



MG

HG  
Coating

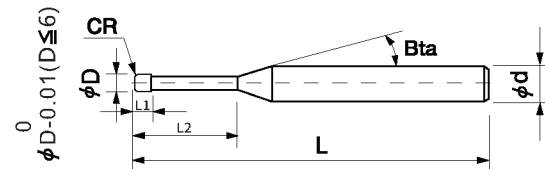
  
30
SD  
0-0.003R  
±0.005

Highly recommend/Recommend/Suggest

| DIE STEEL                            | Grade |
|--------------------------------------|-------|
| Carbon steels (S45C/S55C)            |       |
| Alloy steels (SK/SCM/SUS)            |       |
| Prehardened steels (NAK/HPM)         |       |
| Hardened steels (~55/~60/~70HRC)     | ★     |
| SPECIAL MATERIAL                     |       |
| Aluminum alloys                      |       |
| Graphite                             |       |
| Copper                               |       |
| Plastics                             |       |
| Carbon fiber                         |       |
| Titanium alloys                      |       |
| Heat resistant alloys                |       |
| Cemented carbide                     |       |
| Hard brittle (non-metallic) material |       |

## Specialty

- \*Special coating + bar for high hard hardened materials;
- \*Excellent surface finishing when processing flat surfaces and contours;
- \*The large arc at the clearance avoids cutter damage;
- \*Long life in cutting high hardness material of HRC48-65.



Total 41 models

Unit (mm)

| Model Number      | D Outside Diameter | Radius | L1 Length Of Cut | L2 Effective Length | Bta Shank Taper Angle | L Overall Length | T Number Of Flutes | D Shank Diameter | In Stock |
|-------------------|--------------------|--------|------------------|---------------------|-----------------------|------------------|--------------------|------------------|----------|
| SHHLSR2-002005005 | D0.2               | R0.05  | 0.2              | 0.5                 | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-002005010 | D0.2               | R0.05  | 0.2              | 1                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-002005015 | D0.2               | R0.05  | 0.2              | 1.5                 | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-002005020 | D0.2               | R0.05  | 0.2              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-003005005 | D0.3               | R0.05  | 0.3              | 0.5                 | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-003005010 | D0.3               | R0.05  | 0.3              | 1                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-003005015 | D0.3               | R0.05  | 0.3              | 1.5                 | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-003005020 | D0.3               | R0.05  | 0.3              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-003005030 | D0.3               | R0.05  | 0.3              | 3                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-004005010 | D0.4               | R0.05  | 0.4              | 1                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-004005020 | D0.4               | R0.05  | 0.4              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-004005030 | D0.4               | R0.05  | 0.4              | 3                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-004005040 | D0.4               | R0.05  | 0.4              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00401010  | D0.4               | R0.1   | 0.4              | 1                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00401020  | D0.4               | R0.1   | 0.4              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00401030  | D0.4               | R0.1   | 0.4              | 3                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00401040  | D0.4               | R0.1   | 0.4              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-005005010 | D0.5               | R0.05  | 0.5              | 1                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-005005020 | D0.5               | R0.05  | 0.5              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-005005040 | D0.5               | R0.05  | 0.5              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |

Next page →

| Model Number      | D Outside Diameter | Radius | L1 Length Of Cut | L2 Effective Length | Bta Shank Taper Angle | L Overall Length | T Number Of Flutes | D Shank Diameter | In Stock |
|-------------------|--------------------|--------|------------------|---------------------|-----------------------|------------------|--------------------|------------------|----------|
| SHHLSR2-005005060 | D0.5               | R0.05  | 0.5              | 6                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00501010  | D0.5               | R0.1   | 0.5              | 1                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00501020  | D0.5               | R0.1   | 0.5              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00501040  | D0.5               | R0.1   | 0.5              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00501060  | D0.5               | R0.1   | 0.5              | 6                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-006005020 | D0.6               | R0.05  | 0.6              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-006005040 | D0.6               | R0.05  | 0.6              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-006005060 | D0.6               | R0.05  | 0.6              | 6                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-006005080 | D0.6               | R0.05  | 0.6              | 8                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00601020  | D0.6               | R0.1   | 0.6              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00601040  | D0.6               | R0.1   | 0.6              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00601060  | D0.6               | R0.1   | 0.6              | 6                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00601080  | D0.6               | R0.1   | 0.6              | 8                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-008005020 | D0.8               | R0.05  | 0.8              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-008005040 | D0.8               | R0.05  | 0.8              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-008005060 | D0.8               | R0.05  | 0.8              | 6                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-008005080 | D0.8               | R0.05  | 0.8              | 8                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00801020  | D0.8               | R0.1   | 0.8              | 2                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00801040  | D0.8               | R0.1   | 0.8              | 4                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00801060  | D0.8               | R0.1   | 0.8              | 6                   | 12°                   | 50               | 2                  | 4                | ○        |
| SHHLSR2-00801080  | D0.8               | R0.1   | 0.8              | 8                   | 12°                   | 50               | 2                  | 4                | ○        |
|                   |                    |        |                  |                     |                       |                  |                    |                  |          |

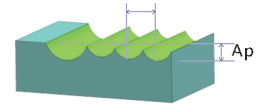
2 Flutes

\*New size added from this series.

Stocked items.

Long Neck Radius

## Cutting Parameter



| Work Material |                     |                       | HRC48-55 hardened steel |               |                  |                   | HRC56-62 hardened steel |               |                  |                   | HRC63-70 hardened steel |               |                  |                   |
|---------------|---------------------|-----------------------|-------------------------|---------------|------------------|-------------------|-------------------------|---------------|------------------|-------------------|-------------------------|---------------|------------------|-------------------|
| Diameter      | Radius of Ball Nose | Effective Length (mm) | (min-1) Speed           | (mm/min) Feed | (mm) Axial depth | (mm) Radial depth | (min-1) Speed           | (mm/min) Feed | (mm) Axial depth | (mm) Radial depth | (min-1) Speed           | (mm/min) Feed | (mm) Axial depth | (mm) Radial depth |
| D0.2          | R0.05               | 0.5                   | 30000                   | 400           | 0.003            | 0.04              | 30000                   | 320           | 0.003            | 0.02              | 30000                   | 240           | 0.003            | 0.01              |
| D0.2          | R0.05               | 1                     | 30000                   | 300           | 0.003            | 0.04              | 30000                   | 240           | 0.002            | 0.02              | 30000                   | 160           | 0.002            | 0.01              |
| D0.2          | R0.05               | 1.5                   | 30000                   | 200           | 0.002            | 0.04              | 30000                   | 160           | 0.002            | 0.02              | 30000                   | 120           | 0.001            | 0.01              |
| D0.2          | R0.05               | 2                     | 30000                   | 100           | 0.002            | 0.04              | 30000                   | 80            | 0.001            | 0.02              | 30000                   | 60            | 0.001            | 0.01              |
| D0.3          | R0.05               | 0.5                   | 30000                   | 680           | 0.003            | 0.08              | 30000                   | 560           | 0.003            | 0.04              | 30000                   | 450           | 0.003            | 0.03              |
| D0.3          | R0.05               | 1                     | 30000                   | 600           | 0.003            | 0.08              | 30000                   | 500           | 0.003            | 0.04              | 30000                   | 400           | 0.003            | 0.03              |
| D0.3          | R0.05               | 1.5                   | 30000                   | 400           | 0.003            | 0.08              | 30000                   | 320           | 0.003            | 0.04              | 30000                   | 240           | 0.003            | 0.03              |
| D0.3          | R0.05               | 2                     | 30000                   | 300           | 0.003            | 0.08              | 30000                   | 240           | 0.003            | 0.04              | 25000                   | 200           | 0.003            | 0.03              |
| D0.3          | R0.05               | 3                     | 25000                   | 100           | 0.002            | 0.08              | 25000                   | 80            | 0.002            | 0.04              | 20000                   | 60            | 0.002            | 0.03              |
| D0.4          | R0.05               | 1                     | 30000                   | 800           | 0.005            | 0.1               | 28000                   | 700           | 0.005            | 0.05              | 25000                   | 600           | 0.005            | 0.04              |
| D0.4          | R0.05               | 2                     | 30000                   | 600           | 0.005            | 0.1               | 25000                   | 500           | 0.005            | 0.05              | 25000                   | 440           | 0.005            | 0.04              |
| D0.4          | R0.05               | 3                     | 25000                   | 500           | 0.004            | 0.1               | 23000                   | 440           | 0.003            | 0.05              | 18000                   | 320           | 0.003            | 0.04              |
| D0.4          | R0.05               | 4                     | 25000                   | 400           | 0.003            | 0.1               | 20000                   | 320           | 0.002            | 0.05              | 18000                   | 240           | 0.002            | 0.04              |
| D0.4          | R0.1                | 1                     | 30000                   | 800           | 0.005            | 0.1               | 28000                   | 700           | 0.005            | 0.05              | 25000                   | 600           | 0.005            | 0.04              |
| D0.4          | R0.1                | 2                     | 30000                   | 600           | 0.005            | 0.1               | 25000                   | 500           | 0.005            | 0.05              | 25000                   | 400           | 0.005            | 0.04              |
| D0.4          | R0.1                | 3                     | 25000                   | 500           | 0.004            | 0.1               | 23000                   | 400           | 0.003            | 0.05              | 18000                   | 320           | 0.003            | 0.04              |
| D0.4          | R0.1                | 4                     | 25000                   | 400           | 0.003            | 0.1               | 20000                   | 320           | 0.002            | 0.05              | 18000                   | 240           | 0.002            | 0.04              |
| D0.5          | R0.05               | 1                     | 25000                   | 1000          | 0.01             | 0.15              | 23000                   | 900           | 0.007            | 0.1               | 20000                   | 800           | 0.005            | 0.08              |
| D0.5          | R0.05               | 2                     | 25000                   | 840           | 0.01             | 0.15              | 23000                   | 720           | 0.007            | 0.1               | 20000                   | 600           | 0.005            | 0.08              |
| D0.5          | R0.05               | 4                     | 25000                   | 600           | 0.005            | 0.15              | 23000                   | 480           | 0.003            | 0.1               | 20000                   | 360           | 0.002            | 0.08              |
| D0.5          | R0.05               | 6                     | 20000                   | 320           | 0.003            | 0.15              | 18000                   | 200           | 0.002            | 0.1               | 16000                   | 140           | 0.001            | 0.08              |
| D0.5          | R0.1                | 1                     | 25000                   | 1000          | 0.01             | 0.15              | 23000                   | 900           | 0.007            | 0.1               | 20000                   | 800           | 0.005            | 0.08              |
| D0.5          | R0.1                | 2                     | 25000                   | 840           | 0.01             | 0.15              | 23000                   | 720           | 0.007            | 0.1               | 20000                   | 600           | 0.005            | 0.08              |
| D0.5          | R0.1                | 4                     | 25000                   | 600           | 0.005            | 0.15              | 23000                   | 480           | 0.003            | 0.1               | 20000                   | 360           | 0.002            | 0.08              |
| D0.5          | R0.1                | 6                     | 20000                   | 320           | 0.003            | 0.15              | 18000                   | 200           | 0.002            | 0.1               | 16000                   | 140           | 0.001            | 0.08              |
| D0.6          | R0.05               | 2                     | 25000                   | 1000          | 0.02             | 0.2               | 23000                   | 800           | 0.01             | 0.15              | 20000                   | 640           | 0.007            | 0.1               |
| D0.6          | R0.05               | 4                     | 23000                   | 800           | 0.015            | 0.2               | 20000                   | 600           | 0.007            | 0.15              | 18000                   | 400           | 0.005            | 0.1               |
| D0.6          | R0.05               | 6                     | 20000                   | 400           | 0.008            | 0.2               | 18000                   | 300           | 0.005            | 0.15              | 12000                   | 200           | 0.003            | 0.1               |
| D0.6          | R0.05               | 8                     | 16000                   | 300           | 0.005            | 0.2               | 14000                   | 200           | 0.002            | 0.15              | 10000                   | 160           | 0.001            | 0.1               |
| D0.6          | R0.1                | 2                     | 25000                   | 1000          | 0.02             | 0.2               | 23000                   | 800           | 0.01             | 0.15              | 20000                   | 640           | 0.007            | 0.1               |
| D0.6          | R0.1                | 4                     | 23000                   | 800           | 0.015            | 0.2               | 20000                   | 600           | 0.007            | 0.15              | 18000                   | 400           | 0.005            | 0.1               |
| D0.6          | R0.1                | 6                     | 20000                   | 400           | 0.008            | 0.2               | 18000                   | 300           | 0.005            | 0.15              | 12000                   | 200           | 0.003            | 0.1               |
| D0.6          | R0.1                | 8                     | 16000                   | 300           | 0.005            | 0.2               | 14000                   | 200           | 0.002            | 0.15              | 10000                   | 160           | 0.001            | 0.1               |
| D0.8          | R0.05               | 2                     | 25000                   | 1600          | 0.03             | 0.25              | 23000                   | 1400          | 0.02             | 0.16              | 20000                   | 1000          | 0.015            | 0.14              |
| D0.8          | R0.05               | 4                     | 25000                   | 1400          | 0.025            | 0.25              | 23000                   | 1200          | 0.015            | 0.16              | 20000                   | 800           | 0.01             | 0.14              |
| D0.8          | R0.05               | 6                     | 20000                   | 1100          | 0.02             | 0.25              | 18000                   | 900           | 0.01             | 0.16              | 16000                   | 650           | 0.007            | 0.14              |
| D0.8          | R0.05               | 8                     | 16000                   | 800           | 0.01             | 0.25              | 14000                   | 600           | 0.005            | 0.16              | 12000                   | 400           | 0.005            | 0.14              |

Next page ➡

| Work Material |                     |                       | HRC48-55 hardened steel |               |                  |                   | HRC56-62 hardened steel |               |                  |                   | HRC63-70 hardened steel |               |                  |                   |
|---------------|---------------------|-----------------------|-------------------------|---------------|------------------|-------------------|-------------------------|---------------|------------------|-------------------|-------------------------|---------------|------------------|-------------------|
| Diameter      | Radius of Ball Nose | Effective Length (mm) | (min-1) Speed           | (mm/min) Feed | (mm) Axial depth | (mm) Radial depth | (min-1) Speed           | (mm/min) Feed | (mm) Axial depth | (mm) Radial depth | (min-1) Speed           | (mm/min) Feed | (mm) Axial depth | (mm) Radial depth |
| D0.8          | R0.1                | 2                     | 25000                   | 1600          | 0.03             | 0.25              | 23000                   | 1400          | 0.02             | 0.16              | 20000                   | 1000          | 0.015            | 0.14              |
| D0.8          | R0.1                | 4                     | 25000                   | 1400          | 0.025            | 0.25              | 23000                   | 1200          | 0.015            | 0.16              | 20000                   | 800           | 0.01             | 0.14              |
| D0.8          | R0.1                | 6                     | 20000                   | 1100          | 0.02             | 0.25              | 18000                   | 900           | 0.01             | 0.16              | 16000                   | 650           | 0.007            | 0.14              |
| D0.8          | R0.1                | 8                     | 16000                   | 800           | 0.01             | 0.25              | 14000                   | 600           | 0.005            | 0.16              | 12000                   | 400           | 0.005            | 0.14              |
|               |                     |                       |                         |               |                  |                   |                         |               |                  |                   |                         |               |                  |                   |

2 Flutes

## Milling Amount for Side Milling(mm)

| Work Material | Length of Cut | 2.5D (Length of Cut=Diameter*2.5) | 4D (Length of Cut=Diameter*4) |
|---------------|---------------|-----------------------------------|-------------------------------|
|               |               |                                   |                               |
| Below 45HRC   |               | $a_e=0.07D$<br>$a_p=2D$           | $a_e=0.07D$<br>$a_p=2D$       |
| Above 45HRC   |               | $a_e=0.03D$<br>$a_p=1.5D$         | $a_e=0.03D$<br>$a_p=1.5D$     |

D : Diameter (mm)

 $a_p$  : Axial Depth (mm) $a_e$  : Radial Depth (mm)

## Note:

- \*Decrease both spindle speed and feed rate proportionally when the milling parameters exceed the machine's maximum spindle speed;
- \*Recommend oil coolant for Stainless Steels and Heat Resistance Alloys;
- \*Recommend using a non-contact measuring device to avoid damaging the precision tip point;
- \*Decrease both spindle speed and feed rate proportionally in case of chattering;
- \*When the material hardness is greater than HRC58 degrees, it is recommended to use air blow cooling for roughing and oil mist or air blow cooling for finishing.

Long Neck  
Radius