

Technical Report on SR22, Supplementary Requirements for Enhanced Leak Resistance LTC

API REPORT 5TRSR22
FIRST EDITION, JUNE 2002



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Upstream Segment

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Suggested revisions are invited and should be submitted to the standardization manager, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005.

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Technical Report on SR22, Supplementary Requirements for Enhanced Leak Resistance LTC

1 Scope

This document covers the supplemental requirements for Enhanced Leak Resistance LTC (SC22) connections and the changes in [API Spec 5CT](#), API Std 5B, [API 5B1](#) and [API RP 5C1](#) needed to produce and inspect these connections. By agreement between the purchaser and manufacturer, the supplemental requirements for SR22 shall apply to connections manufactured in accordance with [API Spec 5CT](#) and may be marked with the API monogram.

Revisions Required in [API Spec 5CT](#) to Include the Supplementary Requirements for SR22, Enhanced Leak Resistance LTC Connections

Add the following as the last line in 5.1.3.

Enhanced Leak Resistance LTC connections

SR22 of Annex A

Add the following new line to 8.12.2, end of finish list.

Enhanced Leak Resistance LTC connections

Add the following below final line in Table C.67 and Table E.67, Row 10.

SR22	S22	P	D	P	D
------	-----	---	---	---	---

Add the following Supplementary Requirement to Annex A

By agreement between the purchaser and manufacturer, the supplemental requirements for Enhanced Leak Resistance LTC in SR22 shall apply. It should be noted that the SR22 product is fully interchangeable with standard API 5B LTC connections. However, the SR22 design criteria concerning leak resistance shall not apply for such mixed product. The application of API connections or pipe in elevated temperature or sour service conditions is beyond the scope of this document.

CAUTION: Liquid metal embrittlement may result when thread compound containing lead is used with tin plated couplings at elevated temperatures for some material. Use of standard API thread compound in applications involving temperatures in excess of 275°F is cautioned.

SR22 Enhanced Leak Resistance LTC

SR22.1 Casing and couplings shall be furnished with Enhanced Leak Resistance LTC connections in accordance with the requirements specified in Std 5B Appendix E SR22 for dimensions, inspection and coupling thread coatings. In addition, the casing shall comply with all of the requirements specified herein.

SR22.2 MARKING

SR22.2.a Die stamp marking the end of the pipe. A 1/4-in. high equilateral triangle die stamp shall be placed at a distance of L_9 from each end of each pipe using methods 3, 4, or 5 of 11.2.1. See Figure SR22-1.

SR22.2.b Paint marking the end of the pipe. High visibility green paint marks shall be applied on the field end of each pipe. See Figure SR22-1 and Std 5B Appendix E Table E1.

SR22.2.c Die stamp marking the couplings. All couplings shall be marked “S22” using methods 3 or 5 of 11.2.1.

SR22.2.d Color banding the couplings. Couplings shall be painted the colors indicative of the steel grade from which the couplings are manufactured, and shall also be painted with a high visibility green band around the outside surface near one end of the coupling.

SR22.3 OPTIONAL TAPERED BORE ALONG THE INSIDE DIAMETER REQUIREMENTS FOR CASING WITH SPECIAL DRIFT REQUIREMENTS

SR22.3.1 For casing ordered with a larger than standard diameter drift mandrel, see 7.9, the manufacturer may drift or bore along the inside diameter of the ends of the pipe. This option requires each end either to be drifted with a special end drift in accordance with SR22.3.1.a, or be finished with an tapered bore along the inside diameter in accordance with SR22.3.1.b prior to coupling makeup.

SR22.3.1.a If the pipe ends are drifted, a special end drift with a minimum diameter in accordance with “special end drift diameter” column of Option 1 in Figure SR22-2 shall be used. The drift shall be inserted a distance equal to or greater than L_9 . Pipe ends that are too small to accept the special end drift should be bored along the inside diameter in accordance with SR22.3.1.b.

SR22.3.1.b If bored, both ends of the pipe shall be bored along the inside diameter with a taper between 2° to 15°. d_0 , the maximum diameter of the machined surface at the end of the pipe, and the angle of the tapered bore shall be in accordance with Option 2 in Figure SR22-2. The tapered bore machined surface need not run continuously around the inside circumference. The bore is to run smoothly to the pipe inside diameter. If bored, the inside diameter of every pin end shall meet the requirements of Option 2 “ d_0 ”.

SR22.4 COUPLING MAKEUP

SR22.4.1 [API RP 5A3](#) thread compound shall be applied in one of the three following methods: 1) to the pin thread only, 2) to the coupling thread only, or 3) to the pin in approximately a one in. band at the large end of the thread and to the entire coupling thread (see [API RP 5C1](#), SR22 Figures SR22-1 and SR22-2). In all cases, the full thread form outline shall be clearly discernable after applying thread compound evenly over the surface.

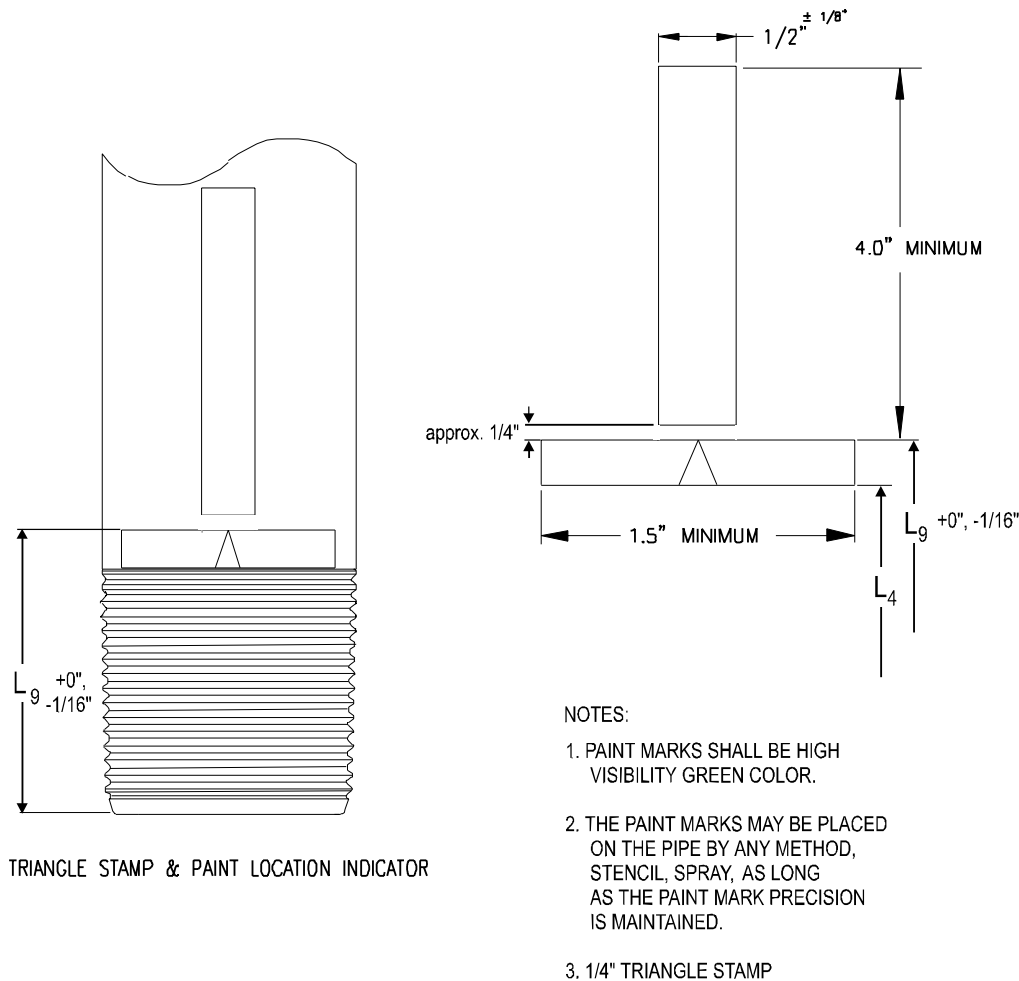


Figure SR22-1—Field End Paint Mark and Triangle Stamp (Stamp on Mill and Field End)

Note: It should be recognized by the user that compliance with [API RP 5A3](#) does not in and of itself ensure adequate thread compound system performance in field service. The user has the responsibility of evaluating the results obtained from the recommended procedures and test protocols and determining if the thread compound system in question meets the anticipated requirements of that particular field service application.

SR22.4.2 The SR22 specification requires makeup based on power turns and position, not torque. Torque is not a basis for acceptance or rejection, but is an indicator of process control. Makeup shall be rejected when the coupling does not make the position criteria with minimum power-turns.

SR22.4.3 Power make-up speed shall not exceed 10 RPM

SR22.4.4 Makeup Acceptance Criteria

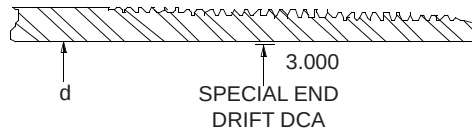
Options are allowed for SR22 connection makeup. Makeup shall be rejected when the coupling does not make the position criteria with minimum power-turns. Any connec-

tion in which the face of the coupling advances beyond the apex of the triangle shall be rejected. Control of the coupling makeup shall be by one of the following methods:

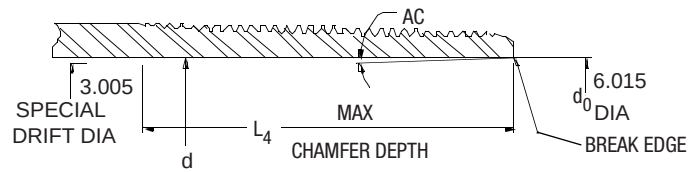
SR22.4.4.a By Power Turns. The number of power turns shall equal or exceed the minimum number of power turns specified in Table SR22-1. Counting power turns should start at a reference start torque specified in Table SR22-1. Ensure proper alignment in makeup equipment and identify and minimize abnormal sources of torque oscillation.

SR22.4.4.b By Position. Makeup the face of the coupling within the triangle mark. Verify that the number of power turns is equal to or exceeds the number of power turns specified in Table SR22-1 during operations.

SR22.4.5 If a connection is broken-out, subsequent makeup shall be per SR22.4.4.1.

OPTION 1

SIZE / WT.	SPECIAL END DRIFT DCA	NOM I.D. d
7" – 23.00	6.326	6.366
7" – 32.00	6.070	6.094
8-5/8" – 32.00	7.951	7.921
8-5/8" – 40.00	7.701	7.725
9-5/8" – 40.00	8.826	8.835
9-5/8" – 47.00	8.701	8.681
9-5/8" – 53.00	8.576	8.535

OPTION 2

SIZE / WT.	SPECIAL END DRIFT DCA	INSIDE DIA. d	CHAMFER DEPTH L ₄	CHAMFER DIA. d ₀	CHAMFER ANGLE AC
7" – 23.00	6.250	6.366	4.000	6.400	2–15°
7" – 32.00	6.000	6.094	4.000	6.200	2–15°
8-5/8" – 32.00	7.875	7.921	4.500	8.050	2–15°
8-5/8" – 40.00	7.625	7.725	4.500	7.800	2–15°
9-5/8" – 40.00	8.750	8.835	4.750	8.95	2–15°
9-5/8" – 47.00	8.625	8.681	4.750	8.800	2–15°
9-5/8" – 53.00	8.500	8.535	4.750	8.700	2–15°

Figure SR22-2: Optional Tapered Bore along the Inside Diameter Specifications