

CRAFTSMAN'S CRIBSHEET

NUMBER
11

Miles Free – Director of Technology and Research

Technical

Regulatory

Quality

Management

DRILLING PROBLEM CHECKLIST

Problems with drills and hole-making are getting even more frequent as more jobs are being run in non-free-machining steels. Here is a drilling checklist to aid in your problem solving:

Checklist #1: What's The Problem?

- Drill breaking
- Drill life
- Hole has rough finish
- Hole is tapered
- Hole is not round
- Mouth of hole is bell shaped
- Hole attributes are inconsistent between holes

Until you can correctly name the problem, you have virtually no chance of solving it. Once you have identified the problem, here are some best practice questions to consider before calling for an assist:

Checklist #2: What's Your Drilling Practice?

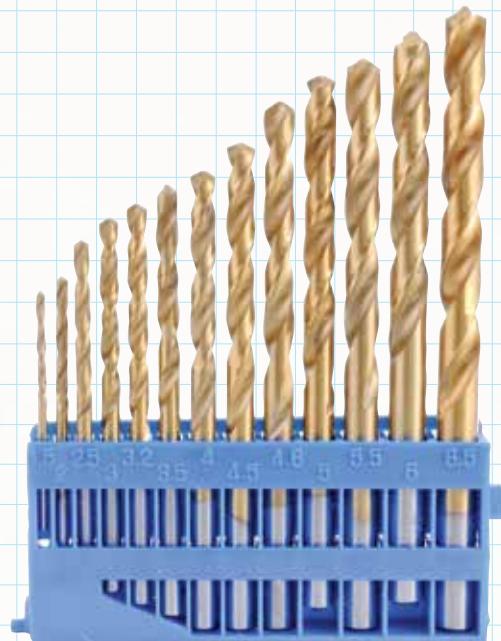
- What is drill material?
- What is drill coating?
- Is it an oil hole drill?
- Is there visible wear on the drill? Where? Lips? Margin? Corners?
- Is there visible material build-up on the drill?
- Is failure random, or after a certain number of holes have been made?
- Is the drill alignment correct? How do you know? (If on a multispindle machine, do the problems correlate to a particular spindle or tool position?)
- What do the chips look like coming out of the drill? Are they consistently like that or do they vary?

One Craftsman's Cribsheet is insufficient to fully discuss how to cure drill failures and hole-making problems, but it does give us a chance to help you better organize and describe the situation so that you can work on the correct problem.

Advice:

1. Oil starvation can be a primary cause of many drilling issues, including drill breakage due to chip packing. Assure that oil is in the hole and on the drill and not just in the neighborhood.
2. Matching the drill quality to the material and level of difficulty is time well spent. Having the right angle, coating and other parameters to match the material will end up costing less per hole successfully made than just buying a lot of inexpensive drills and losing production time changing them and rejecting or reworking parts.

When you call for help, having the answers to the above checklists will help your supplier's technical people focus on the relevant issues and expedite your problem solving.



All Craftsman's Cribsheets are available for viewing and download at pmpa.org/knowledge-tools/craftsmans-cribsheets