### Confirmation of Cutting Edge

**Fig.1**

- Check the worn and/or damaged condition of the cutting edge.
- In case of extensive chipping on the cutting edge, eliminate the segment with a GC-wheel.

**<Secondary Relief Grinding>**

- In case of much elimination or several times of regrinding, eliminate back metal as the secondary relief (oblique portion of **Fig.1**) with a WA-wheel.

### Primary Relief Grinding

**Fig.2**

- Use a collet chuck when installing a drill. Recommend to use the coolant, because a drill is easy to heat and cracks occurs.
- The main cutting edge should be parallel from the drill's point view as shown in **Fig.2**.
- Set the rest on the rake face to adjust the drill position.

**Fig.3**

- The point angle should be 15° with the swivel angle designated to 15° as shown in **Fig.3**.

**Fig.4**

- Incline the angle of the drill to 10° (**Fig.4**). The angle will be the primary relief angle of the cutting edge.
- After the completion of a single cutting edge, index the drill until another side of the rake face contacts the rest. Then regrind another cutting edge. The grinding depth is 0.02-0.03mm per pass.
<Spark Out>
- Last, finish both cutting edges with the grind depth at 0.01mm. Repeat the procedure 2-3 times, including a spark out with a slow traverse for finishing.

<Remark>
- Grind until the worn and chipped segment of the cutting edge is eliminated.
- Pay extra attention to the wear on the major portion.

### Secondary Relief Grinding

**Fig.5**
- After the completion of the primary relief, grind the secondary relief by the hands (oblique portion of Fig.1).
- Eliminate the back metal with a WA-wheel so that the secondary relief angle gets larger than the primary relief one, 10° (Fig.5).
- The wheel shouldn't contact the insert, if possible.
- Eliminate burrs with a file.

### Slit

**Fig.6**
- After the completion of the secondary relief, cut the slit with a hand saw.
- The slit depth is approximately 0.1D (Fig.6).

### Honing

**Fig.7**
- Last, execute the honing.
- The honing should be done homogeneously on entire cutting edge as Fig.7.
• The honing angle is 30° as shown in Fig.8.
• The honing width is according to the work material. In case of cutting general steel, the honing width is 0.15-0.20mm. On honing width, refer to the operating instruction.
• Chamfer on the drill corner as Fig.7.
• The honing face is finished with a hand lapper.

The regrinding process is completed. Confirm the following criteria before using.
• Within 0.03mm the lip height difference.
• Complete grinding of damage segments of the cutting edge.
• Optimal honing.
• Grinding burr is eliminated.

### Primary Relief Grinding

<table>
<thead>
<tr>
<th>Diamond wheel</th>
<th>If necessary, grind roughly before finish grinding.</th>
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<tr>
<td>Grit No.</td>
<td>Rough grinding : No.200</td>
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<td>Finish grinding : No.400</td>
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### Honing

<table>
<thead>
<tr>
<th>Diamond file</th>
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<td>Grit No.</td>
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<td>Hand lapper : No.1500</td>
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