

Trouble Shooting And Remedies

Le Dépannage Et Des Solutions
Dépannage Solución De Problemas Y Remedios

Technical Data

Données Techniques

Datos Técnicos

Problems

1. Oversize Hole
2. Buckling of the Drill
3. Drill Chattering
4. Drill breaking
5. Drill breaking in deep hole drilling.
6. Drill Rubbing at relief
7. Excessive Heat generation while drilling

Reasons

1. Unequal Lip Angles
 2. Unequal Lip Lengths
- Drill deflects Axially
1. Hard, Tough work piece
 2. Torsional deflection of the Drill
1. Fixture not rigid
 2. Web thickness more
 3. Speed & Feed not proper
1. Chips blocking in flutes
 2. Back taper no uniform
 3. Drill finished on CD
1. No proper relief on point
 2. No uniform back taper
1. Coolant insufficient
 2. Proper coolant not used
 3. Work piece is hard

Remedies

- Regrind the Drill point to correct lip angle with proper relief, maintaining lip lengths equal
- Use correct guide bush
- Increase Torsional stiffness by replacing thicker web drill. Reduce drill length and shorten flute length
1. Use rigid fixture.
 2. Web thinning to be implemented.
 3. Use proper speeds & Feeds according to work material.
1. Use wood pecking system
 2. Before using check uniform back taper and concentricity.
1. Regrind point with proper point geometry
 2. Check uniform back taper, at no point negative back taper should occur on drill dia
1. Use proer coolant flow
 2. Use proper coolant
 3. Select drill with correct geometry for the material

Useful Tips for Drilling

*Des Renseignements Utiles Pour Le Perçage.
Algunos Consejos Útiles Para Taladrar*

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- Use the shortest drill possible for the specific application Longer drills are :
 1. More costly
 2. Break easier and
 3. Drill bellmouthed holes.
- Avoid the tendency to over speed and under feed. Excessive speed causes
 1. Premature outer corner drill wear
 2. Material work hardening
 3. Long, stringy chips
 4. Reduced drill life and
 5. Increased cost per hole.
- Optimising feed rate:
 1. Helps break up chips
 2. Reduces premature outer corner drill wear
 3. Reduces material work hardening
 4. Extends drill life and
 5. Reduces cost per hole.
- Use split point drills for drilling alloy materials; benefits include:
 1. Start at the point of contact (self-centering)
 2. Drill with less torque and thrust and
 3. Break up chips.
- A hole of three drill diameters or deeper should be considered a deep hole. Therefore, you should peck drill just enough to prevent chips from packing in the flutes, because chip clogging is the major cause of drill breakage.
- When drilling harder materials (i.e. above HRC 35) :
 1. Reduce speeds and feeds to prevent points from burning and drilling breakage.
 2. Use cobalt drills as their higher hardness and heavy-duty construction are designed for drilling harder-materials.

- Use steam tempered. The black oxide surface laser holds the coolants and lubricates to the surface of the drill retarding material build-up.This treatment also improves toughness.
- You should decrease speeds and feeds as follows:

Speed and feed Reduction
(Based upon hole depth)

Holes Depth To Diameter Ratio (times drill diameter)	Speed Reduction	Feed Reduction
3	10%	10%
4	20%	10%
5	30%	20%
6	35-40%	20%

- Use coolant whenever possible , this will keep the drill cooler. Chip welding and breakage are also reduced. Coolant helps the drill to last and will give the drill a better chance of operating without failing.
- Chips should be short and broken up.
- Keep drills sharp! Sharp drills perform better and last longer. Sharp drills also increase productivity and have a reduced tendency to break.
- Chuck drill on shank area only, not in the flute area

Web Thinning

L'amincissement De Corps / Âme (Web)
Adelgazamiento De La Red



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Effects		Application	
Les Effets	Efectos	L'Usage	Aplicación
<p>Type S 0.6W</p> <p>W: Web Thickness</p>	<ul style="list-style-type: none"> • For general purpose • Easy thinning process • Le but général • Le processus d'amincissement facile • Para propósito general • Proceso de adelgazamiento fácil 	<ul style="list-style-type: none"> • General material • La matière générale • Material General 	
<p>Type N</p> <p>10°</p> <p>W: Web Thickness</p>	<ul style="list-style-type: none"> • Maintains strength of the point • Excellent cooling effect • Good chip discharge • Maintient la fermeté/ la solidité du point • L'effet excellent de refroidissement • Un bon vidage des éclats/ copeaux • Mantiene la fuerza del punto • Excelente efecto de enfriamiento • Buena descarga de astilla 	<ul style="list-style-type: none"> • Same as type S • For deep-hole drilling • Pareil à type S. • Pour percer un trou profond • Mismo que el tipo S • Para taladro de agujero profundo 	
<p>Type H 0.05-0.35</p> <p>W: Web Thickness</p>	<ul style="list-style-type: none"> • Large decrease in thrust • Minimized skidding or walking of the drill point when starting a hole • When specially designed heavy web drill • Importante réduction de poussée • Un dérapage et un battage minimisés de la pointe de foret au point de percer un trou • Au moment du perçage/ forage fort du corps/ âme spécialement affecté heavy web drill • Mayor disminución en el empuje. • Deslizamiento o caminado del punto del taladro al iniciar un agujero • Cuando es especialmente diseñada taladro de red pesada 	<ul style="list-style-type: none"> • For deep-hole drilling • Automotive crankshaft • Materials of poor machinability such as stainless steel and heat resistant alloys. (not heavy cutting) • Pour forage de trou profond • Unarbre-manivelle automoteur • Les matière qui ne supporte pas le travail mécanique comme de l'acier inoxydable et des alliages thermoguidés • Para el taladrado de agujeros profundos • Cigüeñal automotriz • Materiales de manejobte máquina pobre como el acero inoxidable y aleaciones resistentes al calor (ningún corte pesado) 	
<p>Type R 0.6W</p> <p>W: Web Thickness</p>	<ul style="list-style-type: none"> • Decreases thrust and prevents chipping of cutting edges. • Diminue/ ralentit de la poussée et évite la fragmentation des tranchants des outils. • Disminuye el empuje y previene el cascado de los bordes de corte 	<ul style="list-style-type: none"> • For heavy cutting • Used mainly for rails and manganese steel • Pour coupage fort. • L'emploi principal pour des barreaux et de l'acier manganèse. • Para corte pesado • Utilizado principalmente para rieles y acero de manganeso 	