

Swarf control

The following recommendations have also proved advantageous:

- Monitor swarf control
- If not yet at maximum feed rate potential, an increase in feed rate can lead to better chip breaking.
- If none of these changes are successful it may be necessary to insert a pecking cycle.

For many materials in the stainless steel area, but also others, it may not always be possible to achieve acceptable chip breaking simply by adjusting „vc“ and „f“. In such cases a pecking cycle will be needed. This should only be a small peck cycle of approx 0.1 mm.

A pecking cycle where the tool is removed out of the hole is not recommended.

As a rule take increments of approx 10% of the drill diameter (e.g. 20 mm diameter = 2 mm peck depth)

Recommendations for the Extra long and Extreme long SHARK-Drill®

In order to obtain a problem free machining with the Extra long and Extreme long drills, the following has proven successful:

- Pilot drilling (approx. $1 \times D - 2 \times D$) with same diameter. The drill point should be same or larger than SHARK-Drill® insert.
Other start options:
 - Centering with 132 degree drill point (up to 65 mm) - Careful penetration (approx 50% of recommended feed rate) until full diameter is achieved.
 - Centering with 144 degree drill point (from 65 – 114 mm) - Careful penetration (approx 50% of recommended feed rate) until full diameter is achieved.
- Swarf control and cutting data optimizing should be performed before full depth drilling, we suggest using the pilot drill. The target is short and easily evacuated swarf.
- Check the coolant pressure and flow rate.

The coolant pressure (see page 73) can be adjusted using the following formula:

SHARK-Drill® - Extra long x 2,0
 - Extreme long x 3,0

- The cutting data should also be modified depending on drill depth:

	Extra long	Extreme long
V_c [m/min]	0,80	0,75
f [mm/U]	0,80	0,80

- With the long drill stationary or penetration with 10 – 20 rev./min.
- Increase cutting data to previously established data and finish drilling, making sure that the swarf remains short and leaving the hole problem free. Otherwise a peck cycle may be required.
- When reaching the depth required Stop the spindle or reduce to 10 – 20 rev./min and feed out the drill.
- Note that the extra long and extreme long drills does deflect.

Swarf Control

The following recommendations have also proved advantageous.

Up to drill depth of $1 - 2 \times D$ monitor swarf. If the swarf is too long, cutting data should be modified. If not yet at maximum feed rate potential, an increase in feed rate can lead to better chip breaking. If none of these changes are successful it may be necessary to insert a pecking cycle.

For many materials in the stainless steel area, but also others, it may not always be possible to achieve acceptable chip breaking simply by adjusting vc and f. In such cases a pecking cycle will be needed. This should only be a small peck cycle of approx 0.1 mm.

A pecking cycle where the tool is removed out of the hole is not recommended.

As a rule take increments of approx 10% of the drill diameter (e.g. 20 mm diameter = 2 mm peck depth)