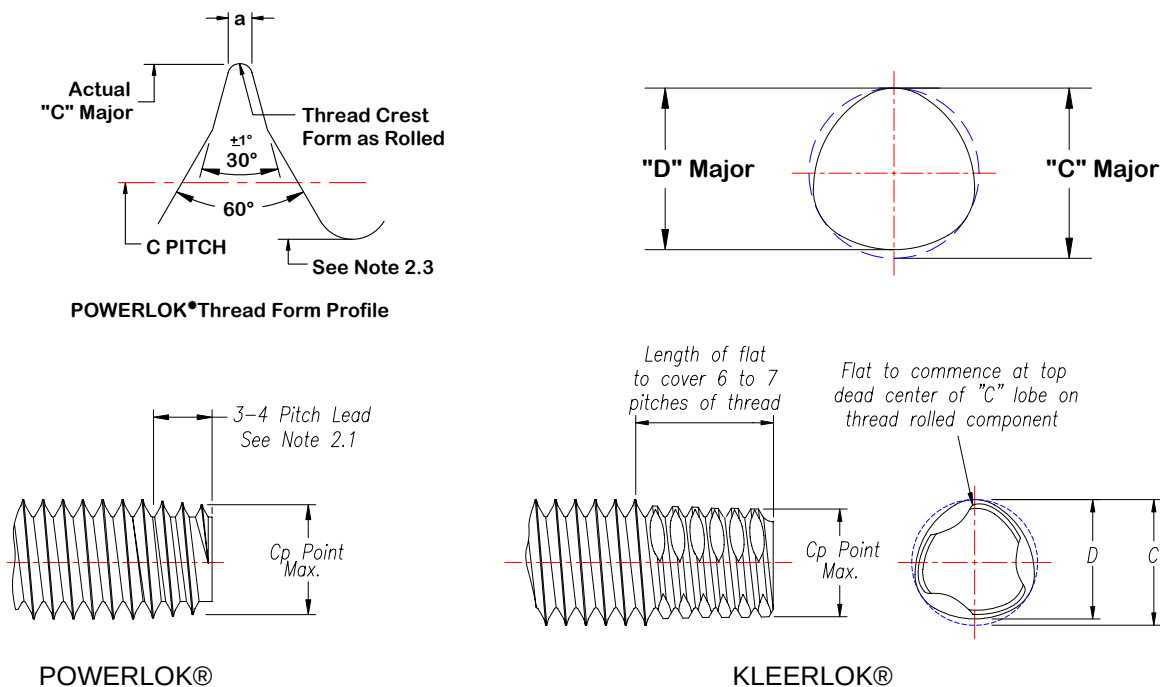




Table 1.

Bolt Diameter and Pitch Nominal ¹⁾	C Major	D Major	Pitch Diameter	Cp Point Max.	a
(M)6 x 1.00	6.30	6.10	The bolt pitch diameter measured at the "C" lobes has dimensions that are Max. C = 4h max Min. C = 6g min. in accordance with ISO 965/3	6.00	0.189
	6.15	5.95			0.100
(M)8 x 1.25	8.35	8.10		8.00	0.227
	8.20	7.95			0.100
(M)10 x 1.50	10.40	10.10		10.00	0.274
	10.25	9.95			0.180
(M)12 x 1.75	12.45	12.10		12.00	0.300
	12.30	11.95			0.230

1) NOTE: Although the designations for these bolts are M6, M8, etc., the thread form dimensions vary from ISO metric threads.

2.1 Point Taper

POWERLOK® point tapered threads may be sharp crested or underfilled at the discretion of the manufacturer. KLEERLOK® tapered lead threads as per shown in Fig. 1.

2.2 Method of Measurement

The method of measuring the dimensions is at the discretion of the manufacturer but for referee purposes a direct measurement system shall be used. Tri-Roll gauges are necessary for the direct measurement of pitch diameter.

2.3 Minor Diameter

Minor diameter must not interfere with 6H nut minor diameter.

3. MATERIALS

Screws shall be made from cold heading quality fully killed, fine grain, spherodized annealed steel wire. Material shall meet the chemical composition limits for PC10.9 per ISO 898 Part 1.

4. MECHANICAL PROPERTIES

4.1 BREAKING FORCE

NOTE: POWERLOK® and KLEERLOK® screws have reduced tensile breaking loads as compared to ISO 898/1 due to reduced cross sectional areas. See table 2 below.

When tensile tested under wedge loading in line with ISO 898/1, the performance requirements identified in Table 2 must be met.

Table 2.

Size	kN min.
(M)6 x 1.00	19
(M)8 x 1.25	34
(M)10 x 1.50	55
(M)12 x 1.75	80