High-Speed Peck Drilling

In general, peck drilling is not recommended for inserted (indexable) drills. However, it may be the best option in applications where high-pressure through-tool coolant (TSC) is not available, or when drilling challenging materials.

Drilling in softer, gummier materials like aluminum, mild steels, and 300-series stainless steels can pose some challenges. It is more difficult and sometimes impossible to break the chip when drilling these gummy materials, especially when the drilling depth exceeds two-times the drill diameter. If the chips do not break into small pieces, they begin to clog the flutes. This will cause the material to scrape the walls of the drilled hole, and set up a strong vibration during drilling.

Increasing the feed per revolution may help break the chips, but if it does not, the thicker, stronger chips can make the vibration worse.

The solution is to use a Peck Drilling Cycle (G83) on your Haas control. https://www.haascnc.com/service/codes-settings.type=gcode.machine=mill.value=G83.html

Or use High-Speed Peck Drilling (G73).
https://www.haascnc.com/service/codes-settings.type=gcode.machine=mill.value=G73.html

G73 is the High-Speed Peck Drilling Canned Cycle. It works just like G83, the Normal Peck Drilling Canned Cycle, except that after each peck, the drill will only retract the amount of Setting 22 (Default value = 0.02" or 0.5 mm), instead of completely exiting the hole, as happens with G83. This small retract move may be just enough to break the chips. When programmed with I, J, and K letter addresses, as the drill goes deeper, the cut depths are reduced, because it is more difficult to get the chips out of the deeper hole. *Note: High-Speed Peck Drilling should only be used when drilling with through-tool coolant.*

If I, J, and K are specified, the first pass will cut in by the amount of I, each succeeding cut will be reduced by the amount of J, and the minimum cutting depth will be K. Do not use a Q value when programming with I, J, and K.

If you experience problems with drill diameters larger than 0.5" (12 mm), we recommend starting with these changes:

Aluminum and Soft Steel
Set Setting 22 to a value of 0.04" (1 mm)
Address I = 2 times the drill diameter
Address J = 0.3 times the drill diameter
Address K = 0.13 times the drill diameter

300-Series Stainless Steel
Set Setting 22 to a value of 0.04" (1 mm)
Address I = drill diameter
Address J = 0.3 times the drill diameter
Address K = 0.13 times the drill diameter