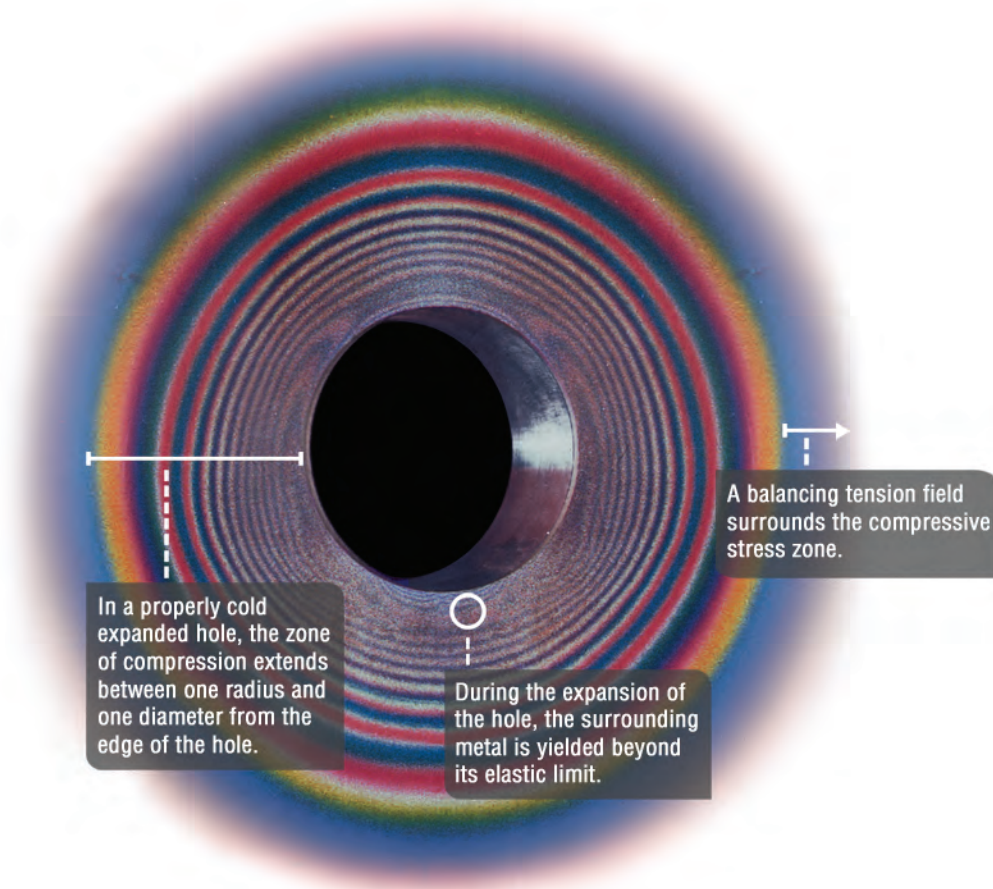


Split Sleeve Cold Expansion™

FATIGUE LIFE ENHANCEMENT OF HOLES IN METAL STRUCTURES



Zone of compression viewed through a special photoelastic coating

1. Select the correct tooling set for materials and hole size as defined in instructions. The components of each tooling system are all coded with the same Standard Tool Diameter Number (STDN) as follows for each application:

- CB for aluminum and mild steels.
- CA for titanium and high-strength steel.
- CR for rework in aluminum and mild steels.
- KB2 for aluminum using the Cold Expansion to Size System.
- KB for aluminum using the Countersink Cold Expansion System (mandrels, nosecaps, and backup blocks).
- A special nosecap and mandrel are required for pre-countersunk holes.
- CBL/CB3 for low applied expansion systems for strain sensitive alloys.

2. Always observe these process quality steps:

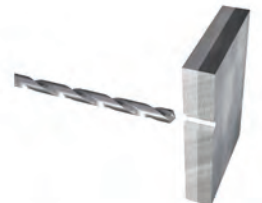
- Use the combination gauge to verify hole size before and after cold working.
 - Use the stepped blade end of the gauge to check starting holes
 - Use the pin "go/no-go" end of the gauge to verify that the hole has been properly cold expanded
- Use the mandrel check fixture to ensure that the major diameter of the mandrel is not worn beyond acceptable limits. A worn mandrel will result in insufficient cold expansion and life enhancement.

3. The split sleeve is lubricated to reduce pull force, protect the hole from damage, and ensure the hole is radially expanded.

- The split sleeves distort during cold working and should not be reused.

STEPS FOR PROPER COLD EXPANSION:

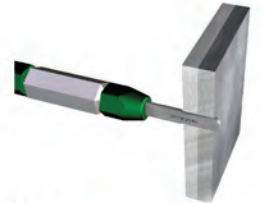
- 1) If necessary, drill the starting hole to size it for the starting reamer



- 2) Ream to correct starting hole size



- 3) Verify the starting hole dimensions with the stepped blade on the combination gauge



- 4) Check the expansion portion of mandrel is within tolerance



- 5) Slide a split sleeve onto the mandrel



- 6) Insert the mandrel and sleeve into the hole

instructions may require specific orientation of sleeve split



- 7) Activate the puller unit to retract the mandrel and expand the hole



- 8) Retract the mandrel fully through the sleeve and into the nosecap

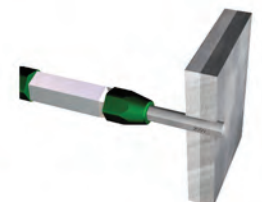
release trigger to return mandrel



- 9) Remove the split sleeve from the cold expanded hole and discard



- 10) Verify the expanded hole size with the pin end on the combination gauge



- 11) If necessary, size hole for required fastener



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