

| Drill dia. | Shank dia. | Overall length | Drill length |
|------------|------------|----------------|--------------|
| Dc         | Ds         | L              | ℓ            |

JIS

① Spiral Fluted Taps (for blind hole)

② Spiral Fluted Taps (for through hole)

③ Spiral Pointed Taps (for through hole)

④ Hand Taps

⑤ Cemented Carbide Taps

⑥ Roll Taps

⑦ Special Thread Taps Simple Inspection Tools

⑧ Pipe Taps

⑨ Thread Mills

Dies

⑩

⑪ Center Drills Centering Tools

JIS

⑪-35



## MHCDS

Center Drills for Carbon Steels of Medium Hardness for Running at High Speed



### Specification



For icon explanation, refer to icon-1

### Product features

- In order to improve positioning accuracy of projection and shank tolerance, MHCDS has the cutting edge only on one end.
- Considering clearance between center point and bottom of center hole, cutting edge length (ℓ) is made as short as possible to increase toughness.
- To increase centrality, drill point has 3 rakes and X thinning design, which enables high speed cutting and feeding.
- Increased centrality leads to great improvement of surface finish and circularity of center-drilled hole.

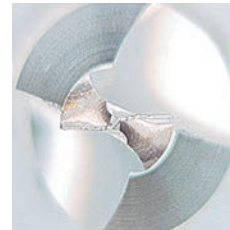
### Cutting data

#### Great extension of tool life with MHCDS

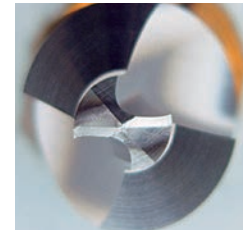
Right pictures show difference of the damage on cutting edge between CD-S and MHCDS after 480 hole cuttings under same cutting condition (stated in right) MHCDS has smaller wear and edge damage. This tells we can continue to use MHCDS further.

#### Cutting condition [ 3×60°×8 ]

|               |                                   |
|---------------|-----------------------------------|
| Work material | S55C                              |
| Cutting speed | 30m/min (1,200min <sup>-1</sup> ) |
| Feed          | 0.15mm/rev                        |
| Machine       | NC lathe                          |
| Cutting fluid | Water soluble oil                 |



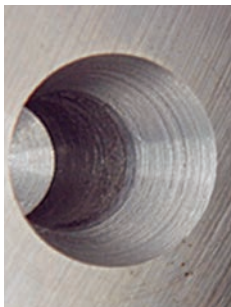
CD-S



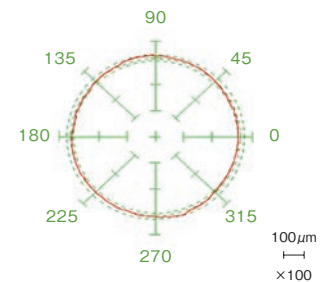
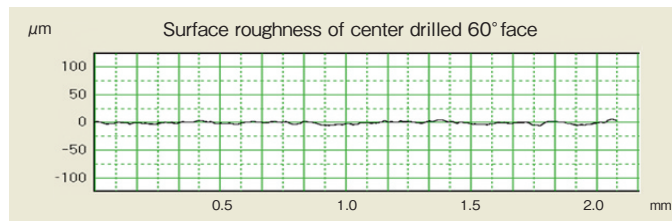
MHCDS

#### Great improvement in surface roughness and circularity with MHCDS

Under the cutting condition stated above, the surface finish of center-drilled hole has greatly been improved. Circularity of center drilled hole as well as run-out tolerance of turning axis has been improved.



Enlarged picture



Circularity of center drilled 60° face

### Recommended cutting condition

● Material : Carbon Steels(S55C) Alloy Steels(SCM440)

| Designation Dc×θ×Ds | Feed f (mm/rev) | RPM n (min <sup>-1</sup> ) |
|---------------------|-----------------|----------------------------|
| 1×60°×4             | 0.1             | 3,800                      |
| 1.5×60°×5           |                 | 2,400                      |
| 2×60°×6             |                 | 1,900                      |
| 2.5×60°×8           | 0.15            | 1,500                      |
| 3×60°×8             |                 | 1,200                      |
| 4×60°×10            | 0.2             | 1,000                      |
| 5×60°×12            |                 | 800                        |
| 6×60°×16            |                 | 600                        |



For improvement, spec may change without advance notice.