

JIS • ANSI • DIN

# LINE UP

## 11 CENTER DRILLS / CENTERING TOOLS



|                 | JIS   | ANSI | DIN |
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|             | JIS   | ANSI | DIN |
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# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-1

JIS

## CESA

High Helix Center Drills-JIS Type A 60°



Specification

HSS

■ High helix center drills - JIS Type A suitable for soft or relatively tough materials.

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
15~30  
(m/min)

Medium carbon steels  
中炭素鋼  
15~30  
(m/min)

Stainless steels  
ステンレス鋼  
5~10  
(m/min)

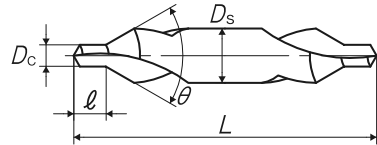
Brass  
黄銅  
25~50  
(m/min)

Brass castings  
黄銅鑄物  
25~50  
(m/min)

Wrought aluminum  
アルミ圧延材  
20~40  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
20~40  
(m/min)

TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|---------|------------|------------|-----------|-----------|------------|------|----------|
| 0.5 × 60° × 3.15    | CEA0.5  | 0.5        | 3.15       | 31.5      | 0.8       | 1.06       | 1    | ¥ 2,860  |
| 0.63 × 60° × 3.15   | CEA0.63 | 0.63       | 3.15       | 31.5      | 1         | 1.32       | 1    | ¥ 2,570  |
| 0.8 × 60° × 3.15    | CEA0.8  | 0.8        | 3.15       | 31.5      | 1.2       | 1.7        | 1    | ¥ 1,970  |
| 1 × 60° × 3.15      | CEA1.0  | 1          | 3.15       | 31.5      | 1.5       | 2.12       | 1    | ¥ 1,750  |
| 1.25 × 60° × 3.15   | CEA1.25 | 1.25       | 3.15       | 31.5      | 1.9       | 2.65       | 1    | ¥ 1,610  |
| 1.6 × 60° × 4       | CEA1.6  | 1.6        | 4          | 35.5      | 2.4       | 3.35       | 1    | ¥ 1,550  |
| 2 × 60° × 5         | CEA2.0  | 2          | 5          | 40        | 3         | 4.25       | 1    | ¥ 1,290  |
| 2.5 × 60° × 6.3     | CEA2.5  | 2.5        | 6.3        | 45        | 3.8       | 5.3        | 1    | ¥ 1,400  |
| 3.15 × 60° × 8      | CEA3.15 | 3.15       | 8          | 50        | 4.8       | 6.7        | 1    | ¥ 1,870  |
| 4 × 60° × 10        | CEA4.0  | 4          | 10         | 56        | 6         | 8.5        | 1    | ¥ 3,410  |
| 5 × 60° × 12.5      | CEA5.0  | 5          | 12.5       | 63        | 7.5       | 10.6       | 1    | ¥ 4,570  |
| 6.3 × 60° × 16      | CEA6.3  | 6.3        | 16         | 71        | 9.2       | 13.2       | 1    | ¥ 8,810  |
| 8 × 60° × 20        | CEA8.0  | 8          | 20         | 80        | 11.5      | 17         | 1    | ¥ 18,000 |
| 10 × 60° × 25       | CEA10   | 10         | 25         | 100       | 14.2      | 21.2       | 1    | ¥ 31,400 |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

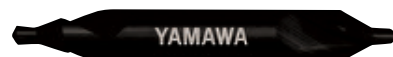
| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

11

JIS

## CE-S

### High Helix Center Drills-Type A 60°



#### Specification

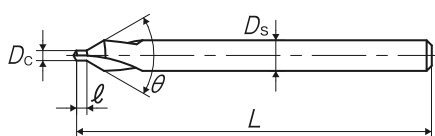
**HSS**

■ High helix center drills - Type A suitable for soft or relatively tough materials.

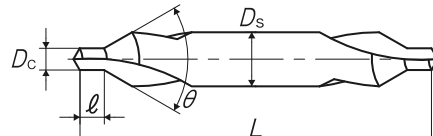
#### Cutting Speed depending on Materials

|                           |                              |                            |                  |                        |                            |                                    |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
| 15~30<br>(m/min)          | 15~30<br>(m/min)             | 5~10<br>(m/min)            | 25~50<br>(m/min) | 25~50<br>(m/min)       | 20~40<br>(m/min)           | 20~40<br>(m/min)                   |

#### TYPE: 1



#### TYPE: 2



Unit: Inch

Segment : 51

| Size<br>Dc × θ × Ds | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|----------|------------|------------|-----------|-----------|------------|------|------------|
| 0.3 × 60° × 3       | CE0.3    | 0.3        | 3          | 35        | 0.3       | 1          | 1    | ¥ 2,510 *  |
| 0.4 × 60° × 3       | CE0.4    | 0.4        | 3          | 35        | 0.4       | 1          | 1    | ¥ 2,290 *  |
| 0.5 × 60° × 3.5     | CE0.5    | 0.5        | 3.5        | 35        | 0.5       | 1.5        | 2    | ¥ 3,320    |
| 0.6 × 60° × 3.5     | CE0.6    | 0.6        | 3.5        | 35        | 0.6       | 1.5        | 2    | ¥ 3,010    |
| 0.7 × 60° × 3.5     | CE0.7    | 0.7        | 3.5        | 35        | 0.7       | 2          | 2    | ¥ 2,670    |
| 0.8 × 60° × 3.5     | CE0.8    | 0.8        | 3.5        | 35        | 0.8       | 2          | 2    | ¥ 2,280    |
| 0.9 × 60° × 4       | CE0.9    | 0.9        | 4          | 35        | 0.9       | 2.5        | 2    | ¥ 2,140    |
| 1 × 60° × 4         | CE1.0    | 1          | 4          | 35        | 1         | 2.5        | 2    | ¥ 1,870    |
| 1.2 × 60° × 5       | CE1.2    | 1.2        | 5          | 40        | 1.2       | 3          | 2    | ¥ 1,710    |
| 1.5 × 60° × 5       | CE1.5    | 1.5        | 5          | 40        | 1.5       | 4          | 2    | ¥ 1,470    |
| 2 × 60° × 6         | CE2.0    | 2          | 6          | 45        | 2         | 5          | 2    | ¥ 1,630    |
| 2.5 × 60° × 7.7     | CE2.5    | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 2    | ¥ 2,000    |
| 3 × 60° × 7.7       | CE3.0    | 3          | 7.7        | 55        | 3         | 6.5        | 2    | ¥ 2,000    |
| 3 × 60° × 8         | CE3.0-8  | 3          | 8          | 55        | 3         | 6.5        | 2    | ¥ 2,140    |
| 4 × 60° × 10        | CE4.0    | 4          | 10         | 65        | 4.5       | 8.5        | 2    | ¥ 3,980    |
| 5 × 60° × 11        | CE5.0    | 5          | 11         | 78        | 5.5       | 9          | 2    | ¥ 4,290    |
| 5 × 60° × 12        | CE5.0-12 | 5          | 12         | 78        | 5.5       | 10         | 2    | ¥ 5,320    |
| 6 × 60° × 16        | CE6.0-16 | 6          | 16         | 90        | 6.5       | 13.5       | 2    | ¥ 10,400   |
| 6 × 60° × 18        | CE6.0    | 6          | 18         | 90        | 6.5       | 15         | 2    | ¥ 14,600   |
| 8 × 60° × 18        | CE8.0    | 8          | 18         | 100       | 8.5       | 15         | 2    | ¥ 16,700   |
| 10 × 60° × 18       | CE010    | 10         | 18         | 100       | 11        | 15         | 2    | ¥ 16,700   |
| 12 × 60° × 25       | CE012    | 12         | 25         | 120       | 13        | 21         | 2    | ¥ 35,200   |
| 1/16 × 60° × 5      | CEU04    | 1/16       | 5          | 40        | 1.5       | 4          | 2    | ¥ 1,600 *  |
| 3/32 × 60° × 7.7    | CEU06    | 3/32       | 7.7        | 50        | 2.5       | 6          | 2    | ¥ 2,190 *  |
| 1/8 × 60° × 7.7     | CEU08    | 1/8        | 7.7        | 55        | 3         | 6.5        | 2    | ¥ 2,190 *  |
| 3/16 × 60° × 11     | CEU12    | 3/16       | 11         | 78        | 5.5       | 9          | 2    | ¥ 4,780 *  |
| 1/4 × 60° × 18      | CEU16    | 1/4        | 18         | 90        | 6.5       | 15         | 2    | ¥ 15,900 * |

\* Machining conditions are calculated based on the workpiece end-face hole size Dw.

\* For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

\* = Specified Distribution Items. Made to order products.

Think threads with  
**YAMAWA**

- 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 Premium Thread Mills
- ⑩ Dies
- ⑪ Center Drills Centering Tools
- ⑫ Precision Machinery/ Medical Surgical Instruments

JIS

11-2

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-3

S

## CE-S(I)

High Helix Center Drills-Type A 60°, (Old JIS Type 1)



### Specification

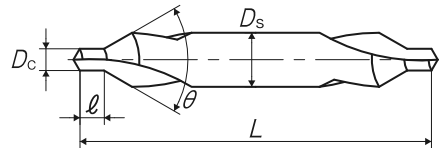
HSS

■ High helix center drills - old JIS Type A suitable for soft or relatively tough materials.

### Cutting Speed depending on Materials

|                           |                              |                            |                  |                        |                            |                                    |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
| 15~30<br>(m/min)          | 15~30<br>(m/min)             | 5~10<br>(m/min)            | 25~50<br>(m/min) | 25~50<br>(m/min)       | 20~40<br>(m/min)           | 20~40<br>(m/min)                   |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP    |
|----------------------------|--------|------------|------------|-----------|----------------|------------|------|---------|
| 2.5 × 60° × 8              | CE12.5 | 2.5        | 8          | 50        | 3.5            | 6.5        | 1    | ¥ 2,240 |
| 3 × 60° × 10               | CE13.0 | 3          | 10         | 55        | 4              | 8          | 1    | ¥ 3,520 |
| 4 × 60° × 12               | CE14.0 | 4          | 12         | 66        | 5              | 10         | 1    | ¥ 5,020 |
| 5 × 60° × 14               | CE15.0 | 5          | 14         | 78        | 6.5            | 12         | 1    | ¥ 7,550 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

11

JIS

## CD-S

Low Helix Center Drills-Type A 60°



### Specification

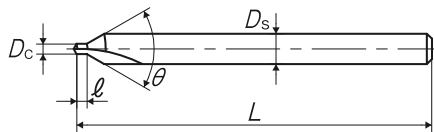
**HSS**

■ Low helix center drills - Type A suitable for relatively hard materials.

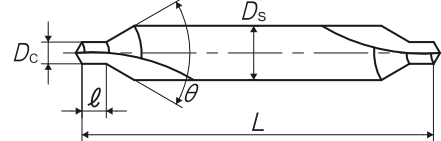
### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鋳鋼 | Cast irons<br>鋳鉄 | Ductile cast irons<br>強靱鋳鉄 |
|---------------------------|------------------------------|----------------------------|---------------------|-------------------|------------------|----------------------------|
| 15~30<br>(m/min)          | 15~30<br>(m/min)             | 15~30<br>(m/min)           | 10~25<br>(m/min)    | 15~30<br>(m/min)  | 10~15<br>(m/min) | 10~20<br>(m/min)           |

#### TYPE:1



#### TYPE:2



Unit: Inch

Segment : 51

| Size<br>Dc × θ × Ds | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP      |
|---------------------|----------|------------|------------|-----------|-----------|------------|------|-----------|
| 0.3 × 60° × 3       | CY0.3    | 0.3        | 3          | 35        | 0.3       | 1          | 1    | ¥ 2,510 * |
| 0.4 × 60° × 3       | CY0.4    | 0.4        | 3          | 35        | 0.4       | 1          | 1    | ¥ 2,290 * |
| 0.5 × 60° × 3.5     | CY0.5    | 0.5        | 3.5        | 35        | 0.5       | 1.5        | 2    | ¥ 3,320   |
| 0.6 × 60° × 3.5     | CY0.6    | 0.6        | 3.5        | 35        | 0.6       | 1.5        | 2    | ¥ 3,010   |
| 0.7 × 60° × 3.5     | CY0.7    | 0.7        | 3.5        | 35        | 0.7       | 2          | 2    | ¥ 2,670 * |
| 0.8 × 60° × 3.5     | CY0.8    | 0.8        | 3.5        | 35        | 0.8       | 2          | 2    | ¥ 2,280   |
| 0.9 × 60° × 4       | CY0.9    | 0.9        | 4          | 35        | 0.9       | 2.5        | 2    | ¥ 2,140 * |
| 1 × 60° × 4         | CY1.0    | 1          | 4          | 35        | 1         | 2.5        | 2    | ¥ 1,870   |
| 1.2 × 60° × 5       | CY1.2    | 1.2        | 5          | 40        | 1.2       | 3          | 2    | ¥ 1,710   |
| 1.5 × 60° × 5       | CY1.5    | 1.5        | 5          | 40        | 1.5       | 4          | 2    | ¥ 1,470   |
| 2 × 60° × 6         | CY2.0    | 2          | 6          | 45        | 2         | 5          | 2    | ¥ 1,630   |
| 2.5 × 60° × 7.7     | CY2.5    | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 2    | ¥ 2,000   |
| 3 × 60° × 7.7       | CY3.0    | 3          | 7.7        | 55        | 3         | 6.5        | 2    | ¥ 2,000   |
| 3 × 60° × 8         | CY3.0-8  | 3          | 8          | 55        | 3         | 6.5        | 2    | ¥ 2,140   |
| 4 × 60° × 10        | CY4.0    | 4          | 10         | 65        | 4.5       | 8.5        | 2    | ¥ 3,980   |
| 5 × 60° × 11        | CY5.0    | 5          | 11         | 78        | 5.5       | 9          | 2    | ¥ 4,290   |
| 6 × 60° × 16        | CY6.0-16 | 6          | 16         | 90        | 6.5       | 13.5       | 2    | ¥ 10,400  |
| 6 × 60° × 18        | CY6.0    | 6          | 18         | 90        | 6.5       | 15         | 2    | ¥ 14,600  |
| 1/8 × 60° × 7.7     | CYU08    | 1/8        | 7.7        | 55        | 3         | 6.5        | 2    | ¥ 2,190 * |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-4

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-5

S

## CD-S(I)

Low Helix Center Drills-Type A 60°, (Old JIS Type 1)



Specification

HSS

■ The CD-S(I) is an old JIS 1 low helix center hole drill suitable for relatively hard materials.

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
15 ~ 30  
(m/min)

Medium carbon steels  
中炭素鋼  
15 ~ 30  
(m/min)

High carbon steels  
高炭素鋼  
15 ~ 30  
(m/min)

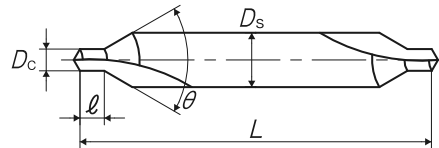
Alloy steels  
合金鋼  
10 ~ 25  
(m/min)

Cast steels  
鋳鋼  
15 ~ 30  
(m/min)

Cast irons  
鋳鉄  
10 ~ 15  
(m/min)

Ductile cast irons  
強靱鋳鉄  
10 ~ 20  
(m/min)

TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code  | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP    |
|---------------------|-------|------------|------------|-----------|-----------|------------|------|---------|
| 2.5 × 60° × 8       | C12.5 | 2.5        | 8          | 50        | 3.5       | 6.5        | 1    | ¥ 2,240 |
| 3 × 60° × 10        | C13.0 | 3          | 10         | 55        | 4         | 8          | 1    | ¥ 3,520 |
| 4 × 60° × 12        | C14.0 | 4          | 12         | 66        | 5         | 10         | 1    | ¥ 5,020 |
| 5 × 60° × 14        | C15.0 | 5          | 14         | 78        | 6.5       | 12         | 1    | ¥ 7,550 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

11

JIS

## CD-S LH

Low Helix Center Drills-Type A 60°, Left Hand Cut



### Specification

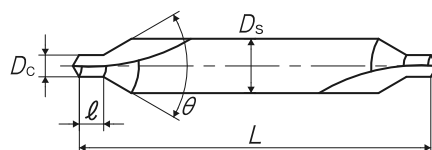


■ Low helix center drills - Type A suitable for relatively hard materials.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鋳鋼  | Cast irons<br>鋳鉄   | Ductile cast irons<br>強靱鋳鉄 |
|---------------------------|------------------------------|----------------------------|---------------------|--------------------|--------------------|----------------------------|
| 15 ~ 30<br>(m/min)        | 15 ~ 30<br>(m/min)           | 15 ~ 30<br>(m/min)         | 10 ~ 25<br>(m/min)  | 15 ~ 30<br>(m/min) | 10 ~ 15<br>(m/min) | 10 ~ 20<br>(m/min)         |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|----------------------------|-----------|------------|------------|-----------|----------------|------------|------|------------|
| 0.5 × 60° × 3.5            | CY0.5-L   | 0.5        | 3.5        | 35        | 0.5            | 1.5        | 1    | ¥ 4,510 ※  |
| 0.7 × 60° × 3.5            | CY0.7-L   | 0.7        | 3.5        | 35        | 0.7            | 2          | 1    | ¥ 3,630 ※  |
| 0.8 × 60° × 3.5            | CY0.8-L   | 0.8        | 3.5        | 35        | 0.8            | 2          | 1    | ¥ 3,110 ※  |
| 0.9 × 60° × 4              | CY0.9-L   | 0.9        | 4          | 35        | 0.9            | 2.5        | 1    | ¥ 2,910 ※  |
| 1 × 60° × 4                | CY1.0-L   | 1          | 4          | 35        | 1              | 2.5        | 1    | ¥ 2,550 ※  |
| 1.2 × 60° × 5              | CY1.2-L   | 1.2        | 5          | 40        | 1.2            | 3          | 1    | ¥ 2,330 ※  |
| 1.5 × 60° × 5              | CY1.5-L   | 1.5        | 5          | 40        | 1.5            | 4          | 1    | ¥ 1,990 ※  |
| 2 × 60° × 6                | CY2.0-L   | 2          | 6          | 45        | 2              | 5          | 1    | ¥ 2,220 ※  |
| 2.5 × 60° × 7.7            | CY2.5-L   | 2.5        | 7.7        | 50        | 2.5            | 6.5        | 1    | ¥ 2,720 ※  |
| 3 × 60° × 7.7              | CY3.0-L   | 3          | 7.7        | 55        | 3              | 6.5        | 1    | ¥ 2,720 ※  |
| 4 × 60° × 10               | CY4.0-L   | 4          | 10         | 65        | 4.5            | 8.5        | 1    | ¥ 5,410 ※  |
| 5 × 60° × 11               | CY5.0-L   | 5          | 11         | 78        | 5.5            | 9          | 1    | ¥ 5,840 ※  |
| 6 × 60° × 16               | CY6.0-L16 | 6          | 16         | 90        | 6.5            | 13.5       | 1    | ¥ 14,100 ※ |
| 6 × 60° × 18               | CY6.0-L   | 6          | 18         | 90        | 6.5            | 15         | 1    | ¥ 19,800 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-6

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-7

S

## CE-S V

High Helix Center Drills-Type A 60°, Coated



### Specification

HSS

Coating

■ The CE-S V is a coated type A high helix center hole drill with excellent wear resistance and welding resistance.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
20~40  
(m/min)

Medium carbon steels  
中炭素鋼  
20~40  
(m/min)

Stainless steels  
ステンレス鋼  
5~15  
(m/min)

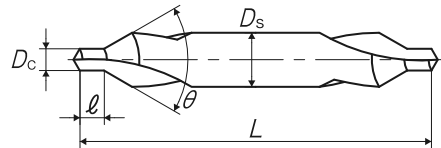
Brass  
黄銅  
30~60  
(m/min)

Brass castings  
黄銅鑄物  
30~60  
(m/min)

Wrought aluminum  
アルミ圧延材  
25~50  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
25~50  
(m/min)

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP      |
|---------------------|----------|------------|------------|-----------|-----------|------------|------|-----------|
| 1 × 60° × 4         | VCE1.0   | 1          | 4          | 35        | 1         | 2.5        | 1    | ¥ 3,920   |
| 1.5 × 60° × 5       | VCE1.5   | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 3,440   |
| 2 × 60° × 6         | VCE2.0   | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 3,650   |
| 2.5 × 60° × 7.7     | VCE2.5   | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 4,140   |
| 3 × 60° × 7.7       | VCE3.0   | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 4,140   |
| 3 × 60° × 8         | VCE3.0-8 | 3          | 8          | 55        | 3         | 6.5        | 1    | ¥ 4,670 ※ |
| 4 × 60° × 10        | VCE4.0   | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 6,760   |
| 5 × 60° × 11        | VCE5.0   | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 7,570   |
| 6 × 60° × 18        | VCE6.0   | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 22,000  |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

## CE-S V(I)

High Helix Center Drills-Type A 60°, Coated, (Old JIS Type 1)



### Specification

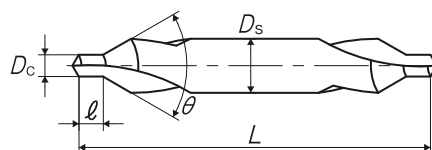


■Optimum coating suitable for the cutting condition.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| 20~40<br>(m/min)          | 20~40<br>(m/min)             | 5~15<br>(m/min)            | 30~60<br>(m/min) | 30~60<br>(m/min)       | 25~50<br>(m/min)           | 25~50<br>(m/min)                   |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|----------------------------|---------|------------|------------|-----------|----------------|------------|------|------------|
| 2.5 × 60° × 8              | VCE12.5 | 2.5        | 8          | 50        | 3.5            | 6.5        | 1    | ¥ 4,670 ※  |
| 3 × 60° × 10               | VCE13.0 | 3          | 10         | 55        | 4              | 8          | 1    | ¥ 6,470 ※  |
| 4 × 60° × 12               | VCE14.0 | 4          | 12         | 66        | 5              | 10         | 1    | ¥ 8,690 ※  |
| 5 × 60° × 14               | VCE15.0 | 5          | 14         | 78        | 6.5            | 12         | 1    | ¥ 12,800 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-9

## CD-S V

Type A Low Helix Coated 60° Center Hole Drill



### Specification

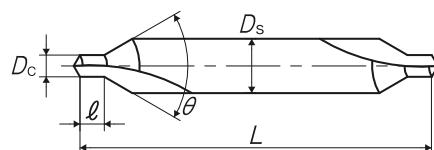


■ The CD-S V is a coated type A center hole drill with excellent abrasion resistance and welding resistance.

### Cutting Speed depending on Materials

| Low carbon steels<br>低碳素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鑄鋼  | Cast irons<br>鑄鐵   | Ductile cast irons<br>強韌鑄鐵 |
|---------------------------|------------------------------|----------------------------|---------------------|--------------------|--------------------|----------------------------|
| 20 ~ 40<br>(m/min)        | 20 ~ 40<br>(m/min)           | 20 ~ 40<br>(m/min)         | 15 ~ 30<br>(m/min)  | 20 ~ 40<br>(m/min) | 10 ~ 20<br>(m/min) | 10 ~ 25<br>(m/min)         |

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|--------|------------|------------|-----------|-----------|------------|------|------------|
| 1 × 60° × 4         | VCY1.0 | 1          | 4          | 35        | 1         | 2.5        | 1    | ¥ 3,920 ※  |
| 1.5 × 60° × 5       | VCY1.5 | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 3,440 ※  |
| 2 × 60° × 6         | VCY2.0 | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 3,650 ※  |
| 2.5 × 60° × 7.7     | VCY2.5 | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 4,140 ※  |
| 3 × 60° × 7.7       | VCY3.0 | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 4,140 ※  |
| 4 × 60° × 10        | VCY4.0 | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 6,760 ※  |
| 5 × 60° × 11        | VCY5.0 | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 7,570 ※  |
| 6 × 60° × 18        | VCY6.0 | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 22,000 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

11

JIS

## CD-S V(I)

Coating Low Helix A Type 60° Center Hole Drill Former JIS Type 1



### Specification

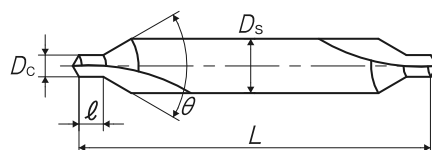


■ The CD-S V(I) is a coated low helix former JIS type 1 center hole drill with excellent wear resistance and welding resistance.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鋳鋼 | Cast irons<br>鋳鉄 | Ductile cast irons<br>強靱鋳鉄 |
|---------------------------|------------------------------|----------------------------|---------------------|-------------------|------------------|----------------------------|
| 20~40<br>(m/min)          | 20~40<br>(m/min)             | 20~40<br>(m/min)           | 15~30<br>(m/min)    | 20~40<br>(m/min)  | 10~20<br>(m/min) | 10~25<br>(m/min)           |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|----------------------------|--------|------------|------------|-----------|----------------|------------|------|------------|
| 2.5 × 60° × 8              | VC12.5 | 2.5        | 8          | 50        | 3.5            | 6.5        | 1    | ¥ 4,670 ※  |
| 3 × 60° × 10               | VC13.0 | 3          | 10         | 55        | 4              | 8          | 1    | ¥ 6,470 ※  |
| 4 × 60° × 12               | VC14.0 | 4          | 12         | 66        | 5              | 10         | 1    | ¥ 8,690 ※  |
| 5 × 60° × 14               | VC15.0 | 5          | 14         | 78        | 6.5            | 12         | 1    | ¥ 12,800 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-10

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-11

S

## C-CD-S

Carbide Center Drills-Type A 60°



### Specification

HF

■ Low helix carbide center drills - Type A suitable for hard materials and mass production.

### Cutting Speed depending on Materials

High carbon steels  
高炭素鋼  
30~50  
(m/min)

Alloy steels  
合金鋼  
20~40  
(m/min)

Thermal refined steels  
調質鋼  
10~25  
(m/min)  
25~35HRC

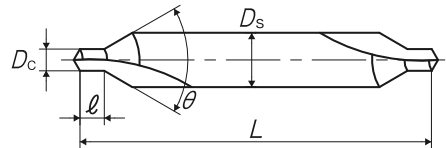
Thermal refined steels  
調質鋼  
5~15  
(m/min)  
35~45HRC

Cast irons  
鋳鉄  
30~50  
(m/min)

Brass castings  
黄銅鑄物  
30~60  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
30~60  
(m/min)

### TYPE: 1



Segment : 52

| Size<br>Dc × θ × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP        |
|---------------------|-----------|------------|------------|-----------|-----------|------------|------|-------------|
| 1 × 60° × 4         | CCD1.0    | 1          | 4          | 35        | 1         | 2.5        | 1    | ¥ 15,900    |
| 1.2 × 60° × 5       | CCD1.2    | 1.2        | 5          | 40        | 1.2       | 3          | 1    | ¥ 22,800 ※  |
| 1.5 × 60° × 5       | CCD1.5    | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 20,100    |
| 2 × 60° × 6         | CCD2.0    | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 24,500    |
| 2.5 × 60° × 7.7     | CCD2.5    | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 31,500    |
| 2.5 × 60° × 8       | CCD2.5-8  | 2.5        | 8          | 50        | 2.5       | 6.5        | 1    | ¥ 32,700 ※  |
| 3 × 60° × 7.7       | CCD3.0    | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 31,500    |
| 3 × 60° × 8         | CCD3.0-8  | 3          | 8          | 55        | 3         | 6.5        | 1    | ¥ 32,700 ※  |
| 4 × 60° × 10        | CCD4.0    | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 49,700    |
| 5 × 60° × 11        | CCD5.0    | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 53,400    |
| 5 × 60° × 12        | CCD5.0-12 | 5          | 12         | 78        | 5.5       | 10         | 1    | ¥ 53,700 ※  |
| 6 × 60° × 18        | CCD6.0    | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 135,000 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

## CE-SL

Long Shank High Helix Center Drills-Type A 60°



### Specification

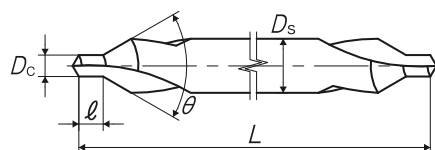
**HSS**

■ Long shank high helix center drills - Type A suitable for soft or relatively tough materials.

### Cutting Speed depending on Materials

|                           |                              |                            |                  |                        |                            |                                    |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
| 10~25<br>(m/min)          | 10~25<br>(m/min)             | 5~10<br>(m/min)            | 20~40<br>(m/min) | 20~40<br>(m/min)       | 15~30<br>(m/min)           | 15~30<br>(m/min)                   |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|----------------------------|--------|------------|------------|-----------|----------------|------------|------|------------|
| 1 × 60° × 4                | CEL1.0 | 1          | 4          | 100       | 1              | 2.5        | 1    | ¥ 8,200    |
| 1 × 60° × 4                | CEM1.0 | 1          | 4          | 150       | 1              | 2.5        | 1    | ¥ 12,500   |
| 1.5 × 60° × 5              | CEL1.5 | 1.5        | 5          | 100       | 1.5            | 4          | 1    | ¥ 6,130    |
| 1.5 × 60° × 5              | CEM1.5 | 1.5        | 5          | 150       | 1.5            | 4          | 1    | ¥ 10,100   |
| 2 × 60° × 6                | CEL2.0 | 2          | 6          | 100       | 2              | 5          | 1    | ¥ 6,880    |
| 2 × 60° × 6                | CEM2.0 | 2          | 6          | 150       | 2              | 5          | 1    | ¥ 10,500   |
| 2.5 × 60° × 8              | CEL2.5 | 2.5        | 8          | 100       | 2.5            | 6.5        | 1    | ¥ 8,200    |
| 2.5 × 60° × 8              | CEM2.5 | 2.5        | 8          | 150       | 2.5            | 6.5        | 1    | ¥ 12,500   |
| 3 × 60° × 8                | CEL3.0 | 3          | 8          | 100       | 3              | 6.5        | 1    | ¥ 8,200    |
| 3 × 60° × 8                | CEM3.0 | 3          | 8          | 150       | 3              | 6.5        | 1    | ¥ 12,500   |
| 3 × 60° × 8                | CEN3.0 | 3          | 8          | 200       | 3              | 6.5        | 1    | ¥ 16,400 * |
| 4 × 60° × 10               | CEL4.0 | 4          | 10         | 100       | 4.5            | 8.5        | 1    | ¥ 9,200    |
| 4 × 60° × 10               | CEM4.0 | 4          | 10         | 150       | 4.5            | 8.5        | 1    | ¥ 13,500   |
| 4 × 60° × 10               | CEN4.0 | 4          | 10         | 200       | 4.5            | 8.5        | 1    | ¥ 17,800 * |
| 5 × 60° × 12               | CEL5.0 | 5          | 12         | 100       | 5.5            | 10         | 1    | ¥ 11,800   |
| 5 × 60° × 12               | CEM5.0 | 5          | 12         | 150       | 5.5            | 10         | 1    | ¥ 18,100   |
| 5 × 60° × 12               | CEN5.0 | 5          | 12         | 200       | 5.5            | 10         | 1    | ¥ 23,700 * |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-12

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills / Centering Tools

⑫ Precision Machinery / Medical Surgical Instruments

JIS

## CD-SL

Long Shank Low Helix Center Drills-Type A 60°



### Specification

HSS

■ Long shank low helix center drills - Type A suitable for relatively hard materials.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
10~25  
(m/min)

Medium carbon steels  
中炭素鋼  
10~25  
(m/min)

High carbon steels  
高炭素鋼  
10~25  
(m/min)

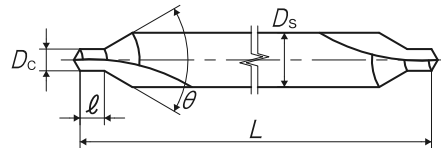
Alloy steels  
合金鋼  
10~20  
(m/min)

Cast steels  
鋳鋼  
10~25  
(m/min)

Cast irons  
鋳鉄  
5~10  
(m/min)

Ductile cast irons  
強靱鋳鉄  
5~15  
(m/min)

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|--------|------------|------------|-----------|-----------|------------|------|------------|
| 1 × 60° × 4         | CDL1.0 | 1          | 4          | 100       | 1         | 2.5        | 1    | ¥ 8,200    |
| 1 × 60° × 4         | CDM1.0 | 1          | 4          | 150       | 1         | 2.5        | 1    | ¥ 12,500   |
| 1.5 × 60° × 5       | CDL1.5 | 1.5        | 5          | 100       | 1.5       | 4          | 1    | ¥ 6,130    |
| 1.5 × 60° × 5       | CDM1.5 | 1.5        | 5          | 150       | 1.5       | 4          | 1    | ¥ 10,100   |
| 2 × 60° × 6         | CDL2.0 | 2          | 6          | 100       | 2         | 5          | 1    | ¥ 6,880    |
| 2 × 60° × 6         | CDM2.0 | 2          | 6          | 150       | 2         | 5          | 1    | ¥ 10,500   |
| 2.5 × 60° × 8       | CDL2.5 | 2.5        | 8          | 100       | 2.5       | 6.5        | 1    | ¥ 8,200    |
| 2.5 × 60° × 8       | CDM2.5 | 2.5        | 8          | 150       | 2.5       | 6.5        | 1    | ¥ 12,500   |
| 3 × 60° × 8         | CDL3.0 | 3          | 8          | 100       | 3         | 6.5        | 1    | ¥ 8,200    |
| 3 × 60° × 8         | CDM3.0 | 3          | 8          | 150       | 3         | 6.5        | 1    | ¥ 12,500   |
| 3 × 60° × 8         | CDN3.0 | 3          | 8          | 200       | 3         | 6.5        | 1    | ¥ 16,400 ※ |
| 4 × 60° × 10        | CDL4.0 | 4          | 10         | 100       | 4.5       | 8.5        | 1    | ¥ 9,200    |
| 4 × 60° × 10        | CDM4.0 | 4          | 10         | 150       | 4.5       | 8.5        | 1    | ¥ 13,500   |
| 4 × 60° × 10        | CDN4.0 | 4          | 10         | 200       | 4.5       | 8.5        | 1    | ¥ 17,800 ※ |
| 5 × 60° × 12        | CDL5.0 | 5          | 12         | 100       | 5.5       | 10         | 1    | ¥ 11,800   |
| 5 × 60° × 12        | CDM5.0 | 5          | 12         | 150       | 5.5       | 10         | 1    | ¥ 18,100   |
| 5 × 60° × 12        | CDN5.0 | 5          | 12         | 200       | 5.5       | 10         | 1    | ¥ 23,700 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

## CE-SL V

Long Shank High Helix Center Drills-Type A 60°, Coated



### Specification

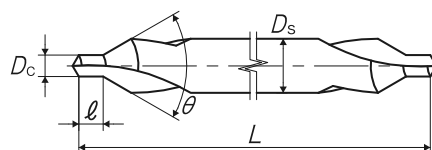


■ Long shank high helix center drills - Type A coated to improve resistance to wear and welding.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| 15~30<br>(m/min)          | 15~30<br>(m/min)             | 5~10<br>(m/min)            | 25~50<br>(m/min) | 25~50<br>(m/min)       | 20~40<br>(m/min)           | 20~40<br>(m/min)                   |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|----------------------------|----------|------------|------------|-----------|----------------|------------|------|----------|
| 1 × 60° × 4                | VCCEL1.0 | 1          | 4          | 100       | 1              | 2.5        | 1    | ¥ 10,900 |
| 1 × 60° × 4                | VCCEM1.0 | 1          | 4          | 150       | 1              | 2.5        | 1    | ¥ 17,800 |
| 1.5 × 60° × 5              | VCCEL1.5 | 1.5        | 5          | 100       | 1.5            | 4          | 1    | ¥ 8,830  |
| 1.5 × 60° × 5              | VCCEM1.5 | 1.5        | 5          | 150       | 1.5            | 4          | 1    | ¥ 15,700 |
| 2 × 60° × 6                | VCCEL2.0 | 2          | 6          | 100       | 2              | 5          | 1    | ¥ 9,720  |
| 2 × 60° × 6                | VCCEM2.0 | 2          | 6          | 150       | 2              | 5          | 1    | ¥ 16,100 |
| 2.5 × 60° × 8              | VCCEL2.5 | 2.5        | 8          | 100       | 2.5            | 6.5        | 1    | ¥ 11,000 |
| 2.5 × 60° × 8              | VCCEM2.5 | 2.5        | 8          | 150       | 2.5            | 6.5        | 1    | ¥ 17,800 |
| 3 × 60° × 8                | VCCEL3.0 | 3          | 8          | 100       | 3              | 6.5        | 1    | ¥ 11,000 |
| 3 × 60° × 8                | VCCEM3.0 | 3          | 8          | 150       | 3              | 6.5        | 1    | ¥ 17,800 |
| 4 × 60° × 10               | VCCEL4.0 | 4          | 10         | 100       | 4.5            | 8.5        | 1    | ¥ 13,400 |
| 4 × 60° × 10               | VCCEM4.0 | 4          | 10         | 150       | 4.5            | 8.5        | 1    | ¥ 20,700 |
| 5 × 60° × 12               | VCCEL5.0 | 5          | 12         | 100       | 5.5            | 10         | 1    | ¥ 17,400 |
| 5 × 60° × 12               | VCCEM5.0 | 5          | 12         | 150       | 5.5            | 10         | 1    | ¥ 25,100 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-14

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-15

## CD-SL V

Long Shank Low Helix Center Drills-Type A 60°, Coated



### Specification

HSS

Coating

■ Long shank low helix center drills - Type A suitable for relatively hard materials and coated to improve wear resistance and anti-welding.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
15 ~ 30  
(m/min)

Medium carbon steels  
中炭素鋼  
15 ~ 30  
(m/min)

High carbon steels  
高炭素鋼  
15 ~ 30  
(m/min)

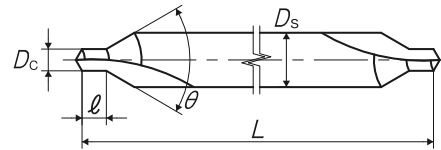
Alloy steels  
合金鋼  
10 ~ 25  
(m/min)

Cast steels  
鋳鋼  
15 ~ 30  
(m/min)

Cast irons  
鋳鉄  
10 ~ 15  
(m/min)

Ductile cast irons  
強靱鋳鉄  
10 ~ 20  
(m/min)

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|---------|------------|------------|-----------|-----------|------------|------|------------|
| 1 × 60° × 4         | VCDL1.0 | 1          | 4          | 100       | 1         | 2.5        | 1    | ¥ 10,900 ※ |
| 1 × 60° × 4         | VCDM1.0 | 1          | 4          | 150       | 1         | 2.5        | 1    | ¥ 17,800 ※ |
| 1.5 × 60° × 5       | VCDL1.5 | 1.5        | 5          | 100       | 1.5       | 4          | 1    | ¥ 8,830 ※  |
| 1.5 × 60° × 5       | VCDM1.5 | 1.5        | 5          | 150       | 1.5       | 4          | 1    | ¥ 15,700 ※ |
| 2 × 60° × 6         | VCDL2.0 | 2          | 6          | 100       | 2         | 5          | 1    | ¥ 9,720 ※  |
| 2 × 60° × 6         | VCDM2.0 | 2          | 6          | 150       | 2         | 5          | 1    | ¥ 16,100 ※ |
| 2.5 × 60° × 8       | VCDL2.5 | 2.5        | 8          | 100       | 2.5       | 6.5        | 1    | ¥ 11,000 ※ |
| 2.5 × 60° × 8       | VCDM2.5 | 2.5        | 8          | 150       | 2.5       | 6.5        | 1    | ¥ 17,800 ※ |
| 3 × 60° × 8         | VCDL3.0 | 3          | 8          | 100       | 3         | 6.5        | 1    | ¥ 11,000 ※ |
| 3 × 60° × 8         | VCDM3.0 | 3          | 8          | 150       | 3         | 6.5        | 1    | ¥ 17,800 ※ |
| 4 × 60° × 10        | VCDL4.0 | 4          | 10         | 100       | 4.5       | 8.5        | 1    | ¥ 13,400 ※ |
| 4 × 60° × 10        | VCDM4.0 | 4          | 10         | 150       | 4.5       | 8.5        | 1    | ¥ 20,700 ※ |
| 5 × 60° × 12        | VCDL5.0 | 5          | 12         | 100       | 5.5       | 10         | 1    | ¥ 17,400 ※ |
| 5 × 60° × 12        | VCDM5.0 | 5          | 12         | 150       | 5.5       | 10         | 1    | ¥ 25,100 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

## C-CD-SL

Long Shank Low Helix Carbide Center Drills-Type A 60°



### Specification

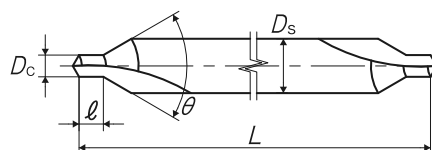
HF

■ Long shank low helix carbide center drills - Type A  
A suitable for hard materials and mass production.

### Cutting Speed depending on Materials

|                                                  |                                           |                                                                 |                                                                |                                        |                                              |                                                          |
|--------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------|----------------------------------------------|----------------------------------------------------------|
| High carbon steels<br>高炭素鋼<br>25 ~ 40<br>(m/min) | Alloy steels<br>合金鋼<br>15 ~ 30<br>(m/min) | Thermal refined steels<br>調質鋼<br>10 ~ 20<br>(m/min)<br>25~35HRC | Thermal refined steels<br>調質鋼<br>5 ~ 10<br>(m/min)<br>35~45HRC | Cast irons<br>鑄鉄<br>25 ~ 40<br>(m/min) | Brass castings<br>黄銅鑄物<br>25 ~ 50<br>(m/min) | Aluminum alloy castings<br>アルミ合金鑄物<br>25 ~ 50<br>(m/min) |
|--------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------|----------------------------------------------|----------------------------------------------------------|

### TYPE: 1



Segment : 52

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|---------|------------|------------|-----------|-----------|------------|------|------------|
| 1 × 60° × 4         | CCDL1.0 | 1          | 4          | 100       | 1         | 2.5        | 1    | ¥ 21,300 ※ |
| 1.5 × 60° × 5       | CCDL1.5 | 1.5        | 5          | 100       | 1.5       | 4          | 1    | ¥ 24,500 ※ |
| 2 × 60° × 6         | CCDL2.0 | 2          | 6          | 100       | 2         | 5          | 1    | ¥ 27,700 ※ |
| 2 × 60° × 6         | CCDM2.0 | 2          | 6          | 150       | 2         | 5          | 1    | ¥ 33,500 ※ |
| 2.5 × 60° × 8       | CCDL2.5 | 2.5        | 8          | 100       | 2.5       | 6.5        | 1    | ¥ 36,700 ※ |
| 2.5 × 60° × 8       | CCDM2.5 | 2.5        | 8          | 150       | 2.5       | 6.5        | 1    | ¥ 44,400 ※ |
| 3 × 60° × 8         | CCDL3.0 | 3          | 8          | 100       | 3         | 6.5        | 1    | ¥ 36,700 ※ |
| 3 × 60° × 8         | CCDM3.0 | 3          | 8          | 150       | 3         | 6.5        | 1    | ¥ 44,400 ※ |
| 4 × 60° × 10        | CCDL4.0 | 4          | 10         | 100       | 4.5       | 8.5        | 1    | ¥ 46,200 ※ |
| 4 × 60° × 10        | CCDM4.0 | 4          | 10         | 150       | 4.5       | 8.5        | 1    | ¥ 56,000 ※ |
| 5 × 60° × 12        | CCDL5.0 | 5          | 12         | 100       | 5.5       | 10         | 1    | ¥ 56,400 ※ |
| 5 × 60° × 12        | CCDM5.0 | 5          | 12         | 150       | 5.5       | 10         | 1    | ¥ 67,300 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-16

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-17



## CEQA

High Helix Center Drills-JIS Type A 90°



Specification

**HSS**

■ High helix center drills - JIS Type A center drill for machining 90° center hole. Suitable for soft and relatively tough materials.

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**15~30**  
(m/min)

Medium carbon steels  
中炭素鋼  
**15~30**  
(m/min)

Stainless steels  
ステンレス鋼  
**5~10**  
(m/min)

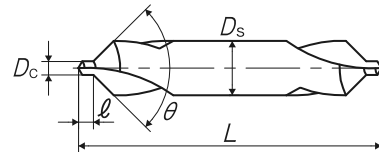
Brass  
黄銅  
**25~50**  
(m/min)

Brass castings  
黄銅鑄物  
**25~50**  
(m/min)

Wrought aluminum  
アルミ圧延材  
**20~40**  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
**20~40**  
(m/min)

TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|----------|------------|------------|-----------|-----------|------------|------|----------|
| 1 × 90° × 4         | CEA1.0Q  | 1          | 4          | 35.5      | 1.1       | 2.8        | 1    | ¥ 1,860  |
| 1.25 × 90° × 5      | CEA1.25Q | 1.25       | 5          | 40        | 1.4       | 3.55       | 1    | ¥ 1,550  |
| 1.6 × 90° × 6.3     | CEA1.6Q  | 1.6        | 6.3        | 45        | 1.8       | 4.5        | 1    | ¥ 1,670  |
| 2 × 90° × 8         | CEA2.0Q  | 2          | 8          | 50        | 2.2       | 5.6        | 1    | ¥ 2,250  |
| 2.5 × 90° × 10      | CEA2.5Q  | 2.5        | 10         | 56        | 2.8       | 7.1        | 1    | ¥ 4,100  |
| 3.15 × 90° × 11.2   | CEA3.15Q | 3.15       | 11.2       | 60        | 3.6       | 9          | 1    | ¥ 4,570  |
| 4 × 90° × 12.5      | CEA4.0Q  | 4          | 12.5       | 63        | 4.5       | 11.2       | 1    | ¥ 5,480  |
| 5 × 90° × 16        | CEA5.0Q  | 5          | 16         | 71        | 5.6       | 14         | 1    | ¥ 10,600 |
| 6.3 × 90° × 20      | CEA6.3Q  | 6.3        | 20         | 80        | 7.1       | 18         | 1    | ¥ 21,600 |
| 8 × 90° × 25        | CEA8.0Q  | 8          | 25         | 100       | 9         | 22.4       | 1    | ¥ 37,700 |
| 10 × 90° × 31.5     | CEA010Q  | 10         | 31.5       | 125       | 11.2      | 28         | 1    | ¥ 53,400 |
| 12.5 × 90° × 35.5   | CEA12.5Q | 12.5       | 35.5       | 140       | 14        | 31.5       | 1    | ¥ 96,300 |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

11

JIS

## CE-Q

### High Helix Center Drills-Type A 90°



#### Specification

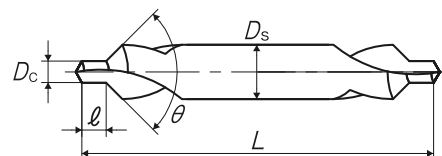
**HSS**

■High helix center drills - Type A center drill for machining 90° center hole. Suitable for soft and relatively tough materials.

#### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| 15~30<br>(m/min)          | 15~30<br>(m/min)             | 5~10<br>(m/min)            | 25~50<br>(m/min) | 25~50<br>(m/min)       | 20~40<br>(m/min)           | 20~40<br>(m/min)                   |

#### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|-----------|------------|------------|-----------|-----------|------------|------|------------|
| 0.5 × 90° × 3.5     | CY0.5Z    | 0.5        | 3.5        | 35        | 0.5       | 1.5        | 1    | ¥ 4,170 ※  |
| 0.6 × 90° × 3.5     | CY0.6Z    | 0.6        | 3.5        | 35        | 0.6       | 2          | 1    | ¥ 3,780 ※  |
| 0.7 × 90° × 3.5     | CY0.7Z    | 0.7        | 3.5        | 35        | 0.7       | 2          | 1    | ¥ 3,350    |
| 0.8 × 90° × 3.5     | CY0.8Z    | 0.8        | 3.5        | 35        | 0.8       | 2.5        | 1    | ¥ 2,870    |
| 0.9 × 90° × 4       | CY0.9Z    | 0.9        | 4          | 35        | 0.9       | 2.5        | 1    | ¥ 2,680 ※  |
| 1 × 90° × 4         | CY1.0Z    | 1          | 4          | 35        | 1         | 3          | 1    | ¥ 2,350    |
| 1.2 × 90° × 5       | CY1.2Z    | 1.2        | 5          | 40        | 1.2       | 3.5        | 1    | ¥ 2,140 ※  |
| 1.5 × 90° × 5       | CY1.5Z    | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 1,840    |
| 2 × 90° × 6         | CY2.0Z    | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 2,050    |
| 2.5 × 90° × 7.7     | CY2.5Z    | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 2,510    |
| 3 × 90° × 7.7       | CY3.0Z    | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 2,510    |
| 4 × 90° × 10        | CY4.0Z    | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 5,000    |
| 5 × 90° × 11        | CY5.0Z    | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 5,390    |
| 6 × 90° × 16        | CY6.0Z-16 | 6          | 16         | 90        | 6.5       | 13.5       | 1    | ¥ 13,000   |
| 6 × 90° × 18        | CY6.0Z    | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 18,300   |
| 8 × 90° × 18        | CY8.0Z    | 8          | 18         | 100       | 8.5       | 15         | 1    | ¥ 21,000 ※ |
| 10 × 90° × 18       | CY010Z    | 10         | 18         | 100       | 11        | 15         | 1    | ¥ 21,000 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-18

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-19

S

## CD-Q

Low Helix Center Drills-Type A 90°



### Specification

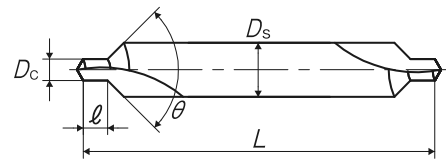
HSS

■ Low helix center drills - Type A center drill for machining 90° center hole. Suitable for relatively hard materials.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鋳鋼  | Cast irons<br>鋳鉄   | Ductile cast irons<br>強靱鋳鉄 |
|---------------------------|------------------------------|----------------------------|---------------------|--------------------|--------------------|----------------------------|
| 15 ~ 30<br>(m/min)        | 15 ~ 30<br>(m/min)           | 15 ~ 30<br>(m/min)         | 10 ~ 25<br>(m/min)  | 15 ~ 30<br>(m/min) | 10 ~ 15<br>(m/min) | 10 ~ 20<br>(m/min)         |

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|-----------|------------|------------|-----------|-----------|------------|------|------------|
| 0.5 × 90° × 3.5     | CY0.5Q    | 0.5        | 3.5        | 35        | 0.5       | 1.5        | 1    | ¥ 4,170 ※  |
| 0.6 × 90° × 3.5     | CY0.6Q    | 0.6        | 3.5        | 35        | 0.6       | 2          | 1    | ¥ 3,780 ※  |
| 0.8 × 90° × 3.5     | CY0.8Q    | 0.8        | 3.5        | 35        | 0.8       | 2.5        | 1    | ¥ 2,870 ※  |
| 1 × 90° × 4         | CY1.0Q    | 1          | 4          | 35        | 1         | 3          | 1    | ¥ 2,350    |
| 1.2 × 90° × 5       | CY1.2Q    | 1.2        | 5          | 40        | 1.2       | 3.5        | 1    | ¥ 2,140 ※  |
| 1.5 × 90° × 5       | CY1.5Q    | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 1,840    |
| 2 × 90° × 6         | CY2.0Q    | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 2,050    |
| 2.5 × 90° × 7.7     | CY2.5Q    | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 2,510    |
| 3 × 90° × 7.7       | CY3.0Q    | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 2,510    |
| 4 × 90° × 10        | CY4.0Q    | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 5,000    |
| 5 × 90° × 11        | CY5.0Q    | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 5,390    |
| 6 × 90° × 16        | CY6.0Q-16 | 6          | 16         | 90        | 6.5       | 13.5       | 1    | ¥ 13,000 ※ |
| 6 × 90° × 18        | CY6.0Q    | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 18,300 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

11

JIS

## CD-Q LH

Low Helix Center Drills - Type A 90°, Left Hand Cut



### Specification

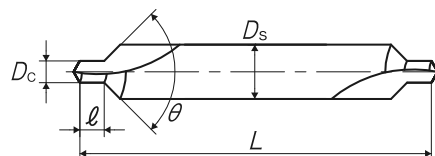


■ Low helix left hand center drills - Type A center drill for machining 90° center hole. Suitable for relatively hard materials.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鋳鋼  | Cast irons<br>鋳鉄   | Ductile cast irons<br>強靱鋳鉄 |
|---------------------------|------------------------------|----------------------------|---------------------|--------------------|--------------------|----------------------------|
| 15 ~ 30<br>(m/min)        | 15 ~ 30<br>(m/min)           | 15 ~ 30<br>(m/min)         | 10 ~ 25<br>(m/min)  | 15 ~ 30<br>(m/min) | 10 ~ 15<br>(m/min) | 10 ~ 20<br>(m/min)         |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|----------------------------|-----------|------------|------------|-----------|----------------|------------|------|------------|
| 1 × 90° × 4                | CY1.0Q-L  | 1          | 4          | 35        | 1              | 3          | 1    | ¥ 3,060 ※  |
| 1.2 × 90° × 5              | CY1.2Q-L  | 1.2        | 5          | 40        | 1.2            | 3.5        | 1    | ¥ 2,790 ※  |
| 1.5 × 90° × 5              | CY1.5Q-L  | 1.5        | 5          | 40        | 1.5            | 4          | 1    | ¥ 2,400 ※  |
| 2 × 90° × 6                | CY2.0Q-L  | 2          | 6          | 45        | 2              | 5          | 1    | ¥ 2,670 ※  |
| 2.5 × 90° × 7.7            | CY2.5Q-L  | 2.5        | 7.7        | 50        | 2.5            | 6.5        | 1    | ¥ 3,270 ※  |
| 2.5 × 90° × 8              | CY2.5Q8L  | 2.5        | 8          | 50        | 2.5            | 6.5        | 1    | ¥ 3,490 ※  |
| 3 × 90° × 7.7              | CY3.0Q-L  | 3          | 7.7        | 55        | 3              | 6.5        | 1    | ¥ 3,270 ※  |
| 3 × 90° × 8                | CY3.0Q8L  | 3          | 8          | 55        | 3              | 6.5        | 1    | ¥ 3,490 ※  |
| 4 × 90° × 10               | CY4.0Q-L  | 4          | 10         | 65        | 4.5            | 8.5        | 1    | ¥ 6,500 ※  |
| 5 × 90° × 12               | CY5.0Q12L | 5          | 12         | 78        | 5.5            | 10         | 1    | ¥ 8,680 ※  |
| 6 × 90° × 18               | CY6.0Q-L  | 6          | 18         | 90        | 6.5            | 15         | 1    | ¥ 23,900 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-20

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-21

S

## CE-Q V

High Helix Center Drills-Type A 90°, Coated



### Specification

HSS

Coating

■ High helix center drills - Type A center drill for machining 90° center hole. Coated to improve wear resistance and anti-welding.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
20~40  
(m/min)

Medium carbon steels  
中炭素鋼  
20~40  
(m/min)

Stainless steels  
ステンレス鋼  
5~15  
(m/min)

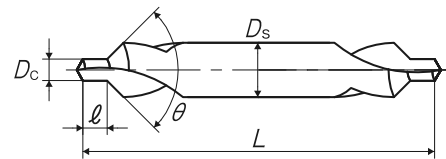
Brass  
黄銅  
30~60  
(m/min)

Brass castings  
黄銅鑄物  
30~60  
(m/min)

Wrought aluminum  
アルミ圧延材  
25~50  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
25~50  
(m/min)

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|---------|------------|------------|-----------|-----------|------------|------|----------|
| 1 × 90° × 4         | VCY1.0Z | 1          | 4          | 35        | 1         | 3          | 1    | ¥ 4,240  |
| 1.5 × 90° × 5       | VCY1.5Z | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 3,830  |
| 2 × 90° × 6         | VCY2.0Z | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 4,030  |
| 2.5 × 90° × 7.7     | VCY2.5Z | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 4,710  |
| 3 × 90° × 7.7       | VCY3.0Z | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 4,710  |
| 4 × 90° × 10        | VCY4.0Z | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 7,570  |
| 5 × 90° × 11        | VCY5.0Z | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 8,190  |
| 6 × 90° × 18        | VCY6.0Z | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 23,600 |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

## CD-Q V

Low Helix Center Drills-Type A 90°, Coated



### Specification

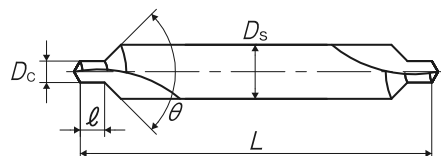


■ Low helix center drills - Type A center drill for machining 90° center hole. Coated to improve wear resistance and anti-welding.

### Cutting Speed depending on Materials

| Low carbon steels<br>低碳素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鑄鋼 | Cast irons<br>鑄鉄 | Ductile cast irons<br>強靱鑄鉄 |
|---------------------------|------------------------------|----------------------------|---------------------|-------------------|------------------|----------------------------|
| 20~40<br>(m/min)          | 20~40<br>(m/min)             | 20~40<br>(m/min)           | 15~30<br>(m/min)    | 20~40<br>(m/min)  | 10~20<br>(m/min) | 10~25<br>(m/min)           |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|----------------------------|---------|------------|------------|-----------|----------------|------------|------|------------|
| 1 × 90° × 4                | VCY1.0Q | 1          | 4          | 35        | 1              | 3          | 1    | ¥ 4,240 ※  |
| 1.5 × 90° × 5              | VCY1.5Q | 1.5        | 5          | 40        | 1.5            | 4          | 1    | ¥ 3,830 ※  |
| 2 × 90° × 6                | VCY2.0Q | 2          | 6          | 45        | 2              | 5          | 1    | ¥ 4,030 ※  |
| 2.5 × 90° × 7.7            | VCY2.5Q | 2.5        | 7.7        | 50        | 2.5            | 6.5        | 1    | ¥ 4,710 ※  |
| 3 × 90° × 7.7              | VCY3.0Q | 3          | 7.7        | 55        | 3              | 6.5        | 1    | ¥ 4,710 ※  |
| 4 × 90° × 10               | VCY4.0Q | 4          | 10         | 65        | 4.5            | 8.5        | 1    | ¥ 7,570 ※  |
| 5 × 90° × 11               | VCY5.0Q | 5          | 11         | 78        | 5.5            | 9          | 1    | ¥ 8,190 ※  |
| 6 × 90° × 18               | VCY6.0Q | 6          | 18         | 90        | 6.5            | 15         | 1    | ¥ 23,600 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-22

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

11-23

JIS

## C-CD-Q

Low Helix Carbide Center Drills-Type A 90°



### Specification

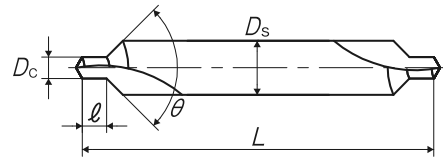
HF

■ Low helix center drills - Type A center drill for machining 90° center hole. Suitable for hard materials and mass production.

### Cutting Speed depending on Materials

|                            |                     |                               |                               |                  |                        |                                    |
|----------------------------|---------------------|-------------------------------|-------------------------------|------------------|------------------------|------------------------------------|
| High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Thermal refined steels<br>調質鋼 | Thermal refined steels<br>調質鋼 | Cast irons<br>鋳鉄 | Brass castings<br>黄銅鑄物 | Aluminum alloy castings<br>アルミ合金鑄物 |
| 30~50<br>(m/min)           | 20~40<br>(m/min)    | 10~25<br>(m/min)              | 5~15<br>(m/min)               | 30~50<br>(m/min) | 30~60<br>(m/min)       | 30~60<br>(m/min)                   |
|                            |                     | 25~35HRC                      | 35~45HRC                      |                  |                        |                                    |

### TYPE: 1



Segment : 52

| Size<br>Dc × θ × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP        |
|---------------------|-----------|------------|------------|-----------|-----------|------------|------|-------------|
| 1 × 90° × 4         | CC1.0Q    | 1          | 4          | 35        | 1         | 3          | 1    | ¥ 15,900 ※  |
| 1.5 × 90° × 5       | CC1.5Q    | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 20,100 ※  |
| 2 × 90° × 6         | CC2.0Q    | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 24,500 ※  |
| 2.5 × 90° × 7.7     | CC2.5Q    | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 31,500 ※  |
| 2.5 × 90° × 8       | CC2.5Q-8  | 2.5        | 8          | 50        | 2.5       | 6.5        | 1    | ¥ 32,700 ※  |
| 3 × 90° × 7.7       | CC3.0Q    | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 31,500 ※  |
| 3 × 90° × 8         | CC3.0Q-8  | 3          | 8          | 55        | 3         | 6.5        | 1    | ¥ 32,700 ※  |
| 4 × 90° × 10        | CC4.0Q    | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 49,700 ※  |
| 5 × 90° × 11        | CC5.0Q    | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 53,400 ※  |
| 5 × 90° × 12        | CC5.0Q-12 | 5          | 12         | 78        | 5.5       | 10         | 1    | ¥ 53,700 ※  |
| 6 × 90° × 18        | CC6.0Q    | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 135,000 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
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※ = Specified Distribution Items. Made to order products.

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

## CE-QL

Long Shank High Helix Center Drills-Type A 90°



### Specification

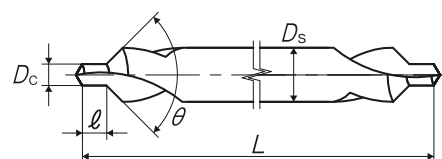
**HSS**

■ Long shank high helix center drills - Type A  
A center drill for machining 90° center hole.  
Suitable for soft or relatively tough materials.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| 10~25<br>(m/min)          | 10~25<br>(m/min)             | 5~10<br>(m/min)            | 20~40<br>(m/min) | 20~40<br>(m/min)       | 15~30<br>(m/min)           | 15~30<br>(m/min)                   |

### TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|----------------------------|--------|------------|------------|-----------|----------------|------------|------|------------|
| 1 × 90° × 4                | CL1.0Z | 1          | 4          | 100       | 1              | 3          | 1    | ¥ 9,420    |
| 1 × 90° × 4                | CM1.0Z | 1          | 4          | 150       | 1              | 3          | 1    | ¥ 14,300 ※ |
| 1.5 × 90° × 5              | CL1.5Z | 1.5        | 5          | 100       | 1.5            | 4          | 1    | ¥ 7,040    |
| 1.5 × 90° × 5              | CM1.5Z | 1.5        | 5          | 150       | 1.5            | 4          | 1    | ¥ 11,600   |
| 2 × 90° × 6                | CL2.0Z | 2          | 6          | 100       | 2              | 5          | 1    | ¥ 7,900    |
| 2 × 90° × 6                | CM2.0Z | 2          | 6          | 150       | 2              | 5          | 1    | ¥ 12,000   |
| 2.5 × 90° × 8              | CL2.5Z | 2.5        | 8          | 100       | 2.5            | 6.5        | 1    | ¥ 9,420    |
| 2.5 × 90° × 8              | CM2.5Z | 2.5        | 8          | 150       | 2.5            | 6.5        | 1    | ¥ 14,300   |
| 3 × 90° × 8                | CL3.0Z | 3          | 8          | 100       | 3              | 6.5        | 1    | ¥ 9,420    |
| 3 × 90° × 8                | CM3.0Z | 3          | 8          | 150       | 3              | 6.5        | 1    | ¥ 14,300   |
| 4 × 90° × 10               | CL4.0Z | 4          | 10         | 100       | 4.5            | 8.5        | 1    | ¥ 10,600   |
| 4 × 90° × 10               | CM4.0Z | 4          | 10         | 150       | 4.5            | 8.5        | 1    | ¥ 15,600   |
| 5 × 90° × 12               | CL5.0Z | 5          | 12         | 100       | 5.5            | 10         | 1    | ¥ 13,600   |
| 5 × 90° × 12               | CM5.0Z | 5          | 12         | 150       | 5.5            | 10         | 1    | ¥ 20,800   |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-24

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-25

## CE-QL V

Long Shank High Helix Center Drills-Type A 90°, Coated



### Specification

HSS

Coating

■ Long shank high helix center drills - Type A  
A center drill for machining 90° center hole.  
Coated to improve wear resistance and anti-welding.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
15~30  
(m/min)

Medium carbon steels  
中炭素鋼  
15~30  
(m/min)

Stainless steels  
ステンレス鋼  
5~10  
(m/min)

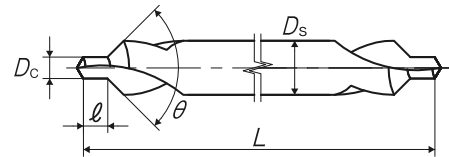
Brass  
黄銅  
25~50  
(m/min)

Brass castings  
黄銅鑄物  
25~50  
(m/min)

Wrought aluminum  
アルミ圧延材  
20~40  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
20~40  
(m/min)

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|---------|------------|------------|-----------|-----------|------------|------|------------|
| 1 × 90° × 4         | VCL1.0Z | 1          | 4          | 100       | 1         | 3          | 1    | ¥ 12,800   |
| 1 × 90° × 4         | VCM1.0Z | 1          | 4          | 150       | 1         | 3          | 1    | ¥ 20,700 ※ |
| 1.5 × 90° × 5       | VCL1.5Z | 1.5        | 5          | 100       | 1.5       | 4          | 1    | ¥ 10,300   |
| 1.5 × 90° × 5       | VCM1.5Z | 1.5        | 5          | 150       | 1.5       | 4          | 1    | ¥ 17,100 ※ |
| 2 × 90° × 6         | VCL2.0Z | 2          | 6          | 100       | 2         | 5          | 1    | ¥ 10,800   |
| 2 × 90° × 6         | VCM2.0Z | 2          | 6          | 150       | 2         | 5          | 1    | ¥ 17,400   |
| 2.5 × 90° × 8       | VCL2.5Z | 2.5        | 8          | 100       | 2.5       | 6.5        | 1    | ¥ 12,600   |
| 2.5 × 90° × 8       | VCM2.5Z | 2.5        | 8          | 150       | 2.5       | 6.5        | 1    | ¥ 20,000   |
| 3 × 90° × 8         | VCL3.0Z | 3          | 8          | 100       | 3         | 6.5        | 1    | ¥ 12,600   |
| 3 × 90° × 8         | VCM3.0Z | 3          | 8          | 150       | 3         | 6.5        | 1    | ¥ 20,000   |
| 4 × 90° × 10        | VCL4.0Z | 4          | 10         | 100       | 4.5       | 8.5        | 1    | ¥ 16,000   |
| 4 × 90° × 10        | VCM4.0Z | 4          | 10         | 150       | 4.5       | 8.5        | 1    | ¥ 23,600   |
| 5 × 90° × 12        | VCL5.0Z | 5          | 12         | 100       | 5.5       | 10         | 1    | ¥ 19,600   |
| 5 × 90° × 12        | VCM5.0Z | 5          | 12         | 150       | 5.5       | 10         | 1    | ¥ 28,800   |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

## C-CD-QL

Long Shank Low Helix Carbide Center Drills-Type A 90°



### Specification

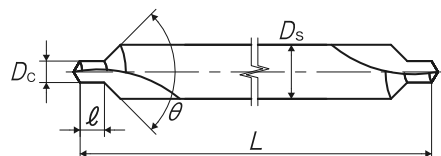
**HF**

■The C-CD-QL is a carbide long shank low helix center hole drill suitable for hard materials and mass production of center with 90° center holes.

### Cutting Speed depending on Materials

|                                                       |                                                |                                                                      |                                                                     |                                             |                                                   |                                                               |
|-------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------|---------------------------------------------------------------|
| High carbon steels<br>高炭素鋼<br><b>25~40</b><br>(m/min) | Alloy steels<br>合金鋼<br><b>15~30</b><br>(m/min) | Thermal refined steels<br>調質鋼<br><b>10~20</b><br>(m/min)<br>25~35HRC | Thermal refined steels<br>調質鋼<br><b>5~10</b><br>(m/min)<br>35~45HRC | Cast irons<br>鑄鉄<br><b>25~40</b><br>(m/min) | Brass castings<br>黄銅鑄物<br><b>25~50</b><br>(m/min) | Aluminum alloy castings<br>アルミ合金鑄物<br><b>25~50</b><br>(m/min) |
|-------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------|---------------------------------------------------------------|

### TYPE: 1



Segment : 52

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|---------|------------|------------|-----------|-----------|------------|------|------------|
| 1 × 90° × 4         | CCL1.0Q | 1          | 4          | 100       | 1         | 3          | 1    | ¥ 21,300 ※ |
| 1.5 × 90° × 5       | CCL1.5Q | 1.5        | 5          | 100       | 1.5       | 4          | 1    | ¥ 24,500 ※ |
| 2 × 90° × 6         | CCL2.0Q | 2          | 6          | 100       | 2         | 5          | 1    | ¥ 27,700 ※ |
| 2 × 90° × 6         | CCM2.0Q | 2          | 6          | 150       | 2         | 5          | 1    | ¥ 33,500 ※ |
| 2.5 × 90° × 8       | CCL2.5Q | 2.5        | 8          | 100       | 2.5       | 6.5        | 1    | ¥ 36,700 ※ |
| 2.5 × 90° × 8       | CCM2.5Q | 2.5        | 8          | 150       | 2.5       | 6.5        | 1    | ¥ 44,400 ※ |
| 3 × 90° × 8         | CCL3.0Q | 3          | 8          | 100       | 3         | 6.5        | 1    | ¥ 36,700 ※ |
| 3 × 90° × 8         | CCM3.0Q | 3          | 8          | 150       | 3         | 6.5        | 1    | ¥ 44,400 ※ |
| 4 × 90° × 10        | CCL4.0Q | 4          | 10         | 100       | 4.5       | 8.5        | 1    | ¥ 46,200 ※ |
| 4 × 90° × 10        | CCM4.0Q | 4          | 10         | 150       | 4.5       | 8.5        | 1    | ¥ 56,000 ※ |
| 5 × 90° × 12        | CCL5.0Q | 5          | 12         | 100       | 5.5       | 10         | 1    | ¥ 56,400 ※ |
| 5 × 90° × 12        | CCM5.0Q | 5          | 12         | 150       | 5.5       | 10         | 1    | ¥ 67,300 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-26

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Maximum dia.   | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|----------------|--------------|------------------------------|
| Dc         | Ds         | D <sub>1</sub> | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-27

S

## CESB

High Helix Center Drills-JIS Type B 60°



Specification

HSS

■ High helix center drills - JIS Type B suitable for soft or relatively tough materials.

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
15~30  
(m/min)

Medium carbon steels  
中炭素鋼  
15~30  
(m/min)

Stainless steels  
ステンレス鋼  
5~10  
(m/min)

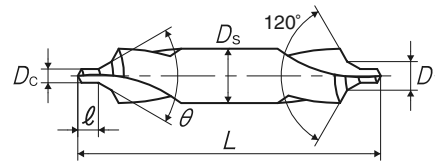
Brass  
黄銅  
25~50  
(m/min)

Brass castings  
黄銅鑄物  
25~50  
(m/min)

Wrought aluminum  
アルミ圧延材  
20~40  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
20~40  
(m/min)

TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | D <sub>1</sub><br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|---------|------------|------------|------------------------|-----------|-----------|------------|------|----------|
| 0.5 × 60° × 3.15    | CEB0.5  | 0.5        | 3.15       | 1.06                   | 31.5      | 0.8       | 1.6        | 1    | ¥ 3,780  |
| 0.63 × 60° × 3.15   | CEB0.63 | 0.63       | 3.15       | 1.32                   | 31.5      | 1         | 2          | 1    | ¥ 3,390  |
| 0.8 × 60° × 3.15    | CEB0.8  | 0.8        | 3.15       | 1.7                    | 31.5      | 1.2       | 2.5        | 1    | ¥ 2,900  |
| 1 × 60° × 4         | CEB1.0  | 1          | 4          | 2.12                   | 35.5      | 1.5       | 3.15       | 1    | ¥ 2,470  |
| 1.25 × 60° × 5      | CEB1.25 | 1.25       | 5          | 2.65                   | 40        | 1.9       | 4          | 1    | ¥ 2,320  |
| 1.6 × 60° × 6.3     | CEB1.6  | 1.6        | 6.3        | 3.35                   | 45        | 2.4       | 5          | 1    | ¥ 2,940  |
| 2 × 60° × 8         | CEB2.0  | 2          | 8          | 4.25                   | 50        | 3         | 6.3        | 1    | ¥ 2,940  |
| 2.5 × 60° × 10      | CEB2.5  | 2.5        | 10         | 5.3                    | 56        | 3.8       | 8          | 1    | ¥ 4,270  |
| 3.15 × 60° × 11.2   | CEB3.15 | 3.15       | 11.2       | 6.7                    | 60        | 4.8       | 10         | 1    | ¥ 6,320  |
| 4 × 60° × 14        | CEB4.0  | 4          | 14         | 8.5                    | 67        | 6         | 12.5       | 1    | ¥ 8,180  |
| 5 × 60° × 18        | CEB5.0  | 5          | 18         | 10.6                   | 75        | 7.5       | 16         | 1    | ¥ 17,000 |
| 6.3 × 60° × 20      | CEB6.3  | 6.3        | 20         | 13.2                   | 80        | 9.2       | 18         | 1    | ¥ 22,900 |
| 8 × 60° × 25        | CEB8.0  | 8          | 25         | 17                     | 100       | 11.5      | 22.4       | 1    | ¥ 33,700 |
| 10 × 60° × 31.5     | CEB010  | 10         | 31.5       | 21.2                   | 125       | 14.2      | 28         | 1    | ¥ 61,900 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

| Drill dia. | Shank dia. | Maximum dia.   | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|----------------|--------------|------------------------------|
| Dc         | Ds         | D <sub>1</sub> | L              | ℓ            | Dw                           |

## CE-S(II)

High Helix Center Drills-Type B 60°, (Old JIS Type 2)



### Specification

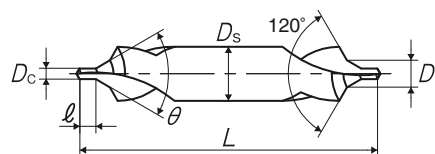
**HSS**

■ High helix center drills - old JIS Type 2 suitable for soft or relatively tough materials.

### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| 15~30<br>(m/min)          | 15~30<br>(m/min)             | 5~10<br>(m/min)            | 25~50<br>(m/min) | 25~50<br>(m/min)       | 20~40<br>(m/min)           | 20~40<br>(m/min)                   |

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | D <sub>1</sub><br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|--------|------------|------------|------------------------|-----------|-----------|------------|------|----------|
| 1 × 60° × 6         | CE21.0 | 1          | 6          | 2.5                    | 45        | 1.5       | 4          | 1    | ¥ 3,770  |
| 1.5 × 60° × 8       | CE21.5 | 1.5        | 8          | 4                      | 50        | 2         | 6          | 1    | ¥ 3,570  |
| 2 × 60° × 10        | CE22.0 | 2          | 10         | 5                      | 55        | 3         | 8          | 1    | ¥ 5,190  |
| 2.5 × 60° × 12      | CE22.5 | 2.5        | 12         | 6.5                    | 60        | 3.5       | 10         | 1    | ¥ 7,500  |
| 3 × 60° × 14        | CE23.0 | 3          | 14         | 8                      | 65        | 4         | 12         | 1    | ¥ 9,810  |
| 4 × 60° × 18        | CE24.0 | 4          | 18         | 10                     | 76        | 5         | 14         | 1    | ¥ 20,500 |
| 5 × 60° × 22        | CE25.0 | 5          | 22         | 12                     | 88        | 6.5       | 17         | 1    | ¥ 28,300 |
| 6 × 60° × 25        | CE26.0 | 6          | 25         | 15                     | 100       | 8         | 21         | 1    | ¥ 40,600 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-28

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Maximum dia.   | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|----------------|--------------|------------------------------|
| Dc         | Ds         | D <sub>1</sub> | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-29

S

## CD-S(II)

Low Helix Center Drills-Type B 60°, (Old JIS Type 2)



### Specification

HSS

■The CD-S(II) is an old JIS type 2 center hole drill suitable for relatively hard materials.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
15~30  
(m/min)

Medium carbon steels  
中炭素鋼  
15~30  
(m/min)

High carbon steels  
高炭素鋼  
15~30  
(m/min)

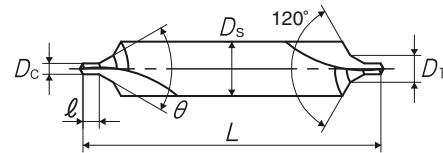
Alloy steels  
合金鋼  
10~25  
(m/min)

Cast steels  
鋳鋼  
15~30  
(m/min)

Cast irons  
鋳鉄  
10~15  
(m/min)

Ductile cast irons  
強靱鋳鉄  
10~20  
(m/min)

### TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code  | Dc<br>(mm) | Ds<br>(mm) | D <sub>1</sub><br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|-------|------------|------------|------------------------|-----------|-----------|------------|------|----------|
| 1 × 60° × 6         | C21.0 | 1          | 6          | 2.5                    | 45        | 1.5       | 4          | 1    | ¥ 3,770  |
| 1.5 × 60° × 8       | C21.5 | 1.5        | 8          | 4                      | 50        | 2         | 6          | 1    | ¥ 3,570  |
| 2 × 60° × 10        | C22.0 | 2          | 10         | 5                      | 55        | 3         | 8          | 1    | ¥ 5,190  |
| 2.5 × 60° × 12      | C22.5 | 2.5        | 12         | 6.5                    | 60        | 3.5       | 10         | 1    | ¥ 7,500  |
| 3 × 60° × 14        | C23.0 | 3          | 14         | 8                      | 65        | 4         | 12         | 1    | ¥ 9,810  |
| 4 × 60° × 18        | C24.0 | 4          | 18         | 10                     | 76        | 5         | 14         | 1    | ¥ 20,500 |
| 5 × 60° × 22        | C25.0 | 5          | 22         | 12                     | 88        | 6.5       | 17         | 1    | ¥ 28,300 |
| 6 × 60° × 25        | C26.0 | 6          | 25         | 15                     | 100       | 8         | 21         | 1    | ¥ 40,600 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

| Drill dia. | Shank dia. | —   | Maximum dia. | Overall length | Drill length | Larger cut length | Workpiece end-face hole size |
|------------|------------|-----|--------------|----------------|--------------|-------------------|------------------------------|
| Dc         | Ds         | Dc2 | D1           | L              | ℓ            | ℓ <sub>2</sub>    | Dw                           |

## CESC

### High Helix Center Drills-JIS Type C 60°



#### Specification

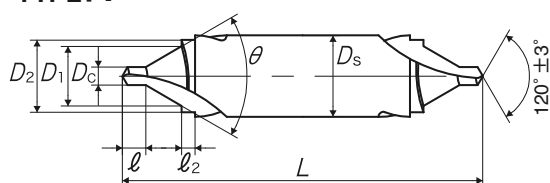
**HSS**

■ High helix center drills - JIS Type C suitable for soft or relatively tough materials.

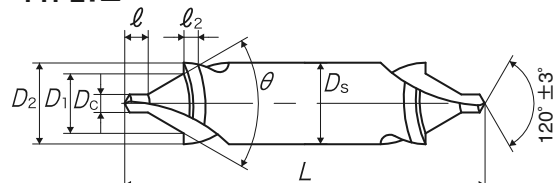
#### Cutting Speed depending on Materials

|                           |                              |                            |                  |                        |                            |                                    |
|---------------------------|------------------------------|----------------------------|------------------|------------------------|----------------------------|------------------------------------|
| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼 | Brass<br>黄銅      | Brass castings<br>黄銅鑄物 | Wrought aluminum<br>アルミ圧延材 | Aluminum alloy castings<br>アルミ合金鑄物 |
| 15~30<br>(m/min)          | 15~30<br>(m/min)             | 5~10<br>(m/min)            | 25~50<br>(m/min) | 25~50<br>(m/min)       | 20~40<br>(m/min)           | 20~40<br>(m/min)                   |

TYPE:1



TYPE:2



Segment : 51

| Size<br>Dc × θ × Ds | Code    | Dc<br>(mm) | Ds<br>(mm) | Dc2<br>(mm) | D1<br>(mm) | L<br>(mm) | ℓ<br>(mm) | ℓ <sub>2</sub><br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|---------|------------|------------|-------------|------------|-----------|-----------|------------------------|------------|------|----------|
| 0.5 × 60° × 3.15    | CEC0.5  | 0.5        | 3.15       | 1.6         | 1.06       | 31.5      | 0.8       | 0.6                    | 1.6        | 1    | ¥ 5,280  |
| 0.63 × 60° × 3.15   | CEC0.63 | 0.63       | 3.15       | 2           | 1.32       | 31.5      | 1         | 0.8                    | 2          | 1    | ¥ 4,750  |
| 0.8 × 60° × 3.15    | CEC0.8  | 0.8        | 3.15       | 2.5         | 1.7        | 31.5      | 1.2       | 1                      | 2.5        | 1    | ¥ 4,080  |
| 1 × 60° × 3.15      | CEC1.0  | 1          | 3.15       | 3.15        | 2.12       | 31.5      | 1.5       | 1.2                    | 3.15       | 2    | ¥ 4,080  |
| 1.25 × 60° × 4      | CEC1.25 | 1.25       | 4          | 4           | 2.65       | 35.5      | 1.9       | 1.5                    | 4          | 2    | ¥ 3,820  |
| 1.6 × 60° × 5       | CEC1.6  | 1.6        | 5          | 5           | 3.35       | 40        | 2.4       | 1.8                    | 5          | 2    | ¥ 3,240  |
| 2 × 60° × 6.3       | CEC2.0  | 2          | 6.3        | 6.3         | 4.25       | 45        | 3         | 2.2                    | 6.3        | 2    | ¥ 3,360  |
| 2.5 × 60° × 8       | CEC2.5  | 2.5        | 8          | 8           | 5.3        | 50        | 3.8       | 3                      | 8          | 2    | ¥ 3,820  |
| 3.15 × 60° × 10     | CEC3.15 | 3.15       | 10         | 10          | 6.7        | 56        | 4.8       | 3.5                    | 10         | 2    | ¥ 5,550  |
| 4 × 60° × 12.5      | CEC4.0  | 4          | 12.5       | 12.5        | 8.5        | 63        | 6         | 4.2                    | 12.5       | 2    | ¥ 7,020  |
| 5 × 60° × 16        | CEC5.0  | 5          | 16         | 16          | 10.6       | 71        | 7.5       | 5.5                    | 16         | 2    | ¥ 12,500 |
| 6.3 × 60° × 18      | CEC6.3  | 6.3        | 18         | 18          | 13.2       | 75        | 9.2       | 5.5                    | 18         | 2    | ¥ 23,000 |
| 8 × 60° × 22.4      | CEC8.0  | 8          | 22.4       | 22.4        | 17         | 90        | 11.5      | 5.5                    | 22.4       | 2    | ¥ 34,400 |
| 10 × 60° × 28       | CEC010  | 10         | 28         | 28          | 21.2       | 112       | 14.2      | 7                      | 28         | 2    | ¥ 79,200 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-30

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

## CEIR

### High Helix Center Drills-JIS Type R



Specification

**HSS**

■The CEIR is a high helix JIS type R center hole drill.

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**15~30**  
(m/min)

Medium carbon steels  
中炭素鋼  
**15~30**  
(m/min)

Stainless steels  
ステンレス鋼  
**5~10**  
(m/min)

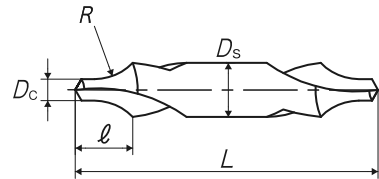
Brass  
黄銅  
**25~50**  
(m/min)

Brass castings  
黄銅鑄物  
**25~50**  
(m/min)

Wrought aluminum  
アルミ圧延材  
**20~40**  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
**20~40**  
(m/min)

TYPE: 1



Segment : 51

| Size<br>Dc × R × Ds | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Rmax<br>(mm) | Rmin<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|---------------------|----------|------------|------------|-----------|-----------|--------------|--------------|------------|------|----------|
| 1 × R × 3.15        | CE1.0RI  | 1          | 3.15       | 31.5      | 3         | 3.15         | 2.5          | 2.12       | 1    | ¥ 1,750  |
| 1.25 × R × 3.15     | CE1.25RI | 1.25       | 3.15       | 31.5      | 3.35      | 4            | 3.15         | 2.65       | 1    | ¥ 1,610  |
| 1.6 × R × 4         | CE1.6RI  | 1.6        | 4          | 35.5      | 4.25      | 5            | 4            | 3.35       | 1    | ¥ 1,550  |
| 2 × R × 5           | CE2.0RI  | 2          | 5          | 40        | 5.3       | 6.3          | 5            | 4.25       | 1    | ¥ 1,290  |
| 2.5 × R × 6.3       | CE2.5RI  | 2.5        | 6.3        | 45        | 6.7       | 8            | 6.3          | 5.3        | 1    | ¥ 1,400  |
| 3.15 × R × 8        | CE3.15RI | 3.15       | 8          | 50        | 8.5       | 10           | 8            | 6.7        | 1    | ¥ 1,870  |
| 4 × R × 10          | CE4.0RI  | 4          | 10         | 56        | 10.6      | 12.5         | 10           | 8.5        | 1    | ¥ 3,410  |
| 5 × R × 12.5        | CE5.0RI  | 5          | 12.5       | 63        | 13.2      | 16           | 12.5         | 10.6       | 1    | ¥ 4,570  |
| 6.3 × R × 16        | CE6.3RI  | 6.3        | 16         | 71        | 17        | 20           | 16           | 13.2       | 1    | ¥ 8,810  |
| 8 × R × 20          | CE8.0RI  | 8          | 20         | 80        | 21.2      | 25           | 20           | 17         | 1    | ¥ 18,000 |
| 10 × R × 25         | CE10RI   | 10         | 25         | 100       | 26.5      | 31.5         | 25           | 21.2       | 1    | ¥ 31,400 |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

JIS

⑪-31

Think threads with  
**YAMAWA**

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

## CD-R

### Low Helix Center Drills-Type R



#### Specification

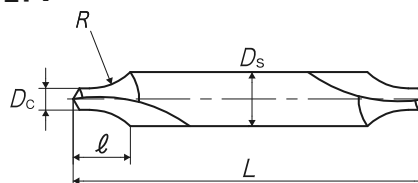
**HSS**

■ The CD-R is a high helix type R center hole drill.

#### Cutting Speed depending on Materials

| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鋳鋼  | Cast irons<br>鋳鉄   | Ductile cast irons<br>強靱鋳鉄 |
|---------------------------|------------------------------|----------------------------|---------------------|--------------------|--------------------|----------------------------|
| 15 ~ 30<br>(m/min)        | 15 ~ 30<br>(m/min)           | 15 ~ 30<br>(m/min)         | 10 ~ 25<br>(m/min)  | 15 ~ 30<br>(m/min) | 10 ~ 15<br>(m/min) | 10 ~ 20<br>(m/min)         |

#### TYPE: 1



Segment : 51

| Size<br>Dc × R × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Rmax<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|-----------|------------|------------|-----------|-----------|--------------|------------|------|------------|
| 0.7 × R × 3.5       | CY0.7R    | 0.7        | 3.5        | 35        | 2.5       | 2.5          | 2          | 1    | ¥ 3,900 ※  |
| 0.8 × R × 3.5       | CY0.8R    | 0.8        | 3.5        | 35        | 2.6       | 2.5          | 2          | 1    | ¥ 3,330 ※  |
| 1 × R × 4           | CY1.0R    | 1          | 4          | 35        | 3.25      | 3.15         | 2.5        | 1    | ¥ 2,930 ※  |
| 1.5 × R × 5         | CY1.5R    | 1.5        | 5          | 40        | 4.6       | 5            | 4          | 1    | ¥ 2,300    |
| 2 × R × 6           | CY2.0R    | 2          | 6          | 45        | 5.75      | 6.3          | 5          | 1    | ¥ 2,570    |
| 2.5 × R × 7.7       | CY2.5R    | 2.5        | 7.7        | 50        | 7.3       | 8            | 6.5        | 1    | ¥ 3,330    |
| 3 × R × 7.7         | CY3.0R    | 3          | 7.7        | 55        | 8.3       | 10           | 6.5        | 1    | ¥ 4,350    |
| 4 × R × 10          | CY4.0R    | 4          | 10         | 65        | 10.6      | 12.5         | 8.5        | 1    | ¥ 7,050    |
| 5 × R × 11          | CY5.0R    | 5          | 11         | 78        | 12.4      | 16           | 9          | 1    | ¥ 8,960 ※  |
| 6 × R × 16          | CY6.0R-16 | 6          | 16         | 90        | 16.9      | 20           | 13.5       | 1    | ¥ 13,600 ※ |
| 6 × R × 18          | CY6.0R    | 6          | 18         | 90        | 17.8      | 20           | 15         | 1    | ¥ 19,100 ※ |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-32

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

11-33

S

## CE-T

High Helix A Type 75° Center Hole Drill



Specification

**HSS**

■ High helix center drills - Type A center drill for machining 75° center hole. Suitable for soft or relatively tough materials.

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**15~30**  
(m/min)

Medium carbon steels  
中炭素鋼  
**15~30**  
(m/min)

Stainless steels  
ステンレス鋼  
**5~10**  
(m/min)

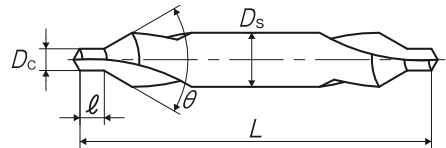
Brass  
黄銅  
**25~50**  
(m/min)

Brass castings  
黄銅鑄物  
**25~50**  
(m/min)

Wrought aluminum  
アルミ圧延材  
**20~40**  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
**20~40**  
(m/min)

TYPE: 1



Segment : 51

| Size<br>Dc × θ × Ds | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP       |
|---------------------|--------|------------|------------|-----------|-----------|------------|------|------------|
| 1 × 75° × 4         | CE1.0T | 1          | 4          | 35        | 1         | 2.5        | 1    | ¥ 2,450 ※  |
| 1.5 × 75° × 5       | CE1.5T | 1.5        | 5          | 40        | 1.5       | 4          | 1    | ¥ 1,930 ※  |
| 2 × 75° × 6         | CE2.0T | 2          | 6          | 45        | 2         | 5          | 1    | ¥ 2,130 ※  |
| 2.5 × 75° × 7.7     | CE2.5T | 2.5        | 7.7        | 50        | 2.5       | 6.5        | 1    | ¥ 2,620 ※  |
| 3 × 75° × 7.7       | CE3.0T | 3          | 7.7        | 55        | 3         | 6.5        | 1    | ¥ 2,620 ※  |
| 4 × 75° × 10        | CE4.0T | 4          | 10         | 65        | 4.5       | 8.5        | 1    | ¥ 5,200 ※  |
| 5 × 75° × 11        | CE5.0T | 5          | 11         | 78        | 5.5       | 9          | 1    | ¥ 5,620 ※  |
| 6 × 75° × 18        | CE6.0T | 6          | 18         | 90        | 6.5       | 15         | 1    | ¥ 19,000 ※ |
| 8 × 75° × 18        | CE8.0T | 8          | 18         | 100       | 8.5       | 15         | 1    | ¥ 21,800 ※ |
| 10 × 75° × 18       | CE010T | 10         | 18         | 100       | 11        | 15         | 1    | ¥ 21,800 ※ |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

## M E M O

Spiral Fluted Taps  
(for blind hole) ①Spiral Fluted Taps  
(for through hole) ②Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪Precision Machinery/  
Medical Surgical Instruments ⑫

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

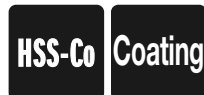
S

## MHCDS

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



### Specification



### Cutting Speed depending on Materials

| Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Thermal refined steels<br>調質鋼 | Tool steels<br>工具鋼 | Ductile cast irons<br>強靱鑄鉄 |
|------------------------------|----------------------------|---------------------|-------------------------------|--------------------|----------------------------|
| 20~40<br>(m/min)             | 20~40<br>(m/min)           | 20~40<br>(m/min)    | 10~20<br>(m/min)              | 15~30<br>(m/min)   | 15~40<br>(m/min)           |
| 25~35HRC                     |                            |                     |                               |                    |                            |

### 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 ( $\ell$ ) 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 [ $3 \times 60^\circ \times 8$ ]

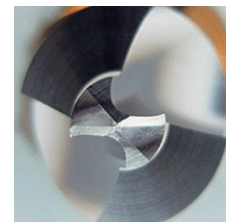
|               |                                   |
|---------------|-----------------------------------|
| Work material | S55C                              |
| Cutting speed | 30m/min (1,200min <sup>-1</sup> ) |
| Feed          | 0.15mm/rev                        |
| Machine       | NC lathe    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

<After drilling 480 holes>  
Large wear



CD-S

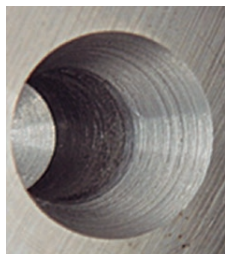
<After drilling 480 holes>  
Small wear



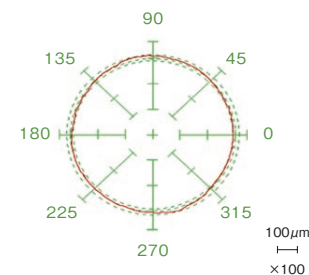
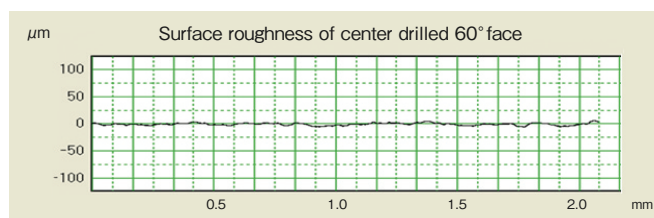
MHCDS

#### 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× $\theta$ ×Ds | Feed<br>(mm/rev) | Revolution speed<br>(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                    |                  | 1,500                                    |
| 3×60°×8                      | 0.2              | 1,200                                    |
| 4×60°×10                     |                  | 1,000                                    |
| 5×60°×12                     |                  | 800                                      |
| 6×60°×16                     |                  | 600                                      |

JIS

⑪-35

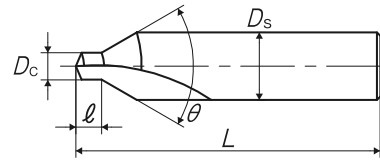
Think threads with  
**YAMAWA**

| Drill<br>dia. | Shank<br>dia. | Overall<br>length | Drill<br>length | Workpiece end-face<br>Hole size |
|---------------|---------------|-------------------|-----------------|---------------------------------|
| Dc            | Ds            | L                 | $\ell$          | Dw                              |

11

JIS

TYPE: 1



Segment : 51

| Size<br>Dc × $\theta$ × Ds | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | Dw<br>(mm) | TYPE | MSRP     |
|----------------------------|-----------|------------|------------|-----------|----------------|------------|------|----------|
| 1 × 60° × 4                | VMHCD1.0S | 1          | 4          | 30        | 1              | 2.5        | 1    | ¥ 2,730  |
| 1.5 × 60° × 5              | VMHCD1.5S | 1.5        | 5          | 30        | 1.5            | 4          | 1    | ¥ 2,600  |
| 2 × 60° × 6                | VMHCD2.0S | 2          | 6          | 30        | 1.9            | 5          | 1    | ¥ 2,840  |
| 2.5 × 60° × 8              | VMHCD2.5S | 2.5        | 8          | 40        | 2.4            | 6.5        | 1    | ¥ 3,440  |
| 3 × 60° × 8                | VMHCD3.0S | 3          | 8          | 40        | 2.8            | 6.5        | 1    | ¥ 3,440  |
| 4 × 60° × 10               | VMHCD4.0S | 4          | 10         | 45        | 3.8            | 8.5        | 1    | ¥ 5,020  |
| 5 × 60° × 12               | VMHCD5.0S | 5          | 12         | 55        | 4.6            | 10         | 1    | ¥ 6,480  |
| 6 × 60° × 16               | VMHCD6.0S | 6          | 16         | 65        | 5.5            | 13.5       | 1    | ¥ 15,200 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, “27. Table of recommend centering condition.”

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-36

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

JIS

## AUCES

Coated Type A 60° High Helix Single End Center Hole Drill



Specification Cutting Speed depending on Materials

| HSS     | Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | Stainless steels<br>ステンレス鋼         |
|---------|---------------------------|------------------------------|------------------------------------|
|         | 20~40<br>(m/min)          | 20~40<br>(m/min)             | 10~20<br>(m/min)                   |
| Coating | Brass<br>黄銅               | Brass castings<br>黄銅鑄物       | Wrought aluminum<br>アルミ圧延材         |
|         | 30~60<br>(m/min)          | 30~60<br>(m/min)             | 25~60<br>(m/min)                   |
|         |                           |                              | Aluminum alloy castings<br>アルミ合金鑄物 |
|         |                           |                              | 25~60<br>(m/min)                   |

## AUCDS

Coated Type A 60° Low Helix Single End Center Hole Drill

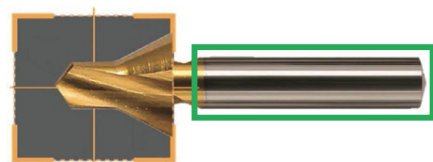


Specification Cutting Speed depending on Materials

| HSS     | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼        | Thermal refined steels<br>調質鋼 |
|---------|------------------------------|----------------------------|----------------------------|-------------------------------|
|         | 20~40<br>(m/min)             | 20~40<br>(m/min)           | 20~40<br>(m/min)           | 15~30<br>(m/min)              |
| Coating | Cast steels<br>鑄鋼            | Cast irons<br>鑄鉄           | Ductile cast irons<br>強靱鑄鉄 | 25~35HRC                      |
|         | 20~40<br>(m/min)             | 10~40<br>(m/min)           | 10~40<br>(m/min)           |                               |

### Product Features

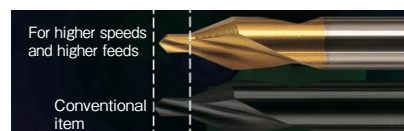
- To improve the tools precision and accuracy, YAMAWA adopted a single end design.
- Higher quality center holes can be achieved with the AUCES and AUCDS coated, single end design center hole drill.
- Because of the single end design, the tool length in the holder is constant and the tool projection is constant.



Compared with a double end center hole drill, the accuracy of the drill part and shank accuracy are improved with a single end center hole drill.

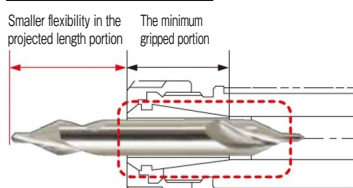


The position of the tool identification markings is made at the back of the shank part to avoid holding at the marking position of the drill.

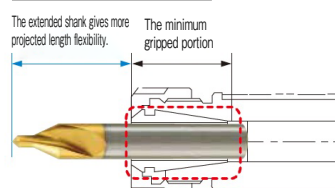


The drill length (ℓ) is shorter than the conventional double end product. Higher speed, higher feed machining is possible.

Double-ended type



Single-ended type

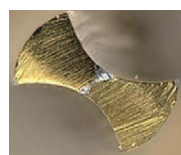


### Cutting Data

| Tool Type                     | Coated Single-End Center Hole Drill AUCES      | Coated Double Ended Center Hole Drill CE-SV |
|-------------------------------|------------------------------------------------|---------------------------------------------|
| Size                          | 3×60°×8                                        |                                             |
| Workpiece Material & Hardness | S50C (96~98HRB)                                |                                             |
| Cutting Speed                 | 10m/min, 30m/min                               |                                             |
| Feed Per Rev.                 | 0.05mm/rev, 0.12mm/rev                         |                                             |
| Large Diameter                | φ6                                             |                                             |
| Machinery Type                | Vertical machining center                      |                                             |
| Cutting Fluid                 | Water soluble cutting fluid (20 to 1 dilution) |                                             |
| Tool Type                     | Coated Single-End Center Hole Drill AUCES      | Coated Double Ended Center Hole Drill CE-SV |
| Size                          | 1×60°×4                                        |                                             |
| Workpiece Material            | S50C                                           |                                             |
| Cutting Speed                 | 30m/min                                        |                                             |
| Feed Per Rev.                 | 0.04mm/rev                                     |                                             |
| Large Diameter                | φ3                                             |                                             |

| Machining Conditions                                                       | Single End Center Hole Drill AUCES | Double End Center hole drill CE-SV |
|----------------------------------------------------------------------------|------------------------------------|------------------------------------|
| Workpiece Material: S50C<br>Cutting Speed 10m/min<br>Feed Rate: 0.05mm/rev |                                    |                                    |
| Material S50C<br>Cutting Speed 30m/min<br>Feed Rate: 0.12mm/rev            |                                    |                                    |

Coated Single End Center Hole Drill AUCES



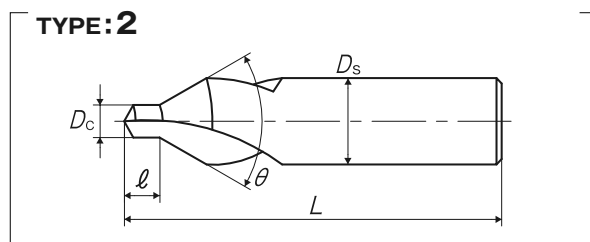
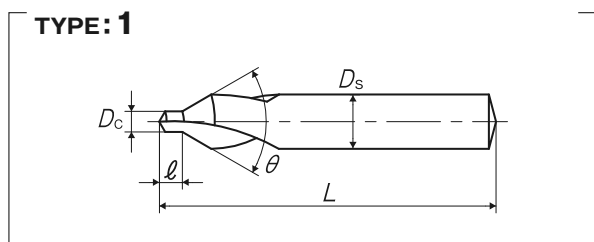
Coated Double End Center Hole Drill CE-SV



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 Premium Thread Mills  
⑩ Dies  
⑪ Center Drills Centering Tools  
⑫ Precision Machinery/ Medical Surgical Instruments

| Drill dia. | Shank dia. | Overall length | Drill length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|------------------------------|
| Dc         | Ds         | L              | ℓ            | Dw                           |

## AUCES Coated Type A 60° High Helix Single End Center Hole Drill

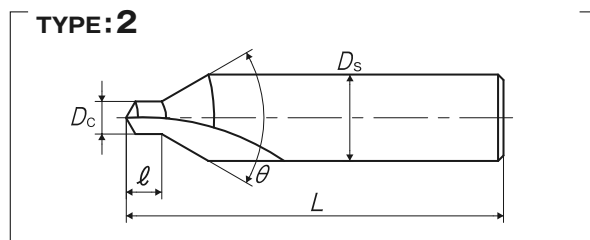
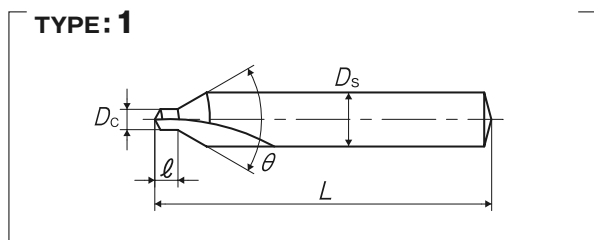


Segment : 51

| Size<br>Dc × θ × Ds | Code         | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP    |
|---------------------|--------------|------------|------------|-----------|-----------|------------|------|---------|
| 1× 60°× 4           | YH61.00ZNEVD | 1          | 4          | 35        | 1.1       | 2.5        | 1    | ¥ 1,750 |
| 1.5× 60°× 5         | YH61.50ZNEVE | 1.5        | 5          | 40        | 1.6       | 4          | 1    | ¥ 1,660 |
| 2× 60°× 6           | YH62.00ZNEVF | 2          | 6          | 45        | 2.1       | 5          | 1    | ¥ 1,810 |
| 2.5× 60°× 8         | YH62.50ZNEVI | 2.5        | 8          | 50        | 2.7       | 6.5        | 1    | ¥ 2,200 |
| 3× 60°× 8           | YH63.00ZNEVI | 3          | 8          | 50        | 3.2       | 6.5        | 1    | ¥ 2,200 |
| 4× 60°× 10          | YH64.00ZNEVJ | 4          | 10         | 55        | 4.3       | 8.5        | 1    | ¥ 3,210 |
| 5× 60°× 12          | YH65.00ZNEVM | 5          | 12         | 65        | 5.3       | 10         | 1    | ¥ 4,140 |
| 6× 60°× 16          | YH66.00ZNEVP | 6          | 16         | 70        | 6.4       | 13.5       | 2    | ¥ 9,640 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

## AUCDS Coated Type A 60 °Low Helix Single End Center Hole Drill



Segment : 51

| Size<br>Dc × θ × Ds | Code         | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | Dw<br>(mm) | TYPE | MSRP    |
|---------------------|--------------|------------|------------|-----------|-----------|------------|------|---------|
| 1× 60°× 4           | YL61.00ZNEVD | 1          | 4          | 35        | 1.1       | 2.5        | 1    | ¥ 1,750 |
| 1.5× 60°× 5         | YL61.50ZNEVE | 1.5        | 5          | 40        | 1.6       | 4          | 1    | ¥ 1,660 |
| 2× 60°× 6           | YL62.00ZNEVF | 2          | 6          | 45        | 2.1       | 5          | 1    | ¥ 1,810 |
| 2.5× 60°× 8         | YL62.50ZNEVI | 2.5        | 8          | 50        | 2.7       | 6.5        | 1    | ¥ 2,200 |
| 3× 60°× 8           | YL63.00ZNEVI | 3          | 8          | 50        | 3.2       | 6.5        | 1    | ¥ 2,200 |
| 4× 60°× 10          | YL64.00ZNEVJ | 4          | 10         | 55        | 4.3       | 8.5        | 1    | ¥ 3,210 |
| 5× 60°× 12          | YL65.00ZNEVM | 5          | 12         | 65        | 5.3       | 10         | 1    | ¥ 4,140 |
| 6× 60°× 16          | YL66.00ZNEVP | 6          | 16         | 70        | 6.4       | 13.5       | 2    | ¥ 9,640 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS ⑪-38

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length   |
|------------|------------|----------------|----------------|
| Dc         | Ds         | L              | ℓ <sub>1</sub> |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

## AUPEQ

Coated Single End Point Drill PE-90°



Specification Cutting Speed depending on Materials

| HSS     | Low carbon steels<br>低炭素鋼     | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼                |
|---------|-------------------------------|------------------------------|----------------------------|------------------------------------|
|         | 38~48<br>(m/min)              | 33~43<br>(m/min)             | 28~38<br>(m/min)           | 26~33<br>(m/min)                   |
| Coating | Thermal refined steels<br>調質鋼 | Stainless steels<br>ステンレス鋼   | Cast irons<br>鋳鉄           | Aluminum alloy castings<br>アルミ合金鋳物 |
|         | 13~17<br>(m/min)<br>25~35HRC  | 13~20<br>(m/min)             | 40~50<br>(m/min)           | 84~120<br>(m/min)                  |

## AUPES

Coated Single End Point Drill PE-60°



Specification Cutting Speed depending on Materials

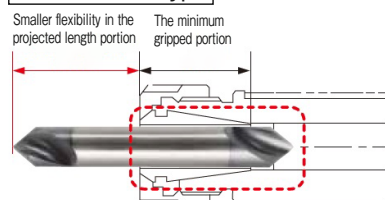
| HSS     | Low carbon steels<br>低炭素鋼     | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼                |
|---------|-------------------------------|------------------------------|----------------------------|------------------------------------|
|         | 38~48<br>(m/min)              | 33~43<br>(m/min)             | 28~38<br>(m/min)           | 26~33<br>(m/min)                   |
| Coating | Thermal refined steels<br>調質鋼 | Stainless steels<br>ステンレス鋼   | Cast irons<br>鋳鉄           | Aluminum alloy castings<br>アルミ合金鋳物 |
|         | 13~17<br>(m/min)<br>25~35HRC  | 13~20<br>(m/min)             | 40~50<br>(m/min)           | 84~120<br>(m/min)                  |

### Product Features

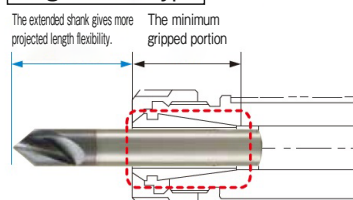
- An excellent surface finish can be obtained while maintaining cutting edge sharpness from the high helix flute design.
- Accuracy improvements are also achieved from the single end design.
- A design for higher rigidity enables high speed cutting.
- The problem of cutting edge breakage when the center hole drill is in use has been solved by using the point drill.
- Simultaneous combining the center positioning and chamfering is possible. It can also be used as a multi function tool like groove processing.
- Higher precision machining can be achieved with the two stage point shape design.
- With a single end center point drill, the degree of chip space widens, so the chips are discharged smoothly.

Differences in projection length and degrees of freedom between single end and double end point drills

#### Double-ended type

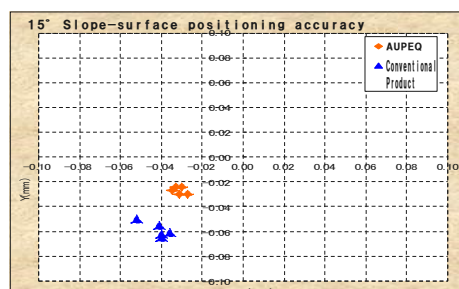
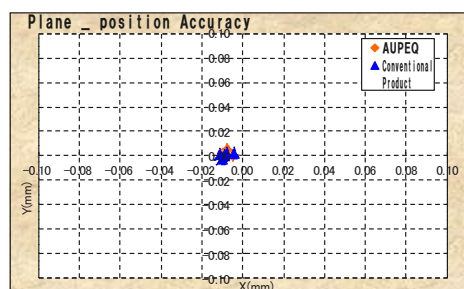


#### Single-ended type



### Cutting data

| Tool Type          | Coated Single End Point Drill AUPEQ | Coated Double End Point Drill Comparison Product |
|--------------------|-------------------------------------|--------------------------------------------------|
| Size               | 12×3.5×90°                          |                                                  |
| Workpiece Material | SCM440(alloy steel)                 |                                                  |
| Surface Condition  | flat 15° incline surface            |                                                  |
| Cutting Speed      | 10m/min                             |                                                  |
| Feed Per Rev.      | 0.05mm/rev                          |                                                  |
| Processing Length  | φ8 flat surface                     |                                                  |
| Cutting Fluid      | Water soluble cutting fluid (x20)   |                                                  |
| Machinery Type     | Vertical machining center           |                                                  |



AUPEQ / AUPES improves positioning accuracy dramatically.  
High precision positioning is possible as shown in the above figure.

Think threads with  
**YAMAWA**

JIS

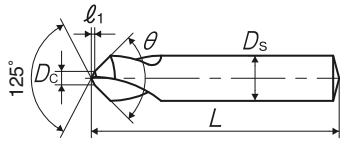
| Drill dia. | Shank dia. | Overall length | Drill length |
|------------|------------|----------------|--------------|
| Dc         | Ds         | L              | $\ell_1$     |

11

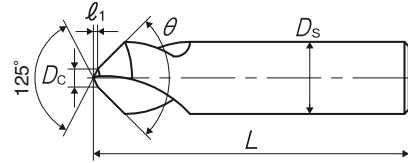
JIS

## AUPEQ Coated Single End Point Drill PE-90°

TYPE:1



TYPE:2

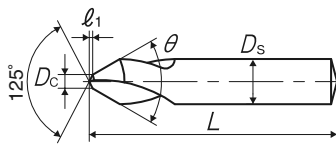


Segment : 56

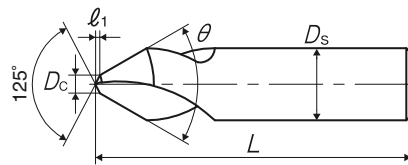
| Size<br>Ds × Dc × θ | Code         | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell_1$<br>(mm) | TYPE | MSRP     |
|---------------------|--------------|------------|------------|-----------|------------------|------|----------|
| 3×0.5×90°           | PZ93.00ZNETZ | 0.5        | 3          | 35        | 0.13             | 1    | ¥ 3,390  |
| 4×1×90°             | PZ94.00ZNETZ | 1          | 4          | 35        | 0.26             | 1    | ¥ 3,060  |
| 6×2×90°             | PZ96.00ZNETZ | 2          | 6          | 45        | 0.52             | 1    | ¥ 3,410  |
| 8×2.5×90°           | PZ98.00ZNETZ | 2.5        | 8          | 50        | 0.65             | 1    | ¥ 4,180  |
| 10×3×90°            | PZ910.0ZNETZ | 3          | 10         | 55        | 0.78             | 1    | ¥ 5,410  |
| 12×3.5×90°          | PZ912.0ZNETZ | 3.5        | 12         | 65        | 0.91             | 1    | ¥ 6,950  |
| 16×4×90°            | PZ916.0ZNETZ | 4          | 16         | 70        | 1.04             | 2    | ¥ 10,400 |
| 20×5×90°            | PZ920.0ZNETZ | 5          | 20         | 80        | 1.30             | 2    | ¥ 15,900 |

## AUPES Coated Single End Point Drill PE-60°

TYPE:1



TYPE:2



Segment : 56

| Size<br>Ds × Dc × θ | Code         | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell_1$<br>(mm) | TYPE | MSRP     |
|---------------------|--------------|------------|------------|-----------|------------------|------|----------|
| 3×0.5×60°           | PZ63.00ZNETZ | 0.5        | 3          | 35        | 0.13             | 1    | ¥ 3,390  |
| 4×1×60°             | PZ64.00ZNETZ | 1          | 4          | 35        | 0.26             | 1    | ¥ 3,060  |
| 6×2×60°             | PZ66.00ZNETZ | 2          | 6          | 45        | 0.52             | 1    | ¥ 3,410  |
| 8×2.5×60°           | PZ68.00ZNETZ | 2.5        | 8          | 50        | 0.65             | 1    | ¥ 4,180  |
| 10×3×60°            | PZ610.0ZNETZ | 3          | 10         | 55        | 0.78             | 1    | ¥ 5,410  |
| 12×3.5×60°          | PZ612.0ZNETZ | 3.5        | 12         | 65        | 0.91             | 1    | ¥ 6,950  |
| 16×4×60°            | PZ616.0ZNETZ | 4          | 16         | 70        | 1.04             | 2    | ¥ 10,400 |
| 20×5×60°            | PZ620.0ZNETZ | 5          | 20         | 80        | 1.30             | 2    | ¥ 15,900 |

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-40

# 11 Center Drills / Centering Tools

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  
Premium Thread Mills

⑩

Dies

⑪

Center Drills  
Centering Tools

⑫

Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-41

## SHANK EXTENSION

Shank Extension



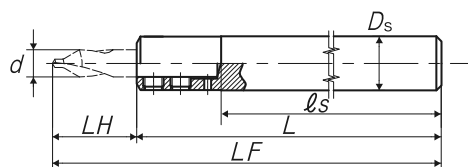
Specification

**Alloy  
steel**

### Product Features

- The shank extension can provide a long overall length (LF) of 150 mm when used with a coated single end center drill (AUCES/AUCDS) or coated single end point drill (AUPEQ/AUPES).
- The shank diameter D<sub>s</sub> is 16 mm or 20 mm, so it can be held by a general holder.

**TYPE: 1**



Area : 5A

| Size<br>d × D <sub>s</sub> × LF | Product Code | d<br>(mm) | D <sub>s</sub><br>(mm) | L<br>(mm) | LF<br>(mm) | LH<br>(mm) | L <sub>s</sub><br>(mm) | Shape<br>type | Manufacturer's<br>Retail Price |
|---------------------------------|--------------|-----------|------------------------|-----------|------------|------------|------------------------|---------------|--------------------------------|
| 6 × 16 × 150                    | SE0616M      | 6         | 16                     | 128       | 150        | 22         | 105                    | 1             | ¥ 14,500 □                     |
| 8 × 16 × 150                    | SE0816M      | 8         | 16                     | 125       | 150        | 25         | 100                    | 1             | ¥ 14,500 □                     |
| 10 × 20 × 150                   | SE1020M      | 10        | 20                     | 123       | 150        | 27         | 95                     | 1             | ¥ 16,200 □                     |

Note:

- Insert the center hole drill or the point drill all the way into the shank extension, alternately tighten the two set screws so to develop a balanced fastening. Secure the tool tight in the holder. Also, note that tightening only one set screw will cause run-out.

Think threads with  
**YAMAWA**

□=In stock at manufacturer.

## M E M O

Spiral Fluted Taps  
(for blind hole) ①Spiral Fluted Taps  
(for through hole) ②Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪Precision Machinery/  
Medical Surgical Instruments ⑫

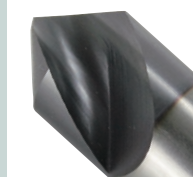
| Point dia. | Shank dia. | Overall length | Point length |
|------------|------------|----------------|--------------|
| Dc         | Ds         | L              | $\ell_1$     |

JIS

## POINT DRILLS

### Product Features

- The improved design enables better rigidity for high speed cutting.
- A stronger helical flute design helps improve surface roughness while maintaining good cutting edge sharpness.

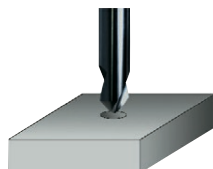


The drill point angle is 125°. The chamfer angle is available as a 90° or 60°. Simultaneous centering and chamfering with one tool! Chamfering and groove processing are also possible!

- Unlike a normal center hole drill, a point drill has no cutting edge part, so problems with breakage of the drill portion are eliminated.
- Simultaneous combining the positioning and chamfering are possible. It can also be used as a multi-function tool for groove machining.
- High precision machining can be achieved with the two stage point shape.

### Usage example

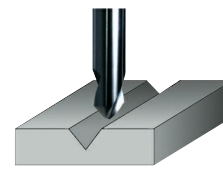
#### Centering and Chamfering



#### Chamfering



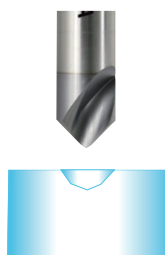
#### Groove Machining



### Drill and tap processing

#### Point Drill

Centering/  
Chamfering  
machining at  
the same  
time



#### Drilling



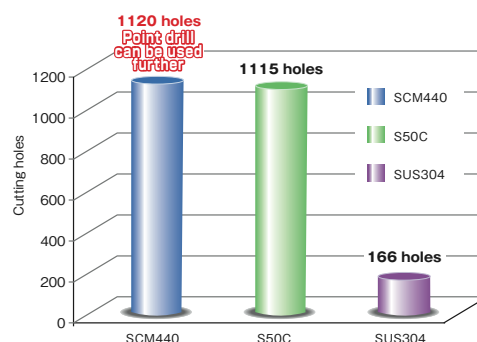
#### Tapping



### Centering continuous processing data

| Tool               | Workpiece Material          | Cutting Speed | Feed Rate  | Chamfer Hole Diameter | Cutting Depth | Used Machine                            | Cutting fluid                                   |
|--------------------|-----------------------------|---------------|------------|-----------------------|---------------|-----------------------------------------|-------------------------------------------------|
| PE-Q<br>12×3.5×90° | SCM440<br>(Alloy steel)     | 25m/min       | 0.15mm/rev | φ8.0                  | 3.0mm         | Machining<br>Center<br>Vertical<br>type | Water -<br>soluble oil<br>(20-fold<br>dilution) |
|                    | S50C<br>(Carbon steel)      | 25m/min       | 0.2mm/rev  |                       |               |                                         |                                                 |
|                    | SUS304<br>(Stainless steel) | 15m/min       | 0.1mm/rev  |                       |               |                                         |                                                 |

### Comparison of the number of holes processed in various workpiece materials.



| Point dia. | Shank dia. | Overall length | Point length |
|------------|------------|----------------|--------------|
| Dc         | Ds         | L              | $\ell_1$     |

11

JIS

JIS

## PE-Q

Point Drills 90°

Specification

**HSS**

■PE-Q is the point drill enabling positioning (125° edge angle) and chamfering (90°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design.

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**30~40**  
(m/min)

Medium carbon steels  
中炭素鋼  
**25~35**  
(m/min)

High carbon steels  
高炭素鋼  
**20~30**  
(m/min)

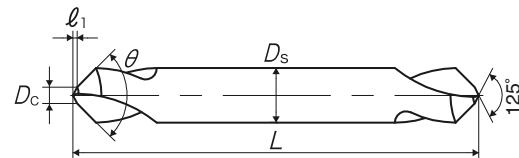
Alloy steels  
合金鋼  
**20~25**  
(m/min)

Stainless steels  
ステンレス鋼  
**10~15**  
(m/min)

Cast irons  
鋳鉄  
**30~40**  
(m/min)

Aluminum alloy castings  
アルミ合金鋳物  
**70~100**  
(m/min)

TYPE: 1



Segment : 56

| Size<br>Ds × Dc × θ | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell_1$<br>(mm) | TYPE | MSRP     |
|---------------------|--------|------------|------------|-----------|------------------|------|----------|
| 3 × 0.5 × 90°       | PE3.0Q | 0.5        | 3          | 40        | 0.13             | 1    | ¥ 3,370  |
| 4 × 1 × 90°         | PE4.0Q | 1          | 4          | 45        | 0.26             | 1    | ¥ 2,740  |
| 6 × 2 × 90°         | PE6.0Q | 2          | 6          | 55        | 0.52             | 1    | ¥ 2,600  |
| 8 × 2.5 × 90°       | PE8.0Q | 2.5        | 8          | 65        | 0.65             | 1    | ¥ 3,120  |
| 10 × 3 × 90°        | PE010Q | 3          | 10         | 75        | 0.78             | 1    | ¥ 4,660  |
| 12 × 3.5 × 90°      | PE012Q | 3.5        | 12         | 85        | 0.91             | 1    | ¥ 6,130  |
| 16 × 4 × 90°        | PE016Q | 4          | 16         | 90        | 1.04             | 1    | ¥ 10,500 |
| 20 × 5 × 90°        | PE020Q | 5          | 20         | 100       | 1.30             | 1    | ¥ 15,700 |

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

# 11 Center Drills / Centering Tools

| Point dia. | Shank dia. | Overall length | Point length   |
|------------|------------|----------------|----------------|
| Dc         | Ds         | L              | ℓ <sub>1</sub> |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-45

JIS

## PE-Q V

Point Drills 90°, Coated



### Specification

HSS

Coating

■PE-Q V is the coated point drill enabling positioning (125° edge angle) and chamfering (90°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design. Optimum coating suitable for the cutting condition.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**40~50**  
(m/min)

Medium carbon steels  
中炭素鋼  
**30~45**  
(m/min)

High carbon steels  
高炭素鋼  
**30~46**  
(m/min)

Alloy steels  
合金鋼  
**25~35**  
(m/min)

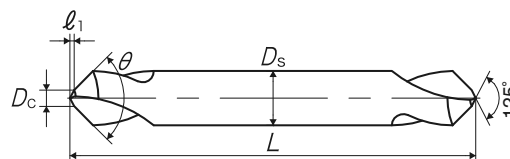
Thermal refined steels  
調質鋼  
**10~20**  
(m/min)  
25~35HRC

Stainless steels  
ステンレス鋼  
**15~20**  
(m/min)

Cast irons  
鋳鉄  
**40~50**  
(m/min)

Aluminum alloy castings  
アルミ合金鋳物  
**85~120**  
(m/min)

### TYPE: 1



Segment : 56

| Size<br>Ds × Dc × θ | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ <sub>1</sub><br>(mm) | TYPE | MSRP     |
|---------------------|---------|------------|------------|-----------|------------------------|------|----------|
| 3 × 0.5 × 90°       | VPE3.0Q | 0.5        | 3          | 40        | 0.13                   | 1    | ¥ 5,430  |
| 4 × 1 × 90°         | VPE4.0Q | 1          | 4          | 45        | 0.26                   | 1    | ¥ 5,020  |
| 6 × 2 × 90°         | VPE6.0Q | 2          | 6          | 55        | 0.52                   | 1    | ¥ 5,490  |
| 8 × 2.5 × 90°       | VPE8.0Q | 2.5        | 8          | 65        | 0.65                   | 1    | ¥ 6,880  |
| 10 × 3 × 90°        | VPE010Q | 3          | 10         | 75        | 0.78                   | 1    | ¥ 8,800  |
| 12 × 3.5 × 90°      | VPE012Q | 3.5        | 12         | 85        | 0.91                   | 1    | ¥ 11,300 |
| 16 × 4 × 90°        | VPE016Q | 4          | 16         | 90        | 1.04                   | 1    | ¥ 16,900 |
| 20 × 5 × 90°        | VPE020Q | 5          | 20         | 100       | 1.30                   | 1    | ¥ 25,900 |

| Point dia. | Shank dia. | Overall length | Point length |
|------------|------------|----------------|--------------|
| Dc         | Ds         | L              | $\ell_1$     |

11

JIS

## C-PE-Q V

Carbide Point Drills 90°, Coated



### Specification

**HF**
**Coating**

■C-PE-Q V is the carbide point drill enabling positioning (125° edge angle) and chamfering (90°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design. Optimum coating suitable for the cutting condition.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**85~100**  
(m/min)

Medium carbon steels  
中炭素鋼  
**75~90**  
(m/min)

High carbon steels  
高炭素鋼  
**65~80**  
(m/min)

Alloy steels  
合金鋼  
**60~70**  
(m/min)

Thermal refined steels  
調質鋼  
**30~40**  
(m/min)

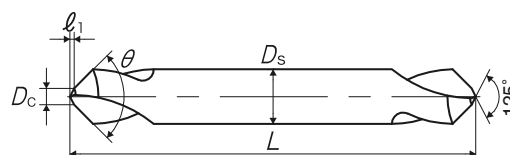
Stainless steels  
ステンレス鋼  
**35~45**  
(m/min)

Cast irons  
鋳鉄  
**90~100**  
(m/min)

25~35HRC

Aluminum alloy castings  
アルミ合金鋳物  
**120~160**  
(m/min)

### TYPE: 1



Segment : 52

| Size<br>Ds × Dc × θ | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell_1$<br>(mm) | TYPE | MSRP     |
|---------------------|----------|------------|------------|-----------|------------------|------|----------|
| 3 × 0.5 × 90°       | VCPE3.0Q | 0.5        | 3          | 40        | 0.13             | 1    | ¥ 17,800 |
| 4 × 1 × 90°         | VCPE4.0Q | 1          | 4          | 45        | 0.26             | 1    | ¥ 16,200 |
| 6 × 2 × 90°         | VCPE6.0Q | 2          | 6          | 55        | 0.52             | 1    | ¥ 21,900 |
| 8 × 2.5 × 90°       | VCPE8.0Q | 2.5        | 8          | 65        | 0.65             | 1    | ¥ 27,900 |
| 10 × 3 × 90°        | VCPE010Q | 3          | 10         | 75        | 0.78             | 1    | ¥ 38,800 |
| 12 × 3.5 × 90°      | VCPE012Q | 3.5        | 12         | 85        | 0.91             | 1    | ¥ 45,400 |
| 16 × 4 × 90°        | VCPE016Q | 4          | 16         | 90        | 1.04             | 1    | ¥ 67,700 |

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-46

# 11 Center Drills / Centering Tools

| Point dia. | Shank dia. | Overall length | Point length   |
|------------|------------|----------------|----------------|
| Dc         | Ds         | L              | ℓ <sub>1</sub> |

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  
Premium Thread Mills

⑩

Dies

⑪

Center Drills  
Centering Tools

⑫

Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-47

S

## PE-QL V

Long Shank Point Drills 90°, Coated



### Specification

HSS

Coating

■PE-QL V is the long shank coated point drill enabling positioning (125° edge angle) and chamfering (90°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design. Optimum coating suitable for the cutting condition.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
30~40  
(m/min)

Medium carbon steels  
中炭素鋼  
25~35  
(m/min)

High carbon steels  
高炭素鋼  
20~30  
(m/min)

Alloy steels  
合金鋼  
20~25  
(m/min)

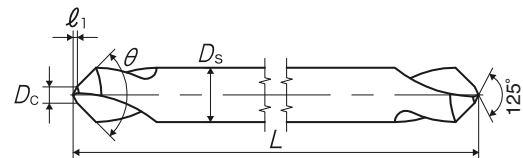
Thermal refined steels  
調質鋼  
10~15  
(m/min)  
25~35HRC

Stainless steels  
ステンレス鋼  
10~15  
(m/min)

Cast irons  
鋳鉄  
30~40  
(m/min)

Aluminum alloy castings  
アルミ合金鋳物  
65~95  
(m/min)

### TYPE: 1



Segment : 56

| Size<br>Ds × Dc × θ | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ <sub>1</sub><br>(mm) | TYPE | MSRP     |
|---------------------|-----------|------------|------------|-----------|------------------------|------|----------|
| 4 × 1 × 90°         | VPCL4.0Q  | 1          | 4          | 100       | 0.26                   | 1    | ¥ 10,200 |
| 6 × 2 × 90°         | VPCL6.0Q  | 2          | 6          | 100       | 0.52                   | 1    | ¥ 10,700 |
| 8 × 2.5 × 90°       | VPCL8.0Q  | 2.5        | 8          | 100       | 0.65                   | 1    | ¥ 12,000 |
| 8 × 2.5 × 90°       | VPCL8.0Q  | 2.5        | 8          | 150       | 0.65                   | 1    | ¥ 16,100 |
| 10 × 3 × 90°        | VPCL10.0Q | 3          | 10         | 100       | 0.78                   | 1    | ¥ 14,500 |
| 10 × 3 × 90°        | VPCL10.0Q | 3          | 10         | 150       | 0.78                   | 1    | ¥ 18,500 |
| 12 × 3.5 × 90°      | VPCL12.0Q | 3.5        | 12         | 100       | 0.91                   | 1    | ¥ 17,100 |
| 12 × 3.5 × 90°      | VPCL12.0Q | 3.5        | 12         | 150       | 0.91                   | 1    | ¥ 21,700 |
| 16 × 4 × 90°        | VPCL16.0Q | 4          | 16         | 150       | 1.04                   | 1    | ¥ 27,800 |
| 20 × 5 × 90°        | VPCL20.0Q | 5          | 20         | 150       | 1.30                   | 1    | ¥ 38,000 |

## PE-S

Point Drills 60°

### Specification

**HSS**

■PE-S is the point drill enabling positioning (125° edge angle) and chamfering (60°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**30~40**  
(m/min)

Medium carbon steels  
中炭素鋼  
**25~35**  
(m/min)

High carbon steels  
高炭素鋼  
**20~30**  
(m/min)

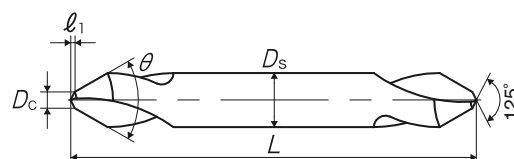
Alloy steels  
合金鋼  
**20~25**  
(m/min)

Stainless steels  
ステンレス鋼  
**10~15**  
(m/min)

Cast irons  
鋳鉄  
**30~40**  
(m/min)

Aluminum alloy castings  
アルミ合金鋳物  
**70~100**  
(m/min)

### TYPE: 1



Segment : 56

| Size<br>Ds × Dc × θ | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | l <sub>1</sub><br>(mm) | TYPE | MSRP     |
|---------------------|--------|------------|------------|-----------|------------------------|------|----------|
| 3 × 0.5 × 60°       | PE3.0S | 0.5        | 3          | 40        | 0.13                   | 1    | ¥ 3,370  |
| 4 × 1 × 60°         | PE4.0S | 1          | 4          | 45        | 0.26                   | 1    | ¥ 2,740  |
| 6 × 2 × 60°         | PE6.0S | 2          | 6          | 55        | 0.52                   | 1    | ¥ 2,600  |
| 8 × 2.5 × 60°       | PE8.0S | 2.5        | 8          | 65        | 0.65                   | 1    | ¥ 3,120  |
| 10 × 3 × 60°        | PE010S | 3          | 10         | 75        | 0.78                   | 1    | ¥ 4,660  |
| 12 × 3.5 × 60°      | PE012S | 3.5        | 12         | 85        | 0.91                   | 1    | ¥ 6,130  |
| 16 × 4 × 60°        | PE016S | 4          | 16         | 90        | 1.04                   | 1    | ¥ 10,500 |
| 20 × 5 × 60°        | PE020S | 5          | 20         | 100       | 1.30                   | 1    | ¥ 15,700 |

| Point dia. | Shank dia. | Overall length | Point length   |
|------------|------------|----------------|----------------|
| Dc         | Ds         | L              | l <sub>1</sub> |



# 11 Center Drills / Centering Tools

| Point dia. | Shank dia. | Overall length | Point length   |
|------------|------------|----------------|----------------|
| Dc         | Ds         | L              | ℓ <sub>1</sub> |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-49

S

## PE-S V

Point Drills 60°, Coated



### Specification

HSS

Coating

■PE-S V is the coated point drill enabling positioning (125° edge angle) and chamfering (60°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design. Optimum coating suitable for the cutting condition.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
40~50  
(m/min)

Medium carbon steels  
中炭素鋼  
30~45  
(m/min)

High carbon steels  
高炭素鋼  
30~40  
(m/min)

Alloy steels  
合金鋼  
25~35  
(m/min)

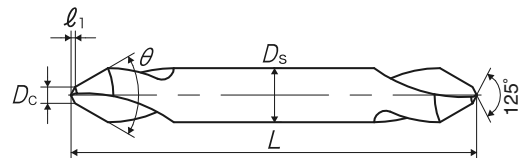
Thermal refined steels  
調質鋼  
10~15  
(m/min)  
25~35HRC

Stainless steels  
ステンレス鋼  
10~20  
(m/min)

Cast irons  
鋳鉄  
40~50  
(m/min)

Aluminum alloy castings  
アルミ合金鋳物  
85~120  
(m/min)

### TYPE: 1



Segment : 56

| Size<br>Ds × Dc × θ | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ <sub>1</sub><br>(mm) | TYPE | MSRP     |
|---------------------|---------|------------|------------|-----------|------------------------|------|----------|
| 3 × 0.5 × 60°       | VPE3.0S | 0.5        | 3          | 40        | 0.13                   | 1    | ¥ 5,430  |
| 4 × 1 × 60°         | VPE4.0S | 1          | 4          | 45        | 0.26                   | 1    | ¥ 5,020  |
| 6 × 2 × 60°         | VPE6.0S | 2          | 6          | 55        | 0.52                   | 1    | ¥ 5,490  |
| 8 × 2.5 × 60°       | VPE8.0S | 2.5        | 8          | 65        | 0.65                   | 1    | ¥ 6,880  |
| 10 × 3 × 60°        | VPE010S | 3          | 10         | 75        | 0.78                   | 1    | ¥ 8,800  |
| 12 × 3.5 × 60°      | VPE012S | 3.5        | 12         | 85        | 0.91                   | 1    | ¥ 11,300 |
| 16 × 4 × 60°        | VPE016S | 4          | 16         | 90        | 1.04                   | 1    | ¥ 16,900 |
| 20 × 5 × 60°        | VPE020S | 5          | 20         | 100       | 1.30                   | 1    | ¥ 25,900 |

| Point dia. | Shank dia. | Overall length | Point length |
|------------|------------|----------------|--------------|
| Dc         | Ds         | L              | $\ell_1$     |

11

JIS

S  
JIS

## C-PE-S V

Carbide Point Drills 60°, Coated



### Specification

HF

Coating

■C-PE-S V is the carbide point drill enabling positioning (125° edge angle) and chamfering (60°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design. Optimum coating suitable for the cutting condition.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**85~100**  
(m/min)

Medium carbon steels  
中炭素鋼  
**75~90**  
(m/min)

High carbon steels  
高炭素鋼  
**65~80**  
(m/min)

Alloy steels  
合金鋼  
**60~70**  
(m/min)

Thermal refined steels  
調質鋼  
**30~40**  
(m/min)

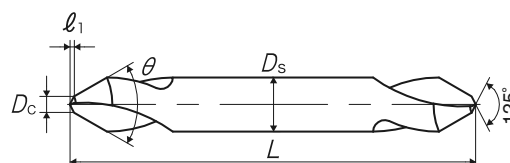
Stainless steels  
ステンレス鋼  
**35~45**  
(m/min)

Cast irons  
鋳鉄  
**90~100**  
(m/min)

25~35HRC

Aluminum alloy castings  
アルミ合金鋳物  
**120~160**  
(m/min)

### TYPE: 1



Segment : 52

| Size<br>Ds × Dc × θ | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell_1$<br>(mm) | TYPE | MSRP     |
|---------------------|----------|------------|------------|-----------|------------------|------|----------|
| 6 × 2 × 60°         | VCPE6.0S | 2          | 6          | 55        | 0.52             | 1    | ¥ 21,900 |
| 8 × 2.5 × 60°       | VCPE8.0S | 2.5        | 8          | 65        | 0.65             | 1    | ¥ 27,900 |
| 10 × 3 × 60°        | VCPE10S  | 3          | 10         | 75        | 0.78             | 1    | ¥ 38,800 |

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-50

# 11 Center Drills / Centering Tools

| Point dia. | Shank dia. | Overall length | Point length   |
|------------|------------|----------------|----------------|
| Dc         | Ds         | L              | ℓ <sub>1</sub> |

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  
Premium Thread Mills

⑩

Dies

⑪

Center Drills  
Centering Tools

⑫

Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-51

S  
JIS

## PE-SL V

Long Shank Point Drills 60°, Coated



### Specification

HSS

Coating

■PE-SL V is the point drill enabling positioning (125° edge angle) and chamfering (60°) simultaneously. High cutting accuracy is available owing to a good cutting-start due to 2 step flat design. Optimum coating suitable for the cutting condition.

### Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
30~40  
(m/min)

Medium carbon steels  
中炭素鋼  
25~35  
(m/min)

High carbon steels  
高炭素鋼  
20~30  
(m/min)

Alloy steels  
合金鋼  
20~25  
(m/min)

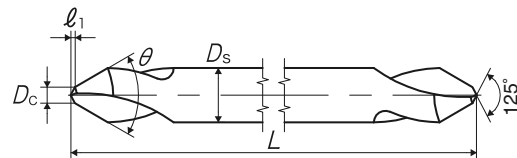
Thermal refined steels  
調質鋼  
10~15  
(m/min)  
25~35HRC

Stainless steels  
ステンレス鋼  
10~15  
(m/min)

Cast irons  
鋳鉄  
30~40  
(m/min)

Aluminum alloy castings  
アルミ合金鋳物  
65~95  
(m/min)

### TYPE: 1



Segment : 56

| Size<br>Ds × Dc × θ | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ <sub>1</sub><br>(mm) | TYPE | MSRP     |
|---------------------|----------|------------|------------|-----------|------------------------|------|----------|
| 4 × 1 × 60°         | VPEL4.0S | 1          | 4          | 100       | 0.26                   | 1    | ¥ 10,200 |
| 6 × 2 × 60°         | VPEL6.0S | 2          | 6          | 100       | 0.52                   | 1    | ¥ 10,700 |
| 8 × 2.5 × 60°       | VPEL8.0S | 2.5        | 8          | 100       | 0.65                   | 1    | ¥ 12,000 |
| 8 × 2.5 × 60°       | VPEM8.0S | 2.5        | 8          | 150       | 0.65                   | 1    | ¥ 16,100 |
| 10 × 3 × 60°        | VPEL010S | 3          | 10         | 100       | 0.78                   | 1    | ¥ 14,500 |
| 10 × 3 × 60°        | VPEM010S | 3          | 10         | 150       | 0.78                   | 1    | ¥ 18,500 |
| 12 × 3.5 × 60°      | VPEL012S | 3.5        | 12         | 100       | 0.91                   | 1    | ¥ 17,100 |
| 12 × 3.5 × 60°      | VPEM012S | 3.5        | 12         | 150       | 0.91                   | 1    | ¥ 21,700 |
| 16 × 4 × 60°        | VPEM016S | 4          | 16         | 150       | 1.04                   | 1    | ¥ 27,800 |

## M E M O

Spiral Fluted Taps  
(for blind hole) ①Spiral Fluted Taps  
(for through hole) ②Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪Precision Machinery/  
Medical Surgical Instruments ⑫

# 11 Center Drills / Centering Tools

| Dia. | Shank dia. | Overall length | Flute 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  
Premium Thread Mills

⑩ Dies

## NC-SD V

NC Starting Drills for Chamfering (90°), Coated



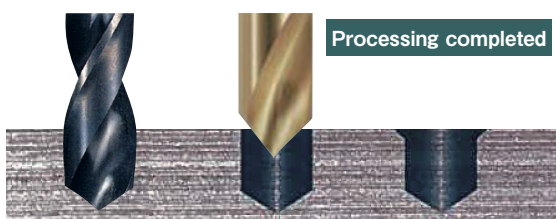
Specification Cutting Speed depending on Materials

| HSS-Co  | Low carbon steels<br>低炭素鋼  | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼                |
|---------|----------------------------|------------------------------|----------------------------|------------------------------------|
|         | 25 ~ 40<br>(m/min)         | 25 ~ 35<br>(m/min)           | 25 ~ 30<br>(m/min)         | 15 ~ 25<br>(m/min)                 |
| Coating | Stainless steels<br>ステンレス鋼 | Tool steels<br>工具鋼           | Cast irons<br>鋳鉄           | Aluminum alloy castings<br>アルミ合金鋳物 |
|         | 5 ~ 10<br>(m/min)          | 5 ~ 10<br>(m/min)            | 20 ~ 35<br>(m/min)         | 60 ~ 90<br>(m/min)                 |

### Product Features

After drilling with a general purpose drill, using a NC - SD V (90°) that is larger than the drilled hole diameter makes an excellent chamfer surface finish.

Universal Drill NC-SD V 90°



## NC-SD

NC Starting Drills for Center Positioning (125°)



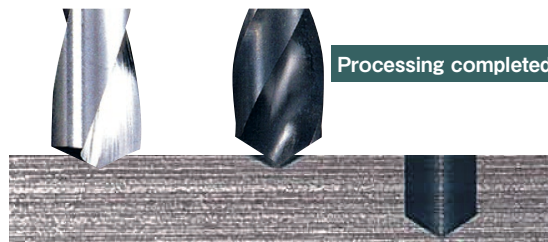
Specification Cutting Speed depending on Materials

| HSS-Co  | Low carbon steels<br>低炭素鋼  | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼                |
|---------|----------------------------|------------------------------|----------------------------|------------------------------------|
|         | 20 ~ 30<br>(m/min)         | 20 ~ 30<br>(m/min)           | 20 ~ 25<br>(m/min)         | 10 ~ 20<br>(m/min)                 |
| Coating | Stainless steels<br>ステンレス鋼 | Tool steels<br>工具鋼           | Cast irons<br>鋳鉄           | Aluminum alloy castings<br>アルミ合金鋳物 |
|         | 5 ~ 10<br>(m/min)          | 5 ~ 10<br>(m/min)            | 15 ~ 30<br>(m/min)         | 50 ~ 70<br>(m/min)                 |

### Product Features

The NC starting drill with a 125° drill point is a positioning drill dedicated to centering to increase hole positioning accuracy. The NC starting drill with a 125° drill is selected to be slightly larger than the tip angle of the general-purpose drill. This creates a highly accurate hole positioning without causing chipping on the cutting edge of the drill.

NC-SD 125° Universal Drill



### Difference between starting drill and center hole drill

It is also possible to use a center hole drill for positioning. If the center hole drill is used first and is allowed to go too deep, there is a chance the general purpose drill will hit the hole diameter instead of the center of the hole location. This can cause the drills cutting edge to chip.



### Recommended cutting conditions.

Unit: min<sup>-1</sup>

| Workpiece Material | Cutting Speed (m/min) | Diameter (mm) |      |      |      |      |      |      |      |      |      |
|--------------------|-----------------------|---------------|------|------|------|------|------|------|------|------|------|
|                    |                       | φ 3           | φ 4  | φ 5  | φ 6  | φ 8  | φ 10 | φ 12 | φ 16 | φ 20 | φ 25 |
| SS400              | 25 ~ 40               | 3400          | 2600 | 2100 | 1700 | 1300 | 1050 | 850  | 640  | 510  | 410  |
| S50C               | 25 ~ 32               | 3000          | 2300 | 1800 | 1500 | 1150 | 900  | 750  | 560  | 450  | 360  |
| FC250              | 20 ~ 35               | 2900          | 2200 | 1750 | 1450 | 1100 | 860  | 720  | 540  | 430  | 350  |
| SCM440             | 15 ~ 25               | 2200          | 1600 | 1300 | 1100 | 800  | 640  | 540  | 400  | 320  | 260  |
| SUS304             | 7 ~ 12                | 1100          | 800  | 640  | 540  | 400  | 320  | 270  | 200  | 160  | 130  |
| SKD61              | 8 ~ 15                | 1200          | 880  | 700  | 590  | 440  | 360  | 300  | 220  | 180  | 150  |
| SKD11              | 7 ~ 12                | 1100          | 800  | 640  | 540  | 400  | 320  | 270  | 200  | 160  | 130  |
| AC4C               | 60 ~ 90               | 8000          | 6000 | 4800 | 4000 | 3000 | 2400 | 2000 | 1500 | 1200 | 1000 |

\* Standard feed rates (mm / rev) should be 1% to 3% of the drill diameter. In the case of machining on a curved surface or an inclined surface, please set a consistent feed rate of 0.1 mm / rev.

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

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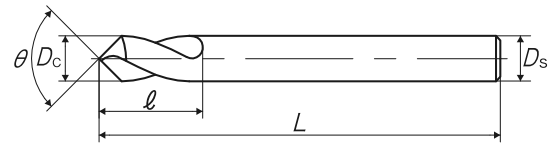
| Dia. | Shank dia. | Overall length | Flute length |
|------|------------|----------------|--------------|
| Dc   | Ds         | L              | ℓ            |

11

JIS

## NC-SD V NC Starting Drills for Chamfering (90°), Coated

TYPE: 1

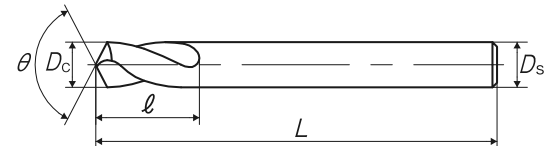


Segment : 56

| Size<br>Dc × θ | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | TYPE | MSRP     |
|----------------|-----------|------------|------------|-----------|-----------|------|----------|
| 3 × 90°        | VCS-D3.0Q | 3          | 3          | 46        | 10        | 1    | ¥ 2,920  |
| 4 × 90°        | VCS-D4.0Q | 4          | 4          | 55        | 12        | 1    | ¥ 3,460  |
| 5 × 90°        | VCS-D5.0Q | 5          | 5          | 62        | 13        | 1    | ¥ 3,760  |
| 6 × 90°        | VCS-D6.0Q | 6          | 6          | 66        | 15        | 1    | ¥ 3,960  |
| 8 × 90°        | VCS-D8.0Q | 8          | 8          | 79        | 20        | 1    | ¥ 5,250  |
| 10 × 90°       | VCS-D010Q | 10         | 10         | 89        | 23        | 1    | ¥ 7,190  |
| 12 × 90°       | VCS-D012Q | 12         | 12         | 102       | 26        | 1    | ¥ 10,800 |
| 16 × 90°       | VCS-D016Q | 16         | 16         | 115       | 32        | 1    | ¥ 14,500 |
| 20 × 90°       | VCS-D020Q | 20         | 20         | 131       | 40        | 1    | ¥ 20,300 |
| 25 × 90°       | VCS-D025Q | 25         | 25         | 151       | 50        | 1    | ¥ 31,800 |

## NC-SD NC Starting Drills for Center Positioning (125°)

TYPE: 1



Segment : 56

| Size<br>Dc × θ | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | TYPE | MSRP     |
|----------------|---------|------------|------------|-----------|-----------|------|----------|
| 3 × 125°       | CS-D3.0 | 3          | 3          | 46        | 10        | 1    | ¥ 2,360  |
| 4 × 125°       | CS-D4.0 | 4          | 4          | 55        | 12        | 1    | ¥ 2,650  |
| 5 × 125°       | CS-D5.0 | 5          | 5          | 62        | 13        | 1    | ¥ 2,990  |
| 6 × 125°       | CS-D6.0 | 6          | 6          | 66        | 15        | 1    | ¥ 3,200  |
| 8 × 125°       | CS-D8.0 | 8          | 8          | 79        | 20        | 1    | ¥ 3,950  |
| 10 × 125°      | CS-D010 | 10         | 10         | 89        | 23        | 1    | ¥ 6,010  |
| 12 × 125°      | CS-D012 | 12         | 12         | 102       | 26        | 1    | ¥ 8,990  |
| 16 × 125°      | CS-D016 | 16         | 16         | 115       | 32        | 1    | ¥ 11,100 |
| 20 × 125°      | CS-D020 | 20         | 20         | 131       | 40        | 1    | ¥ 15,900 |
| 25 × 125°      | CS-D025 | 25         | 25         | 151       | 50        | 1    | ¥ 23,300 |

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

⑪-54

# 11 Center Drills / Centering Tools

| Dia.           | Tool end dia.  | Shank dia.     | Overall length | Cutting edge length |
|----------------|----------------|----------------|----------------|---------------------|
| D <sub>1</sub> | D <sub>c</sub> | D <sub>s</sub> | 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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-55

S

## CS-Q

Countersinks 90°, Machining Center Use

Specification

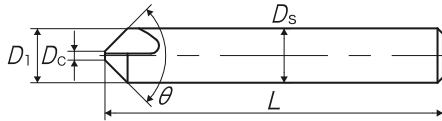
HSS

■CS-Q is suitable for the machining of high accuracy on the chamfering of round hole and on the chamfering of attaching face of screw bolts. Having one cutting edge, this tool is suitable for machining center use.

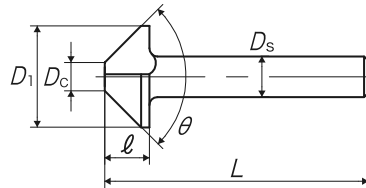
Cutting Speed depending on Materials

|                           |                              |                            |                     |                            |                    |                  |                                    |
|---------------------------|------------------------------|----------------------------|---------------------|----------------------------|--------------------|------------------|------------------------------------|
| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Stainless steels<br>ステンレス鋼 | Tool steels<br>工具鋼 | Cast irons<br>鋳鉄 | Aluminum alloy castings<br>アルミ合金鋳物 |
| 10~20<br>(m/min)          | 10~20<br>(m/min)             | 10~20<br>(m/min)           | 10~15<br>(m/min)    | 10~15<br>(m/min)           | 10~15<br>(m/min)   | 10~30<br>(m/min) | 15~45<br>(m/min)                   |

TYPE:1



TYPE:2



Segment : 53

| Size<br>D <sub>1</sub> × θ × D <sub>s</sub> | Code   | D <sub>c</sub><br>(mm) | D <sub>s</sub><br>(mm) | L<br>(mm) | ℓ<br>(mm) | No. of<br>flutes | TYPE | MSRP      |
|---------------------------------------------|--------|------------------------|------------------------|-----------|-----------|------------------|------|-----------|
| 4 × 90° × 4                                 | CS4.0Q | 0.6                    | 4                      | 50        | -         | 1                | 1    | ¥ 1,150 ※ |
| 6 × 90° × 6                                 | CS6.0Q | 1                      | 6                      | 50        | -         | 1                | 1    | ¥ 1,380   |
| 8 × 90° × 8                                 | CS8.0Q | 1.3                    | 8                      | 50        | -         | 1                | 1    | ¥ 1,610   |
| 10 × 90° × 8                                | CS010Q | 1.6                    | 8                      | 46        | 5.5       | 1                | 2    | ¥ 3,650   |
| 15 × 90° × 10                               | CS015Q | 3.2                    | 10                     | 56        | 7.5       | 1                | 2    | ¥ 5,270   |
| 20 × 90° × 10                               | CS020Q | 4                      | 10                     | 60        | 10        | 1                | 2    | ¥ 7,030   |
| 25 × 90° × 10                               | CS025Q | 7                      | 10                     | 65        | 11        | 1                | 2    | ¥ 9,300   |
| 30 × 90° × 12                               | CS030Q | 9                      | 12                     | 70        | 12.5      | 1                | 2    | ¥ 11,900  |
| 35 × 90° × 12                               | CS035Q | 11                     | 12                     | 75        | 15        | 1                | 2    | ¥ 17,000  |
| 40 × 90° × 12                               | CS040Q | 12.5                   | 12                     | 80        | 17        | 1                | 2    | ¥ 22,200  |
| 45 × 90° × 12                               | CS045Q | 14                     | 12                     | 85        | 18.5      | 1                | 2    | ¥ 27,200  |
| 50 × 90° × 12                               | CS050Q | 16                     | 12                     | 90        | 20        | 1                | 2    | ¥ 32,500  |
| 60 × 90° × 16                               | CS060Q | 20                     | 16                     | 100       | 24        | 1                | 2    | ¥ 47,500  |

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**YAMAWA**

※ = Specified Distribution Items. Made to order products.

| Dia.           | Tool end dia.  | Shank dia.     | Overall length | Cutting edge length |
|----------------|----------------|----------------|----------------|---------------------|
| D <sub>1</sub> | D <sub>c</sub> | D <sub>s</sub> | L              | ℓ                   |

11

JIS

## CS-QM

Countersinks 90° and 60°, Drilling Machine Use



### Specification

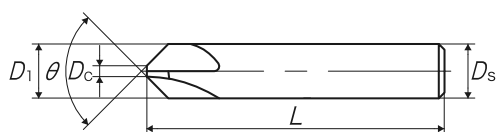
**HSS**

■CS-QM is suitable for the machining of high accuracy on the chamfering of round hole and on the chamfering of attaching face of screw bolts. Having plural cutting edges, this tool is suitable for drilling machine use.

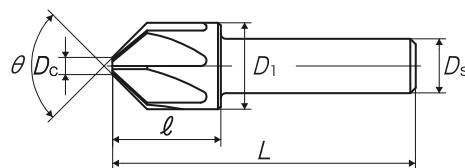
### Cutting Speed depending on Materials

|                           |                              |                            |                     |                            |                    |                  |                                    |
|---------------------------|------------------------------|----------------------------|---------------------|----------------------------|--------------------|------------------|------------------------------------|
| Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Stainless steels<br>ステンレス鋼 | Tool steels<br>工具鋼 | Cast irons<br>鋳鉄 | Aluminum alloy castings<br>アルミ合金鋳物 |
| 10~20<br>(m/min)          | 10~20<br>(m/min)             | 10~20<br>(m/min)           | 10~15<br>(m/min)    | 5~10<br>(m/min)            | 10~15<br>(m/min)   | 10~30<br>(m/min) | 15~45<br>(m/min)                   |

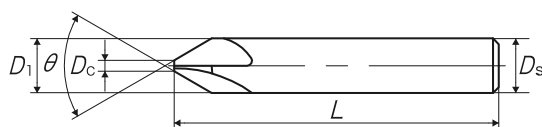
TYPE:1



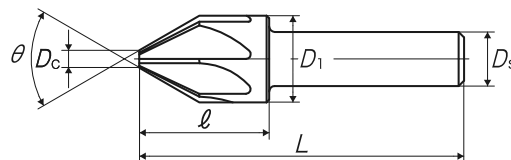
TYPE:2



TYPE:3



TYPE:4



Segment : 53

| Size<br>D <sub>1</sub> × θ × D <sub>s</sub> | Code     | D <sub>c</sub><br>(mm) | D <sub>s</sub><br>(mm) | L<br>(mm) | ℓ<br>(mm) | No. of<br>flutes | TYPE | MSRP       |
|---------------------------------------------|----------|------------------------|------------------------|-----------|-----------|------------------|------|------------|
| 6 × 90° × 6                                 | CS6.0QM9 | 1.2                    | 6                      | 42        | -         | 3                | 1    | ¥ 1,960    |
| 8 × 90° × 8                                 | CS8.0QM9 | 1.6                    | 8                      | 44        | -         | 3                | 1    | ¥ 2,390    |
| 10 × 90° × 8                                | CS010QM9 | 2                      | 8                      | 46        | 14        | 3                | 2    | ¥ 4,170    |
| 12 × 90° × 8                                | CS012QM9 | 2.5                    | 8                      | 48        | 16        | 5                | 2    | ¥ 4,880    |
| 16 × 90° × 10                               | CS016QM9 | 3.2                    | 10                     | 56        | 20        | 5                | 2    | ¥ 5,500    |
| 20 × 90° × 10                               | CS020QM9 | 4                      | 10                     | 60        | 24        | 5                | 2    | ¥ 7,310    |
| 25 × 90° × 10                               | CS025QM9 | 7                      | 10                     | 65        | 29        | 7                | 2    | ¥ 9,800    |
| 30 × 90° × 12                               | CS030QM9 | 9                      | 12                     | 68        | 32        | 7                | 2    | ¥ 12,600   |
| 35 × 90° × 12                               | CS035QM9 | 11                     | 12                     | 70        | 34        | 7                | 2    | ¥ 17,600   |
| 40 × 90° × 12                               | CS040QM9 | 12.5                   | 12                     | 71        | 35        | 7                | 2    | ¥ 23,400   |
| 6 × 60° × 6                                 | CS6.0QM6 | 1.2                    | 6                      | 46        | -         | 3                | 3    | ¥ 2,070 ※  |
| 8 × 60° × 8                                 | CS8.0QM6 | 1.6                    | 8                      | 48        | -         | 3                | 3    | ¥ 2,490    |
| 10 × 60° × 8                                | CS010QM6 | 2                      | 8                      | 50        | 18        | 3                | 4    | ¥ 4,320 ※  |
| 12 × 60° × 8                                | CS012QM6 | 2.5                    | 8                      | 52        | 20        | 5                | 4    | ¥ 5,050 ※  |
| 16 × 60° × 10                               | CS016QM6 | 3.2                    | 10                     | 60        | 24        | 5                | 4    | ¥ 5,690    |
| 20 × 60° × 10                               | CS020QM6 | 4                      | 10                     | 64        | 28        | 5                | 4    | ¥ 7,680    |
| 25 × 60° × 10                               | CS025QM6 | 7                      | 10                     | 69        | 33        | 7                | 4    | ¥ 11,900   |
| 30 × 60° × 12                               | CS030QM6 | 9                      | 12                     | 76        | 40        | 7                | 4    | ¥ 15,000 ※ |
| 35 × 60° × 12                               | CS035QM6 | 11                     | 12                     | 79        | 43        | 7                | 4    | ¥ 21,300 ※ |
| 40 × 60° × 12                               | CS040QM6 | 12.5                   | 12                     | 81        | 45        | 7                | 4    | ¥ 27,800 ※ |

※ = Specified Distribution Items. Made to order products.

Think threads with  
**YAMAWA**

- 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 Premium Thread Mills
- ⑩ Dies
- ⑪ Center Drills Centering Tools
- ⑫ Precision Machinery/ Medical Surgical Instruments

JIS

11-56

# 11 Center Drills / Centering Tools

| 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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

## CS-G

Submarine Gate Cutter, 20°, 30°

Specification

HSS

Cutting Speed depending on Materials

Medium carbon steels  
中炭素鋼  
5~15  
(m/min)

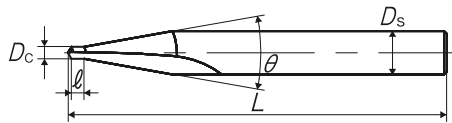
High carbon steels  
高炭素鋼  
5~15  
(m/min)

Alloy steels  
合金鋼  
5~15  
(m/min)

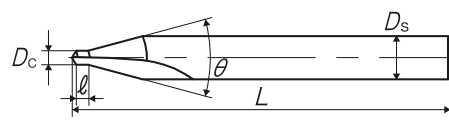
■CS-G is the special drill for making submarine gate (tunnel gate) on the die mold of plastic injection machine.



TYPE:1



TYPE:2



Segment : 54

| Size<br>Dc × θ × Ds | Code        | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | No. of<br>flutes | TYPE | MSRP      |
|---------------------|-------------|------------|------------|-----------|-----------|------------------|------|-----------|
| 0.5 × 20° × 6       | CS-G0.52-J  | 0.5        | 6          | 57        | 0.5       | 2                | 1    | ¥ 5,780 ※ |
| 0.5 × 30° × 6       | CS-G0.53-J  | 0.5        | 6          | 57        | 0.5       | 2                | 2    | ¥ 5,780 ※ |
| 0.5 × 20° × 6       | CS-G0.52-LS | 0.5        | 6          | 100       | 0.5       | 2                | 1    | ¥ 7,430 ※ |
| 0.5 × 30° × 6       | CS-G0.53-LS | 0.5        | 6          | 100       | 0.5       | 2                | 2    | ¥ 7,430 ※ |
| 0.6 × 20° × 6       | CS-G0.62-J  | 0.6        | 6          | 57        | 0.5       | 2                | 1    | ¥ 4,880 ※ |
| 0.6 × 30° × 6       | CS-G0.63-J  | 0.6        | 6          | 57        | 0.5       | 2                | 2    | ¥ 4,880 ※ |
| 0.6 × 20° × 6       | CS-G0.62-LS | 0.6        | 6          | 100       | 0.5       | 2                | 1    | ¥ 6,320 ※ |
| 0.6 × 30° × 6       | CS-G0.63-LS | 0.6        | 6          | 100       | 0.5       | 2                | 2    | ¥ 6,320 ※ |
| 0.7 × 20° × 6       | CS-G0.72-J  | 0.7        | 6          | 57        | 0.5       | 2                | 1    | ¥ 4,470 ※ |
| 0.7 × 30° × 6       | CS-G0.73-J  | 0.7        | 6          | 57        | 0.5       | 2                | 2    | ¥ 4,470 ※ |
| 0.7 × 20° × 6       | CS-G0.72-LS | 0.7        | 6          | 100       | 0.5       | 2                | 1    | ¥ 5,780 ※ |
| 0.7 × 30° × 6       | CS-G0.73-LS | 0.7        | 6          | 100       | 0.5       | 2                | 2    | ¥ 5,780 ※ |
| 0.8 × 20° × 6       | CS-G0.82-J  | 0.8        | 6          | 57        | 0.5       | 2                | 1    | ¥ 4,170 ※ |
| 0.8 × 30° × 6       | CS-G0.83-J  | 0.8        | 6          | 57        | 0.5       | 2                | 2    | ¥ 4,170 ※ |
| 0.8 × 20° × 6       | CS-G0.82-LS | 0.8        | 6          | 100       | 0.5       | 2                | 1    | ¥ 5,400 ※ |
| 0.8 × 30° × 6       | CS-G0.83-LS | 0.8        | 6          | 100       | 0.5       | 2                | 2    | ¥ 5,400 ※ |
| 0.9 × 20° × 6       | CS-G0.92-LS | 0.9        | 6          | 100       | 0.5       | 2                | 1    | ¥ 4,800 ※ |
| 0.9 × 30° × 6       | CS-G0.93-LS | 0.9        | 6          | 100       | 0.5       | 2                | 2    | ¥ 4,800 ※ |
| 1 × 20° × 6         | CS-G1.02-J  | 1          | 6          | 57        | 0.5       | 2                | 1    | ¥ 3,260 ※ |
| 1 × 20° × 8         | CS-G1.028J  | 1          | 8          | 57        | 0.5       | 2                | 1    | ¥ 3,730 ※ |
| 1 × 30° × 6         | CS-G1.03-J  | 1          | 6          | 57        | 0.5       | 2                | 2    | ¥ 3,260 ※ |
| 1 × 30° × 8         | CS-G1.038J  | 1          | 8          | 57        | 0.5       | 2                | 2    | ¥ 3,730 ※ |
| 1 × 20° × 8         | CS-G1.028K  | 1          | 8          | 70        | 0.5       | 2                | 1    | ¥ 4,170 ※ |
| 1 × 30° × 8         | CS-G1.038K  | 1          | 8          | 70        | 0.5       | 2                | 2    | ¥ 4,170 ※ |
| 1 × 20° × 6         | CS-G1.02-LS | 1          | 6          | 100       | 0.5       | 2                | 1    | ¥ 4,250 ※ |

JIS

11-57

Think threads with  
**YAMAWA**

※ = Specified Distribution Items. Made to order products.

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

11

JIS

| Size<br>Dc × θ × Ds | Code        | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | ℓ<br>(mm) | No. of<br>flutes | TYPE | MSRP      |
|---------------------|-------------|------------|------------|-----------|-----------|------------------|------|-----------|
| 1 × 20° × 8         | CS-G1.028LS | 1          | 8          | 100       | 0.5       | 2                | 1    | ¥ 5,400 ※ |
| 1 × 30° × 6         | CS-G1.03-LS | 1          | 6          | 100       | 0.5       | 2                | 2    | ¥ 4,250 ※ |
| 1 × 30° × 8         | CS-G1.038LS | 1          | 8          | 100       | 0.5       | 2                | 2    | ¥ 5,400 ※ |
| 1.5 × 20° × 8       | CS-G1.52-K  | 1.5        | 8          | 70        | 0.5       | 2                | 1    | ¥ 4,170 ※ |
| 1.5 × 30° × 8       | CS-G1.53-K  | 1.5        | 8          | 70        | 0.5       | 2                | 2    | ¥ 4,170 ※ |
| 1.5 × 20° × 8       | CS-G1.52-LS | 1.5        | 8          | 100       | 0.5       | 2                | 1    | ¥ 5,400 ※ |
| 1.5 × 30° × 8       | CS-G1.53-LS | 1.5        | 8          | 100       | 0.5       | 2                | 2    | ¥ 5,400 ※ |
| 2 × 20° × 8         | CS-G2.02-K  | 2          | 8          | 70        | 0.5       | 2                | 1    | ¥ 4,170 ※ |
| 2 × 30° × 8         | CS-G2.03-K  | 2          | 8          | 70        | 0.5       | 2                | 2    | ¥ 4,170 ※ |
| 2 × 20° × 8         | CS-G2.02-LS | 2          | 8          | 100       | 0.5       | 2                | 1    | ¥ 5,400 ※ |
| 2 × 30° × 8         | CS-G2.03-LS | 2          | 8          | 100       | 0.5       | 2                | 2    | ¥ 5,400 ※ |

Spiral Fluted Taps  
(for blind hole)

①

Spiral Fluted Taps  
(for through hole)

②

Spiral Pointed Taps  
(for through hole)

③

Hand Taps

④

Cemented  
Carbide Taps

⑤

Roll Taps

⑥

Special Thread Taps  
Simple Inspection Tools

⑦

Pipe Taps

⑧

Thread Mills  
Premium Thread Mills

⑨

Dies

⑩

Center Drills  
Centering Tools

⑪

Precision Machinery/  
Medical Surgical Instruments

⑫

JIS

⑪-58

※ = Specified Distribution Items. Made to order products.

Think threads with  
**YAMAWA**

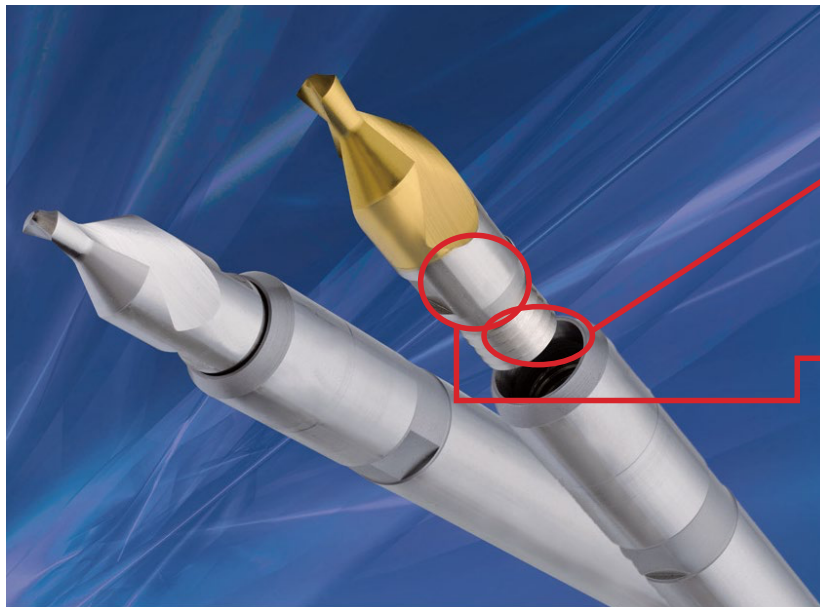
| Drill dia. | Shank dia. | Overall length | Drill length | Body length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|-------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | $\ell_2$    | Dw                           |

JIS

## JOINT TOOLS

### Product Features

- It can easily be transformed into a long-shank model by attaching various cutting edges (joint tools) tailored to the machining application onto a single holder.
- When a cutting edge is fastened to the joint tool holder, the overall length becomes 150 mm or 200 mm.
- Joint tool types include center drills, point drills, NC starting drills, and countersinks.
- This is an environmentally-friendly product contributing to resource conservation, since only the cutting edge will be replaced even if damaged, without any need to replace the holder.



#### ① Strengthened fastening power

Special screw



#### ② Superior Runout Accuracy

Fastening section (Fitting of conical surface)



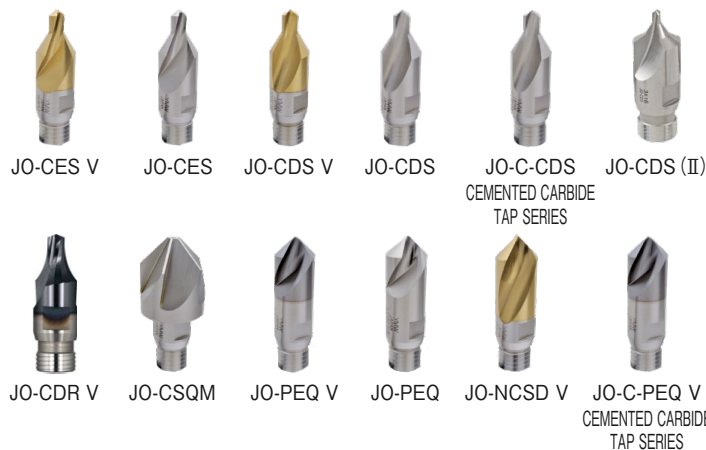
#### ③ High rigidity

Excellent stiffness is ensured by enhanced fastening force and high runout accuracy, which also enables heavy-load machining.



For JO-PEQ (V), flute machining is also possible.

### Line up



Holder 200mm



Holder 150mm

### Example of use



Since it is available as a long-shank model, it can be used for machining in deep positions and around obstacles.

### Notes

- Gloves should be worn when replacing the cutting edge, since touching the cutting edge with bare hands can result in injury.
- Use a spanner wrench (JIS B 4630) when exchanging the cutting tools.
- For the size of the spanner, refer to the H dimension in the dimension table.
- Be aware that excessive tightening can cause damage to the cutting edge.

[Reference] Tightening torque (Nm)

| Applicable holder Shank diameter | Tightening torque |
|----------------------------------|-------------------|
| 14                               | 5                 |
| 16                               | 10                |
| 20                               | 30                |

| Drill dia. | Shank dia. | Overall length | Drill length | Body length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|-------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | $\ell_2$    | Dw                           |

11

JIS

## JO-CES

Joint- High Helix Center Drills-Type A 60°



Specification Cutting Speed depending on Materials

**HSS**

Low carbon steels  
低炭素鋼  
**10~25**  
(m/min)

Medium carbon steels  
中炭素鋼  
**10~25**  
(m/min)

Stainless steels  
ステンレス鋼  
**5~10**  
(m/min)

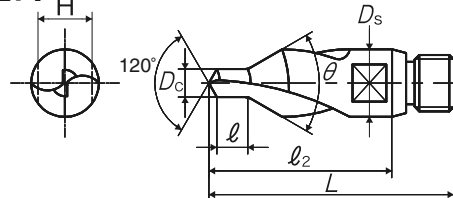
Brass  
黄銅  
**20~40**  
(m/min)

Brass castings  
黄銅鑄物  
**20~40**  
(m/min)

Wrought aluminum  
アルミ圧延材  
**15~30**  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
**15~30**  
(m/min)

TYPE: 1



■ The JO-CES is a high helix JIS type A center hole drill joint tool that is particularly suitable for soft material and relatively free machining materials.

Segment : 5C

| Size<br>Dc × $\theta$ | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | Dw<br>(mm) | TYPE | MSRP    |
|-----------------------|--------|------------|------------|-----------|----------------|------------------|-----------|--------------------------------|------------|------|---------|
| 4 × 60°               | JCE4.0 | 4          | 10         | 37.5      | 4.5            | 27.5             | 8         | 14                             | 8.5        | 1    | ¥ 3,250 |
| 5 × 60°               | JCE5.0 | 5          | 12         | 43.5      | 5.5            | 32.5             | 10        | 16                             | 10         | 1    | ¥ 3,340 |
| 6 × 60°               | JCE6.0 | 6          | 16         | 48.5      | 6.5            | 34.5             | 13        | 20                             | 13.5       | 1    | ¥ 4,180 |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

## JO-CES V

Joint- High Helix Center Drills-Type A 60°, Coated



Specification

**HSS**

**Coating**

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**15~30**  
(m/min)

Medium carbon steels  
中炭素鋼  
**15~30**  
(m/min)

Stainless steels  
ステンレス鋼  
**5~15**  
(m/min)

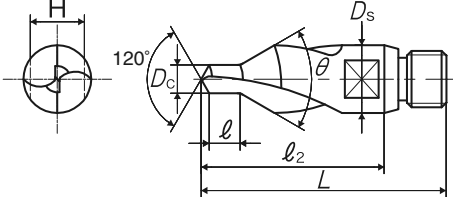
Brass  
黄銅  
**25~30**  
(m/min)

Brass castings  
黄銅鑄物  
**25~30**  
(m/min)

Wrought aluminum  
アルミ圧延材  
**20~40**  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
**20~40**  
(m/min)

TYPE: 1



■ Optimum coating suitable for the cutting condition.

Segment : 5C

| Size<br>Dc × $\theta$ | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | Dw<br>(mm) | TYPE | MSRP    |
|-----------------------|---------|------------|------------|-----------|----------------|------------------|-----------|--------------------------------|------------|------|---------|
| 4 × 60°               | JVCE4.0 | 4          | 10         | 37.5      | 4.5            | 27.5             | 8         | 14                             | 8.5        | 1    | ¥ 5,730 |
| 5 × 60°               | JVCE5.0 | 5          | 12         | 43.5      | 5.5            | 32.5             | 10        | 16                             | 10         | 1    | ¥ 6,590 |
| 6 × 60°               | JVCE6.0 | 6          | 16         | 48.5      | 6.5            | 34.5             | 13        | 20                             | 13.5       | 1    | ¥ 9,010 |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS  
⑪-60

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Body length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|-------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | $\ell_2$    | Dw                           |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

11-61

## JO-CDS

Joint- Low Helix Center Drills-Type A 60°



Specification Cutting Speed depending on Materials

**HSS**

Low carbon steels  
低炭素鋼  
**10~25**  
(m/min)

Medium carbon steels  
中炭素鋼  
**10~25**  
(m/min)

High carbon steels  
高炭素鋼  
**10~25**  
(m/min)

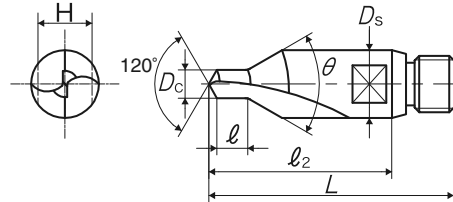
Alloy steels  
合金鋼  
**10~20**  
(m/min)

Cast steels  
鋳鋼  
**10~25**  
(m/min)

Cast irons  
鋳鉄  
**5~10**  
(m/min)

Ductile cast irons  
強靱鋳鉄  
**5~15**  
(m/min)

**TYPE: 1**



■ The JO-CDS is a low helix type A center hole drill joint tool suitable for comparatively hard materials.

Segment : 5C

| Size<br>Dc × $\theta$ | Code   | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | Dw<br>(mm) | TYPE | MSRP    |
|-----------------------|--------|------------|------------|-----------|----------------|------------------|-----------|--------------------------------|------------|------|---------|
| 4 × 60°               | JCY4.0 | 4          | 10         | 37.5      | 4.5            | 27.5             | 8         | 14                             | 8.5        | 1    | ¥ 3,250 |
| 5 × 60°               | JCY5.0 | 5          | 12         | 43.5      | 5.5            | 32.5             | 10        | 16                             | 10         | 1    | ¥ 3,340 |
| 6 × 60°               | JCY6.0 | 6          | 16         | 48.5      | 6.5            | 34.5             | 13        | 20                             | 13.5       | 1    | ¥ 4,180 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

## JO-CDS V

Joint- Low Helix Center Drills-Type A 60°, Coated



Specification

**HSS**

**Coating**

Cutting Speed depending on Materials

Low carbon steels  
低炭素鋼  
**15~30**  
(m/min)

Medium carbon steels  
中炭素鋼  
**15~30**  
(m/min)

High carbon steels  
高炭素鋼  
**15~30**  
(m/min)

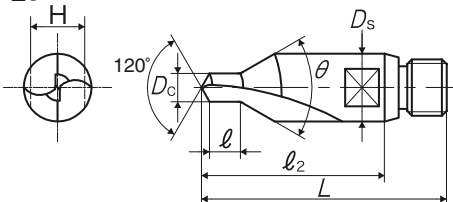
Alloy steels  
合金鋼  
**10~25**  
(m/min)

Cast steels  
鋳鋼  
**15~30**  
(m/min)

Cast irons  
鋳鉄  
**8~15**  
(m/min)

Ductile cast irons  
強靱鋳鉄  
**10~20**  
(m/min)

**TYPE: 1**



■ Optimum coating suitable for the cutting.

Segment : 5C

| Size<br>Dc × $\theta$ | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | Dw<br>(mm) | TYPE | MSRP    |
|-----------------------|---------|------------|------------|-----------|----------------|------------------|-----------|--------------------------------|------------|------|---------|
| 4 × 60°               | JVCY4.0 | 4          | 10         | 37.5      | 4.5            | 27.5             | 8         | 14                             | 8.5        | 1    | ¥ 5,730 |
| 5 × 60°               | JVCY5.0 | 5          | 12         | 43.5      | 5.5            | 32.5             | 10        | 16                             | 10         | 1    | ¥ 6,590 |
| 6 × 60°               | JVCY6.0 | 6          | 16         | 48.5      | 6.5            | 34.5             | 13        | 20                             | 13.5       | 1    | ¥ 9,010 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

Think threads with  
**YAMAWA**

| Drill dia. | Shank dia. | Maximum dia. | Overall length | Drill length | Body length | Workpiece end-face Hole size |
|------------|------------|--------------|----------------|--------------|-------------|------------------------------|
| Dc         | Ds         | D1           | L              | $\ell$       | $\ell_2$    | Dw                           |

11

JIS

## JO-C-CDS

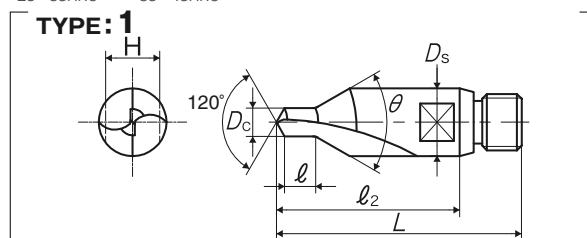
Joint- Low Helix Carbide Center Drills-Type A 60°



Specification Cutting Speed depending on Materials

| HF | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Thermal refined steels<br>調質鋼 | Thermal refined steels<br>調質鋼 | Cast irons<br>鑄鉄 | Brass castings<br>黄銅鑄物 | Aluminum alloy castings<br>アルミ合金鑄物 |
|----|----------------------------|---------------------|-------------------------------|-------------------------------|------------------|------------------------|------------------------------------|
|    | 25~40<br>(m/min)           | 15~30<br>(m/min)    | 10~20<br>(m/min)              | 5~10<br>(m/min)               | 25~40<br>(m/min) | 25~50<br>(m/min)       | 25~50<br>(m/min)                   |
|    |                            |                     | 25~35HRC                      | 35~45HRC                      |                  |                        |                                    |

■The JO-C-CDS is a carbide type A center hole drill joint tool suitable for hard materials and mass production processing.



Segment : 5C

| Size<br>Dc × $\theta$ | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | Dw<br>(mm) | TYPE | MSRP     |
|-----------------------|---------|------------|------------|-----------|----------------|------------------|-----------|--------------------------------|------------|------|----------|
| 4 × 60°               | JCCY4.0 | 4          | 10         | 37.5      | 4.5            | 27.5             | 8         | 14                             | 8.5        | 1    | ¥ 17,000 |
| 5 × 60°               | JCCY5.0 | 5          | 12         | 43.5      | 5.5            | 32.5             | 10        | 16                             | 10         | 1    | ¥ 20,400 |
| 6 × 60°               | JCCY6.0 | 6          | 16         | 48.5      | 6.5            | 34.5             | 13        | 20                             | 13.5       | 1    | ¥ 49,400 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

## JO-CDS(II)

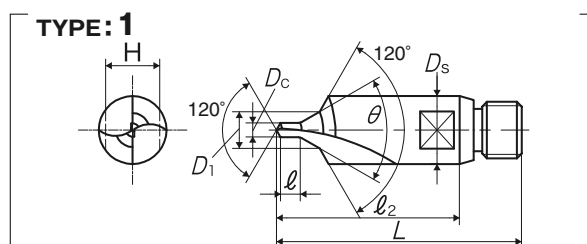
Joint- Low Helix Center Drills-Type B 60°, (Old JIS Type 2)



Specification Cutting Speed depending on Materials

| HSS | Low carbon steels<br>低炭素鋼 | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Cast steels<br>鑄鋼 | Cast irons<br>鑄鉄 | Ductile cast irons<br>強靱鑄鉄 |
|-----|---------------------------|------------------------------|----------------------------|---------------------|-------------------|------------------|----------------------------|
|     | 10~25<br>(m/min)          | 10~25<br>(m/min)             | 10~25<br>(m/min)           | 10~20<br>(m/min)    | 10~25<br>(m/min)  | 5~10<br>(m/min)  | 5~15<br>(m/min)            |

■The JO-CDS(II) is a old JIS type 2 center hole drill joint tool suitable for relatively hard materials.



Segment : 5C

| Size<br>Dc × $\theta$ | Code   | Dc<br>(mm) | Ds<br>(mm) | D1<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | Dw<br>(mm) | TYPE | MSRP    |
|-----------------------|--------|------------|------------|------------|-----------|----------------|------------------|-----------|--------------------------------|------------|------|---------|
| 2 × 60°               | JC22.0 | 2          | 10         | 5          | 37.5      | 3              | 27.5             | 8         | 14                             | 8          | 1    | ¥ 3,420 |
| 2.5 × 60°             | JC22.5 | 2.5        | 12         | 6.5        | 43.5      | 3.5            | 32.5             | 10        | 16                             | 10         | 1    | ¥ 3,450 |
| 3 × 60°               | JC23.0 | 3          | 16         | 8          | 48.5      | 4              | 34.5             | 13        | 20                             | 12         | 1    | ¥ 4,250 |

- Machining conditions are calculated based on the workpiece end-face hole size Dw.
- For details on machining conditions, see TECHNICAL INFORMATION, "27. Table of recommend centering condition."

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 Premium Thread Mills  
⑩ Dies  
⑪ Center Drills Centering Tools  
⑫ Precision Machinery/ Medical Surgical Instruments

# 11 Center Drills / Centering Tools

| Drill dia. | Shank dia. | Overall length | Drill length | Body length | Workpiece end-face Hole size |
|------------|------------|----------------|--------------|-------------|------------------------------|
| Dc         | Ds         | L              | $\ell$       | $\ell_2$    | Dw                           |

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  
Premium Thread Mills

⑩

Dies

⑪

Center Drills  
Centering Tools

⑫

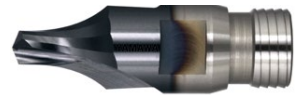
Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-63

## JO-CDR V

Joint- Low Helix Center Drills-Type R, Coated



Specification Cutting Speed depending on Materials

HSS-Co

Coating

Low carbon steels  
低碳素鋼  
10~25  
(m/min)

Medium carbon steels  
中炭素鋼  
10~25  
(m/min)

High carbon steels  
高炭素鋼  
10~25  
(m/min)

Alloy steels  
合金鋼  
10~25  
(m/min)

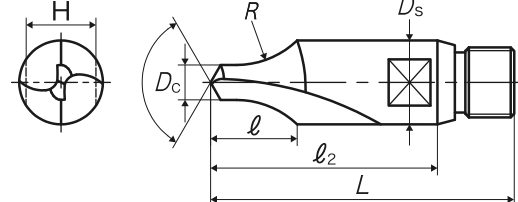
Cast steels  
鑄鋼  
10~25  
(m/min)

Cast irons  
鑄鐵  
8~15  
(m/min)

Ductile cast irons  
強韌鑄鐵  
8~20  
(m/min)

■ Joint tool for low helix type R center hole drill.

TYPE: 1



Segment : 5C

| Size<br>Dc × R | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Rmax | Adaptable holder<br>Shank dia. | Dw<br>(mm) | TYPE | MSRP     |
|----------------|----------|------------|------------|-----------|----------------|------------------|-----------|------|--------------------------------|------------|------|----------|
| 4 × R12.5      | JVCY4.0R | 4          | 10         | 37.5      | 10.3           | 27.5             | 8         | 12.5 | 14                             | 8.5        | 1    | ¥ 8,000  |
| 5 × R16        | JVCY5.0R | 5          | 12         | 43.5      | 12.6           | 32.5             | 10        | 16   | 16                             | 9          | 1    | ¥ 9,930  |
| 6 × R20        | JVCY6.0R | 6          | 16         | 48.5      | 16.4           | 34.5             | 13        | 20   | 20                             | 13.5       | 1    | ¥ 12,400 |

• Machining conditions are calculated based on the workpiece end-face hole size Dw.

• For details on machining conditions, see TECHNICAL INFORMATION, “27. Table of recommend centering condition.”

## JO-PEQ

Joint- Point Drills 90°

Specification Cutting Speed depending on Materials

**HSS**

Low carbon steels  
低炭素鋼  
**25~30**  
(m/min)

Medium carbon steels  
中炭素鋼  
**20~30**  
(m/min)

High carbon steels  
高炭素鋼  
**20~25**  
(m/min)

Alloy steels  
合金鋼  
**15~20**  
(m/min)

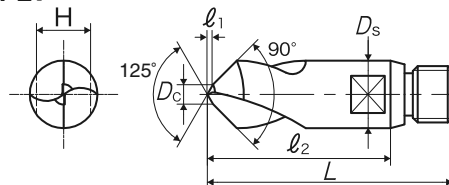
Stainless steels  
ステンレス鋼  
**5~10**  
(m/min)

Cast irons  
鋳鉄  
**25~30**  
(m/min)

Aluminum alloy castings  
アルミ合金鋳物  
**55~80**  
(m/min)

■The JO-PEQ is a point drill joint tool that can perform simultaneous combined machining of positioning and chamfering.

TYPE: 1



Segment : 5C

| Size<br>Ds × Dc × θ | Code    | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | l <sub>1</sub><br>(mm) | l <sub>2</sub><br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | TYPE | MSRP    |
|---------------------|---------|------------|------------|-----------|------------------------|------------------------|-----------|--------------------------------|------|---------|
| 10 × 3 × 90°        | JPE010Q | 3          | 10         | 37.5      | 0.78                   | 27.5                   | 8         | 14                             | 1    | ¥ 3,060 |
| 12 × 3.5 × 90°      | JPE012Q | 3.5        | 12         | 43.5      | 0.91                   | 32.5                   | 10        | 16                             | 1    | ¥ 3,130 |
| 16 × 4 × 90°        | JPE016Q | 4          | 16         | 48.5      | 1.04                   | 34.5                   | 13        | 20                             | 1    | ¥ 4,020 |

## JO-PEQ V

Joint- Point Drills 90°, Coated

Specification Cutting Speed depending on Materials

**HSS**

Low carbon steels  
低炭素鋼  
**30~40**  
(m/min)

Medium carbon steels  
中炭素鋼  
**25~35**  
(m/min)

High carbon steels  
高炭素鋼  
**20~30**  
(m/min)

Alloy steels  
合金鋼  
**20~25**  
(m/min)

Thermal refined steels  
調質鋼  
**10~15**  
(m/min)

Stainless steels  
ステンレス鋼  
**10~15**  
(m/min)

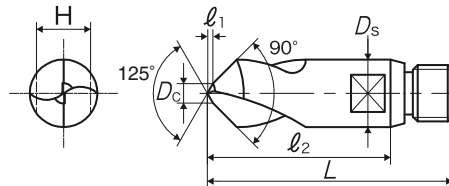
Cast irons  
鋳鉄  
**30~40**  
(m/min)

**Coating**

Aluminum alloy castings  
アルミ合金鋳物  
**70~95**  
(m/min)

■The JO-PEQ V has excellent wear resistance and welding resistance, coating point drill joint tool.

TYPE: 1



Segment : 5C

| Size<br>Ds × Dc × θ | Code     | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | l <sub>1</sub><br>(mm) | l <sub>2</sub><br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | TYPE | MSRP    |
|---------------------|----------|------------|------------|-----------|------------------------|------------------------|-----------|--------------------------------|------|---------|
| 10 × 3 × 90°        | JVPE010Q | 3          | 10         | 37.5      | 0.78                   | 27.5                   | 8         | 14                             | 1    | ¥ 4,690 |
| 12 × 3.5 × 90°      | JVPE012Q | 3.5        | 12         | 43.5      | 0.91                   | 32.5                   | 10        | 16                             | 1    | ¥ 5,210 |
| 16 × 4 × 90°        | JVPE016Q | 4          | 16         | 48.5      | 1.04                   | 34.5                   | 13        | 20                             | 1    | ¥ 6,220 |

| Point dia. | Shank dia. | Overall length | Point length   | Body length    |
|------------|------------|----------------|----------------|----------------|
| Dc         | Ds         | L              | l <sub>1</sub> | l <sub>2</sub> |



# 11 Center Drills / Centering Tools

| Point dia. | Shank dia. | Overall length | Point length | Body length |
|------------|------------|----------------|--------------|-------------|
| Dc         | Ds         | L              | $\ell_1$     | $\ell_2$    |

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  
Premium Thread Mills

⑩ Dies

⑪ Center Drills  
Centering Tools

⑫ Precision Machinery/  
Medical Surgical Instruments

JIS

⑪-65

## JO-C-PEQ V

Joint- Carbide Point Drills 90°, Coated

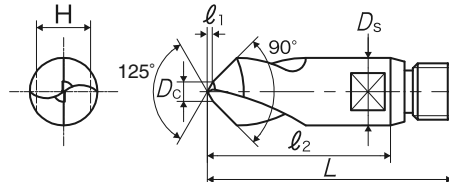


Specification Cutting Speed depending on Materials

| HF      | Low carbon steels<br>低炭素鋼                               | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Thermal refined steels<br>調質鋼 | Stainless steels<br>ステンレス鋼 | Cast irons<br>鋳鉄 |
|---------|---------------------------------------------------------|------------------------------|----------------------------|---------------------|-------------------------------|----------------------------|------------------|
|         | 70~80<br>(m/min)                                        | 60~70<br>(m/min)             | 50~60<br>(m/min)           | 50~55<br>(m/min)    | 25~30<br>(m/min)<br>25~35HRC  | 30~35<br>(m/min)           | 70~80<br>(m/min) |
| Coating | Aluminum alloy castings<br>アルミ合金鋳物<br>95~130<br>(m/min) |                              |                            |                     |                               |                            |                  |

■ The JO-C-PEQ V is a coated carbide point drill joint tool that can perform simultaneous combined machining of positioning and chamfering.

TYPE: 1



Segment : 5C

| Size<br>Ds × Dc × θ | Code      | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell_1$<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | TYPE | MSRP     |
|---------------------|-----------|------------|------------|-----------|------------------|------------------|-----------|--------------------------------|------|----------|
| 10 × 3 × 90°        | JVCPE010Q | 3          | 10         | 37.5      | 0.78             | 27.5             | 8         | 14                             | 1    | ¥ 24,200 |
| 12 × 3.5 × 90°      | JVCPE012Q | 3.5        | 12         | 43.5      | 0.91             | 32.5             | 10        | 16                             | 1    | ¥ 24,200 |
| 16 × 4 × 90°        | JVCPE016Q | 4          | 16         | 48.5      | 1.04             | 34.5             | 13        | 20                             | 1    | ¥ 34,500 |

## JO-NCSD V

Joint- NC Starting Drills for Chamfering 90°, Coated

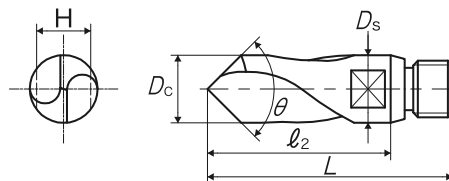


Specification Cutting Speed depending on Materials

| HSS-Co  | Low carbon steels<br>低炭素鋼                              | Medium carbon steels<br>中炭素鋼 | High carbon steels<br>高炭素鋼 | Alloy steels<br>合金鋼 | Stainless steels<br>ステンレス鋼 | Tool steels<br>工具鋼 | Cast irons<br>鋳鉄 |
|---------|--------------------------------------------------------|------------------------------|----------------------------|---------------------|----------------------------|--------------------|------------------|
|         | 20~30<br>(m/min)                                       | 20~30<br>(m/min)             | 20~25<br>(m/min)           | 10~20<br>(m/min)    | 5~10<br>(m/min)            | 5~10<br>(m/min)    | 15~30<br>(m/min) |
| Coating | Aluminum alloy castings<br>アルミ合金鋳物<br>50~70<br>(m/min) |                              |                            |                     |                            |                    |                  |

■ Optimum coating suitable for the cutting.

TYPE: 1



Segment : 5C

| Size<br>Dc × θ | Code       | Dc<br>(mm) | Ds<br>(mm) | L<br>(mm) | $\ell_2$<br>(mm) | H<br>(mm) | Adaptable holder<br>Shank dia. | TYPE | MSRP    |
|----------------|------------|------------|------------|-----------|------------------|-----------|--------------------------------|------|---------|
| 10 × 90°       | JVCS-D010Q | 10         | 10         | 37.5      | 27.5             | 8         | 14                             | 1    | ¥ 4,530 |
| 12 × 90°       | JVCS-D012Q | 12         | 12         | 43.5      | 32.5             | 10        | 16                             | 1    | ¥ 5,100 |
| 16 × 90°       | JVCS-D016Q | 16         | 16         | 48.5      | 34.5             | 13        | 20                             | 1    | ¥ 6,020 |

Think threads with  
**YAMAWA**

| Drill dia.     | Tool end dia.  | Shank dia.     | Overall length | Cutting edge length | Body length    |
|----------------|----------------|----------------|----------------|---------------------|----------------|
| D <sub>2</sub> | D <sub>c</sub> | D <sub>s</sub> | L              | ℓ                   | ℓ <sub>2</sub> |

11

JIS

## JO-CSQM

Joint- Countersinks 90°, Drilling Machine Use



Specification Cutting Speed depending on Materials

**HSS**

Low carbon steels  
低炭素鋼  
**10~15**  
(m/min)

Medium carbon steels  
中炭素鋼  
**10~15**  
(m/min)

High carbon steels  
高炭素鋼  
**10~15**  
(m/min)

Alloy steels  
合金鋼  
**5~10**  
(m/min)

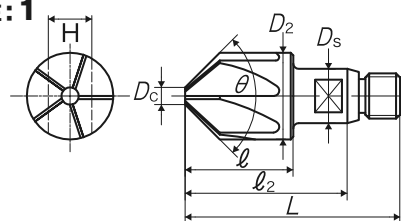
Stainless steels  
ステンレス鋼  
**5~10**  
(m/min)

Tool steels  
工具鋼  
**5~10**  
(m/min)

Cast irons  
鑄鉄  
**10~25**  
(m/min)

Aluminum alloy castings  
アルミ合金鑄物  
**12~36**  
(m/min)

TYPE: 1



■The JO-CSQM is a countersink joint tool for chamfering with a drilling machine.

Segment : 5C

| Size<br>D <sub>2</sub> × θ | Code      | D <sub>c</sub><br>(mm) | D <sub>s</sub><br>(mm) | L<br>(mm) | ℓ<br>(mm) | ℓ <sub>2</sub><br>(mm) | H<br>(mm) | No. of<br>flutes | Adaptable holder<br>Shank dia. | TYPE | MSRP    |
|----------------------------|-----------|------------------------|------------------------|-----------|-----------|------------------------|-----------|------------------|--------------------------------|------|---------|
| 16 × 90°                   | JCS016QM9 | 3.2                    | 10                     | 37.5      | 20        | 27.5                   | 8         | 5                | 14                             | 1    | ¥ 3,780 |
| 20 × 90°                   | JCS020QM9 | 4                      | 12                     | 43.5      | 24        | 32.5                   | 10        | 5                | 16                             | 1    | ¥ 4,280 |

| Shank<br>dia.  | Overall<br>length | Body<br>length |
|----------------|-------------------|----------------|
| D <sub>s</sub> | L                 | ℓ              |

## JO-HOLDER

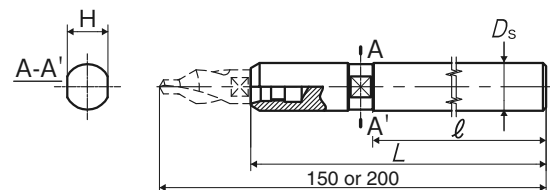
Holders for Joint Tools, for 150mm and for 200mm



Specification

**Alloy  
steel**

TYPE: 1



■A holder exclusively for the Joint Tools. After installing into the Joint tool, we offer long types of 150 mm and 200 mm including the tool length.

Segment : 5A

| Size     | Code    | D <sub>s</sub><br>(mm) | L<br>(mm) | ℓ<br>(mm) | H<br>(mm) | Applicable cutting<br>edge shank dia. | TYPE | MSRP       |
|----------|---------|------------------------|-----------|-----------|-----------|---------------------------------------|------|------------|
| 14 × 150 | JH1014M | 14                     | 122.5     | 86        | 12        | 10                                    | 1    | ¥ 9,660 □  |
| 16 × 150 | JH1216M | 16                     | 117.5     | 80        | 14        | 12                                    | 1    | ¥ 9,620 □  |
| 20 × 150 | JH1620M | 20                     | 115.5     | 74        | 17        | 16                                    | 1    | ¥ 10,100 □ |
| 14 × 200 | JH1014N | 14                     | 172.5     | 136       | 12        | 10                                    | 1    | ¥ 11,200 □ |
| 16 × 200 | JH1216N | 16                     | 167.5     | 130       | 14        | 12                                    | 1    | ¥ 11,000 □ |
| 20 × 200 | JH1620N | 20                     | 165.5     | 124       | 17        | 16                                    | 1    | ¥ 12,400 □ |

Spiral Fluted Taps  
(for blind hole) ①

Spiral Fluted Taps  
(for through hole) ②

Spiral Pointed Taps  
(for through hole) ③

Hand Taps ④

Cemented  
Carbide Taps ⑤

Roll Taps ⑥

Special Thread Taps  
Simple Inspection Tools ⑦

Pipe Taps ⑧

Thread Mills  
Premium Thread Mills ⑨

Dies ⑩

Center Drills  
Centering Tools ⑪

Precision Machinery/  
Medical Surgical Instruments ⑫

JIS

11-66

Think threads with  
**YAMAWA**

□= In stock at manufacture

