



Size $\phi 2 \sim \phi 12$

HRRS Short Shank

New Price

Additional 17 models

HRRS-S



$\phi 2 \sim \phi 6$

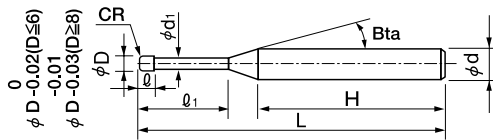
$\phi 8 \sim \phi 12$

Material Applications (☆ Highly Recommended ● Recommended ○ Suggested)

| Work Material | | | | | | | | | | | | | | | |
|---------------|-----------------|--------------------|-----------------|--------|--------|-----------|-----------------|----------|--------|----------|-----------------------|-----------------|-----------------------|------------------|---------------------------------------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels | | | Cast Iron | Aluminum Alloys | Graphite | Copper | Plastics | Glass Filled Plastics | Titanium Alloys | Heat Resistant Alloys | Cemented Carbide | Hard Brittle (Non-Metallic) Materials |
| | | | ~55HRC | ~60HRC | ~70HRC | | | | | | | | | | |
| S45C S55C | SK / SCM SUS | NAK HPM | ○ | ○ | ○ | ○ | | | | | | | | | |

Features

Shorter overall length and overhang offer higher feed and precision.
 Special corner radius geometry/size offers larger step over.
 Seamless corner radius.
 Rated to 65HRC milling.



The shank taper angle shown is not an exact value and to avoid contact with the work piece, we recommend the user controls the precise value of this angle. Shank taper angle should not make contact with the work piece.

Total 26 models





Unit (mm)

| Model Number | Outside Diameter ϕD | Corner Radius CR | Effective Length ℓ_1 | Length of Cut ℓ | Neck Diameter ϕd_1 | Shank Taper Angle Bta | Overall Length L | Shank Diameter ϕd | Shank Length H | Price (¥) |
|----------------------|---------------------------|------------------|---------------------------|----------------------|--------------------------|-----------------------|------------------|-------------------------|----------------|-----------|
| ※ HRRS 4020-03-06S | 2 | R0.3 | 6 | 2 | 1.91 | 16° | 45 | 4 | 33.0 | 9,450 |
| ※ HRRS 4020-05-06S | | R0.5 | | | | 16° | | | | |
| ※ HRRS 4030-08-09-3S | 3 | R0.8 | 9 | 3 | 2.92 | — | 50 | 3 | 38.5 | 8,820 |
| ※ HRRS 4030-08-09S | | | | | | 16° | | | | |
| ※ HRRS 4040-05-12S | 4 | R0.5 | 12 | 4 | 3.82 | — | 50 | 4 | 35.0 | 9,000 |
| ※ HRRS 4040-05-12-6S | | | | | | 16° | | | | |
| ○ HRRS 4040-10-12S | | R1 | | | | — | 50 | 4 | 35.0 | 9,000 |
| ※ HRRS 4040-10-12-6S | | | | | | 16° | | | | |
| ○ HRRS 4050-12-15S | 5 | R1.2 | 15 | 5 | 4.82 | 16° | 50 | 6 | 30.0 | 10,800 |
| ※ HRRS 4060-05-18S | 6 | R0.5 | 18 | 6 | 5.82 | — | 50 | 6 | 29.0 | 12,060 |
| ※ HRRS 4060-10-18S | | R1 | | | | | 50 | 6 | 29.0 | 12,060 |
| ○ HRRS 4060-15-18S | | R1.5 | | | | | 50 | 6 | 29.0 | 12,060 |
| ※ HRRS 4060-20-18S | 6 | R2 | 24 | 8 | 7.82 | — | 50 | 6 | 29.0 | 12,060 |
| ※ HRRS 4080-05-24S | R0.5 | 60 | | | | | 8 | 33.0 | 15,030 | |
| ※ HRRS 4080-10-24S | 8 | R1 | 24 | 8 | 7.82 | — | 60 | 8 | 33.0 | 15,030 |
| ○ HRRS 4080-20-24S | R2 | 60 | | | | | 8 | 33.0 | 15,030 | |
| ※ HRRS 4080-30-24S | R3 | 60 | | | | | 8 | 33.0 | 15,030 | |
| ※ HRRS 4100-03-30S | 10 | R0.3 | 30 | 10 | 9.82 | — | 65 | 10 | 31.5 | 19,800 |
| ※ HRRS 4100-05-30S | | R0.5 | | | | | 65 | 10 | 31.5 | 19,800 |
| ※ HRRS 4100-10-30S | | R1 | | | | | 65 | 10 | 31.5 | 19,800 |
| ○ HRRS 4100-20-30S | | R2 | | | | | 65 | 10 | 31.5 | 19,800 |
| ※ HRRS 4100-30-30S | 10 | R3 | 36 | 12 | 11.82 | — | 65 | 10 | 31.5 | 19,800 |
| ※ HRRS 4120-05-36S | R0.5 | 75 | | | | | 12 | 35.5 | 24,930 | |
| ※ HRRS 4120-10-36S | R1 | 75 | | | | | 12 | 35.5 | 24,930 | |
| ○ HRRS 4120-20-36S | R2 | 75 | | | | | 12 | 35.5 | 24,930 | |
| ※ HRRS 4120-40-36S | 12 | R4 | 36 | 12 | 11.82 | — | 75 | 12 | 35.5 | 24,930 |
| ○ HRRS 4120-40-36S | R4 | 75 | | | | | 12 | 35.5 | 24,930 | |

□ New price ※Additional model ○Straight shank type

Milling Example: NAK80 (40HRC) Pocket Milling Comparison using HRRS $\phi 6 \times CR1.5$

4 Flutes

| HRRS | Competitor A: 4 Flutes | Competitor B: 4 Flutes | Competitor C: 4 Flutes |
|---|--|---|--|
|  <p>Small chipping</p> <p>Smooth surface finish</p> |  <p>Broken</p> <p>Broken after 3 mins</p> |  <p>Chipping</p> |  <p>Small chipping</p> |
| CR1.5, FL 6mm, EFL 18mm | CR1.5, FL 6mm, EFL 18mm | CR1.5, FL 12mm | CR1.5, FL 12mm |

Excellent resistance to chipping and surface quality!

Spindle Speed: 9,000min⁻¹
 Feed Rate: 11,000mm/min
 Axial Depth: 0.3mm(0.05D)
 Radial Depth: 3mm(0.5D)
 Overhang: 20mm
 Pocket Size: 40mmx180mmx15mm depth
 Cycle Time: 20 minutes

Original Corner Radius Design Offers High Rigidity and Reduces Cutting Force

After milling SKD11 (60HRC)

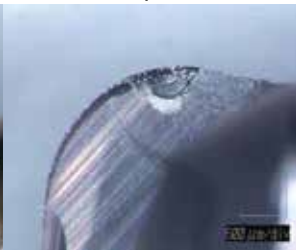
HRRS

Competitor

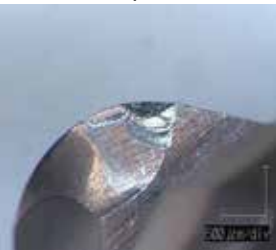
Competitor



Seamless corner radius with equal rake angle design. Reduce the cutting force and offers excellent chip evacuation to protect from the tool damage.



Flat and non-helix gash design. Badly damaged at tip point where cutting chips are trapped by poor chip evacuation.



Flat and helical gash design. Huge tool damage at tangent point where the gash shape abruptly changed and cutting chips could not evacuate properly.

Spindle Speed : 2,700min⁻¹
 Feed Rate : 2,000mm/min

Axial Depth : 0.3mm
 Radial Depth : 1.5mm

Overhang : 20mm
 Pocket Size : 40mmx40mmx0.3mm

Longer Tool Life with Variable Pitch Design. Recommended for Various Coolant.

Square
 Square
 Long Neck
 Square

Radius
 Radius
 Long Neck
 Radius

Ball / Long
 Shank Ball

Ball
 Long Neck
 Ball
 Taper Neck
 Ball

Taper
 Taper

Spiral
 V Cutter

Drill
 Thread Mill

EURO Series

Technical Data