Meet The Best Nanotechnology

# NANOLOY CUTTING TOOL

## Solid Carbide Endmill

"Beyond the cutting Tools"

The Solution Provider for Difficult to cut Materials

www.nanoloy.co.kr

NANOLOY

# The world's first ultrafine 0.2μm powder Difficult-to-cut materials cutting solution

## 全球第一0.2umNANO(纳米级)复合粉末材料开发
## 针对加工难切削材料最佳解决方案

Nanotech Co., Ltd. Developed the world's first 0.2㎛ WC-Co composite powder and manufactures Inserts and Endmills by Nano (Ultrafine) powder. Our products (Nanoloy) are Nanoloy cutting tools specialized in machining difficult-to-cut materials in various industries. We are expanding global network by selling nanoloy cutting tools to all around of world

NANOLOY研制出世界上第一0.2㎛WC-Co复合粉末, 并以Nano(Ultrafine)粉末制造绝缘体和端面磨坊 NANOLOY产品是专门加工各种工业中难以切割材料的我们向全世界销售纳米合金切削工具,以扩大全球网络

N A N O T E C H

- Aerospace
  航空航天
- Turbocharger for automobile
  汽车涡轮增压器
- Pump & Valve Oil & Gas
  泵阀石油&气油
- General Machining (SUS)
  通用加工(SUS)

# TIME LINE

## 1999

1999. 09 Established NANOTECH Co., LTD.
成立NANOTECH

1999. 12 The 20 century Korea Top 100 technologies selected (MK).
被选20世纪韩国百强科技评选

## 2000~2004

2000. 04 Established the annex research institute of NANOTECH CO.,LTD.
成立NANOTECH

2000. 09 Selected as a venture enterprise (MSIT).
被选为风险企业(Venture enterprise) (MSIT)

2001. 09 Manufactured Nano composite powder of tungsten carbide and cobalt.
碳化钨钴纳米复合粉体材料的研究制造

2003. 03 Selected as INNO-BIZ enterprise (MSIT Chungbuk).
被选为INNO–BIZ企业

2004. 07 Selected as an excellent manufacturing technology research center-Nano powder (MOCIE).
被选为优秀纳米粉体制造技术研究中心(MOCIE)

## 2006~2009

2006. 05 Cemented carbide (WC-CO) material production.
胶结及生产硬质合金材料

2007. 02 Selected with material part technology development business - Nano materials (MOTIE).
被选材料技术开发部门–纳米材料(MOCIE)

2008. 01 ISO 9001 ISO 14001 Certification (System Korea Certification).
ISO9001:ISO14001认证(韩国认证体系)

2008. 11 300 Million Dollars of Exports Award - 45th Trade Day (President).
300万美元出口奖–第45局韩国贸易日(总统奖)

2009. 08 Selected with material part technology development business - Difficult-to-cut materials (MOTIE).
被选材料技术开发部门–难切割材料(MOCIE)

## 2012~2015

2012. 09 Selected with material part technology development business - Cermet powder (MOCIE).
被选材料技术开发部门–金属陶瓷粉(MOCIE)

2013. 02 Selection of outstanding R&D performance utilization company (KEIT).
被选优秀研发绩效利用公司(KEIT)

2015. 01 NANOLOY inserts and end mills production. NANOLOY
NANOLOY立铣刀和刀片生产

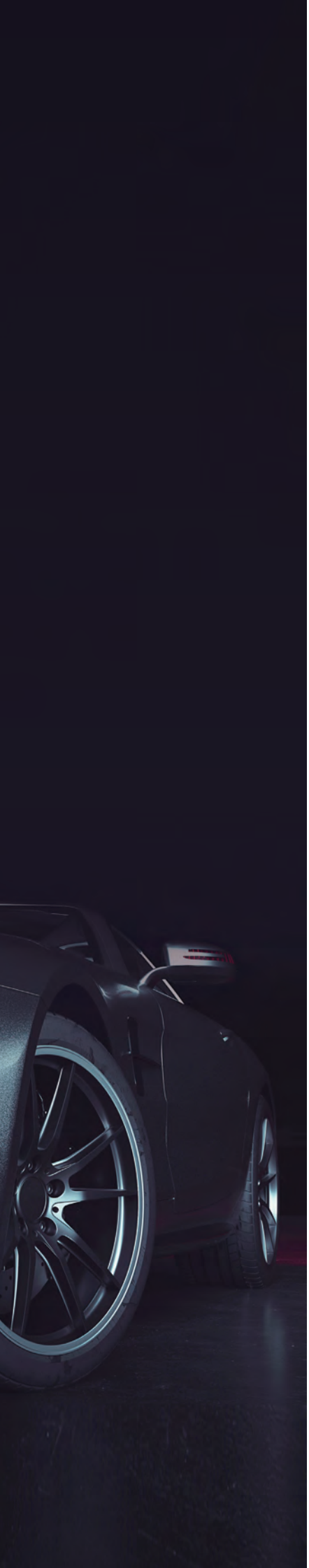
## 2016~2018

2016. 05 Selected with material part technology development business - (W, Ti)C powder (MOCIE).
被选材料技术开发部门(钨、钛)钴粉末(MOCIE)

2016. 05 Designated as a global hidden champion (MSIT).
被指定为全球隐形冠军(MSIT)

2016. 09 Established NT Vina Factory.
建立了NT越南工厂

2018. 02 Selected as a promising small and medium-sized enterprise in Cheongju (Cheongju City).
被选为清州市有发展前途的中小企业



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# CARBIDE ENDMILL SERIES

## 整体钨钢铣刀

# CARBIDE ENDMILL SERIES
# 整体钨钢铣刀

Excellent tool life with superior NANO ultrafine grade
采用了NANOLOY超微粒材质确保卓越的工具寿命

"N-SM" CARBIDE ENDMILL SERIES FOR STAINLESS STEEL
"N-SM" 不锈钢专用铣刀

"N-SH" CARBIDE ENDMILL SERIES FOR HARDENED STEEL
"N-SM" 高硬度钢专用铣刀

"N-SM" CARBIDE ENDMILL SERIES FOR GENERAL PURPOSE
"N-SM" 普通钢专用铣刀

"N-SN" CARBIDE ENDMILL SERIES FOR ALUMINUM
"N-SN" 铝专用铣刀

# “N-SM” CARBIDE ENDMILL SERIES FOR STAINLESS STEEL

## “N-SM” 不锈钢专用铣刀

## N-SM Series / 系列

### CARBIDE ENDMILL SERIES FOR STAINLESS STEEL
### 不锈钢专用铣刀

1. Superior material, coating, geometry for stainless steel & Ni based alloy & Ti alloy machining
   采用加工不锈钢及钛合金, 镍合金的最优良的材质, 涂层, 形状
2. Excellent performance in ISO M,S group
   对于M,S系列材料加工最合适
3. Wide range of applications with various geometries and specifications
   可广泛应用于多种形状和特征

## PRODUCT FEATURE / 产品特点

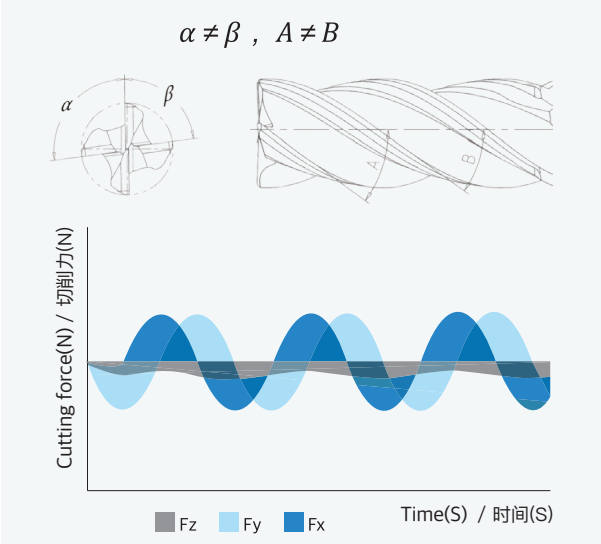
Own patented powder, special geometry, coating guarantee excellent cutting performance in stainless steel & Ni based alloy & Ti alloy machining

独特的粉末材料、特殊的几何结构、特殊涂层保证优良的切割性能
专门用于不锈钢、镍基合金、钛合金加工

- Provide highest machining quality and tool life with excellent cutting edge in difficult to cut materials machining
- 提供最高的加工质量和刀具寿命, 具有优良的切削刃适合难切削材料加工
- Longer tool life and minimization cutting force with high rake angle and enhanced edge resistance
- 提供最高的加工质量和刀具寿命, 具有优良的切削刃适合难切削材料加工

### | CORE TECHNOLOGY / 核心技术

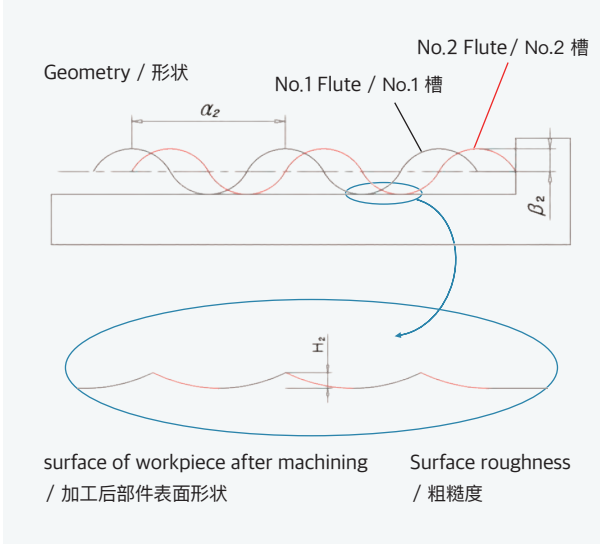
**Unequal indexing & multiple-helix design**
**采用不等分槽型&不等螺旋角**




Applying uneven indexing & helix preventing chattering and reduce cutting resistance.

采用不等分槽型和不等螺旋角为减少震动和减少切削阻力

**Roughing design**
**粗加工专用槽型**

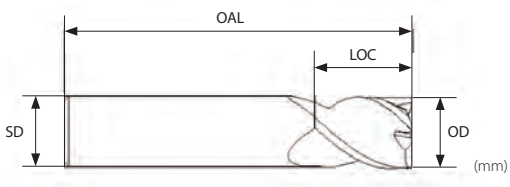



Nanoloy proprietary technology designed Wide pitch, low wave shape to prevent chipping, perfect surface

采用宽间距和深槽形状为扩大接触面积可防止崩刃和提高粗糙度。

## NANO SUS 4 FLUTE FLAT
## NANO 不锈钢 4刃 平头

d1 0~-0.01 d≤6 | d2 -0.025 ~-0.01 6 < d | 36° 38° HELIX | h5



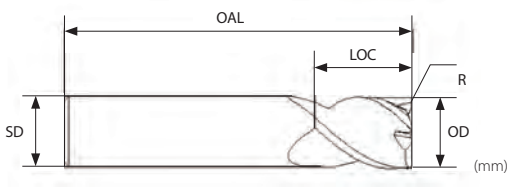

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFMS4-010-025-S06-L50 | 1X6X2.5X50 | 1 | 6 | 2.5 | 50 | 4 |
| 2 | NFMS4-012-030-S06-L50 | 1.2X6X3X50 | 1.2 | 6 | 3 | 50 | 4 |
| 3 | NFMS4-015-040-S06-L50 | 1.5X6X4X50 | 1.5 | 6 | 4 | 50 | 4 |
| 4 | NFMS4-020-060-S06-L50 | 2X6X6X50 | 2 | 6 | 6 | 50 | 4 |
| 5 | NFMS4-025-070-S06-L50 | 2.5X6X7X50 | 2.5 | 6 | 7 | 50 | 4 |
| 6 | NFMS4-030-080-S06-L55 | 3X6X8X55 | 3 | 6 | 8 | 55 | 4 |
| 7 | NFMS4-030-100-S06-L60 | 3X6X10X60 | 3 | 6 | 10 | 60 | 4 |
| 8 | NFMS4-035-100-S06-L55 | 3.5X6X10X55 | 3.5 | 6 | 10 | 55 | 4 |
| 9 | NFMS4-040-100-S06-L55 | 4X6X10X55 | 4 | 6 | 10 | 55 | 4 |
| 10 | NFMS4-040-120-S06-L60 | 4X6X12X60 | 4 | 6 | 12 | 60 | 4 |
| 11 | NFMS4-045-120-S06-L55 | 4.5X6X12X55 | 4.5 | 6 | 12 | 55 | 4 |
| 12 | NFMS4-050-150-S06-L55 | 5X6X15X55 | 5 | 6 | 15 | 55 | 4 |
| 13 | NFMS4-055-150-S06-L60 | 5.5X6X15X60 | 5.5 | 6 | 15 | 60 | 4 |
| 14 | NFMS4-060-150-S06-L60 | 6X6X15X60 | 6 | 6 | 15 | 60 | 4 |
| 15 | NFMS4-060-200-S06-L65 | 6X6X20X65 | 6 | 6 | 20 | 65 | 4 |
| 16 | NFMS4-065-150-S08-L60 | 6.5X8X15X60 | 6.5 | 8 | 15 | 60 | 4 |
| 17 | NFMS4-070-200-S08-L80 | 7X8X20X80 | 7 | 8 | 20 | 80 | 4 |
| 18 | NFMS4-080-200-S08-L70 | 8X8X20X70 | 8 | 8 | 20 | 70 | 4 |
| 19 | NFMS4-080-250-S08-L70 | 8X8X25X70 | 8 | 8 | 25 | 70 | 4 |
| 20 | NFMS4-080-300-S08-L80 | 8X8X30X80 | 8 | 8 | 30 | 80 | 4 |
| 21 | NFMS4-085-200-S10-L70 | 8.5X10X20X70 | 8.5 | 10 | 20 | 70 | 4 |
| 22 | NFMS4-090-250-S10-L80 | 9X10X25X80 | 9 | 10 | 25 | 80 | 4 |
| 23 | NFMS4-100-250-S10-L75 | 10X10X25X75 | 10 | 10 | 25 | 75 | 4 |
| 24 | NFMS4-100-350-S10-L85 | 10X10X35X85 | 10 | 10 | 35 | 85 | 4 |
| 25 | NFMS4-120-300-S12-L80 | 12X12X30X80 | 12 | 12 | 30 | 80 | 4 |
| 26 | NFMS4-120-400-S12-L90 | 12X12X40X90 | 12 | 12 | 40 | 90 | 4 |
| 27 | NFMS4-160-420-S16-L100 | 16X16X42X100 | 16 | 16 | 42 | 100 | 4 |
| 28 | NFMS4-200-480-S20-L100 | 20X20X48X100 | 20 | 20 | 48 | 100 | 4 |

# “N-SM” CARBIDE ENDMILL SERIES FOR STAINLESS STEEL

## “N-SM” 不锈钢专用铣刀

### NANO SUS 4 FLUTE CORNER RADIUS ①
### NANO 不锈钢 4刃 圆鼻 ①

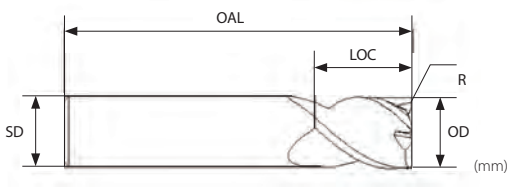
| d1 | d2 | r1 | r2 | r3 | 36° 38° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 1 | NRMS4-010-001-025-S06-L50 | 1(R0.1)X6X2.5X50 | 1 | 6 | R0.1 | 2.5 | 50 | 4 |
| 2 | NRMS4-010-002-025-S06-L50 | 1(R0.2)X6X2.5X50 | 1 | 6 | R0.2 | 2.5 | 50 | 4 |
| 3 | NRMS4-012-001-030-S06-L50 | 1.2(R0.1)X6X3X50 | 1.2 | 6 | R0.1 | 3 | 50 | 4 |
| 4 | NRMS4-015-001-040-S06-L50 | 1.5(R0.1)X6X4X50 | 1.5 | 6 | R0.1 | 4 | 50 | 4 |
| 5 | NRMS4-015-002-040-S06-L50 | 1.5(R0.2)X6X4X50 | 1.5 | 6 | R0.2 | 4 | 50 | 4 |
| 6 | NRMS4-020-001-060-S06-L50 | 2(R0.1)X6X6X50 | 2 | 6 | R0.1 | 6 | 50 | 4 |
| 7 | NRMS4-020-002-060-S06-L50 | 2(R0.2)X6X6X50 | 2 | 6 | R0.2 | 6 | 50 | 4 |
| 8 | NRMS4-025-002-070-S06-L50 | 2.5(R0.2)X6X7X50 | 2.5 | 6 | R0.2 | 7 | 50 | 4 |
| 9 | NRMS4-030-002-080-S06-L55 | 3(R0.2)X6X8X55 | 3 | 6 | R0.2 | 8 | 55 | 4 |
| 10 | NRMS4-030-003-080-S06-L55 | 3(R0.3)X6X8X55 | 3 | 6 | R0.3 | 8 | 55 | 4 |
| 11 | NRMS4-030-005-080-S06-L55 | 3(R0.5)X6X8X55 | 3 | 6 | R0.5 | 8 | 55 | 4 |
| 12 | NRMS4-040-002-100-S06-L55 | 4(R0.2)X6X10X55 | 4 | 6 | R0.2 | 10 | 55 | 4 |
| 13 | NRMS4-040-003-100-S06-L55 | 4(R0.3)X6X10X55 | 4 | 6 | R0.3 | 10 | 55 | 4 |
| 14 | NRMS4-040-005-100-S06-L55 | 4(R0.5)X6X10X55 | 4 | 6 | R0.5 | 10 | 55 | 4 |
| 15 | NRMS4-050-002-150-S06-L55 | 5(R0.2)X6X15X55 | 5 | 6 | R0.2 | 15 | 55 | 4 |
| 16 | NRMS4-050-003-150-S06-L55 | 5(R0.3)X6X15X55 | 5 | 6 | R0.3 | 15 | 55 | 4 |
| 17 | NRMS4-050-005-150-S06-L55 | 5(R0.5)X6X15X55 | 5 | 6 | R0.5 | 15 | 55 | 4 |
| 18 | NRMS4-060-003-150-S06-L60 | 6(R0.3)X6X15X60 | 6 | 6 | R0.3 | 15 | 60 | 4 |
| 19 | NRMS4-060-005-150-S06-L60 | 6(R0.5)X6X15X60 | 6 | 6 | R0.5 | 15 | 60 | 4 |
| 20 | NRMS4-060-010-150-S06-L60 | 6(R1)X6X15X60 | 6 | 6 | R1 | 15 | 60 | 4 |
| 21 | NRMS4-080-003-200-S08-L70 | 8(R0.3)X8X20X70 | 8 | 8 | R0.3 | 20 | 70 | 4 |
| 22 | NRMS4-080-005-200-S08-L70 | 8(R0.5)X8X20X70 | 8 | 8 | R0.5 | 20 | 70 | 4 |
| 23 | NRMS4-080-010-200-S08-L70 | 8(R1)X8X20X70 | 8 | 8 | R1 | 20 | 70 | 4 |
| 24 | NRMS4-100-003-250-S10-L75 | 10(R0.3)X10X25X75 | 10 | 10 | R0.3 | 25 | 75 | 4 |
| 25 | NRMS4-100-005-250-S10-L75 | 10(R0.5)X10X25X75 | 10 | 10 | R0.5 | 25 | 75 | 4 |
| 26 | NRMS4-100-010-250-S10-L75 | 10(R1)X10X25X75 | 10 | 10 | R1 | 25 | 75 | 4 |
| 27 | NRMS4-100-015-250-S10-L75 | 10(R1.5)X10X25X75 | 10 | 10 | R1.5 | 25 | 75 | 4 |
| 28 | NRMS4-100-020-250-S10-L75 | 10(R2)X10X25X75 | 10 | 10 | R2 | 25 | 75 | 4 |
| 29 | NRMS4-100-030-250-S10-L75 | 10(R3)X10X25X75 | 10 | 10 | R3 | 25 | 75 | 4 |
| 30 | NRMS4-120-005-300-S12-L80 | 12(R0.5)X12X30X80 | 12 | 12 | R0.5 | 30 | 80 | 4 |

## NANO SUS 4 FLUTE CORNER RADIUS ②
## NANO 不锈钢 4刃 圆鼻 ②

| d1 | d2 | r1 | r2 | r3 | 36°/38° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |



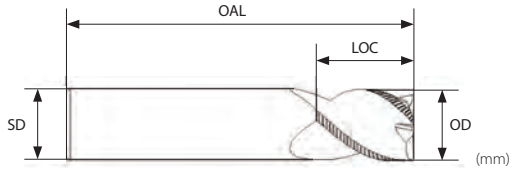

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 31 | NRMS4-120-010-300-S12-L80 | 12(R1)X12X30X80 | 12 | 12 | R1 | 30 | 80 | 4 |
| 32 | NRMS4-120-015-300-S12-L80 | 12(R1.5)X12X30X80 | 12 | 12 | R1.5 | 30 | 80 | 4 |
| 33 | NRMS4-120-020-300-S12-L80 | 12(R2)X12X30X80 | 12 | 12 | R2 | 30 | 80 | 4 |
| 34 | NRMS4-120-030-300-S12-L80 | 12(R3)X12X30X80 | 12 | 12 | R3 | 30 | 80 | 4 |
| 35 | NRMS4-120-040-300-S12-L80 | 12(R4)X12X30X80 | 12 | 12 | R4 | 30 | 80 | 4 |
| 36 | NRMS4-140-005-350-S16-L90 | 14(R0.5)X16X35X90 | 14 | 16 | R0.5 | 35 | 90 | 4 |
| 37 | NRMS4-140-010-350-S16-L90 | 14(R1)X16X35X90 | 14 | 16 | R1 | 35 | 90 | 4 |
| 38 | NRMS4-160-005-420-S16-L100 | 16(R0.5)X16X42X100 | 16 | 16 | R0.5 | 42 | 100 | 4 |
| 39 | NRMS4-160-010-420-S16-L100 | 16(R1)X16X42X100 | 16 | 16 | R1 | 42 | 100 | 4 |
| 40 | NRMS4-180-005-450-S16-L100 | 18(R0.5)X16X45X100 | 18 | 16 | R0.5 | 45 | 100 | 4 |
| 41 | NRMS4-200-005-480-S20-L100 | 20(R0.5)X20X48X100 | 20 | 20 | R0.5 | 48 | 100 | 4 |
| 42 | NRMS4-200-010-480-S20-L100 | 20(R1)X20X48X100 | 20 | 20 | R1 | 48 | 100 | 4 |

# “N-SM” CARBIDE ENDMILL SERIES FOR STAINLESS STEEL

## “N-SM” 不锈钢专用铣刀

### NANO SUS 3~5 FLUTE ROUGHING
### NANO 不锈钢 3~5刃 粗加工

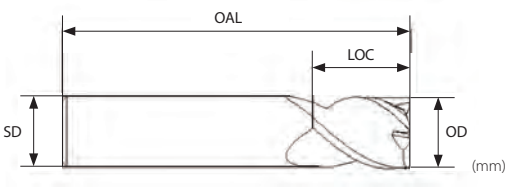
| d1 | d2 | r1 | r2 | r3 | 36° | 36° 38° | h5 |
|---|---|---|---|---|---|---|---|
| -0.04 ~-0.02 | -0.05 ~-0.02 | ±0.005 | ±0.01 | ±0.015 | HELIX (3.5날) | HELIX (4날) | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | NRMS3R-030-002-080-S06-L50 | 3(0.2)X6X8X50 | 3 | 6 | 0.2 | 8 | 50 | | 3 |
| 2 | NRMS3R-040-002-100-S06-L50 | 4(0.2)X6X10X50 | 4 | 6 | 0.2 | 10 | 50 | | 3 |
| 3 | NRMS4R-050-002-130-S06-L50 | 5(0.2)X6X13X50 | 5 | 6 | 0.2 | 13 | 50 | | 4 |
| 4 | NRMS4R-060-002-130-S06-L60 | 6(0.2)X6X13X60 | 6 | 6 | 0.2 | 13 | 60 | | 4 |
| 5 | NRMR4R-060-002-200-S06-L60 | 6(0.2)X6X10(20)X60 | 6 | 6 | 0.2 | 10 | 60 | 20 | 4 |
| 6 | NRMS4R-060-005-130-S06-L60 | 6(0.5)X6X13X60 | 6 | 6 | 0.5 | 13 | 60 | | 4 |
| 7 | NRMS4R-070-002-180-S08-L70 | 7(0.2)X8X18X70 | 7 | 8 | 0.2 | 18 | 70 | | 4 |
| 8 | NRMS4R-080-002-190-S08-L70 | 8(0.2)X8X19X70 | 8 | 8 | 0.2 | 19 | 70 | | 4 |
| 9 | NRMR4R-080-002-250-S08-L70 | 8(0.2)X8X12(25)X70 | 8 | 8 | 0.2 | 12 | 70 | 25 | 4 |
| 10 | NRMS4R-080-005-190-S08-L70 | 8(0.5)X8X19X70 | 8 | 8 | 0.5 | 19 | 70 | | 4 |
| 11 | NRMS4R-080-010-190-S08-L70 | 8(1)X8X19X70 | 8 | 8 | 1 | 19 | 70 | | 4 |
| 12 | NRMS4R-090-003-200-S10-L70 | 9(0.3)X10X20X70 | 9 | 10 | 0.3 | 20 | 70 | | 4 |
| 13 | NRMS4R-100-003-220-S10-L75 | 10(0.3)X10X22X75 | 10 | 10 | 0.3 | 22 | 75 | | 4 |
| 14 | NRMR4R-100-003-300-S10-L75 | 10(0.3)X10X15(30)X75 | 10 | 10 | 0.3 | 15 | 75 | 30 | 4 |
| 15 | NRMS4R-100-005-220-S10-L75 | 10(0.5)X10X22X75 | 10 | 10 | 0.5 | 22 | 75 | | 4 |
| 16 | NRMS4R-100-010-220-S10-L75 | 10(1)X10X22X75 | 10 | 10 | 1 | 22 | 75 | | 4 |
| 17 | NRMS4R-110-003-250-S12-L80 | 11(0.3)X12X25X80 | 11 | 12 | 0.3 | 25 | 80 | | 4 |
| 18 | NRMS4R-120-003-260-S12-L80 | 12(0.3)X12X26X80 | 12 | 12 | 0.3 | 26 | 80 | | 4 |
| 19 | NRMS4R-120-010-260-S12-L80 | 12(1)X12X26X80 | 12 | 12 | 1 | 26 | 80 | | 4 |
| 20 | NRMR4R-120-003-350-S12-L80 | 12(0.3)X12X20(35)X80 | 12 | 12 | 0.3 | 20 | 80 | 35 | 4 |
| 21 | NRMS5R-160-005-320-S16-L100 | 16(0.5)X16X32X100 | 16 | 16 | 0.5 | 32 | 100 | | 5 |
| 22 | NRMS5R-160-005-420-S16-L100 | 16(0.5)X16X42X100 | 16 | 16 | 0.5 | 42 | 100 | | 5 |
| 23 | NRMS5R-160-015-320-S16-L100 | 16(1.5)X16X32X100 | 16 | 16 | 1.5 | 32 | 100 | | 5 |
| 24 | NRMS5R-160-015-420-S16-L100 | 16(1.5)X16X42X100 | 16 | 16 | 1.5 | 42 | 100 | | 5 |
| 25 | NRMS5R-200-005-380-S20-L100 | 20(0.5)X20X38X100 | 20 | 20 | 0.5 | 38 | 100 | | 5 |
| 26 | NRMS5R-200-005-450-S20-L100 | 20(0.5)X20X45X100 | 20 | 20 | 0.5 | 45 | 100 | | 5 |
| 27 | NRMS5R-200-020-380-S20-L100 | 20(2)X20X38X100 | 20 | 20 | 2 | 38 | 100 | | 5 |
| 28 | NRMS5R-200-020-450-S20-L100 | 20(2)X20X45X100 | 20 | 20 | 2 | 45 | 100 | | 5 |

## NANO SUS 3 FLUTE
## NANO 不锈钢 3刃 平头

d1 -0.01~0 d≤6 | d2 -0.025 ~0.01 6 < d | 45° HELIX | h5




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFMS3-010-025-S06-L50 | 1X6X2.5X50 | 1 | 6 | 2.5 | 50 | 3 |
| 2 | NFMS3-012-030-S06-L50 | 1.2X6X3X50 | 1.2 | 6 | 3 | 50 | 3 |
| 3 | NFMS3-015-040-S06-L50 | 1.5X6X4X50 | 1.5 | 6 | 4 | 50 | 3 |
| 4 | NFMS3-020-060-S06-L50 | 2X6X6X50 | 2 | 6 | 6 | 50 | 3 |
| 5 | NFMS3-025-070-S06-L50 | 2.5X6X7X50 | 2.5 | 6 | 7 | 50 | 3 |
| 6 | NFMS3-030-080-S06-L55 | 3X6X8X55 | 3 | 6 | 8 | 55 | 3 |
| 7 | NFMS3-030-100-S06-L60 | 3X6X10X60 | 3 | 6 | 10 | 60 | 3 |
| 8 | NFMS3-040-100-S06-L55 | 4X6X10X55 | 4 | 6 | 10 | 55 | 3 |
| 9 | NFMS3-040-120-S06-L60 | 4X6X12X60 | 4 | 6 | 12 | 60 | 3 |
| 10 | NFMS3-050-130-S06-L55 | 5X6X13X55 | 5 | 6 | 13 | 55 | 3 |
| 11 | NFMS3-060-150-S06-L60 | 6X6X15X60 | 6 | 6 | 15 | 60 | 3 |
| 12 | NFMS3-060-200-S06-L65 | 6X6X20X65 | 6 | 6 | 20 | 65 | 3 |
| 13 | NFMS3-080-200-S08-L70 | 8X8X20X70 | 8 | 8 | 20 | 70 | 3 |
| 14 | NFMS3-080-300-S08-L80 | 8X8X30X80 | 8 | 8 | 30 | 80 | 3 |
| 15 | NFMS3-100-250-S10-L75 | 10X10X25X75 | 10 | 10 | 25 | 75 | 3 |
| 16 | NFMS3-100-350-S10-L85 | 10X10X35X85 | 10 | 10 | 35 | 85 | 3 |
| 17 | NFMS3-120-300-S12-L80 | 12X12X30X80 | 12 | 12 | 30 | 80 | 3 |
| 18 | NFMS3-120-400-S12-L90 | 12X12X40X90 | 12 | 12 | 40 | 90 | 3 |
| 19 | NFMS3-160-420-S16-L100 | 16X16X42X100 | 16 | 16 | 42 | 100 | 3 |
| 20 | NFMS3-200-480-S20-L100 | 20X20X48X100 | 20 | 20 | 48 | 100 | 3 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

## N-SH Series / 系列

### CARBIDE ENDMILL SERIES FOR HARDENED STEEL
### 高硬度钢专用铣刀

1. Specially designed for machining high hardened material (HRC45~65)
   专为加工高硬度材料而设计(HRC45~65)
2. Excellent quality and performance for automotive and mold industry
   为汽车和模具行业提供卓越的质量和性能
3. Apply optimal design for cutting edge and coating improve wear resistance and toughness
   对切削刃和涂层进行优化设计, 提高耐磨性和韧性

## PRODUCT FEATURE / 产品特点

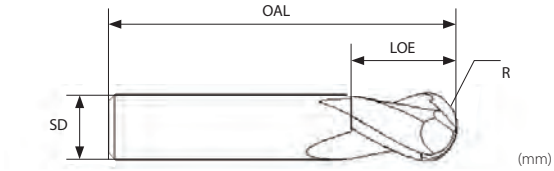
**Apply for optimized material and coating guarantee excellent cutting and tool life in automobile and mold industry hardened material machining**

**适用于优化材料和涂层，**
**保证优良的切削和刀具寿命在汽车和模具行业硬化材料加工**

- Improve productivity and reduce cutting force at high speed machining
- 提高生产率, 降低高速加工时的切削阻力
- Improve surface quality and high precision machining with high quality of end mills
- 用高质量立铣刀提高表面质量和高精度加工
- Stable machining with optimized rake-angle and clearance angle
- 具有最佳前角和间隙角, 可实现稳定的加工
- Excellent tool life with excellent NANO ultrafine grade and coating
- 具有NANO纳米级符合材料和超细涂层, 实现延长刀具寿命

## NANO HARDENED STEEL 2 FLUTE BALL ①
## NANO 高硬度钢 2刃 球头 ①

| | | d1 -0.005 ~0 d≤6 | d2 -0.009 ~-0.001 6<d | r1 ±0.005 d≤6 | r2 ±0.01 6<d | 30° HELIX | h5 |
|---|---|---|---|---|---|---|---|



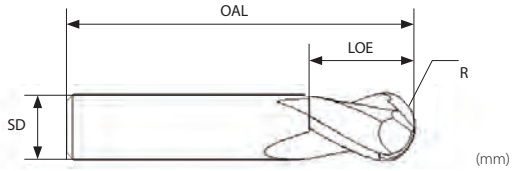

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NBHS2-001-0005-001-S06-L40 | 0.1X6X0.1X40 | 0.1 | 6 | 0.1 | 40 | 2 |
| 2 | NBHS2-002-001-002-S06-L40 | 0.2X6X0.2X40 | 0.2 | 6 | 0.2 | 40 | 2 |
| 3 | NBHS2-003-0015-003-S06-L40 | 0.3X6X0.3X40 | 0.3 | 6 | 0.3 | 40 | 2 |
| 4 | NBHS2-004-002-004-S06-L40 | 0.4X6X0.4X40 | 0.4 | 6 | 0.4 | 40 | 2 |
| 5 | NBHS2-005-0025-005-S06-L40 | 0.5X6X0.5X40 | 0.5 | 6 | 0.5 | 40 | 2 |
| 6 | NBHS2-006-003-006-S06-L40 | 0.6X6X0.6X40 | 0.6 | 6 | 0.6 | 40 | 2 |
| 7 | NBHS2-007-0035-007-S06-L40 | 0.7X6X0.7X40 | 0.7 | 6 | 0.7 | 40 | 2 |
| 8 | NBHS2-008-004-008-S06-L40 | 0.8X6X0.8X40 | 0.8 | 6 | 0.8 | 40 | 2 |
| 9 | NBHS2-009-0045-009-S06-L40 | 0.9X6X0.9X40 | 0.9 | 6 | 0.9 | 40 | 2 |
| 10 | NBHS2-010-005-015-S06-L40 | 1X6X1.5X40 | 1 | 6 | 1.5 | 40 | 2 |
| 11 | NBHS2-015-0075-025-S06-L40 | 1.5X6X2.5X40 | 1.5 | 6 | 2.5 | 40 | 2 |
| 12 | NBHS2-020-010-030-S06-L40 | 2X6X3X40 | 2 | 6 | 3 | 40 | 2 |
| 13 | NBHS2-030-015-045-S06-L50 | 3X6X4.5X50 | 3 | 6 | 4.5 | 50 | 2 |
| 14 | NBHS2-040-020-060-S06-L50 | 4X6X6X50 | 4 | 6 | 6 | 50 | 2 |
| 15 | NBHS2-050-025-075-S06-L50 | 5X6X7.5X50 | 5 | 6 | 7.5 | 50 | 2 |
| 16 | NBHS2-060-030-090-S06-L50 | 6X6X9X50 | 6 | 6 | 9 | 50 | 2 |
| 17 | NBHS2-080-040-120-S08-L50 | 8X8X12X50 | 8 | 8 | 12 | 50 | 2 |
| 18 | NBHS2-100-050-150-S10-L60 | 10X10X15X60 | 10 | 10 | 15 | 60 | 2 |
| 19 | NBHS2-120-060-180-S12-L60 | 12X12X18X60 | 12 | 12 | 18 | 60 | 2 |
| 20 | NBHS2-001-0005-002-S04-L40 | 0.1X4X0.2X40 | 0.1 | 4 | 0.2 | 40 | 2 |
| 21 | NBHS2-002-001-004-S04-L40 | 0.2X4X0.4X40 | 0.2 | 4 | 0.4 | 40 | 2 |
| 22 | NBHS2-003-0015-006-S04-L40 | 0.3X4X0.6X40 | 0.3 | 4 | 0.6 | 40 | 2 |
| 23 | NBHS2-004-002-008-S04-L40 | 0.4X4X0.8X40 | 0.4 | 4 | 0.8 | 40 | 2 |
| 24 | NBHS2-005-0025-010-S04-L40 | 0.5X4X1X40 | 0.5 | 4 | 1 | 40 | 2 |
| 25 | NBHS2-006-003-012-S04-L40 | 0.6X4X1.2X40 | 0.6 | 4 | 1.2 | 40 | 2 |
| 26 | NBHS2-007-0035-014-S04-L40 | 0.7X4X1.4X40 | 0.7 | 4 | 1.4 | 40 | 2 |
| 27 | NBHS2-008-004-016-S04-L40 | 0.8X4X1.6X40 | 0.8 | 4 | 1.6 | 40 | 2 |
| 28 | NBHS2-009-0045-018-S04-L40 | 0.9X4X1.8X40 | 0.9 | 4 | 1.8 | 40 | 2 |
| 29 | NBHS2-010-005-025-S06-L50 | 1X6X2.5X50 | 1 | 6 | 2.5 | 50 | 2 |
| 30 | NBHS2-010-005-025-S04-L50 | 1X4X2.5X50 | 1 | 4 | 2.5 | 50 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE BALL ②
### NANO 高硬度钢 2刃 球头 ②

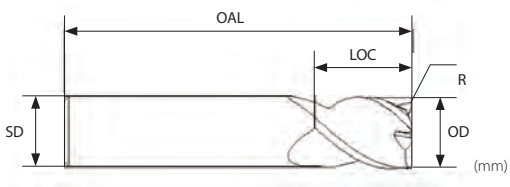
| | | d1 | d2 | r1 | r2 | 30° | h5 |
|---|---|---|---|---|---|---|---|
| | | -0.005 ~0 | -0.009 ~-0.001 | ±0.005 | ±0.01 | HELIX | |
| | | d≤6 | 6 < d | d≤6 | 6 < d | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 31 | NBHS2-012-006-030-S06-L50 | 1.2X6X3X50 | 1.2 | 6 | 3 | 50 | 2 |
| 32 | NBHS2-015-0075-040-S06-L50 | 1.5X6X4X50 | 1.5 | 6 | 4 | 50 | 2 |
| 33 | NBHS2-015-0075-040-S04-L50 | 1.5X4X4X50 | 1.5 | 4 | 4 | 50 | 2 |
| 34 | NBHS2-020-010-050-S06-L50 | 2X6X5X50 | 2 | 6 | 5 | 50 | 2 |
| 35 | NBHS2-020-010-050-S04-L50 | 2X4X5X50 | 2 | 4 | 5 | 50 | 2 |
| 36 | NBHS2-025-0125-070-S06-L60 | 2.5X6X7X60 | 2.5 | 6 | 7 | 60 | 2 |
| 37 | NBHS2-030-015-080-S06-L60 | 3X6X8X60 | 3 | 6 | 8 | 60 | 2 |
| 38 | NBHS2-030-015-080-S03-L70 | 3X3X8X70 | 3 | 3 | 8 | 70 | 2 |
| 39 | NBHS2-030-015-080-S04-L60 | 3X4X8X60 | 3 | 4 | 8 | 60 | 2 |
| 40 | NBHS2-035-0175-080-S06-L70 | 3.5X6X8X70 | 3.5 | 6 | 8 | 70 | 2 |
| 41 | NBHS2-040-020-080-S06-L70 | 4X6X8X70 | 4 | 6 | 8 | 70 | 2 |
| 42 | NBHS2-040-020-080-S04-L80 | 4X4X8X80 | 4 | 4 | 8 | 80 | 2 |
| 43 | NBHS2-045-0225-100-S06-L80 | 4.5X6X10X80 | 4.5 | 6 | 10 | 80 | 2 |
| 44 | NBHS2-050-025-100-S06-L80 | 5X6X10X80 | 5 | 6 | 10 | 80 | 2 |
| 45 | NBHS2-055-0275-110-S06-L90 | 5.5X6X11X90 | 5.5 | 6 | 11 | 90 | 2 |
| 46 | NBHS2-060-030-120-S06-L90 | 6X6X12X90 | 6 | 6 | 12 | 90 | 2 |
| 47 | NBHS2-070-035-140-S08-L90 | 7X8X14X90 | 7 | 8 | 14 | 90 | 2 |
| 48 | NBHS2-080-040-140-S08-L100 | 8X8X14X100 | 8 | 8 | 14 | 100 | 2 |
| 49 | NBHS2-090-045-180-S10-L100 | 9X10X18X100 | 9 | 10 | 18 | 100 | 2 |
| 50 | NBHS2-100-050-180-S10-L100 | 10X10X18X100 | 10 | 10 | 18 | 100 | 2 |
| 51 | NBHS2-120-060-220-S12-L110 | 12X12X22X110 | 12 | 12 | 22 | 110 | 2 |

## NANO HARDENED STEEL 2 FLUTE CORNER RADIUS ①
## NANO 高硬度钢 2刃 圆鼻 ①

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |



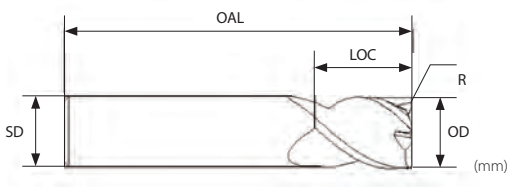

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 1 | NRHS2-004-0005-008-S04-L40 | 0.4(R0.05)X4X0.8X40 | 0.4 | 4 | R0.05 | 0.8 | 40 | 2 |
| 2 | NRHS2-004-001-008-S04-L40 | 0.4(R0.1)X4X0.8X40 | 0.4 | 4 | R0.1 | 0.8 | 40 | 2 |
| 3 | NRHS2-005-0005-010-S04-L40 | 0.5(R0.05)X4X1X40 | 0.5 | 4 | R0.05 | 1 | 40 | 2 |
| 4 | NRHS2-005-001-010-S04-L40 | 0.5(R0.1)X4X1X40 | 0.5 | 4 | R0.1 | 1 | 40 | 2 |
| 5 | NRHS2-006-0005-012-S04-L40 | 0.6(R0.05)X4X1.2X40 | 0.6 | 4 | R0.05 | 1.2 | 40 | 2 |
| 6 | NRHS2-006-001-012-S04-L40 | 0.6(R0.1)X4X1.2X40 | 0.6 | 4 | R0.1 | 1.2 | 40 | 2 |
| 7 | NRHS2-007-0005-014-S04-L40 | 0.7(R0.05)X4X1.4X40 | 0.7 | 4 | R0.05 | 1.4 | 40 | 2 |
| 8 | NRHS2-007-001-014-S04-L40 | 0.7(R0.1)X4X1.4X40 | 0.7 | 4 | R0.1 | 1.4 | 40 | 2 |
| 9 | NRHS2-008-0005-016-S04-L40 | 0.8(R0.05)X4X1.6X40 | 0.8 | 4 | R0.05 | 1.6 | 40 | 2 |
| 10 | NRHS2-008-001-016-S04-L40 | 0.8(R0.1)X4X1.6X40 | 0.8 | 4 | R0.1 | 1.6 | 40 | 2 |
| 11 | NRHS2-009-0005-018-S04-L40 | 0.9(R0.05)X4X1.8X40 | 0.9 | 4 | R0.05 | 1.8 | 40 | 2 |
| 12 | NRHS2-009-001-018-S04-L40 | 0.9(R0.1)X4X1.8X40 | 0.9 | 4 | R0.1 | 1.8 | 40 | 2 |
| 13 | NRHS2-010-0005-020-S06-L50 | 1(R0.05)X6X2X50 | 1 | 6 | R0.05 | 2 | 50 | 2 |
| 14 | NRHS2-010-001-020-S06-L50 | 1(R0.1)X6X2X50 | 1 | 6 | R0.1 | 2 | 50 | 2 |
| 15 | NRHS2-010-002-020-S06-L50 | 1(R0.2)X6X2X50 | 1 | 6 | R0.2 | 2 | 50 | 2 |
| 16 | NRHS2-010-003-020-S06-L50 | 1(R0.3)X6X2X50 | 1 | 6 | R0.3 | 2 | 50 | 2 |
| 17 | NRHS2-015-0005-030-S06-L50 | 1.5(R0.05)X6X3X50 | 1.5 | 6 | R0.05 | 3 | 50 | 2 |
| 18 | NRHS2-015-001-030-S06-L50 | 1.5(R0.1)X6X3X50 | 1.5 | 6 | R0.1 | 3 | 50 | 2 |
| 19 | NRHS2-015-002-030-S06-L50 | 1.5(R0.2)X6X3X50 | 1.5 | 6 | R0.2 | 3 | 50 | 2 |
| 20 | NRHS2-015-003-030-S06-L50 | 1.5(R0.3)X6X3X50 | 1.5 | 6 | R0.3 | 3 | 50 | 2 |
| 21 | NRHS2-015-005-030-S06-L50 | 1.5(R0.5)X6X3X50 | 1.5 | 6 | R0.5 | 3 | 50 | 2 |
| 22 | NRHS2-020-001-050-S06-L50 | 2(R0.1)X6X5X50 | 2 | 6 | R0.1 | 5 | 50 | 2 |
| 23 | NRHS2-020-002-050-S06-L50 | 2(R0.2)X6X5X50 | 2 | 6 | R0.2 | 5 | 50 | 2 |
| 24 | NRHS2-020-003-050-S06-L50 | 2(R0.3)X6X5X50 | 2 | 6 | R0.3 | 5 | 50 | 2 |
| 25 | NRHS2-020-004-050-S06-L50 | 2(R0.4)X6X5X50 | 2 | 6 | R0.4 | 5 | 50 | 2 |
| 26 | NRHS2-020-005-050-S06-L50 | 2(R0.5)X6X5X50 | 2 | 6 | R0.5 | 5 | 50 | 2 |
| 27 | NRHS2-025-001-070-S06-L60 | 2.5(R0.1)X6X7X60 | 2.5 | 6 | R0.1 | 7 | 60 | 2 |
| 28 | NRHS2-025-002-070-S06-L60 | 2.5(R0.2)X6X7X60 | 2.5 | 6 | R0.2 | 7 | 60 | 2 |
| 29 | NRHS2-025-003-070-S06-L60 | 2.5(R0.3)X6X7X60 | 2.5 | 6 | R0.3 | 7 | 60 | 2 |
| 30 | NRHS2-025-005-070-S06-L60 | 2.5(R0.5)X6X7X60 | 2.5 | 6 | R0.5 | 7 | 60 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE CORNER RADIUS ②
### NANO 高硬度钢 2刃 圆鼻 ②

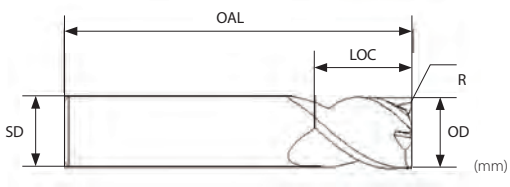
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 31 | NRHS2-030-001-080-S06-L60 | 3(R0.1)X6X8X60 | 3 | 6 | R0.1 | 8 | 60 | 2 |
| 32 | NRHS2-030-002-080-S06-L60 | 3(R0.2)X6X8X60 | 3 | 6 | R0.2 | 8 | 60 | 2 |
| 33 | NRHS2-030-003-080-S06-L60 | 3(R0.3)X6X8X60 | 3 | 6 | R0.3 | 8 | 60 | 2 |
| 34 | NRHS2-030-005-080-S06-L60 | 3(R0.5)X6X8X60 | 3 | 6 | R0.5 | 8 | 60 | 2 |
| 35 | NRHS2-035-001-090-S06-L70 | 3.5(R0.1)X6X9X70 | 3.5 | 6 | R0.1 | 9 | 70 | 2 |
| 36 | NRHS2-035-002-090-S06-L70 | 3.5(R0.2)X6X9X70 | 3.5 | 6 | R0.2 | 9 | 70 | 2 |
| 37 | NRHS2-035-003-090-S06-L70 | 3.5(R0.3)X6X9X70 | 3.5 | 6 | R0.3 | 9 | 70 | 2 |
| 38 | NRHS2-035-005-090-S06-L70 | 3.5(R0.5)X6X9X70 | 3.5 | 6 | R0.5 | 9 | 70 | 2 |
| 39 | NRHS2-040-001-100-S06-L70 | 4(R0.1)X6X10X70 | 4 | 6 | R0.1 | 10 | 70 | 2 |
| 40 | NRHS2-040-002-100-S06-L70 | 4(R0.2)X6X10X70 | 4 | 6 | R0.2 | 10 | 70 | 2 |
| 41 | NRHS2-040-003-100-S06-L70 | 4(R0.3)X6X10X70 | 4 | 6 | R0.3 | 10 | 70 | 2 |
| 42 | NRHS2-040-005-100-S06-L70 | 4(R0.5)X6X10X70 | 4 | 6 | R0.5 | 10 | 70 | 2 |
| 43 | NRHS2-040-010-100-S06-L70 | 4(R1)X6X10X70 | 4 | 6 | R1 | 10 | 70 | 2 |
| 44 | NRHS2-045-001-120-S06-L80 | 4.5(R0.1)X6X12X80 | 4.5 | 6 | R0.1 | 12 | 80 | 2 |
| 45 | NRHS2-045-002-120-S06-L80 | 4.5(R0.2)X6X12X80 | 4.5 | 6 | R0.2 | 12 | 80 | 2 |
| 46 | NRHS2-045-003-120-S06-L80 | 4.5(R0.3)X6X12X80 | 4.5 | 6 | R0.3 | 12 | 80 | 2 |
| 47 | NRHS2-045-005-120-S06-L80 | 4.5(R0.5)X6X12X80 | 4.5 | 6 | R0.5 | 12 | 80 | 2 |
| 48 | NRHS2-050-001-130-S06-L80 | 5(R0.1)X6X13X80 | 5 | 6 | R0.1 | 13 | 80 | 2 |
| 49 | NRHS2-050-002-130-S06-L80 | 5(R0.2)X6X13X80 | 5 | 6 | R0.2 | 13 | 80 | 2 |
| 50 | NRHS2-050-003-130-S06-L80 | 5(R0.3)X6X13X80 | 5 | 6 | R0.3 | 13 | 80 | 2 |
| 51 | NRHS2-050-005-130-S06-L80 | 5(R0.5)X6X13X80 | 5 | 6 | R0.5 | 13 | 80 | 2 |
| 52 | NRHS2-050-010-130-S06-L80 | 5(R1)X6X13X80 | 5 | 6 | R1 | 13 | 80 | 2 |
| 53 | NRHS2-055-001-140-S06-L90 | 5.5(R0.1)X6X14X90 | 5.5 | 6 | R0.1 | 14 | 90 | 2 |
| 54 | NRHS2-055-002-140-S06-L90 | 5.5(R0.2)X6X14X90 | 5.5 | 6 | R0.2 | 14 | 90 | 2 |
| 55 | NRHS2-055-003-140-S06-L90 | 5.5(R0.3)X6X14X90 | 5.5 | 6 | R0.3 | 14 | 90 | 2 |
| 56 | NRHS2-055-005-140-S06-L90 | 5.5(R0.5)X6X14X90 | 5.5 | 6 | R0.5 | 14 | 90 | 2 |
| 57 | NRHS2-055-010-140-S06-L90 | 5.5(R1)X6X14X90 | 5.5 | 6 | R1 | 14 | 90 | 2 |
| 58 | NRHS2-060-001-150-S06-L90 | 6(R0.1)X6X15X90 | 6 | 6 | R0.1 | 15 | 90 | 2 |
| 59 | NRHS2-060-002-150-S06-L90 | 6(R0.2)X6X15X90 | 6 | 6 | R0.2 | 15 | 90 | 2 |
| 60 | NRHS2-060-003-150-S06-L90 | 6(R0.3)X6X15X90 | 6 | 6 | R0.3 | 15 | 90 | 2 |

## NANO HARDENED STEEL 2 FLUTE CORNER RADIUS ③
## NANO 高硬度钢 2刃 圆鼻 ③

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |



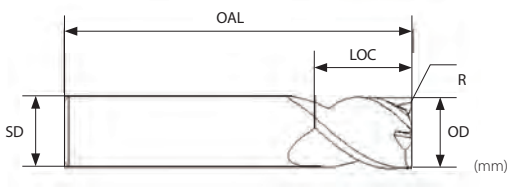

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 61 | NRHS2-060-005-150-S06-L90 | 6(R0.5)X6X15X90 | 6 | 6 | R0.5 | 15 | 90 | 2 |
| 62 | NRHS2-060-010-150-S06-L90 | 6(R1)X6X15X90 | 6 | 6 | R1 | 15 | 90 | 2 |
| 63 | NRHS2-070-001-180-S08-L90 | 7(R0.1)X8X18X90 | 7 | 8 | R0.1 | 18 | 90 | 2 |
| 64 | NRHS2-070-002-180-S08-L90 | 7(R0.2)X8X18X90 | 7 | 8 | R0.2 | 18 | 90 | 2 |
| 65 | NRHS2-070-003-180-S08-L90 | 7(R0.3)X8X18X90 | 7 | 8 | R0.3 | 18 | 90 | 2 |
| 66 | NRHS2-070-005-180-S08-L90 | 7(R0.5)X8X18X90 | 7 | 8 | R0.5 | 18 | 90 | 2 |
| 67 | NRHS2-070-010-180-S08-L90 | 7(R1)X8X18X90 | 7 | 8 | R1 | 18 | 90 | 2 |
| 68 | NRHS2-070-020-180-S08-L90 | 7(R2)X8X18X90 | 7 | 8 | R2 | 18 | 90 | 2 |
| 69 | NRHS2-080-001-200-S08-L100 | 8(R0.1)X8X20X100 | 8 | 8 | R0.1 | 20 | 100 | 2 |
| 70 | NRHS2-080-002-200-S08-L100 | 8(R0.2)X8X20X100 | 8 | 8 | R0.2 | 20 | 100 | 2 |
| 71 | NRHS2-080-003-200-S08-L100 | 8(R0.3)X8X20X100 | 8 | 8 | R0.3 | 20 | 100 | 2 |
| 72 | NRHS2-080-005-200-S08-L100 | 8(R0.5)X8X20X100 | 8 | 8 | R0.5 | 20 | 100 | 2 |
| 73 | NRHS2-080-010-200-S08-L100 | 8(R1)X8X20X100 | 8 | 8 | R1 | 20 | 100 | 2 |
| 74 | NRHS2-080-020-200-S08-L100 | 8(R2)X8X20X100 | 8 | 8 | R2 | 20 | 100 | 2 |
| 75 | NRHS2-100-002-250-S10-L100 | 10(R0.2)X10X25X100 | 10 | 10 | R0.2 | 25 | 100 | 2 |
| 76 | NRHS2-100-003-250-S10-L100 | 10(R0.3)X10X25X100 | 10 | 10 | R0.3 | 25 | 100 | 2 |
| 77 | NRHS2-100-005-250-S10-L100 | 10(R0.5)X10X25X100 | 10 | 10 | R0.5 | 25 | 100 | 2 |
| 78 | NRHS2-100-010-250-S10-L100 | 10(R1)X10X25X100 | 10 | 10 | R1 | 25 | 100 | 2 |
| 79 | NRHS2-100-020-250-S10-L100 | 10(R2)X10X25X100 | 10 | 10 | R2 | 25 | 100 | 2 |
| 80 | NRHS2-110-002-280-S12-L110 | 11(R0.2)X12X28X110 | 11 | 12 | R0.2 | 28 | 110 | 2 |
| 81 | NRHS2-110-003-280-S12-L110 | 11(R0.3)X12X28X110 | 11 | 12 | R0.3 | 28 | 110 | 2 |
| 82 | NRHS2-110-005-280-S12-L110 | 11(R0.5)X12X28X110 | 11 | 12 | R0.5 | 28 | 110 | 2 |
| 83 | NRHS2-110-010-280-S12-L110 | 11(R1)X12X28X110 | 11 | 12 | R1 | 28 | 110 | 2 |
| 84 | NRHS2-110-020-280-S12-L110 | 11(R2)X12X28X110 | 11 | 12 | R2 | 28 | 110 | 2 |
| 85 | NRHS2-120-002-300-S12-L110 | 12(R0.2)X12X30X110 | 12 | 12 | R0.2 | 30 | 110 | 2 |
| 86 | NRHS2-120-003-300-S12-L110 | 12(R0.3)X12X30X110 | 12 | 12 | R0.3 | 30 | 110 | 2 |
| 87 | NRHS2-120-005-300-S12-L110 | 12(R0.5)X12X30X110 | 12 | 12 | R0.5 | 30 | 110 | 2 |
| 88 | NRHS2-120-010-300-S12-L110 | 12(R1)X12X30X110 | 12 | 12 | R1 | 30 | 110 | 2 |
| 89 | NRHS2-120-020-300-S12-L110 | 12(R2)X12X30X110 | 12 | 12 | R2 | 30 | 110 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 4 FLUTE CORNER RADIUS ①
### NANO 高硬度钢 4刃 圆鼻 ①

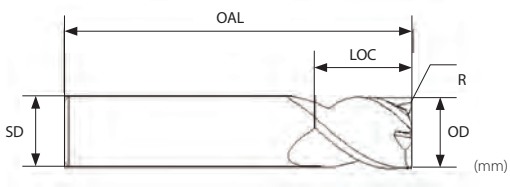
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 1 | NRHS4-010-001-020-S06-L50 | 1(R0.1)X6X2X50 | 1 | 6 | R0.1 | 2 | 50 | 4 |
| 2 | NRHS4-010-002-020-S06-L50 | 1(R0.2)X6X2X50 | 1 | 6 | R0.2 | 2 | 50 | 4 |
| 3 | NRHS4-010-003-020-S06-L50 | 1(R0.3)X6X2X50 | 1 | 6 | R0.3 | 2 | 50 | 4 |
| 4 | NRHS4-015-001-030-S06-L50 | 1.5(R0.1)X6X3X50 | 1.5 | 6 | R0.1 | 3 | 50 | 4 |
| 5 | NRHS4-015-002-030-S06-L50 | 1.5(R0.2)X6X3X50 | 1.5 | 6 | R0.2 | 3 | 50 | 4 |
| 6 | NRHS4-015-003-030-S06-L50 | 1.5(R0.3)X6X3X50 | 1.5 | 6 | R0.3 | 3 | 50 | 4 |
| 7 | NRHS4-015-005-030-S06-L50 | 1.5(R0.5)X6X3X50 | 1.5 | 6 | R0.5 | 3 | 50 | 4 |
| 8 | NRHS4-020-001-050-S06-L50 | 2(R0.1)X6X5X50 | 2 | 6 | R0.1 | 5 | 50 | 4 |
| 9 | NRHS4-020-002-050-S06-L50 | 2(R0.2)X6X5X50 | 2 | 6 | R0.2 | 5 | 50 | 4 |
| 10 | NRHS4-020-003-050-S06-L50 | 2(R0.3)X6X5X50 | 2 | 6 | R0.3 | 5 | 50 | 4 |
| 11 | NRHS4-020-004-050-S06-L50 | 2(R0.4)X6X5X50 | 2 | 6 | R0.4 | 5 | 50 | 4 |
| 12 | NRHS4-020-005-050-S06-L50 | 2(R0.5)X6X5X50 | 2 | 6 | R0.5 | 5 | 50 | 4 |
| 13 | NRHS4-025-001-070-S06-L60 | 2.5(R0.1)X6X7X60 | 2.5 | 6 | R0.1 | 7 | 60 | 4 |
| 14 | NRHS4-025-002-070-S06-L60 | 2.5(R0.2)X6X7X60 | 2.5 | 6 | R0.2 | 7 | 60 | 4 |
| 15 | NRHS4-025-003-070-S06-L60 | 2.5(R0.3)X6X7X60 | 2.5 | 6 | R0.3 | 7 | 60 | 4 |
| 16 | NRHS4-025-005-070-S06-L60 | 2.5(R0.5)X6X7X60 | 2.5 | 6 | R0.5 | 7 | 60 | 4 |
| 17 | NRHS4-030-001-080-S06-L60 | 3(R0.1)X6X8X60 | 3 | 6 | R0.1 | 8 | 60 | 4 |
| 18 | NRHS4-030-002-080-S06-L60 | 3(R0.2)X6X8X60 | 3 | 6 | R0.2 | 8 | 60 | 4 |
| 19 | NRHS4-030-003-080-S06-L60 | 3(R0.3)X6X8X60 | 3 | 6 | R0.3 | 8 | 60 | 4 |
| 20 | NRHS4-030-005-080-S06-L60 | 3(R0.5)X6X8X60 | 3 | 6 | R0.5 | 8 | 60 | 4 |
| 21 | NRHS4-040-001-100-S06-L70 | 4(R0.1)X6X10X70 | 4 | 6 | R0.1 | 10 | 70 | 4 |
| 22 | NRHS4-040-002-100-S06-L70 | 4(R0.2)X6X10X70 | 4 | 6 | R0.2 | 10 | 70 | 4 |
| 23 | NRHS4-040-003-100-S06-L70 | 4(R0.3)X6X10X70 | 4 | 6 | R0.3 | 10 | 70 | 4 |
| 24 | NRHS4-040-005-100-S06-L70 | 4(R0.5)X6X10X70 | 4 | 6 | R0.5 | 10 | 70 | 4 |
| 25 | NRHS4-040-010-100-S06-L70 | 4(R1)X6X10X70 | 4 | 6 | R1 | 10 | 70 | 4 |
| 26 | NRHS4-050-001-130-S06-L80 | 5(R0.1)X6X13X80 | 5 | 6 | R0.1 | 13 | 80 | 4 |
| 27 | NRHS4-050-002-130-S06-L80 | 5(R0.2)X6X13X80 | 5 | 6 | R0.2 | 13 | 80 | 4 |
| 28 | NRHS4-050-003-130-S06-L80 | 5(R0.3)X6X13X80 | 5 | 6 | R0.3 | 13 | 80 | 4 |
| 29 | NRHS4-050-005-130-S06-L80 | 5(R0.5)X6X13X80 | 5 | 6 | R0.5 | 13 | 80 | 4 |
| 30 | NRHS4-050-010-130-S06-L80 | 5(R1)X6X13X80 | 5 | 6 | R1 | 13 | 80 | 4 |
| 31 | NRHS4-060-001-150-S06-L90 | 6(R0.1)X6X15X90 | 6 | 6 | R0.1 | 15 | 90 | 4 |

## NANO HARDENED STEEL 4 FLUTE CORNER RADIUS ②
## NANO 高硬度钢 4刃 圆鼻 ②

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |



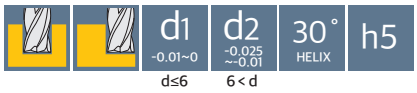

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 32 | NRHS4-060-002-150-S06-L90 | 6(R0.2)X6X15X90 | 6 | 6 | R0.2 | 15 | 90 | 4 |
| 33 | NRHS4-060-003-150-S06-L90 | 6(R0.3)X6X15X90 | 6 | 6 | R0.3 | 15 | 90 | 4 |
| 34 | NRHS4-060-005-150-S06-L90 | 6(R0.5)X6X15X90 | 6 | 6 | R0.5 | 15 | 90 | 4 |
| 35 | NRHS4-060-010-150-S06-L90 | 6(R1)X6X15X90 | 6 | 6 | R1 | 15 | 90 | 4 |
| 36 | NRHS4-070-001-180-S08-L90 | 7(R0.1)X8X18X90 | 7 | 8 | R0.1 | 18 | 90 | 4 |
| 37 | NRHS4-070-002-180-S08-L90 | 7(R0.2)X8X18X90 | 7 | 8 | R0.2 | 18 | 90 | 4 |
| 38 | NRHS4-070-003-180-S08-L90 | 7(R0.3)X8X18X90 | 7 | 8 | R0.3 | 18 | 90 | 4 |
| 39 | NRHS4-070-005-180-S08-L90 | 7(R0.5)X8X18X90 | 7 | 8 | R0.5 | 18 | 90 | 4 |
| 40 | NRHS4-070-010-180-S08-L90 | 7(R1)X8X18X90 | 7 | 8 | R1 | 18 | 90 | 4 |
| 41 | NRHS4-070-020-180-S08-L90 | 7(R2)X8X18X90 | 7 | 8 | R2 | 18 | 90 | 4 |
| 42 | NRHS4-080-001-200-S08-L100 | 8(R0.1)X8X20X100 | 8 | 8 | R0.1 | 20 | 100 | 4 |
| 43 | NRHS4-080-002-200-S08-L100 | 8(R0.2)X8X20X100 | 8 | 8 | R0.2 | 20 | 100 | 4 |
| 44 | NRHS4-080-003-200-S08-L100 | 8(R0.3)X8X20X100 | 8 | 8 | R0.3 | 20 | 100 | 4 |
| 45 | NRHS4-080-005-200-S08-L100 | 8(R0.5)X8X20X100 | 8 | 8 | R0.5 | 20 | 100 | 4 |
| 46 | NRHS4-080-010-200-S08-L100 | 8(R1)X8X20X100 | 8 | 8 | R1 | 20 | 100 | 4 |
| 47 | NRHS4-080-020-200-S08-L100 | 8(R2)X8X20X100 | 8 | 8 | R2 | 20 | 100 | 4 |
| 48 | NRHS4-100-002-250-S10-L100 | 10(R0.2)X10X25X100 | 10 | 10 | R0.2 | 25 | 100 | 4 |
| 49 | NRHS4-100-003-250-S10-L100 | 10(R0.3)X10X25X100 | 10 | 10 | R0.3 | 25 | 100 | 4 |
| 50 | NRHS4-100-005-250-S10-L100 | 10(R0.5)X10X25X100 | 10 | 10 | R0.5 | 25 | 100 | 4 |
| 51 | NRHS4-100-010-250-S10-L100 | 10(R1)X10X25X100 | 10 | 10 | R1 | 25 | 100 | 4 |
| 52 | NRHS4-100-020-250-S10-L100 | 10(R2)X10X25X100 | 10 | 10 | R2 | 25 | 100 | 4 |
| 53 | NRHS4-110-002-280-S12-L110 | 11(R0.2)X12X28X110 | 11 | 12 | R0.2 | 28 | 110 | 4 |
| 54 | NRHS4-110-003-280-S12-L110 | 11(R0.3)X12X28X110 | 11 | 12 | R0.3 | 28 | 110 | 4 |
| 55 | NRHS4-110-005-280-S12-L110 | 11(R0.5)X12X28X110 | 11 | 12 | R0.5 | 28 | 110 | 4 |
| 56 | NRHS4-110-010-280-S12-L110 | 11(R1)X12X28X110 | 11 | 12 | R1 | 28 | 110 | 4 |
| 57 | NRHS4-110-020-280-S12-L110 | 11(R2)X12X28X110 | 11 | 12 | R2 | 28 | 110 | 4 |
| 58 | NRHS4-120-002-300-S12-L110 | 12(R0.2)X12X30X110 | 12 | 12 | R0.2 | 30 | 110 | 4 |
| 59 | NRHS4-120-003-300-S12-L110 | 12(R0.3)X12X30X110 | 12 | 12 | R0.3 | 30 | 110 | 4 |
| 60 | NRHS4-120-005-300-S12-L110 | 12(R0.5)X12X30X110 | 12 | 12 | R0.5 | 30 | 110 | 4 |
| 61 | NRHS4-120-010-300-S12-L110 | 12(R1)X12X30X110 | 12 | 12 | R1 | 30 | 110 | 4 |
| 62 | NRHS4-120-020-300-S12-L110 | 12(R2)X12X30X110 | 12 | 12 | R2 | 30 | 110 | 4 |

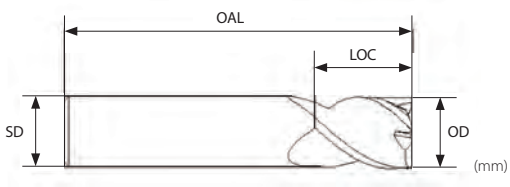
# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE FLAT ①

### NANO 高硬度钢 2刃 平头 ①

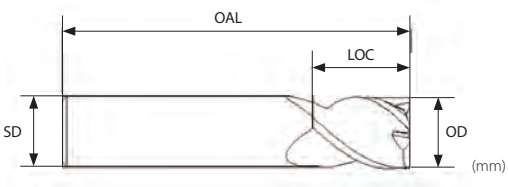



| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFHS2-001-002-S04-L40 | 0.1X4X0.2X40 | 0.1 | 4 | 0.2 | 40 | 2 |
| 2 | NFHS2-001-001-S04-L40 | 0.1X4X0.1X40 | 0.1 | 4 | 0.1 | 40 | 2 |
| 3 | NFHS2-002-004-S04-L40 | 0.2X4X0.4X40 | 0.2 | 4 | 0.4 | 40 | 2 |
| 4 | NFHS2-002-002-S04-L40 | 0.2X4X0.2X40 | 0.2 | 4 | 0.2 | 40 | 2 |
| 5 | NFHS2-003-006-S04-L40 | 0.3X4X0.6X40 | 0.3 | 4 | 0.6 | 40 | 2 |
| 6 | NFHS2-003-003-S04-L40 | 0.3X4X0.3X40 | 0.3 | 4 | 0.3 | 40 | 2 |
| 7 | NFHS2-004-008-S04-L40 | 0.4X4X0.8X40 | 0.4 | 4 | 0.8 | 40 | 2 |
| 8 | NFHS2-004-004-S04-L40 | 0.4X4X0.4X40 | 0.4 | 4 | 0.4 | 40 | 2 |
| 9 | NFHS2-005-010-S04-L40 | 0.5X4X1X40 | 0.5 | 4 | 1 | 40 | 2 |
| 10 | NFHS2-005-005-S04-L40 | 0.5X4X0.5X40 | 0.5 | 4 | 0.5 | 40 | 2 |
| 11 | NFHS2-006-012-S04-L40 | 0.6X4X1.2X40 | 0.6 | 4 | 1.2 | 40 | 2 |
| 12 | NFHS2-006-006-S04-L40 | 0.6X4X0.6X40 | 0.6 | 4 | 0.6 | 40 | 2 |
| 13 | NFHS2-007-014-S04-L40 | 0.7X4X1.4X40 | 0.7 | 4 | 1.4 | 40 | 2 |
| 14 | NFHS2-007-007-S04-L40 | 0.7X4X0.7X40 | 0.7 | 4 | 0.7 | 40 | 2 |
| 15 | NFHS2-008-016-S04-L40 | 0.8X4X1.6X40 | 0.8 | 4 | 1.6 | 40 | 2 |
| 16 | NFHS2-008-008-S04-L40 | 0.8X4X0.8X40 | 0.8 | 4 | 0.8 | 40 | 2 |
| 17 | NFHS2-009-018-S04-L40 | 0.9X4X1.8X40 | 0.9 | 4 | 1.8 | 40 | 2 |
| 18 | NFHS2-009-009-S04-L40 | 0.9X4X0.9X40 | 0.9 | 4 | 0.9 | 40 | 2 |
| 19 | NFHS2-010-025-S06-L50 | 1X6X2.5X50 | 1 | 6 | 2.5 | 50 | 2 |
| 20 | NFHS2-010-020-S06-L50 | 1X6X2X50 | 1 | 6 | 2 | 50 | 2 |
| 21 | NFHS2-010-030-S06-L50 | 1X6X3X50 | 1 | 6 | 3 | 50 | 2 |
| 22 | NFHS2-010-040-S06-L50 | 1X6X4X50 | 1 | 6 | 4 | 50 | 2 |
| 23 | NFHS2-012-030-S06-L50 | 1.2X6X3X50 | 1.2 | 6 | 3 | 50 | 2 |
| 24 | NFHS2-015-040-S06-L50 | 1.5X6X4X50 | 1.5 | 6 | 4 | 50 | 2 |
| 25 | NFHS2-015-030-S06-L50 | 1.5X6X3X50 | 1.5 | 6 | 3 | 50 | 2 |
| 26 | NFHS2-015-060-S06-L50 | 1.5X6X6X50 | 1.5 | 6 | 6 | 50 | 2 |
| 27 | NFHS2-015-080-S06-L50 | 1.5X6X8X50 | 1.5 | 6 | 8 | 50 | 2 |
| 28 | NFHS2-020-060-S06-L50 | 2X6X6X50 | 2 | 6 | 6 | 50 | 2 |
| 29 | NFHS2-020-040-S06-L50 | 2X6X4X50 | 2 | 6 | 4 | 50 | 2 |
| 30 | NFHS2-020-080-S06-L50 | 2X6X8X50 | 2 | 6 | 8 | 50 | 2 |

## NANO HARDENED STEEL 2 FLUTE FLAT ②
## NANO 高硬度钢 2刃 平头 ②

d1 -0.01~0 d≤6 | d2 -0.025 ~-0.01 6 < d | 30° HELIX | h5

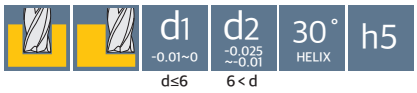


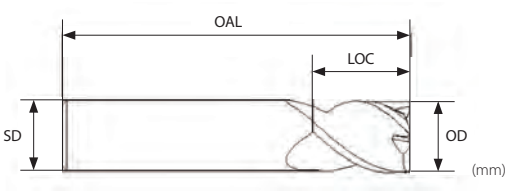

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 31 | NFHS2-020-100-S06-L50 | 2X6X10X50 | 2 | 6 | 10 | 50 | 2 |
| 32 | NFHS2-025-070-S06-L50 | 2.5X6X7X50 | 2.5 | 6 | 7 | 50 | 2 |
| 33 | NFHS2-030-080-S06-L60 | 3X6X8X60 | 3 | 6 | 8 | 60 | 2 |
| 34 | NFHS2-030-060-S03-L70 | 3X3X6X70 | 3 | 3 | 6 | 70 | 2 |
| 35 | NFHS2-030-100-S06-L60 | 3X6X10X60 | 3 | 6 | 10 | 60 | 2 |
| 36 | NFHS2-030-120-S06-L60 | 3X6X12X60 | 3 | 6 | 12 | 60 | 2 |
| 37 | NFHS2-035-090-S06-L60 | 3.5X6X9X60 | 3.5 | 6 | 9 | 60 | 2 |
| 38 | NFHS2-040-100-S06-L60 | 4X6X10X60 | 4 | 6 | 10 | 60 | 2 |
| 39 | NFHS2-040-080-S04-L80 | 4X4X8X80 | 4 | 4 | 8 | 80 | 2 |
| 40 | NFHS2-040-120-S06-L60 | 4X6X12X60 | 4 | 6 | 12 | 60 | 2 |
| 41 | NFHS2-040-160-S06-L60 | 4X6X16X60 | 4 | 6 | 16 | 60 | 2 |
| 42 | NFHS2-050-130-S06-L60 | 5X6X13X60 | 5 | 6 | 13 | 60 | 2 |
| 43 | NFHS2-060-150-S06-L60 | 6X6X15X60 | 6 | 6 | 15 | 60 | 2 |
| 44 | NFHS2-070-180-S08-L65 | 7X8X18X65 | 7 | 8 | 18 | 65 | 2 |
| 45 | NFHS2-080-190-S08-L65 | 8X8X19X65 | 8 | 8 | 19 | 65 | 2 |
| 46 | NFHS2-090-220-S10-L70 | 9X10X22X70 | 9 | 10 | 22 | 70 | 2 |
| 47 | NFHS2-100-250-S10-L70 | 10X10X25X70 | 10 | 10 | 25 | 70 | 2 |
| 48 | NFHS2-110-280-S12-L80 | 11X12X28X80 | 11 | 12 | 28 | 80 | 2 |
| 49 | NFHS2-120-300-S12-L80 | 12X12X30X80 | 12 | 12 | 30 | 80 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 4 FLUTE FLAT
### NANO 高硬度钢 4刃 平头

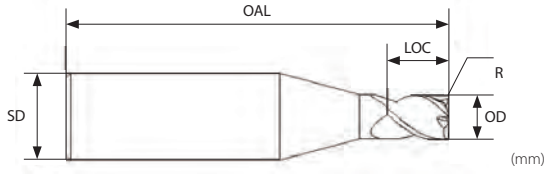



| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFHS4-010-025-S06-L50 | 1X6X2.5X50 | 1 | 6 | 2.5 | 50 | 4 |
| 2 | NFHS4-012-030-S06-L50 | 1.2X6X3X50 | 1.2 | 6 | 3 | 50 | 4 |
| 3 | NFHS4-015-040-S06-L50 | 1.5X6X4X50 | 1.5 | 6 | 4 | 50 | 4 |
| 4 | NFHS4-020-060-S06-L50 | 2X6X6X50 | 2 | 6 | 6 | 50 | 4 |
| 5 | NFHS4-025-070-S06-L50 | 2.5X6X7X50 | 2.5 | 6 | 7 | 50 | 4 |
| 6 | NFHS4-030-080-S06-L60 | 3X6X8X60 | 3 | 6 | 8 | 60 | 4 |
| 7 | NFHS4-035-090-S06-L60 | 3.5X6X9X60 | 3.5 | 6 | 9 | 60 | 4 |
| 8 | NFHS4-040-100-S06-L60 | 4X6X10X60 | 4 | 6 | 10 | 60 | 4 |
| 9 | NFHS4-050-130-S06-L60 | 5X6X13X60 | 5 | 6 | 13 | 60 | 4 |
| 10 | NFHS4-060-150-S06-L60 | 6X6X15X60 | 6 | 6 | 15 | 60 | 4 |
| 11 | NFHS4-070-180-S08-L65 | 7X8X18X65 | 7 | 8 | 18 | 65 | 4 |
| 12 | NFHS4-080-190-S08-L65 | 8X8X19X65 | 8 | 8 | 19 | 65 | 4 |
| 13 | NFHS4-090-220-S10-L70 | 9X10X22X70 | 9 | 10 | 22 | 70 | 4 |
| 14 | NFHS4-100-250-S10-L70 | 10X10X25X70 | 10 | 10 | 25 | 70 | 4 |
| 15 | NFHS4-110-280-S12-L80 | 11X12X28X80 | 11 | 12 | 28 | 80 | 4 |
| 16 | NFHS4-120-300-S12-L80 | 12X12X30X80 | 12 | 12 | 30 | 80 | 4 |

## NANO HARDENED STEEL 2 FLUTE RIB CORNER RADIUS ①
## NANO 高硬度钢 2刃 长颈 圆鼻 ①

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |



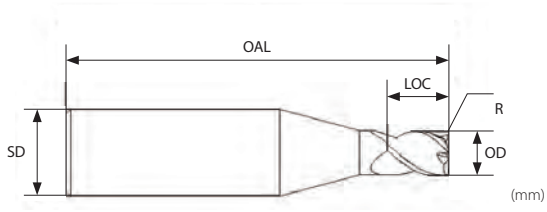

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | NRHR2-004-0005-010-S04-L45 | 0.4(R0.05)X4X0.6(1)X45 | 0.4 | 4 | R0.05 | 0.6 | 45 | 1 | 2 |
| 2 | NRHR2-004-0005-015-S04-L45 | 0.4(R0.05)X4X0.6(1.5)X45 | 0.4 | 4 | R0.05 | 0.6 | 45 | 1.5 | 2 |
| 3 | NRHR2-004-0005-025-S04-L45 | 0.4(R0.05)X4X0.6(2.5)X45 | 0.4 | 4 | R0.05 | 0.6 | 45 | 2.5 | 2 |
| 4 | NRHR2-004-0005-030-S04-L45 | 0.4(R0.05)X4X0.6(3)X45 | 0.4 | 4 | R0.05 | 0.6 | 45 | 3 | 2 |
| 5 | NRHR2-004-0005-040-S04-L45 | 0.4(R0.05)X4X0.6(4)X45 | 0.4 | 4 | R0.05 | 0.6 | 45 | 4 | 2 |
| 6 | NRHR2-005-0005-010-S04-L45 | 0.5(R0.05)X4X0.7(1)X45 | 0.5 | 4 | R0.05 | 0.7 | 45 | 1 | 2 |
| 7 | NRHR2-005-0005-015-S04-L45 | 0.5(R0.05)X4X0.7(1.5)X45 | 0.5 | 4 | R0.05 | 0.7 | 45 | 1.5 | 2 |
| 8 | NRHR2-005-0005-025-S04-L45 | 0.5(R0.05)X4X0.7(2.5)X45 | 0.5 | 4 | R0.05 | 0.7 | 45 | 2.5 | 2 |
| 9 | NRHR2-005-0005-030-S04-L45 | 0.5(R0.05)X4X0.7(3)X45 | 0.5 | 4 | R0.05 | 0.7 | 45 | 3 | 2 |
| 10 | NRHR2-005-0005-040-S04-L45 | 0.5(R0.05)X4X0.7(4)X45 | 0.5 | 4 | R0.05 | 0.7 | 45 | 4 | 2 |
| 11 | NRHR2-006-0005-020-S04-L45 | 0.6(R0.05)X4X0.9(2)X45 | 0.6 | 4 | R0.05 | 0.9 | 45 | 2 | 2 |
| 12 | NRHR2-006-0005-040-S04-L45 | 0.6(R0.05)X4X0.9(4)X45 | 0.6 | 4 | R0.05 | 0.9 | 45 | 4 | 2 |
| 13 | NRHR2-006-0005-060-S04-L45 | 0.6(R0.05)X4X0.9(6)X45 | 0.6 | 4 | R0.05 | 0.9 | 45 | 6 | 2 |
| 14 | NRHR2-006-001-020-S04-L45 | 0.6(R0.1)X4X0.9(2)X45 | 0.6 | 4 | R0.1 | 0.9 | 45 | 2 | 2 |
| 15 | NRHR2-006-001-040-S04-L45 | 0.6(R0.1)X4X0.9(4)X45 | 0.6 | 4 | R0.1 | 0.9 | 45 | 4 | 2 |
| 16 | NRHR2-006-001-060-S04-L45 | 0.6(R0.1)X4X0.9(6)X45 | 0.6 | 4 | R0.1 | 0.9 | 45 | 6 | 2 |
| 17 | NRHR2-006-002-020-S04-L45 | 0.6(R0.2)X4X0.9(2)X45 | 0.6 | 4 | R0.2 | 0.9 | 45 | 2 | 2 |
| 18 | NRHR2-006-002-040-S04-L45 | 0.6(R0.2)X4X0.9(4)X45 | 0.6 | 4 | R0.2 | 0.9 | 45 | 4 | 2 |
| 19 | NRHR2-006-002-060-S04-L45 | 0.6(R0.2)X4X0.9(6)X45 | 0.6 | 4 | R0.2 | 0.9 | 45 | 6 | 2 |
| 20 | NRHR2-008-0005-020-S04-L45 | 0.8(R0.05)X4X1.2(2)X45 | 0.8 | 4 | R0.05 | 1.2 | 45 | 2 | 2 |
| 21 | NRHR2-008-0005-040-S04-L45 | 0.8(R0.05)X4X1.2(4)X45 | 0.8 | 4 | R0.05 | 1.2 | 45 | 4 | 2 |
| 22 | NRHR2-008-0005-060-S04-L45 | 0.8(R0.05)X4X1.2(6)X45 | 0.8 | 4 | R0.05 | 1.2 | 45 | 6 | 2 |
| 23 | NRHR2-008-0005-080-S04-L45 | 0.8(R0.05)X4X1.2(8)X45 | 0.8 | 4 | R0.05 | 1.2 | 45 | 8 | 2 |
| 24 | NRHR2-008-001-020-S04-L45 | 0.8(R0.1)X4X1.2(2)X45 | 0.8 | 4 | R0.1 | 1.2 | 45 | 2 | 2 |
| 25 | NRHR2-008-001-040-S04-L45 | 0.8(R0.1)X4X1.2(4)X45 | 0.8 | 4 | R0.1 | 1.2 | 45 | 4 | 2 |
| 26 | NRHR2-008-001-060-S04-L45 | 0.8(R0.1)X4X1.2(6)X45 | 0.8 | 4 | R0.1 | 1.2 | 45 | 6 | 2 |
| 27 | NRHR2-008-001-080-S04-L45 | 0.8(R0.1)X4X1.2(8)X45 | 0.8 | 4 | R0.1 | 1.2 | 45 | 8 | 2 |
| 28 | NRHR2-008-002-020-S04-L45 | 0.8(R0.2)X4X1.2(2)X45 | 0.8 | 4 | R0.2 | 1.2 | 45 | 2 | 2 |
| 29 | NRHR2-008-002-040-S04-L45 | 0.8(R0.2)X4X1.2(4)X45 | 0.8 | 4 | R0.2 | 1.2 | 45 | 4 | 2 |
| 30 | NRHR2-008-002-060-S04-L45 | 0.8(R0.2)X4X1.2(6)X45 | 0.8 | 4 | R0.2 | 1.2 | 45 | 6 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE RIB CORNER RADIUS ②
### NANO 高硬度钢 2刃 长颈 圆鼻 ②

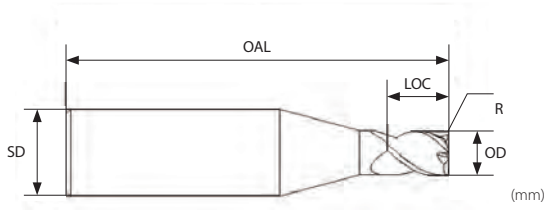
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 31 | NRHR2-008-002-080-S04-L45 | 0.8(R0.2)X4X1.2(8)X45 | 0.8 | 4 | R0.2 | 1.2 | 45 | 8 | 2 |
| 32 | NRHR2-010-0005-030-S04-L50 | 1(R0.05)X4X2(3)X50 | 1 | 4 | R0.05 | 2 | 50 | 3 | 2 |
| 33 | NRHR2-010-0005-040-S04-L50 | 1(R0.05)X4X2(4)X50 | 1 | 4 | R0.05 | 2 | 50 | 4 | 2 |
| 34 | NRHR2-010-0005-060-S04-L50 | 1(R0.05)X4X2(6)X50 | 1 | 4 | R0.05 | 2 | 50 | 6 | 2 |
| 35 | NRHR2-010-0005-080-S04-L50 | 1(R0.05)X4X2(8)X50 | 1 | 4 | R0.05 | 2 | 50 | 8 | 2 |
| 36 | NRHR2-010-0005-100-S04-L50 | 1(R0.05)X4X2(10)X50 | 1 | 4 | R0.05 | 2 | 50 | 10 | 2 |
| 37 | NRHR2-010-001-030-S04-L50 | 1(R0.1)X4X2(3)X50 | 1 | 4 | R0.1 | 2 | 50 | 3 | 2 |
| 38 | NRHR2-010-001-040-S04-L50 | 1(R0.1)X4X2(4)X50 | 1 | 4 | R0.1 | 2 | 50 | 4 | 2 |
| 39 | NRHR2-010-001-060-S04-L50 | 1(R0.1)X4X2(6)X50 | 1 | 4 | R0.1 | 2 | 50 | 6 | 2 |
| 40 | NRHR2-010-001-080-S04-L50 | 1(R0.1)X4X2(8)X50 | 1 | 4 | R0.1 | 2 | 50 | 8 | 2 |
| 41 | NRHR2-010-001-100-S04-L50 | 1(R0.1)X4X2(10)X50 | 1 | 4 | R0.1 | 2 | 50 | 10 | 2 |
| 42 | NRHR2-010-002-030-S04-L50 | 1(R0.2)X4X2(3)X50 | 1 | 4 | R0.2 | 2 | 50 | 3 | 2 |
| 43 | NRHR2-010-002-040-S04-L50 | 1(R0.2)X4X2(4)X50 | 1 | 4 | R0.2 | 2 | 50 | 4 | 2 |
| 44 | NRHR2-010-002-060-S04-L50 | 1(R0.2)X4X2(6)X50 | 1 | 4 | R0.2 | 2 | 50 | 6 | 2 |
| 45 | NRHR2-010-002-080-S04-L50 | 1(R0.2)X4X2(8)X50 | 1 | 4 | R0.2 | 2 | 50 | 8 | 2 |
| 46 | NRHR2-010-002-100-S04-L50 | 1(R0.2)X4X2(10)X50 | 1 | 4 | R0.2 | 2 | 50 | 10 | 2 |
| 47 | NRHR2-010-003-030-S04-L50 | 1(R0.3)X4X2(3)X50 | 1 | 4 | R0.3 | 2 | 50 | 3 | 2 |
| 48 | NRHR2-010-003-040-S04-L50 | 1(R0.3)X4X2(4)X50 | 1 | 4 | R0.3 | 2 | 50 | 4 | 2 |
| 49 | NRHR2-010-003-060-S04-L50 | 1(R0.3)X4X2(6)X50 | 1 | 4 | R0.3 | 2 | 50 | 6 | 2 |
| 50 | NRHR2-010-003-080-S04-L50 | 1(R0.3)X4X2(8)X50 | 1 | 4 | R0.3 | 2 | 50 | 8 | 2 |
| 51 | NRHR2-010-003-100-S04-L50 | 1(R0.3)X4X2(10)X50 | 1 | 4 | R0.3 | 2 | 50 | 10 | 2 |
| 52 | NRHR2-015-0005-040-S04-L50 | 1.5(R0.05)X4X2.5(4)X50 | 1.5 | 4 | R0.05 | 2.5 | 50 | 4 | 2 |
| 53 | NRHR2-015-0005-060-S04-L50 | 1.5(R0.05)X4X2.5(6)X50 | 1.5 | 4 | R0.05 | 2.5 | 50 | 6 | 2 |
| 54 | NRHR2-015-0005-080-S04-L50 | 1.5(R0.05)X4X2.5(8)X50 | 1.5 | 4 | R0.05 | 2.5 | 50 | 8 | 2 |
| 55 | NRHR2-015-0005-100-S04-L50 | 1.5(R0.05)X4X2.5(10)X50 | 1.5 | 4 | R0.05 | 2.5 | 50 | 10 | 2 |
| 56 | NRHR2-015-0005-120-S04-L50 | 1.5(R0.05)X4X2.5(12)X50 | 1.5 | 4 | R0.05 | 2.5 | 50 | 12 | 2 |
| 57 | NRHR2-015-001-040-S04-L50 | 1.5(R0.1)X4X2.5(4)X50 | 1.5 | 4 | R0.1 | 2.5 | 50 | 4 | 2 |
| 58 | NRHR2-015-001-060-S04-L50 | 1.5(R0.1)X4X2.5(6)X50 | 1.5 | 4 | R0.1 | 2.5 | 50 | 6 | 2 |
| 59 | NRHR2-015-001-080-S04-L50 | 1.5(R0.1)X4X2.5(8)X50 | 1.5 | 4 | R0.1 | 2.5 | 50 | 8 | 2 |
| 60 | NRHR2-015-001-100-S04-L50 | 1.5(R0.1)X4X2.5(10)X50 | 1.5 | 4 | R0.1 | 2.5 | 50 | 10 | 2 |

## NANO HARDENED STEEL 2 FLUTE RIB CORNER RADIUS ③
## NANO 高硬度钢 2刃 长颈 圆鼻 ③

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 61 | NRHR2-015-001-120-S04-L50 | 1.5(R0.1)X4X2.5(12)X50 | 1.5 | 4 | R0.1 | 2.5 | 50 | 12 | 2 |
| 62 | NRHR2-015-002-040-S04-L50 | 1.5(R0.2)X4X2.5(4)X50 | 1.5 | 4 | R0.2 | 2.5 | 50 | 4 | 2 |
| 63 | NRHR2-015-002-060-S04-L50 | 1.5(R0.2)X4X2.5(6)X50 | 1.5 | 4 | R0.2 | 2.5 | 50 | 6 | 2 |
| 64 | NRHR2-015-002-080-S04-L50 | 1.5(R0.2)X4X2.5(8)X50 | 1.5 | 4 | R0.2 | 2.5 | 50 | 8 | 2 |
| 65 | NRHR2-015-002-100-S04-L50 | 1.5(R0.2)X4X2.5(10)X50 | 1.5 | 4 | R0.2 | 2.5 | 50 | 10 | 2 |
| 66 | NRHR2-015-002-120-S04-L50 | 1.5(R0.2)X4X2.5(12)X50 | 1.5 | 4 | R0.2 | 2.5 | 50 | 12 | 2 |
| 67 | NRHR2-015-003-040-S04-L50 | 1.5(R0.3)X4X2.5(4)X50 | 1.5 | 4 | R0.3 | 2.5 | 50 | 4 | 2 |
| 68 | NRHR2-015-003-060-S04-L50 | 1.5(R0.3)X4X2.5(6)X50 | 1.5 | 4 | R0.3 | 2.5 | 50 | 6 | 2 |
| 69 | NRHR2-015-003-080-S04-L50 | 1.5(R0.3)X4X2.5(8)X50 | 1.5 | 4 | R0.3 | 2.5 | 50 | 8 | 2 |
| 70 | NRHR2-015-003-100-S04-L50 | 1.5(R0.3)X4X2.5(10)X50 | 1.5 | 4 | R0.3 | 2.5 | 50 | 10 | 2 |
| 71 | NRHR2-015-003-120-S04-L50 | 1.5(R0.3)X4X2.5(12)X50 | 1.5 | 4 | R0.3 | 2.5 | 50 | 12 | 2 |
| 72 | NRHR2-015-005-040-S04-L50 | 1.5(R0.5)X4X2.5(4)X50 | 1.5 | 4 | R0.5 | 2.5 | 50 | 4 | 2 |
| 73 | NRHR2-015-005-060-S04-L50 | 1.5(R0.5)X4X2.5(6)X50 | 1.5 | 4 | R0.5 | 2.5 | 50 | 6 | 2 |
| 74 | NRHR2-015-005-080-S04-L50 | 1.5(R0.5)X4X2.5(8)X50 | 1.5 | 4 | R0.5 | 2.5 | 50 | 8 | 2 |
| 75 | NRHR2-015-005-100-S04-L50 | 1.5(R0.5)X4X2.5(10)X50 | 1.5 | 4 | R0.5 | 2.5 | 50 | 10 | 2 |
| 76 | NRHR2-015-005-120-S04-L50 | 1.5(R0.5)X4X2.5(12)X50 | 1.5 | 4 | R0.5 | 2.5 | 50 | 12 | 2 |
| 77 | NRHR2-020-001-060-S04-L50 | 2(R0.1)X4X3(6)X50 | 2 | 4 | R0.1 | 3 | 50 | 6 | 2 |
| 78 | NRHR2-020-001-080-S04-L50 | 2(R0.1)X4X3(8)X50 | 2 | 4 | R0.1 | 3 | 50 | 8 | 2 |
| 79 | NRHR2-020-001-100-S04-L50 | 2(R0.1)X4X3(10)X50 | 2 | 4 | R0.1 | 3 | 50 | 10 | 2 |
| 80 | NRHR2-020-001-120-S04-L50 | 2(R0.1)X4X3(12)X50 | 2 | 4 | R0.1 | 3 | 50 | 12 | 2 |
| 81 | NRHR2-020-001-160-S04-L50 | 2(R0.1)X4X3(16)X50 | 2 | 4 | R0.1 | 3 | 50 | 16 | 2 |
| 82 | NRHR2-020-001-200-S04-L50 | 2(R0.1)X4X3(20)X50 | 2 | 4 | R0.1 | 3 | 50 | 20 | 2 |
| 83 | NRHR2-020-002-060-S04-L50 | 2(R0.2)X4X3(6)X50 | 2 | 4 | R0.2 | 3 | 50 | 6 | 2 |
| 84 | NRHR2-020-002-080-S04-L50 | 2(R0.2)X4X3(8)X50 | 2 | 4 | R0.2 | 3 | 50 | 8 | 2 |
| 85 | NRHR2-020-002-100-S04-L50 | 2(R0.2)X4X3(10)X50 | 2 | 4 | R0.2 | 3 | 50 | 10 | 2 |
| 86 | NRHR2-020-002-120-S04-L50 | 2(R0.2)X4X3(12)X50 | 2 | 4 | R0.2 | 3 | 50 | 12 | 2 |
| 87 | NRHR2-020-002-160-S04-L50 | 2(R0.2)X4X3(16)X50 | 2 | 4 | R0.2 | 3 | 50 | 16 | 2 |
| 88 | NRHR2-020-002-200-S04-L50 | 2(R0.2)X4X3(20)X50 | 2 | 4 | R0.2 | 3 | 50 | 20 | 2 |
| 89 | NRHR2-020-003-060-S04-L50 | 2(R0.3)X4X3(6)X50 | 2 | 4 | R0.3 | 3 | 50 | 6 | 2 |
| 90 | NRHR2-020-003-080-S04-L50 | 2(R0.3)X4X3(8)X50 | 2 | 4 | R0.3 | 3 | 50 | 8 | 2 |

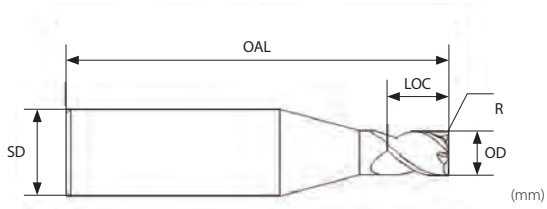
# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE RIB CORNER RADIUS ④

### NANO 高硬度钢 2刃 长颈 圆鼻 ④

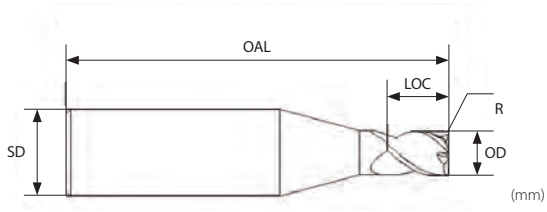
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 91 | NRHR2-020-003-100-S04-L50 | 2(R0.3)X4X3(10)X50 | 2 | 4 | R0.3 | 3 | 50 | 10 | 2 |
| 92 | NRHR2-020-003-120-S04-L50 | 2(R0.3)X4X3(12)X50 | 2 | 4 | R0.3 | 3 | 50 | 12 | 2 |
| 93 | NRHR2-020-003-160-S04-L50 | 2(R0.3)X4X3(16)X50 | 2 | 4 | R0.3 | 3 | 50 | 16 | 2 |
| 94 | NRHR2-020-003-200-S04-L50 | 2(R0.3)X4X3(20)X50 | 2 | 4 | R0.3 | 3 | 50 | 20 | 2 |
| 95 | NRHR2-020-005-060-S04-L50 | 2(R0.5)X4X3(6)X50 | 2 | 4 | R0.5 | 3 | 50 | 6 | 2 |
| 96 | NRHR2-020-005-080-S04-L50 | 2(R0.5)X4X3(8)X50 | 2 | 4 | R0.5 | 3 | 50 | 8 | 2 |
| 97 | NRHR2-020-005-100-S04-L50 | 2(R0.5)X4X3(10)X50 | 2 | 4 | R0.5 | 3 | 50 | 10 | 2 |
| 98 | NRHR2-020-005-120-S04-L50 | 2(R0.5)X4X3(12)X50 | 2 | 4 | R0.5 | 3 | 50 | 12 | 2 |
| 99 | NRHR2-020-005-160-S04-L50 | 2(R0.5)X4X3(16)X50 | 2 | 4 | R0.5 | 3 | 50 | 16 | 2 |
| 100 | NRHR2-020-005-200-S04-L50 | 2(R0.5)X4X3(20)X50 | 2 | 4 | R0.5 | 3 | 50 | 20 | 2 |
| 101 | NRHR2-025-002-080-S04-L55 | 2.5(R0.2)X4X3.5(8)X55 | 2.5 | 4 | R0.2 | 3.5 | 55 | 8 | 2 |
| 102 | NRHR2-025-002-100-S04-L55 | 2.5(R0.2)X4X3.5(10)X55 | 2.5 | 4 | R0.2 | 3.5 | 55 | 10 | 2 |
| 103 | NRHR2-025-002-120-S04-L55 | 2.5(R0.2)X4X3.5(12)X55 | 2.5 | 4 | R0.2 | 3.5 | 55 | 12 | 2 |
| 104 | NRHR2-025-002-160-S04-L55 | 2.5(R0.2)X4X3.5(16)X55 | 2.5 | 4 | R0.2 | 3.5 | 55 | 16 | 2 |
| 105 | NRHR2-025-003-080-S04-L55 | 2.5(R0.3)X4X3.5(8)X55 | 2.5 | 4 | R0.3 | 3.5 | 55 | 8 | 2 |
| 106 | NRHR2-025-003-100-S04-L55 | 2.5(R0.3)X4X3.5(10)X55 | 2.5 | 4 | R0.3 | 3.5 | 55 | 10 | 2 |
| 107 | NRHR2-025-003-120-S04-L55 | 2.5(R0.3)X4X3.5(12)X55 | 2.5 | 4 | R0.3 | 3.5 | 55 | 12 | 2 |
| 108 | NRHR2-025-003-160-S04-L55 | 2.5(R0.3)X4X3.5(16)X55 | 2.5 | 4 | R0.3 | 3.5 | 55 | 16 | 2 |
| 109 | NRHR2-025-005-080-S04-L55 | 2.5(R0.5)X4X3.5(8)X55 | 2.5 | 4 | R0.5 | 3.5 | 55 | 8 | 2 |
| 110 | NRHR2-025-005-100-S04-L55 | 2.5(R0.5)X4X3.5(10)X55 | 2.5 | 4 | R0.5 | 3.5 | 55 | 10 | 2 |
| 111 | NRHR2-025-005-120-S04-L55 | 2.5(R0.5)X4X3.5(12)X55 | 2.5 | 4 | R0.5 | 3.5 | 55 | 12 | 2 |
| 112 | NRHR2-025-005-160-S04-L55 | 2.5(R0.5)X4X3.5(16)X55 | 2.5 | 4 | R0.5 | 3.5 | 55 | 16 | 2 |
| 113 | NRHR2-030-001-080-S06-L55 | 3(R0.1)X6X4.5(8)X55 | 3 | 6 | R0.1 | 4.5 | 55 | 8 | 2 |
| 114 | NRHR2-030-001-100-S06-L55 | 3(R0.1)X6X4.5(10)X55 | 3 | 6 | R0.1 | 4.5 | 55 | 10 | 2 |
| 115 | NRHR2-030-001-120-S06-L55 | 3(R0.1)X6X4.5(12)X55 | 3 | 6 | R0.1 | 4.5 | 55 | 12 | 2 |
| 116 | NRHR2-030-001-160-S06-L55 | 3(R0.1)X6X4.5(16)X55 | 3 | 6 | R0.1 | 4.5 | 55 | 16 | 2 |
| 117 | NRHR2-030-001-200-S06-L60 | 3(R0.1)X6X4.5(20)X60 | 3 | 6 | R0.1 | 4.5 | 60 | 20 | 2 |
| 118 | NRHR2-030-002-080-S06-L55 | 3(R0.2)X6X4.5(8)X55 | 3 | 6 | R0.2 | 4.5 | 55 | 8 | 2 |
| 119 | NRHR2-030-002-100-S06-L55 | 3(R0.2)X6X4.5(10)X55 | 3 | 6 | R0.2 | 4.5 | 55 | 10 | 2 |
| 120 | NRHR2-030-002-120-S06-L55 | 3(R0.2)X6X4.5(12)X55 | 3 | 6 | R0.2 | 4.5 | 55 | 12 | 2 |

## NANO HARDENED STEEL 2 FLUTE RIB CORNER RADIUS ⑤
## NANO 高硬度钢 2刃 长颈 圆鼻 ⑤

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |



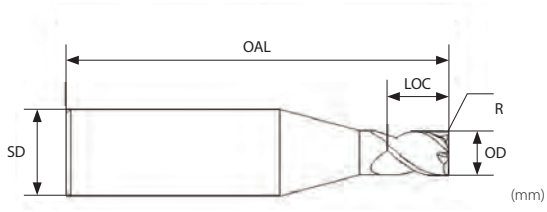

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 121 | NRHR2-030-002-160-S06-L55 | 3(R0.2)X6X4.5(16)X55 | 3 | 6 | R0.2 | 4.5 | 55 | 16 | 2 |
| 122 | NRHR2-030-002-200-S06-L60 | 3(R0.2)X6X4.5(20)X60 | 3 | 6 | R0.2 | 4.5 | 60 | 20 | 2 |
| 123 | NRHR2-030-003-080-S06-L55 | 3(R0.3)X6X4.5(8)X55 | 3 | 6 | R0.3 | 4.5 | 55 | 8 | 2 |
| 124 | NRHR2-030-003-100-S06-L55 | 3(R0.3)X6X4.5(10)X55 | 3 | 6 | R0.3 | 4.5 | 55 | 10 | 2 |
| 125 | NRHR2-030-003-120-S06-L55 | 3(R0.3)X6X4.5(12)X55 | 3 | 6 | R0.3 | 4.5 | 55 | 12 | 2 |
| 126 | NRHR2-030-003-160-S06-L55 | 3(R0.3)X6X4.5(16)X55 | 3 | 6 | R0.3 | 4.5 | 55 | 16 | 2 |
| 127 | NRHR2-030-003-200-S06-L60 | 3(R0.3)X6X4.5(20)X60 | 3 | 6 | R0.3 | 4.5 | 60 | 20 | 2 |
| 128 | NRHR2-030-005-080-S06-L55 | 3(R0.5)X6X4.5(8)X55 | 3 | 6 | R0.5 | 4.5 | 55 | 8 | 2 |
| 129 | NRHR2-030-005-100-S06-L55 | 3(R0.5)X6X4.5(10)X55 | 3 | 6 | R0.5 | 4.5 | 55 | 10 | 2 |
| 130 | NRHR2-030-005-120-S06-L55 | 3(R0.5)X6X4.5(12)X55 | 3 | 6 | R0.5 | 4.5 | 55 | 12 | 2 |
| 131 | NRHR2-030-005-160-S06-L55 | 3(R0.5)X6X4.5(16)X55 | 3 | 6 | R0.5 | 4.5 | 55 | 16 | 2 |
| 132 | NRHR2-030-005-200-S06-L60 | 3(R0.5)X6X4.5(20)X60 | 3 | 6 | R0.5 | 4.5 | 60 | 20 | 2 |
| 133 | NRHR2-030-010-080-S06-L55 | 3(R1)X6X4.5(8)X55 | 3 | 6 | R1 | 4.5 | 55 | 8 | 2 |
| 134 | NRHR2-030-010-100-S06-L55 | 3(R1)X6X4.5(10)X55 | 3 | 6 | R1 | 4.5 | 55 | 10 | 2 |
| 135 | NRHR2-030-010-120-S06-L55 | 3(R1)X6X4.5(12)X55 | 3 | 6 | R1 | 4.5 | 55 | 12 | 2 |
| 136 | NRHR2-030-010-160-S06-L55 | 3(R1)X6X4.5(16)X55 | 3 | 6 | R1 | 4.5 | 55 | 16 | 2 |
| 137 | NRHR2-030-010-200-S06-L60 | 3(R1)X6X4.5(20)X60 | 3 | 6 | R1 | 4.5 | 60 | 20 | 2 |
| 138 | NRHR2-040-001-100-S06-L55 | 4(R0.1)X6X6(10)X55 | 4 | 6 | R0.1 | 6 | 55 | 10 | 2 |
| 139 | NRHR2-040-001-120-S06-L55 | 4(R0.1)X6X6(12)X55 | 4 | 6 | R0.1 | 6 | 55 | 12 | 2 |
| 140 | NRHR2-040-001-160-S06-L55 | 4(R0.1)X6X6(16)X55 | 4 | 6 | R0.1 | 6 | 55 | 16 | 2 |
| 141 | NRHR2-040-001-200-S06-L60 | 4(R0.1)X6X6(20)X60 | 4 | 6 | R0.1 | 6 | 60 | 20 | 2 |
| 142 | NRHR2-040-001-250-S06-L60 | 4(R0.1)X6X6(25)X60 | 4 | 6 | R0.1 | 6 | 60 | 25 | 2 |
| 143 | NRHR2-040-002-100-S06-L55 | 4(R0.2)X6X6(10)X55 | 4 | 6 | R0.2 | 6 | 55 | 10 | 2 |
| 144 | NRHR2-040-002-120-S06-L55 | 4(R0.2)X6X6(12)X55 | 4 | 6 | R0.2 | 6 | 55 | 12 | 2 |
| 145 | NRHR2-040-002-160-S06-L55 | 4(R0.2)X6X6(16)X55 | 4 | 6 | R0.2 | 6 | 55 | 16 | 2 |
| 146 | NRHR2-040-002-200-S06-L60 | 4(R0.2)X6X6(20)X60 | 4 | 6 | R0.2 | 6 | 60 | 20 | 2 |
| 147 | NRHR2-040-002-250-S06-L60 | 4(R0.2)X6X6(25)X60 | 4 | 6 | R0.2 | 6 | 60 | 25 | 2 |
| 148 | NRHR2-040-003-100-S06-L55 | 4(R0.3)X6X6(10)X55 | 4 | 6 | R0.3 | 6 | 55 | 10 | 2 |
| 149 | NRHR2-040-003-120-S06-L55 | 4(R0.3)X6X6(12)X55 | 4 | 6 | R0.3 | 6 | 55 | 12 | 2 |
| 150 | NRHR2-040-003-160-S06-L55 | 4(R0.3)X6X6(16)X55 | 4 | 6 | R0.3 | 6 | 55 | 16 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE RIB CORNER RADIUS ⑥
### NANO 高硬度钢 2刃 长颈 圆鼻 ⑥

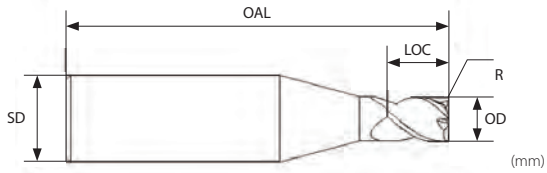
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 151 | NRHR2-040-003-200-S06-L60 | 4(R0.3)X6X6(20)X60 | 4 | 6 | R0.3 | 6 | 60 | 20 | 2 |
| 152 | NRHR2-040-003-250-S06-L60 | 4(R0.3)X6X6(25)X60 | 4 | 6 | R0.3 | 6 | 60 | 25 | 2 |
| 153 | NRHR2-040-005-100-S06-L55 | 4(R0.5)X6X6(10)X55 | 4 | 6 | R0.5 | 6 | 55 | 10 | 2 |
| 154 | NRHR2-040-005-120-S06-L55 | 4(R0.5)X6X6(12)X55 | 4 | 6 | R0.5 | 6 | 55 | 12 | 2 |
| 155 | NRHR2-040-005-160-S06-L55 | 4(R0.5)X6X6(16)X55 | 4 | 6 | R0.5 | 6 | 55 | 16 | 2 |
| 156 | NRHR2-040-005-200-S06-L60 | 4(R0.5)X6X6(20)X60 | 4 | 6 | R0.5 | 6 | 60 | 20 | 2 |
| 157 | NRHR2-040-005-250-S06-L60 | 4(R0.5)X6X6(25)X60 | 4 | 6 | R0.5 | 6 | 60 | 25 | 2 |
| 158 | NRHR2-040-010-100-S06-L55 | 4(R1)X6X6(10)X55 | 4 | 6 | R1 | 6 | 55 | 10 | 2 |
| 159 | NRHR2-040-010-120-S06-L55 | 4(R1)X6X6(12)X55 | 4 | 6 | R1 | 6 | 55 | 12 | 2 |
| 160 | NRHR2-040-010-160-S06-L55 | 4(R1)X6X6(16)X55 | 4 | 6 | R1 | 6 | 55 | 16 | 2 |
| 161 | NRHR2-040-010-200-S06-L60 | 4(R1)X6X6(20)X60 | 4 | 6 | R1 | 6 | 60 | 20 | 2 |
| 162 | NRHR2-040-010-250-S06-L60 | 4(R1)X6X6(25)X60 | 4 | 6 | R1 | 6 | 60 | 25 | 2 |
| 163 | NRHR2-060-002-150-S06-L60 | 6(R0.2)X6X9(15)X60 | 6 | 6 | R0.2 | 9 | 60 | 15 | 2 |
| 164 | NRHR2-060-003-150-S06-L60 | 6(R0.3)X6X9(15)X60 | 6 | 6 | R0.3 | 9 | 60 | 15 | 2 |
| 165 | NRHR2-060-003-200-S06-L60 | 6(R0.3)X6X9(20)X60 | 6 | 6 | R0.3 | 9 | 60 | 20 | 2 |
| 166 | NRHR2-060-005-150-S06-L60 | 6(R0.5)X6X9(15)X60 | 6 | 6 | R0.5 | 9 | 60 | 15 | 2 |
| 167 | NRHR2-060-005-200-S06-L60 | 6(R0.5)X6X9(20)X60 | 6 | 6 | R0.5 | 9 | 60 | 20 | 2 |
| 168 | NRHR2-060-010-150-S06-L60 | 6(R1)X6X9(15)X60 | 6 | 6 | R1 | 9 | 60 | 15 | 2 |
| 169 | NRHR2-060-010-200-S06-L60 | 6(R1)X6X9(20)X60 | 6 | 6 | R1 | 9 | 60 | 20 | 2 |
| 170 | NRHR2-060-015-150-S06-L60 | 6(R1.5)X6X9(15)X60 | 6 | 6 | R1.5 | 9 | 60 | 15 | 2 |
| 171 | NRHR2-060-020-150-S06-L60 | 6(R2)X6X9(15)X60 | 6 | 6 | R2 | 9 | 60 | 15 | 2 |
| 172 | NRHR2-080-002-200-S08-L65 | 8(R0.2)X8X12(20)X65 | 8 | 8 | R0.2 | 12 | 65 | 20 | 2 |
| 173 | NRHR2-080-003-200-S08-L65 | 8(R0.3)X8X12(20)X65 | 8 | 8 | R0.3 | 12 | 65 | 20 | 2 |
| 174 | NRHR2-080-005-200-S08-L65 | 8(R0.5)X8X12(20)X65 | 8 | 8 | R0.5 | 12 | 65 | 20 | 2 |
| 175 | NRHR2-080-010-200-S08-L65 | 8(R1)X8X12(20)X65 | 8 | 8 | R1 | 12 | 65 | 20 | 2 |
| 176 | NRHR2-080-015-200-S08-L65 | 8(R1.5)X8X12(20)X65 | 8 | 8 | R1.5 | 12 | 65 | 20 | 2 |
| 177 | NRHR2-100-002-250-S10-L70 | 10(R0.2)X10X15(25)X70 | 10 | 10 | R0.2 | 15 | 70 | 25 | 2 |
| 178 | NRHR2-100-003-250-S10-L70 | 10(R0.3)X10X15(25)X70 | 10 | 10 | R0.3 | 15 | 70 | 25 | 2 |
| 179 | NRHR2-100-005-250-S10-L70 | 10(R0.5)X10X15(25)X70 | 10 | 10 | R0.5 | 15 | 70 | 25 | 2 |
| 180 | NRHR2-100-010-250-S10-L70 | 10(R1)X10X15(25)X70 | 10 | 10 | R1 | 15 | 70 | 25 | 2 |

## NANO HARDENED STEEL 2 FLUTE RIB CORNER RADIUS ⑦
## NANO 高硬度钢 2刃 长颈 圆鼻 ⑦

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |



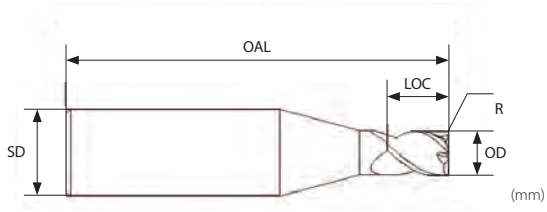

| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 181 | NRHR2-100-015-250-S10-L70 | 10(R1.5)X10X15(25)X70 | 10 | 10 | R1.5 | 15 | 70 | 25 | 2 |
| 182 | NRHR2-100-020-250-S10-L70 | 10(R2)X10X15(25)X70 | 10 | 10 | R2 | 15 | 70 | 25 | 2 |
| 183 | NRHR2-120-003-300-S12-L80 | 12(R0.3)X12X18(30)X80 | 12 | 12 | R0.3 | 18 | 80 | 30 | 2 |
| 184 | NRHR2-120-005-300-S12-L80 | 12(R0.5)X12X18(30)X80 | 12 | 12 | R0.5 | 18 | 80 | 30 | 2 |
| 185 | NRHR2-120-010-300-S12-L80 | 12(R1)X12X18(30)X80 | 12 | 12 | R1 | 18 | 80 | 30 | 2 |
| 186 | NRHR2-120-015-300-S12-L80 | 12(R1.5)X12X18(30)X80 | 12 | 12 | R1.5 | 18 | 80 | 30 | 2 |
| 187 | NRHR2-120-020-300-S12-L80 | 12(R2)X12X18(30)X80 | 12 | 12 | R2 | 18 | 80 | 30 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 4 FLUTE RIB CORNER RADIUS ①
### NANO 高硬度钢 4刃 长颈 圆鼻 ①

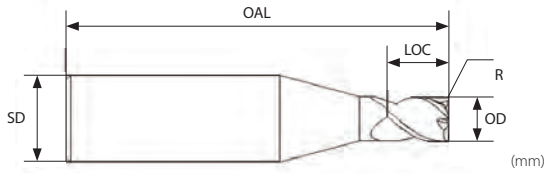
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | NRHR4-010-001-030-S04-L50 | 1(R0.1)X4X2(3)X50 | 1 | 4 | R0.1 | 2 | 50 | 3 | 4 |
| 2 | NRHR4-010-001-040-S04-L50 | 1(R0.1)X4X2(4)X50 | 1 | 4 | R0.1 | 2 | 50 | 4 | 4 |
| 3 | NRHR4-010-001-060-S04-L50 | 1(R0.1)X4X2(6)X50 | 1 | 4 | R0.1 | 2 | 50 | 6 | 4 |
| 4 | NRHR4-010-002-030-S04-L50 | 1(R0.2)X4X2(3)X50 | 1 | 4 | R0.2 | 2 | 50 | 3 | 4 |
| 5 | NRHR4-010-002-040-S04-L50 | 1(R0.2)X4X2(4)X50 | 1 | 4 | R0.2 | 2 | 50 | 4 | 4 |
| 6 | NRHR4-010-002-060-S04-L50 | 1(R0.2)X4X2(6)X50 | 1 | 4 | R0.2 | 2 | 50 | 6 | 4 |
| 7 | NRHR4-010-003-030-S04-L50 | 1(R0.3)X4X2(3)X50 | 1 | 4 | R0.3 | 2 | 50 | 3 | 4 |
| 8 | NRHR4-010-003-040-S04-L50 | 1(R0.3)X4X2(4)X50 | 1 | 4 | R0.3 | 2 | 50 | 4 | 4 |
| 9 | NRHR4-010-003-060-S04-L50 | 1(R0.3)X4X2(6)X50 | 1 | 4 | R0.3 | 2 | 50 | 6 | 4 |
| 10 | NRHR4-015-001-040-S04-L50 | 1.5(R0.1)X4X2.5(4)X50 | 1.5 | 4 | R0.1 | 2.5 | 50 | 4 | 4 |
| 11 | NRHR4-015-001-060-S04-L50 | 1.5(R0.1)X4X2.5(6)X50 | 1.5 | 4 | R0.1 | 2.5 | 50 | 6 | 4 |
| 12 | NRHR4-015-002-040-S04-L50 | 1.5(R0.2)X4X2.5(4)X50 | 1.5 | 4 | R0.2 | 2.5 | 50 | 4 | 4 |
| 13 | NRHR4-015-002-060-S04-L50 | 1.5(R0.2)X4X2.5(6)X50 | 1.5 | 4 | R0.2 | 2.5 | 50 | 6 | 4 |
| 14 | NRHR4-015-003-040-S04-L50 | 1.5(R0.3)X4X2.5(4)X50 | 1.5 | 4 | R0.3 | 2.5 | 50 | 4 | 4 |
| 15 | NRHR4-015-003-060-S04-L50 | 1.5(R0.3)X4X2.5(6)X50 | 1.5 | 4 | R0.3 | 2.5 | 50 | 6 | 4 |
| 16 | NRHR4-020-001-060-S04-L50 | 2(R0.1)X4X3(6)X50 | 2 | 4 | R0.1 | 3 | 50 | 6 | 4 |
| 17 | NRHR4-020-001-080-S04-L50 | 2(R0.1)X4X3(8)X50 | 2 | 4 | R0.1 | 3 | 50 | 8 | 4 |
| 18 | NRHR4-020-002-060-S04-L50 | 2(R0.2)X4X3(6)X50 | 2 | 4 | R0.2 | 3 | 50 | 6 | 4 |
| 19 | NRHR4-020-002-080-S04-L50 | 2(R0.2)X4X3(8)X50 | 2 | 4 | R0.2 | 3 | 50 | 8 | 4 |
| 20 | NRHR4-020-003-060-S04-L50 | 2(R0.3)X4X3(6)X50 | 2 | 4 | R0.3 | 3 | 50 | 6 | 4 |
| 21 | NRHR4-020-003-080-S04-L50 | 2(R0.3)X4X3(8)X50 | 2 | 4 | R0.3 | 3 | 50 | 8 | 4 |
| 22 | NRHR4-020-005-060-S04-L50 | 2(R0.5)X4X3(6)X50 | 2 | 4 | R0.5 | 3 | 50 | 6 | 4 |
| 23 | NRHR4-020-005-080-S04-L50 | 2(R0.5)X4X3(8)X50 | 2 | 4 | R0.5 | 3 | 50 | 8 | 4 |
| 24 | NRHR4-030-001-080-S06-L55 | 3(R0.1)X6X4(8)X55 | 3 | 6 | R0.1 | 4 | 55 | 8 | 4 |
| 25 | NRHR4-030-001-100-S06-L55 | 3(R0.1)X6X4(10)X55 | 3 | 6 | R0.1 | 4 | 55 | 10 | 4 |
| 26 | NRHR4-030-001-120-S06-L55 | 3(R0.1)X6X4(12)X55 | 3 | 6 | R0.1 | 4 | 55 | 12 | 4 |
| 27 | NRHR4-030-001-160-S06-L55 | 3(R0.1)X6X4(16)X55 | 3 | 6 | R0.1 | 4 | 55 | 16 | 4 |
| 28 | NRHR4-030-001-200-S06-L60 | 3(R0.1)X6X4(20)X60 | 3 | 6 | R0.1 | 4 | 60 | 20 | 4 |
| 29 | NRHR4-030-002-080-S06-L55 | 3(R0.2)X6X4(8)X55 | 3 | 6 | R0.2 | 4 | 55 | 8 | 4 |
| 30 | NRHR4-030-002-100-S06-L55 | 3(R0.2)X6X4(10)X55 | 3 | 6 | R0.2 | 4 | 55 | 10 | 4 |

## NANO HARDENED STEEL 4 FLUTE RIB CORNER RADIUS ②
## NANO 高硬度钢 4刃 长颈 圆鼻 ②

| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 31 | NRHR4-030-002-120-S06-L55 | 3(R0.2)X6X4(12)X55 | 3 | 6 | R0.2 | 4 | 55 | 12 | 4 |
| 32 | NRHR4-030-002-160-S06-L55 | 3(R0.2)X6X4(16)X55 | 3 | 6 | R0.2 | 4 | 55 | 16 | 4 |
| 33 | NRHR4-030-002-200-S06-L60 | 3(R0.2)X6X4(20)X60 | 3 | 6 | R0.2 | 4 | 60 | 20 | 4 |
| 34 | NRHR4-030-003-080-S06-L55 | 3(R0.3)X6X4(8)X55 | 3 | 6 | R0.3 | 4 | 55 | 8 | 4 |
| 35 | NRHR4-030-003-100-S06-L55 | 3(R0.3)X6X4(10)X55 | 3 | 6 | R0.3 | 4 | 55 | 10 | 4 |
| 36 | NRHR4-030-003-120-S06-L55 | 3(R0.3)X6X4(12)X55 | 3 | 6 | R0.3 | 4 | 55 | 12 | 4 |
| 37 | NRHR4-030-003-160-S06-L55 | 3(R0.3)X6X4(16)X55 | 3 | 6 | R0.3 | 4 | 55 | 16 | 4 |
| 38 | NRHR4-030-003-200-S06-L60 | 3(R0.3)X6X4(20)X60 | 3 | 6 | R0.3 | 4 | 60 | 20 | 4 |
| 39 | NRHR4-030-005-080-S06-L55 | 3(R0.5)X6X4(8)X55 | 3 | 6 | R0.5 | 4 | 55 | 8 | 4 |
| 40 | NRHR4-030-005-100-S06-L55 | 3(R0.5)X6X4(10)X55 | 3 | 6 | R0.5 | 4 | 55 | 10 | 4 |
| 41 | NRHR4-030-005-120-S06-L55 | 3(R0.5)X6X4(12)X55 | 3 | 6 | R0.5 | 4 | 55 | 12 | 4 |
| 42 | NRHR4-030-005-160-S06-L55 | 3(R0.5)X6X4(16)X55 | 3 | 6 | R0.5 | 4 | 55 | 16 | 4 |
| 43 | NRHR4-030-005-200-S06-L60 | 3(R0.5)X6X4(20)X60 | 3 | 6 | R0.5 | 4 | 60 | 20 | 4 |
| 44 | NRHR4-030-010-080-S06-L55 | 3(R1)X6X4(8)X55 | 3 | 6 | R1 | 4 | 55 | 8 | 4 |
| 45 | NRHR4-030-010-100-S06-L55 | 3(R1)X6X4(10)X55 | 3 | 6 | R1 | 4 | 55 | 10 | 4 |
| 46 | NRHR4-030-010-120-S06-L55 | 3(R1)X6X4(12)X55 | 3 | 6 | R1 | 4 | 55 | 12 | 4 |
| 47 | NRHR4-030-010-160-S06-L55 | 3(R1)X6X4(16)X55 | 3 | 6 | R1 | 4 | 55 | 16 | 4 |
| 48 | NRHR4-030-010-200-S06-L60 | 3(R1)X6X4(20)X60 | 3 | 6 | R1 | 4 | 60 | 20 | 4 |
| 49 | NRHR4-040-001-100-S06-L55 | 4(R0.1)X6X6(10)X55 | 4 | 6 | R0.1 | 6 | 55 | 10 | 4 |
| 50 | NRHR4-040-001-120-S06-L55 | 4(R0.1)X6X6(12)X55 | 4 | 6 | R0.1 | 6 | 55 | 12 | 4 |
| 51 | NRHR4-040-001-160-S06-L55 | 4(R0.1)X6X6(16)X55 | 4 | 6 | R0.1 | 6 | 55 | 16 | 4 |
| 52 | NRHR4-040-001-200-S06-L60 | 4(R0.1)X6X6(20)X60 | 4 | 6 | R0.1 | 6 | 60 | 20 | 4 |
| 53 | NRHR4-040-001-250-S06-L60 | 4(R0.1)X6X6(25)X60 | 4 | 6 | R0.1 | 6 | 60 | 25 | 4 |
| 54 | NRHR4-040-002-100-S06-L55 | 4(R0.2)X6X6(10)X55 | 4 | 6 | R0.2 | 6 | 55 | 10 | 4 |
| 55 | NRHR4-040-002-120-S06-L55 | 4(R0.2)X6X6(12)X55 | 4 | 6 | R0.2 | 6 | 55 | 12 | 4 |
| 56 | NRHR4-040-002-160-S06-L55 | 4(R0.2)X6X6(16)X55 | 4 | 6 | R0.2 | 6 | 55 | 16 | 4 |
| 57 | NRHR4-040-002-200-S06-L60 | 4(R0.2)X6X6(20)X60 | 4 | 6 | R0.2 | 6 | 60 | 20 | 4 |
| 58 | NRHR4-040-002-250-S06-L60 | 4(R0.2)X6X6(25)X60 | 4 | 6 | R0.2 | 6 | 60 | 25 | 4 |
| 59 | NRHR4-040-003-100-S06-L55 | 4(R0.3)X6X6(10)X55 | 4 | 6 | R0.3 | 6 | 55 | 10 | 4 |
| 60 | NRHR4-040-003-120-S06-L55 | 4(R0.3)X6X6(12)X55 | 4 | 6 | R0.3 | 6 | 55 | 12 | 4 |

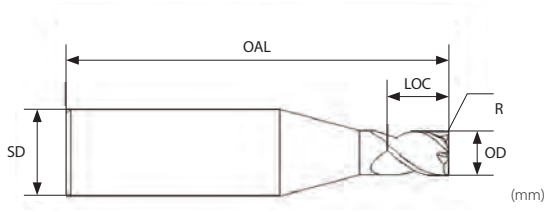
# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL

## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 4 FLUTE RIB CORNER RADIUS ③

### NANO 高硬度钢 4刃 长颈 圆鼻 ③

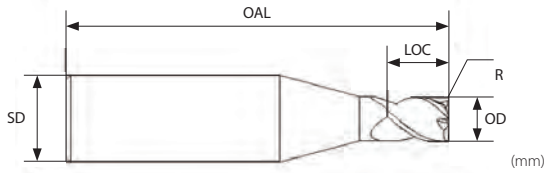
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 61 | NRHR4-040-003-160-S06-L55 | 4(R0.3)X6X6(16)X55 | 4 | 6 | R0.3 | 6 | 55 | 16 | 4 |
| 62 | NRHR4-040-003-200-S06-L60 | 4(R0.3)X6X6(20)X60 | 4 | 6 | R0.3 | 6 | 60 | 20 | 4 |
| 63 | NRHR4-040-003-250-S06-L60 | 4(R0.3)X6X6(25)X60 | 4 | 6 | R0.3 | 6 | 60 | 25 | 4 |
| 64 | NRHR4-040-005-100-S06-L55 | 4(R0.5)X6X6(10)X55 | 4 | 6 | R0.5 | 6 | 55 | 10 | 4 |
| 65 | NRHR4-040-005-120-S06-L55 | 4(R0.5)X6X6(12)X55 | 4 | 6 | R0.5 | 6 | 55 | 12 | 4 |
| 66 | NRHR4-040-005-160-S06-L55 | 4(R0.5)X6X6(16)X55 | 4 | 6 | R0.5 | 6 | 55 | 16 | 4 |
| 67 | NRHR4-040-005-200-S06-L60 | 4(R0.5)X6X6(20)X60 | 4 | 6 | R0.5 | 6 | 60 | 20 | 4 |
| 68 | NRHR4-040-005-250-S06-L60 | 4(R0.5)X6X6(25)X60 | 4 | 6 | R0.5 | 6 | 60 | 25 | 4 |
| 69 | NRHR4-040-010-100-S06-L55 | 4(R1)X6X6(10)X55 | 4 | 6 | R1 | 6 | 55 | 10 | 4 |
| 70 | NRHR4-040-010-120-S06-L55 | 4(R1)X6X6(12)X55 | 4 | 6 | R1 | 6 | 55 | 12 | 4 |
| 71 | NRHR4-040-010-160-S06-L55 | 4(R1)X6X6(16)X55 | 4 | 6 | R1 | 6 | 55 | 16 | 4 |
| 72 | NRHR4-040-010-200-S06-L60 | 4(R1)X6X6(20)X60 | 4 | 6 | R1 | 6 | 60 | 20 | 4 |
| 73 | NRHR4-040-010-250-S06-L60 | 4(R1)X6X6(25)X60 | 4 | 6 | R1 | 6 | 60 | 25 | 4 |
| 74 | NRHR4-060-002-150-S06-L60 | 6(R0.2)X6X9(15)X60 | 6 | 6 | R0.2 | 9 | 60 | 15 | 4 |
| 75 | NRHR4-060-003-150-S06-L60 | 6(R0.3)X6X9(15)X60 | 6 | 6 | R0.3 | 9 | 60 | 15 | 4 |
| 76 | NRHR4-060-005-150-S06-L60 | 6(R0.5)X6X9(15)X60 | 6 | 6 | R0.5 | 9 | 60 | 15 | 4 |
| 77 | NRHR4-060-010-150-S06-L60 | 6(R1)X6X9(15)X60 | 6 | 6 | R1 | 9 | 60 | 15 | 4 |
| 78 | NRHR4-060-015-150-S06-L60 | 6(R1.5)X6X9(15)X60 | 6 | 6 | R1.5 | 9 | 60 | 15 | 4 |
| 79 | NRHR4-060-020-150-S06-L60 | 6(R2)X6X9(15)X60 | 6 | 6 | R2 | 9 | 60 | 15 | 4 |
| 80 | NRHR4-080-002-200-S08-L70 | 8(R0.2)X8X12(20)X70 | 8 | 8 | R0.2 | 12 | 70 | 20 | 4 |
| 81 | NRHR4-080-003-200-S08-L70 | 8(R0.3)X8X12(20)X70 | 8 | 8 | R0.3 | 12 | 70 | 20 | 4 |
| 82 | NRHR4-080-005-200-S08-L70 | 8(R0.5)X8X12(20)X70 | 8 | 8 | R0.5 | 12 | 70 | 20 | 4 |
| 83 | NRHR4-080-010-200-S08-L70 | 8(R1)X8X12(20)X70 | 8 | 8 | R1 | 12 | 70 | 20 | 4 |
| 84 | NRHR4-080-015-200-S08-L70 | 8(R1.5)X8X12(20)X70 | 8 | 8 | R1.5 | 12 | 70 | 20 | 4 |
| 85 | NRHR4-080-020-200-S08-L70 | 8(R2)X8X12(20)X70 | 8 | 8 | R2 | 12 | 70 | 20 | 4 |
| 86 | NRHR4-100-002-250-S10-L70 | 10(R0.2)X10X15(25)X70 | 10 | 10 | R0.2 | 15 | 70 | 25 | 4 |
| 87 | NRHR4-100-003-250-S10-L70 | 10(R0.3)X10X15(25)X70 | 10 | 10 | R0.3 | 15 | 70 | 25 | 4 |
| 88 | NRHR4-100-005-250-S10-L70 | 10(R0.5)X10X15(25)X70 | 10 | 10 | R0.5 | 15 | 70 | 25 | 4 |
| 89 | NRHR4-100-010-250-S10-L70 | 10(R1)X10X15(25)X70 | 10 | 10 | R1 | 15 | 70 | 25 | 4 |
| 90 | NRHR4-100-015-250-S10-L70 | 10(R1.5)X10X15(25)X70 | 10 | 10 | R1.5 | 15 | 70 | 25 | 4 |

## NANO HARDENED STEEL 4 FLUTE RIB CORNER RADIUS ④
## NANO 高硬度钢 4刃 长颈 圆鼻 ④

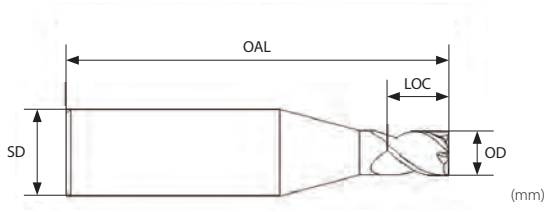
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.015 ~-0.005 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 91 | NRHR4-100-020-250-S10-L70 | 10(R2)X10X15(25)X70 | 10 | 10 | R2 | 15 | 70 | 25 | 4 |
| 92 | NRHR4-120-003-300-S12-L80 | 12(R0.3)X12X18(30)X80 | 12 | 12 | R0.3 | 18 | 80 | 30 | 4 |
| 93 | NRHR4-120-005-300-S12-L80 | 12(R0.5)X12X18(30)X80 | 12 | 12 | R0.5 | 18 | 80 | 30 | 4 |
| 94 | NRHR4-120-010-300-S12-L80 | 12(R1)X12X18(30)X80 | 12 | 12 | R1 | 18 | 80 | 30 | 4 |
| 95 | NRHR4-120-015-300-S12-L80 | 12(R1.5)X12X18(30)X80 | 12 | 12 | R1.5 | 18 | 80 | 30 | 4 |
| 96 | NRHR4-120-020-300-S12-L80 | 12(R2)X12X18(30)X80 | 12 | 12 | R2 | 18 | 80 | 30 | 4 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL
## “N-SH” 高硬度钢专用铣刀

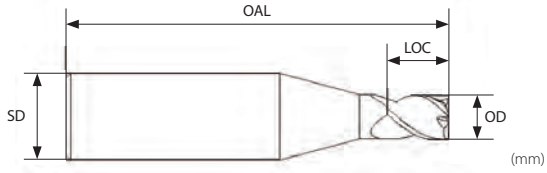
### NANO HARDENED STEEL 2 FLUTE RIB FLAT ①
### NANO 高硬度钢 2刃 长颈 平头 ①




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 1 | NFHR2-001-003-S04-L45 | 0.1X4X0.15(0.3)X45 | 0.1 | 4 | 0.15 | 45 | 0.3 | 2 |
| 2 | NFHR2-001-005-S04-L45 | 0.1X4X0.15(0.5)X45 | 0.1 | 4 | 0.15 | 45 | 0.5 | 2 |
| 3 | NFHR2-002-005-S04-L45 | 0.2X4X0.3(0.5)X45 | 0.2 | 4 | 0.3 | 45 | 0.5 | 2 |
| 4 | NFHR2-002-006-S04-L45 | 0.2X4X0.3(0.6)X45 | 0.2 | 4 | 0.3 | 45 | 0.6 | 2 |
| 5 | NFHR2-002-010-S04-L45 | 0.2X4X0.3(1)X45 | 0.2 | 4 | 0.3 | 45 | 1 | 2 |
| 6 | NFHR2-002-015-S04-L45 | 0.2X4X0.3(1.5)X45 | 0.2 | 4 | 0.3 | 45 | 1.5 | 2 |
| 7 | NFHR2-003-010-S04-L45 | 0.3X4X0.45(1)X45 | 0.3 | 4 | 0.45 | 45 | 1 | 2 |
| 8 | NFHR2-003-015-S04-L45 | 0.3X4X0.45(1.5)X45 | 0.3 | 4 | 0.45 | 45 | 1.5 | 2 |
| 9 | NFHR2-003-020-S04-L45 | 0.3X4X0.45(2)X45 | 0.3 | 4 | 0.45 | 45 | 2 | 2 |
| 10 | NFHR2-003-025-S04-L45 | 0.3X4X0.45(2.5)X45 | 0.3 | 4 | 0.45 | 45 | 2.5 | 2 |
| 11 | NFHR2-003-030-S04-L45 | 0.3X4X0.45(3)X45 | 0.3 | 4 | 0.45 | 45 | 3 | 2 |
| 12 | NFHR2-003-040-S04-L45 | 0.3X4X0.45(4)X45 | 0.3 | 4 | 0.45 | 45 | 4 | 2 |
| 13 | NFHR2-003-050-S04-L45 | 0.3X4X0.45(5)X45 | 0.3 | 4 | 0.45 | 45 | 5 | 2 |
| 14 | NFHR2-004-010-S04-L45 | 0.4X4X0.6(1)X45 | 0.4 | 4 | 0.6 | 45 | 1 | 2 |
| 15 | NFHR2-004-015-S04-L45 | 0.4X4X0.6(1.5)X45 | 0.4 | 4 | 0.6 | 45 | 1.5 | 2 |
| 16 | NFHR2-004-020-S04-L45 | 0.4X4X0.6(2)X45 | 0.4 | 4 | 0.6 | 45 | 2 | 2 |
| 17 | NFHR2-004-025-S04-L45 | 0.4X4X0.6(2.5)X45 | 0.4 | 4 | 0.6 | 45 | 2.5 | 2 |
| 18 | NFHR2-004-030-S04-L45 | 0.4X4X0.6(3)X45 | 0.4 | 4 | 0.6 | 45 | 3 | 2 |
| 19 | NFHR2-004-040-S04-L45 | 0.4X4X0.6(4)X45 | 0.4 | 4 | 0.6 | 45 | 4 | 2 |
| 20 | NFHR2-004-050-S04-L45 | 0.4X4X0.6(5)X45 | 0.4 | 4 | 0.6 | 45 | 5 | 2 |
| 21 | NFHR2-004-060-S04-L45 | 0.4X4X0.6(6)X45 | 0.4 | 4 | 0.6 | 45 | 6 | 2 |
| 22 | NFHR2-005-010-S04-L45 | 0.5X4X0.7(1)X45 | 0.5 | 4 | 0.7 | 45 | 1 | 2 |
| 23 | NFHR2-005-015-S04-L45 | 0.5X4X0.7(1.5)X45 | 0.5 | 4 | 0.7 | 45 | 1.5 | 2 |
| 24 | NFHR2-005-020-S04-L45 | 0.5X4X0.7(2)X45 | 0.5 | 4 | 0.7 | 45 | 2 | 2 |
| 25 | NFHR2-005-025-S04-L45 | 0.5X4X0.7(2.5)X45 | 0.5 | 4 | 0.7 | 45 | 2.5 | 2 |
| 26 | NFHR2-005-030-S04-L45 | 0.5X4X0.7(3)X45 | 0.5 | 4 | 0.7 | 45 | 3 | 2 |
| 27 | NFHR2-005-040-S04-L45 | 0.5X4X0.7(4)X45 | 0.5 | 4 | 0.7 | 45 | 4 | 2 |
| 28 | NFHR2-005-050-S04-L45 | 0.5X4X0.7(5)X45 | 0.5 | 4 | 0.7 | 45 | 5 | 2 |
| 29 | NFHR2-005-060-S04-L45 | 0.5X4X0.7(6)X45 | 0.5 | 4 | 0.7 | 45 | 6 | 2 |
| 30 | NFHR2-005-080-S04-L45 | 0.5X4X0.7(8)X45 | 0.5 | 4 | 0.7 | 45 | 8 | 2 |

## NANO HARDENED STEEL 2 FLUTE RIB FLAT ②
## NANO 高硬度钢 2刃 长颈 平头 ②

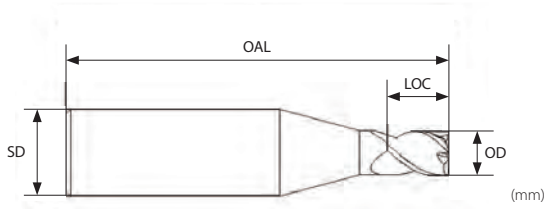
d1 -0.01~0 d≤6 | d2 -0.025 ~0.01 6 < d | 30° HELIX | h5




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 31 | NFHR2-006-020-S04-L45 | 0.6X4X0.9(2)X45 | 0.6 | 4 | 0.9 | 45 | 2 | 2 |
| 32 | NFHR2-006-030-S04-L45 | 0.6X4X0.9(3)X45 | 0.6 | 4 | 0.9 | 45 | 3 | 2 |
| 33 | NFHR2-006-040-S04-L45 | 0.6X4X0.9(4)X45 | 0.6 | 4 | 0.9 | 45 | 4 | 2 |
| 34 | NFHR2-006-050-S04-L45 | 0.6X4X0.9(5)X45 | 0.6 | 4 | 0.9 | 45 | 5 | 2 |
| 35 | NFHR2-006-060-S04-L45 | 0.6X4X0.9(6)X45 | 0.6 | 4 | 0.9 | 45 | 6 | 2 |
| 36 | NFHR2-006-080-S04-L45 | 0.6X4X0.9(8)X45 | 0.6 | 4 | 0.9 | 45 | 8 | 2 |
| 37 | NFHR2-006-100-S04-L45 | 0.6X4X0.9(10)X45 | 0.6 | 4 | 0.9 | 45 | 10 | 2 |
| 38 | NFHR2-007-020-S04-L45 | 0.7X4X1.2(2)X45 | 0.7 | 4 | 1.2 | 45 | 2 | 2 |
| 39 | NFHR2-007-040-S04-L45 | 0.7X4X1.2(4)X45 | 0.7 | 4 | 1.2 | 45 | 4 | 2 |
| 40 | NFHR2-007-060-S04-L45 | 0.7X4X1.2(6)X45 | 0.7 | 4 | 1.2 | 45 | 6 | 2 |
| 41 | NFHR2-007-080-S04-L45 | 0.7X4X1.2(8)X45 | 0.7 | 4 | 1.2 | 45 | 8 | 2 |
| 42 | NFHR2-007-100-S04-L45 | 0.7X4X1.2(10)X45 | 0.7 | 4 | 1.2 | 45 | 10 | 2 |
| 43 | NFHR2-007-120-S04-L45 | 0.7X4X1.2(12)X45 | 0.7 | 4 | 1.2 | 45 | 12 | 2 |
| 44 | NFHR2-008-020-S04-L45 | 0.8X4X1.2(2)X45 | 0.8 | 4 | 1.2 | 45 | 2 | 2 |
| 45 | NFHR2-008-030-S04-L45 | 0.8X4X1.2(3)X45 | 0.8 | 4 | 1.2 | 45 | 3 | 2 |
| 46 | NFHR2-008-040-S04-L45 | 0.8X4X1.2(4)X45 | 0.8 | 4 | 1.2 | 45 | 4 | 2 |
| 47 | NFHR2-008-050-S04-L45 | 0.8X4X1.2(5)X45 | 0.8 | 4 | 1.2 | 45 | 5 | 2 |
| 48 | NFHR2-008-060-S04-L45 | 0.8X4X1.2(6)X45 | 0.8 | 4 | 1.2 | 45 | 6 | 2 |
| 49 | NFHR2-008-080-S04-L45 | 0.8X4X1.2(8)X45 | 0.8 | 4 | 1.2 | 45 | 8 | 2 |
| 50 | NFHR2-008-100-S04-L45 | 0.8X4X1.2(10)X45 | 0.8 | 4 | 1.2 | 45 | 10 | 2 |
| 51 | NFHR2-008-120-S04-L45 | 0.8X4X1.2(12)X45 | 0.8 | 4 | 1.2 | 45 | 12 | 2 |
| 52 | NFHR2-010-030-S04-L50 | 1X4X1.5(3)X50 | 1 | 4 | 1.5 | 50 | 3 | 2 |
| 53 | NFHR2-010-040-S04-L50 | 1X4X1.5(4)X50 | 1 | 4 | 1.5 | 50 | 4 | 2 |
| 54 | NFHR2-010-050-S04-L50 | 1X4X1.5(5)X50 | 1 | 4 | 1.5 | 50 | 5 | 2 |
| 55 | NFHR2-010-060-S04-L50 | 1X4X1.5(6)X50 | 1 | 4 | 1.5 | 50 | 6 | 2 |
| 56 | NFHR2-010-070-S04-L50 | 1X4X1.5(7)X50 | 1 | 4 | 1.5 | 50 | 7 | 2 |
| 57 | NFHR2-010-080-S04-L50 | 1X4X1.5(8)X50 | 1 | 4 | 1.5 | 50 | 8 | 2 |
| 58 | NFHR2-010-100-S04-L50 | 1X4X1.5(10)X50 | 1 | 4 | 1.5 | 50 | 10 | 2 |
| 59 | NFHR2-010-120-S04-L50 | 1X4X1.5(12)X50 | 1 | 4 | 1.5 | 50 | 12 | 2 |
| 60 | NFHR2-010-140-S04-L50 | 1X4X1.5(14)X50 | 1 | 4 | 1.5 | 50 | 14 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL
## “N-SH” 高硬度钢专用铣刀

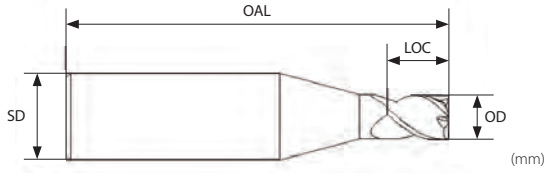
### NANO HARDENED STEEL 2 FLUTE RIB FLAT ③
### NANO 高硬度钢 2刃 长颈 平头 ③




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 61 | NFHR2-010-160-S04-L50 | 1X4X1.5(16)X50 | 1 | 4 | 1.5 | 50 | 16 | 2 |
| 62 | NFHR2-010-180-S04-L55 | 1X4X1.5(18)X55 | 1 | 4 | 1.5 | 55 | 18 | 2 |
| 63 | NFHR2-010-200-S04-L55 | 1X4X1.5(20)X55 | 1 | 4 | 1.5 | 55 | 20 | 2 |
| 64 | NFHR2-012-040-S04-L50 | 1.2X4X1.8(4)X50 | 1.2 | 4 | 1.8 | 50 | 4 | 2 |
| 65 | NFHR2-012-060-S04-L50 | 1.2X4X1.8(6)X50 | 1.2 | 4 | 1.8 | 50 | 6 | 2 |
| 66 | NFHR2-012-080-S04-L50 | 1.2X4X1.8(8)X50 | 1.2 | 4 | 1.8 | 50 | 8 | 2 |
| 67 | NFHR2-012-100-S04-L50 | 1.2X4X1.8(10)X50 | 1.2 | 4 | 1.8 | 50 | 10 | 2 |
| 68 | NFHR2-012-120-S04-L50 | 1.2X4X1.8(12)X50 | 1.2 | 4 | 1.8 | 50 | 12 | 2 |
| 69 | NFHR2-012-160-S04-L50 | 1.2X4X1.8(16)X50 | 1.2 | 4 | 1.8 | 50 | 16 | 2 |
| 70 | NFHR2-015-040-S04-L50 | 1.5X4X2.3(4)X50 | 1.5 | 4 | 2.3 | 50 | 4 | 2 |
| 71 | NFHR2-015-060-S04-L50 | 1.5X4X2.3(6)X50 | 1.5 | 4 | 2.3 | 50 | 6 | 2 |
| 72 | NFHR2-015-080-S04-L50 | 1.5X4X2.3(8)X50 | 1.5 | 4 | 2.3 | 50 | 8 | 2 |
| 73 | NFHR2-015-100-S04-L50 | 1.5X4X2.3(10)X50 | 1.5 | 4 | 2.3 | 50 | 10 | 2 |
| 74 | NFHR2-015-120-S04-L50 | 1.5X4X2.3(12)X50 | 1.5 | 4 | 2.3 | 50 | 12 | 2 |
| 75 | NFHR2-015-140-S04-L50 | 1.5X4X2.3(14)X50 | 1.5 | 4 | 2.3 | 50 | 14 | 2 |
| 76 | NFHR2-015-160-S04-L50 | 1.5X4X2.3(16)X50 | 1.5 | 4 | 2.3 | 50 | 16 | 2 |
| 77 | NFHR2-015-180-S04-L55 | 1.5X4X2.3(18)X55 | 1.5 | 4 | 2.3 | 55 | 18 | 2 |
| 78 | NFHR2-015-200-S04-L55 | 1.5X4X2.3(20)X55 | 1.5 | 4 | 2.3 | 55 | 20 | 2 |
| 79 | NFHR2-020-060-S04-L50 | 2X4X3(6)X50 | 2 | 4 | 3 | 50 | 6 | 2 |
| 80 | NFHR2-020-080-S04-L50 | 2X4X3(8)X50 | 2 | 4 | 3 | 50 | 8 | 2 |
| 81 | NFHR2-020-100-S04-L50 | 2X4X3(10)X50 | 2 | 4 | 3 | 50 | 10 | 2 |
| 82 | NFHR2-020-120-S04-L50 | 2X4X3(12)X50 | 2 | 4 | 3 | 50 | 12 | 2 |
| 83 | NFHR2-020-140-S04-L50 | 2X4X3(14)X50 | 2 | 4 | 3 | 50 | 14 | 2 |
| 84 | NFHR2-020-160-S04-L50 | 2X4X3(16)X50 | 2 | 4 | 3 | 50 | 16 | 2 |
| 85 | NFHR2-020-180-S04-L55 | 2X4X3(18)X55 | 2 | 4 | 3 | 55 | 18 | 2 |
| 86 | NFHR2-020-200-S04-L55 | 2X4X3(20)X55 | 2 | 4 | 3 | 55 | 20 | 2 |
| 87 | NFHR2-020-250-S04-L60 | 2X4X3(25)X60 | 2 | 4 | 3 | 60 | 25 | 2 |
| 88 | NFHR2-020-300-S04-L70 | 2X4X3(30)X70 | 2 | 4 | 3 | 70 | 30 | 2 |
| 89 | NFHR2-025-080-S04-L50 | 2.5X4X4(8)X50 | 2.5 | 4 | 4 | 50 | 8 | 2 |
| 90 | NFHR2-025-100-S04-L50 | 2.5X4X4(10)X50 | 2.5 | 4 | 4 | 50 | 10 | 2 |

## NANO HARDENED STEEL 2 FLUTE RIB FLAT ④
## NANO 高硬度钢 2刃 长颈 平头 ④

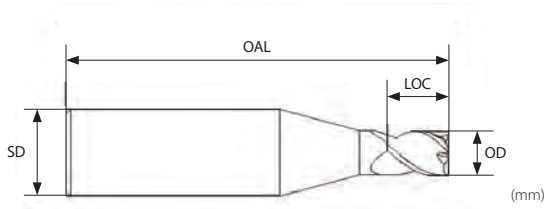
d1 -0.01~0 d≤6 | d2 -0.025 ~0.01 6 < d | 30° HELIX | h5




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 91 | NFHR2-025-120-S04-L50 | 2.5X4X4(12)X50 | 2.5 | 4 | 4 | 50 | 12 | 2 |
| 92 | NFHR2-025-160-S04-L50 | 2.5X4X4(16)X50 | 2.5 | 4 | 4 | 50 | 16 | 2 |
| 93 | NFHR2-025-200-S04-L55 | 2.5X4X4(20)X55 | 2.5 | 4 | 4 | 55 | 20 | 2 |
| 94 | NFHR2-030-080-S06-L55 | 3X6X4.5(8)X55 | 3 | 6 | 4.5 | 55 | 8 | 2 |
| 95 | NFHR2-030-100-S06-L55 | 3X6X4.5(10)X55 | 3 | 6 | 4.5 | 55 | 10 | 2 |
| 96 | NFHR2-030-120-S06-L55 | 3X6X4.5(12)X55 | 3 | 6 | 4.5 | 55 | 12 | 2 |
| 97 | NFHR2-030-140-S06-L55 | 3X6X4.5(14)X55 | 3 | 6 | 4.5 | 55 | 14 | 2 |
| 98 | NFHR2-030-160-S06-L55 | 3X6X4.5(16)X55 | 3 | 6 | 4.5 | 55 | 16 | 2 |
| 99 | NFHR2-030-180-S06-L60 | 3X6X4.5(18)X60 | 3 | 6 | 4.5 | 60 | 18 | 2 |
| 100 | NFHR2-030-200-S06-L60 | 3X6X4.5(20)X60 | 3 | 6 | 4.5 | 60 | 20 | 2 |
| 101 | NFHR2-030-250-S06-L60 | 3X6X4.5(25)X60 | 3 | 6 | 4.5 | 60 | 25 | 2 |
| 102 | NFHR2-030-300-S06-L70 | 3X6X4.5(30)X70 | 3 | 6 | 4.5 | 70 | 30 | 2 |
| 103 | NFHR2-030-350-S06-L75 | 3X6X4.5(35)X75 | 3 | 6 | 4.5 | 75 | 35 | 2 |
| 104 | NFHR2-030-400-S06-L80 | 3X6X4.5(40)X80 | 3 | 6 | 4.5 | 80 | 40 | 2 |
| 105 | NFHR2-040-100-S06-L55 | 4X6X6(10)X55 | 4 | 6 | 6 | 55 | 10 | 2 |
| 106 | NFHR2-040-120-S06-L55 | 4X6X6(12)X55 | 4 | 6 | 6 | 55 | 12 | 2 |
| 107 | NFHR2-040-160-S06-L55 | 4X6X6(16)X55 | 4 | 6 | 6 | 55 | 16 | 2 |
| 108 | NFHR2-040-200-S06-L60 | 4X6X6(20)X60 | 4 | 6 | 6 | 60 | 20 | 2 |
| 109 | NFHR2-040-250-S06-L60 | 4X6X6(25)X60 | 4 | 6 | 6 | 60 | 25 | 2 |
| 110 | NFHR2-040-300-S06-L70 | 4X6X6(30)X70 | 4 | 6 | 6 | 70 | 30 | 2 |
| 111 | NFHR2-040-350-S06-L75 | 4X6X6(35)X75 | 4 | 6 | 6 | 75 | 35 | 2 |
| 112 | NFHR2-040-400-S06-L80 | 4X6X6(40)X80 | 4 | 6 | 6 | 80 | 40 | 2 |
| 113 | NFHR2-050-130-S06-L60 | 5X6X8(13)X60 | 5 | 6 | 8 | 60 | 13 | 2 |
| 114 | NFHR2-050-300-S06-L90 | 5X6X8(30)X90 | 5 | 6 | 8 | 90 | 30 | 2 |
| 115 | NFHR2-060-150-S06-L60 | 6X6X9(15)X60 | 6 | 6 | 9 | 60 | 15 | 2 |
| 116 | NFHR2-060-200-S06-L80 | 6X6X9(20)X80 | 6 | 6 | 9 | 80 | 20 | 2 |
| 117 | NFHR2-060-300-S06-L100 | 6X6X9(30)X100 | 6 | 6 | 9 | 100 | 30 | 2 |
| 118 | NFHR2-080-200-S08-L65 | 8X8X12(20)X65 | 8 | 8 | 12 | 65 | 20 | 2 |
| 119 | NFHR2-080-300-S08-L80 | 8X8X12(30)X80 | 8 | 8 | 12 | 80 | 30 | 2 |
| 120 | NFHR2-080-400-S08-L100 | 8X8X12(40)X100 | 8 | 8 | 12 | 100 | 40 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL
## “N-SH” 高硬度钢专用铣刀

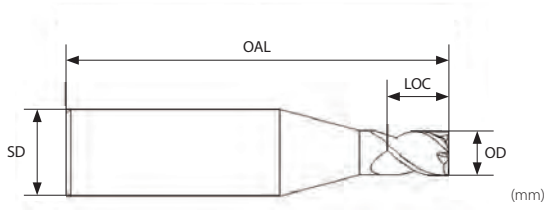
### NANO HARDENED STEEL 2 FLUTE RIB FLAT ⑤
### NANO 高硬度钢 2刃 长颈 平头 ⑤




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 121 | NFHR2-100-250-S10-L70 | 10X10X15(25)X70 | 10 | 10 | 15 | 70 | 25 | 2 |
| 122 | NFHR2-100-350-S10-L80 | 10X10X15(35)X80 | 10 | 10 | 15 | 80 | 35 | 2 |
| 123 | NFHR2-100-450-S10-L100 | 10X10X15(45)X100 | 10 | 10 | 15 | 100 | 45 | 2 |
| 124 | NFHR2-120-300-S12-L80 | 12X12X18(30)X80 | 12 | 12 | 18 | 80 | 30 | 2 |
| 125 | NFHR2-120-400-S12-L100 | 12X12X18(40)X100 | 12 | 12 | 18 | 100 | 40 | 2 |
| 126 | NFHR2-120-500-S12-L120 | 12X12X18(50)X120 | 12 | 12 | 18 | 120 | 50 | 2 |

## NANO HARDENED STEEL 2 FLUTE RIB BALL ①
## NANO 高硬度钢 2刃 长颈 球头 ①

| | | d1 -0.005 ~0 d≤6 | d2 -0.009 ~-0.001 6<d | r1 ±0.005 d≤6 | r2 ±0.01 6<d | 30° HELIX | h5 |
|---|---|---|---|---|---|---|---|

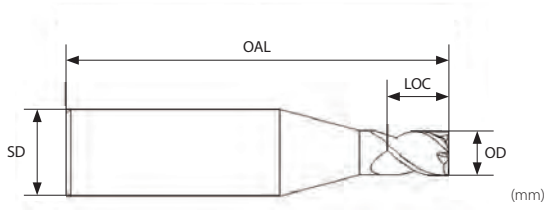



| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | NBHR2-001-0005-002-S04-L45 | 0.1X4X0.1(0.2)X45 | 0.1 | 4 | 0.05 | 0.1 | 45 | 0.2 | 2 |
| 2 | NBHR2-001-0005-003-S04-L45 | 0.1X4X0.1(0.3)X45 | 0.1 | 4 | 0.05 | 0.1 | 45 | 0.3 | 2 |
| 3 | NBHR2-001-0005-005-S04-L45 | 0.1X4X0.1(0.5)X45 | 0.1 | 4 | 0.05 | 0.1 | 45 | 0.5 | 2 |
| 4 | NBHR2-002-001-006-S04-L45 | 0.2X4X0.2(0.6)X45 | 0.2 | 4 | 0.1 | 0.2 | 45 | 0.6 | 2 |
| 5 | NBHR2-002-001-010-S04-L45 | 0.2X4X0.2(1)X45 | 0.2 | 4 | 0.1 | 0.2 | 45 | 1 | 2 |
| 6 | NBHR2-002-001-015-S04-L45 | 0.2X4X0.2(1.5)X45 | 0.2 | 4 | 0.1 | 0.2 | 45 | 1.5 | 2 |
| 7 | NBHR2-003-0015-010-S04-L45 | 0.3X4X0.3(1)X45 | 0.3 | 4 | 0.15 | 0.3 | 45 | 1 | 2 |
| 8 | NBHR2-003-0015-015-S04-L45 | 0.3X4X0.3(1.5)X45 | 0.3 | 4 | 0.15 | 0.3 | 45 | 1.5 | 2 |
| 9 | NBHR2-003-0015-020-S04-L45 | 0.3X4X0.3(2)X45 | 0.3 | 4 | 0.15 | 0.3 | 45 | 2 | 2 |
| 10 | NBHR2-003-0015-025-S04-L45 | 0.3X4X0.3(2.5)X45 | 0.3 | 4 | 0.15 | 0.3 | 45 | 2.5 | 2 |
| 11 | NBHR2-003-0015-030-S04-L45 | 0.3X4X0.3(3)X45 | 0.3 | 4 | 0.15 | 0.3 | 45 | 3 | 2 |
| 12 | NBHR2-004-002-010-S04-L45 | 0.4X4X0.4(1)X45 | 0.4 | 4 | 0.2 | 0.4 | 45 | 1 | 2 |
| 13 | NBHR2-004-002-015-S04-L45 | 0.4X4X0.4(1.5)X45 | 0.4 | 4 | 0.2 | 0.4 | 45 | 1.5 | 2 |
| 14 | NBHR2-004-002-020-S04-L45 | 0.4X4X0.4(2)X45 | 0.4 | 4 | 0.2 | 0.4 | 45 | 2 | 2 |
| 15 | NBHR2-004-002-025-S04-L45 | 0.4X4X0.4(2.5)X45 | 0.4 | 4 | 0.2 | 0.4 | 45 | 2.5 | 2 |
| 16 | NBHR2-004-002-030-S04-L45 | 0.4X4X0.4(3)X45 | 0.4 | 4 | 0.2 | 0.4 | 45 | 3 | 2 |
| 17 | NBHR2-004-002-040-S04-L45 | 0.4X4X0.4(4)X45 | 0.4 | 4 | 0.2 | 0.4 | 45 | 4 | 2 |
| 18 | NBHR2-004-002-050-S04-L45 | 0.4X4X0.4(5)X45 | 0.4 | 4 | 0.2 | 0.4 | 45 | 5 | 2 |
| 19 | NBHR2-005-0025-010-S04-L45 | 0.5X4X0.5(1)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 1 | 2 |
| 20 | NBHR2-005-0025-015-S04-L45 | 0.5X4X0.5(1.5)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 1.5 | 2 |
| 21 | NBHR2-005-0025-020-S04-L45 | 0.5X4X0.5(2)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 2 | 2 |
| 22 | NBHR2-005-0025-025-S04-L45 | 0.5X4X0.5(2.5)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 2.5 | 2 |
| 23 | NBHR2-005-0025-030-S04-L45 | 0.5X4X0.5(3)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 3 | 2 |
| 24 | NBHR2-005-0025-040-S04-L45 | 0.5X4X0.5(4)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 4 | 2 |
| 25 | NBHR2-005-0025-050-S04-L45 | 0.5X4X0.5(5)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 5 | 2 |
| 26 | NBHR2-005-0025-060-S04-L45 | 0.5X4X0.5(6)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 6 | 2 |
| 27 | NBHR2-005-0025-080-S04-L45 | 0.5X4X0.5(8)X45 | 0.5 | 4 | 0.25 | 0.5 | 45 | 8 | 2 |
| 28 | NBHR2-006-003-020-S04-L45 | 0.6X4X0.6(2)X45 | 0.6 | 4 | 0.3 | 0.6 | 45 | 2 | 2 |
| 29 | NBHR2-006-003-030-S04-L45 | 0.6X4X0.6(3)X45 | 0.6 | 4 | 0.3 | 0.6 | 45 | 3 | 2 |
| 30 | NBHR2-006-003-040-S04-L45 | 0.6X4X0.6(4)X45 | 0.6 | 4 | 0.3 | 0.6 | 45 | 4 | 2 |

# "N-SH" CARBIDE ENDMILL SERIES FOR HARDENED STEEL
## "N-SH" 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE RIB BALL ②
### NANO 高硬度钢 2刃 长颈 球头 ②

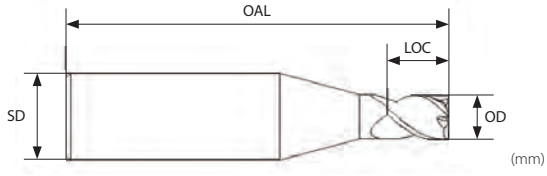
| | | d1 -0.005 ~0 d≤6 | d2 -0.009 ~-0.001 6 < d | r1 ±0.005 d≤6 | r2 ±0.01 6 < d | 30° HELIX | h5 |
|---|---|---|---|---|---|---|---|




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 31 | NBHR2-006-003-050-S04-L45 | 0.6X4X0.6(5)X45 | 0.6 | 4 | 0.3 | 0.6 | 45 | 5 | 2 |
| 32 | NBHR2-006-003-060-S04-L45 | 0.6X4X0.6(6)X45 | 0.6 | 4 | 0.3 | 0.6 | 45 | 6 | 2 |
| 33 | NBHR2-006-003-080-S04-L45 | 0.6X4X0.6(8)X45 | 0.6 | 4 | 0.3 | 0.6 | 45 | 8 | 2 |
| 34 | NBHR2-006-003-100-S04-L45 | 0.6X4X0.6(10)X45 | 0.6 | 4 | 0.3 | 0.6 | 45 | 10 | 2 |
| 35 | NBHR2-008-004-020-S04-L45 | 0.8X4X0.8(2)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 2 | 2 |
| 36 | NBHR2-008-004-030-S04-L45 | 0.8X4X0.8(3)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 3 | 2 |
| 37 | NBHR2-008-004-040-S04-L45 | 0.8X4X0.8(4)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 4 | 2 |
| 38 | NBHR2-008-004-050-S04-L45 | 0.8X4X0.8(5)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 5 | 2 |
| 39 | NBHR2-008-004-060-S04-L45 | 0.8X4X0.8(6)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 6 | 2 |
| 40 | NBHR2-008-004-080-S04-L45 | 0.8X4X0.8(8)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 8 | 2 |
| 41 | NBHR2-008-004-100-S04-L45 | 0.8X4X0.8(10)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 10 | 2 |
| 42 | NBHR2-008-004-120-S04-L45 | 0.8X4X0.8(12)X45 | 0.8 | 4 | 0.4 | 0.8 | 45 | 12 | 2 |
| 43 | NBHR2-010-005-030-S04-L50 | 1X4X1(3)X50 | 1 | 4 | 0.5 | 1 | 50 | 3 | 2 |
| 44 | NBHR2-010-005-040-S04-L50 | 1X4X1(4)X50 | 1 | 4 | 0.5 | 1 | 50 | 4 | 2 |
| 45 | NBHR2-010-005-050-S04-L50 | 1X4X1(5)X50 | 1 | 4 | 0.5 | 1 | 50 | 5 | 2 |
| 46 | NBHR2-010-005-060-S04-L50 | 1X4X1(6)X50 | 1 | 4 | 0.5 | 1 | 50 | 6 | 2 |
| 47 | NBHR2-010-005-070-S04-L50 | 1X4X1(7)X50 | 1 | 4 | 0.5 | 1 | 50 | 7 | 2 |
| 48 | NBHR2-010-005-080-S04-L50 | 1X4X1(8)X50 | 1 | 4 | 0.5 | 1 | 50 | 8 | 2 |
| 49 | NBHR2-010-005-090-S04-L50 | 1X4X1(9)X50 | 1 | 4 | 0.5 | 1 | 50 | 9 | 2 |
| 50 | NBHR2-010-005-100-S04-L50 | 1X4X1(10)X50 | 1 | 4 | 0.5 | 1 | 50 | 10 | 2 |
| 51 | NBHR2-010-005-120-S04-L50 | 1X4X1(12)X50 | 1 | 4 | 0.5 | 1 | 50 | 12 | 2 |
| 52 | NBHR2-010-005-140-S04-L50 | 1X4X1(14)X50 | 1 | 4 | 0.5 | 1 | 50 | 14 | 2 |
| 53 | NBHR2-010-005-160-S04-L50 | 1X4X1(16)X50 | 1 | 4 | 0.5 | 1 | 50 | 16 | 2 |
| 54 | NBHR2-010-005-180-S04-L55 | 1X4X1(18)X55 | 1 | 4 | 0.5 | 1 | 55 | 18 | 2 |
| 55 | NBHR2-010-005-200-S04-L55 | 1X4X1(20)X55 | 1 | 4 | 0.5 | 1 | 55 | 20 | 2 |
| 56 | NBHR2-012-006-040-S04-L50 | 1.2X4X1.2(4)X50 | 1.2 | 4 | 0.6 | 1.2 | 50 | 4 | 2 |
| 57 | NBHR2-012-006-060-S04-L50 | 1.2X4X1.2(6)X50 | 1.2 | 4 | 0.6 | 1.2 | 50 | 6 | 2 |
| 58 | NBHR2-012-006-080-S04-L50 | 1.2X4X1.2(8)X50 | 1.2 | 4 | 0.6 | 1.2 | 50 | 8 | 2 |
| 59 | NBHR2-012-006-100-S04-L50 | 1.2X4X1.2(10)X50 | 1.2 | 4 | 0.6 | 1.2 | 50 | 10 | 2 |
| 60 | NBHR2-012-006-120-S04-L50 | 1.2X4X1.2(12)X50 | 1.2 | 4 | 0.6 | 1.2 | 50 | 12 | 2 |

## NANO HARDENED STEEL 2 FLUTE RIB BALL ③
## NANO 高硬度钢 2刃 长颈 球头 ③

| | | d1 -0.005 ~0 d≤6 | d2 -0.009 ~-0.001 6<d | r1 ±0.005 d≤6 | r2 ±0.01 6<d | 30° HELIX | h5 |
|---|---|---|---|---|---|---|---|

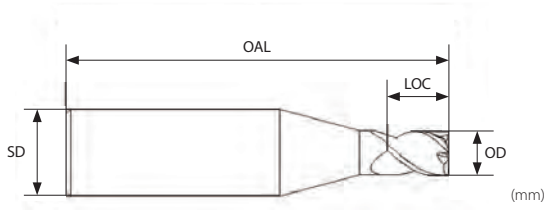



| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 61 | NBHR2-015-0075-040-S04-L50 | 1.5X4X1.5(4)X50 | 1.5 | 4 | 0.75 | 1.5 | 50 | 4 | 2 |
| 62 | NBHR2-015-0075-060-S04-L50 | 1.5X4X1.5(6)X50 | 1.5 | 4 | 0.75 | 1.5 | 50 | 6 | 2 |
| 63 | NBHR2-015-0075-080-S04-L50 | 1.5X4X1.5(8)X50 | 1.5 | 4 | 0.75 | 1.5 | 50 | 8 | 2 |
| 64 | NBHR2-015-0075-100-S04-L50 | 1.5X4X1.5(10)X50 | 1.5 | 4 | 0.75 | 1.5 | 50 | 10 | 2 |
| 65 | NBHR2-015-0075-120-S04-L50 | 1.5X4X1.5(12)X50 | 1.5 | 4 | 0.75 | 1.5 | 50 | 12 | 2 |
| 66 | NBHR2-015-0075-140-S04-L50 | 1.5X4X1.5(14)X50 | 1.5 | 4 | 0.75 | 1.5 | 50 | 14 | 2 |
| 67 | NBHR2-015-0075-160-S04-L50 | 1.5X4X1.5(16)X50 | 1.5 | 4 | 0.75 | 1.5 | 50 | 16 | 2 |
| 68 | NBHR2-015-0075-180-S04-L55 | 1.5X4X1.5(18)X55 | 1.5 | 4 | 0.75 | 1.5 | 55 | 18 | 2 |
| 69 | NBHR2-015-0075-200-S04-L55 | 1.5X4X1.5(20)X55 | 1.5 | 4 | 0.75 | 1.5 | 55 | 20 | 2 |
| 70 | NBHR2-020-010-060-S04-L50 | 2X4X3(6)X50 | 2 | 4 | 1 | 3 | 50 | 6 | 2 |
| 71 | NBHR2-020-010-080-S04-L50 | 2X4X3(8)X50 | 2 | 4 | 1 | 3 | 50 | 8 | 2 |
| 72 | NBHR2-020-010-100-S04-L50 | 2X4X3(10)X50 | 2 | 4 | 1 | 3 | 50 | 10 | 2 |
| 73 | NBHR2-020-010-120-S04-L50 | 2X4X3(12)X50 | 2 | 4 | 1 | 3 | 50 | 12 | 2 |
| 74 | NBHR2-020-010-140-S04-L50 | 2X4X3(14)X50 | 2 | 4 | 1 | 3 | 50 | 14 | 2 |
| 75 | NBHR2-020-010-160-S04-L50 | 2X4X3(16)X50 | 2 | 4 | 1 | 3 | 50 | 16 | 2 |
| 76 | NBHR2-020-010-180-S04-L55 | 2X4X3(18)X55 | 2 | 4 | 1 | 3 | 55 | 18 | 2 |
| 77 | NBHR2-020-010-200-S04-L55 | 2X4X3(20)X55 | 2 | 4 | 1 | 3 | 55 | 20 | 2 |
| 78 | NBHR2-020-010-250-S04-L60 | 2X4X3(25)X60 | 2 | 4 | 1 | 3 | 60 | 25 | 2 |
| 79 | NBHR2-020-010-300-S04-L70 | 2X4X3(30)X70 | 2 | 4 | 1 | 3 | 70 | 30 | 2 |
| 80 | NBHR2-025-0125-080-S04-L55 | 2.5X4X3.5(8)X55 | 2.5 | 4 | 1.25 | 3.5 | 55 | 8 | 2 |
| 81 | NBHR2-025-0125-100-S04-L55 | 2.5X4X3.5(10)X55 | 2.5 | 4 | 1.25 | 3.5 | 55 | 10 | 2 |
| 82 | NBHR2-025-0125-120-S04-L55 | 2.5X4X3.5(12)X55 | 2.5 | 4 | 1.25 | 3.5 | 55 | 12 | 2 |
| 83 | NBHR2-025-0125-160-S04-L55 | 2.5X4X3.5(16)X55 | 2.5 | 4 | 1.25 | 3.5 | 55 | 16 | 2 |
| 84 | NBHR2-025-0125-200-S04-L55 | 2.5X4X3.5(20)X55 | 2.5 | 4 | 1.25 | 3.5 | 55 | 20 | 2 |
| 85 | NBHR2-030-015-080-S06-L55 | 3X6X4(8)X55 | 3 | 6 | 1.5 | 4 | 55 | 8 | 2 |
| 86 | NBHR2-030-015-100-S06-L55 | 3X6X4(10)X55 | 3 | 6 | 1.5 | 4 | 55 | 10 | 2 |
| 87 | NBHR2-030-015-120-S06-L55 | 3X6X4(12)X55 | 3 | 6 | 1.5 | 4 | 55 | 12 | 2 |
| 88 | NBHR2-030-015-140-S06-L55 | 3X6X4(14)X55 | 3 | 6 | 1.5 | 4 | 55 | 14 | 2 |
| 89 | NBHR2-030-015-160-S06-L55 | 3X6X4(16)X55 | 3 | 6 | 1.5 | 4 | 55 | 16 | 2 |
| 90 | NBHR2-030-015-180-S06-L60 | 3X6X4(18)X60 | 3 | 6 | 1.5 | 4 | 60 | 18 | 2 |

# “N-SH” CARBIDE ENDMILL SERIES FOR HARDENED STEEL
## “N-SH” 高硬度钢专用铣刀

### NANO HARDENED STEEL 2 FLUTE RIB BALL ④
### NANO 高硬度钢 2刃 长颈 球头 ④

| | | d1 -0.005 ~0 d≤6 | d2 -0.009 ~-0.001 6 < d | r1 ±0.005 d≤6 | r2 ±0.01 6 < d | 30° HELIX | h5 |
|---|---|---|---|---|---|---|---|




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | LOE 有效长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|---|
| 91 | NBHR2-030-015-200-S06-L60 | 3X6X4(20)X60 | 3 | 6 | 1.5 | 4 | 60 | 20 | 2 |
| 92 | NBHR2-030-015-250-S06-L60 | 3X6X4(25)X60 | 3 | 6 | 1.5 | 4 | 60 | 25 | 2 |
| 93 | NBHR2-030-015-300-S06-L70 | 3X6X4(30)X70 | 3 | 6 | 1.5 | 4 | 70 | 30 | 2 |
| 94 | NBHR2-030-015-350-S06-L75 | 3X6X4(35)X75 | 3 | 6 | 1.5 | 4 | 75 | 35 | 2 |
| 95 | NBHR2-040-020-100-S06-L55 | 4X6X5(10)X55 | 4 | 6 | 2 | 5 | 55 | 10 | 2 |
| 96 | NBHR2-040-020-120-S06-L55 | 4X6X5(12)X55 | 4 | 6 | 2 | 5 | 55 | 12 | 2 |
| 97 | NBHR2-040-020-160-S06-L55 | 4X6X5(16)X55 | 4 | 6 | 2 | 5 | 55 | 16 | 2 |
| 98 | NBHR2-040-020-200-S06-L60 | 4X6X5(20)X60 | 4 | 6 | 2 | 5 | 60 | 20 | 2 |
| 99 | NBHR2-040-020-250-S06-L60 | 4X6X5(25)X60 | 4 | 6 | 2 | 5 | 60 | 25 | 2 |
| 100 | NBHR2-040-020-300-S06-L70 | 4X6X5(30)X70 | 4 | 6 | 2 | 5 | 70 | 30 | 2 |
| 101 | NBHR2-040-020-350-S06-L75 | 4X6X5(35)X75 | 4 | 6 | 2 | 5 | 75 | 35 | 2 |
| 102 | NBHR2-040-020-400-S06-L80 | 4X6X5(40)X80 | 4 | 6 | 2 | 5 | 80 | 40 | 2 |
| 103 | NBHR2-050-025-120-S06-L60 | 5X6X6(12)X60 | 5 | 6 | 2.5 | 6 | 60 | 12 | 2 |
| 104 | NBHR2-050-025-300-S06-L60 | 5X6X6(30)X60 | 5 | 6 | 2.5 | 6 | 60 | 30 | 2 |
| 105 | NBHR2-060-030-150-S06-L60 | 6X6X8(15)X60 | 6 | 6 | 3 | 8 | 60 | 15 | 2 |
| 106 | NBHR2-060-030-200-S06-L60 | 6X6X8(20)X60 | 6 | 6 | 3 | 8 | 60 | 20 | 2 |
| 107 | NBHR2-060-030-300-S06-L60 | 6X6X8(30)X60 | 6 | 6 | 3 | 8 | 60 | 30 | 2 |
| 108 | NBHR2-060-030-320-S06-L90 | 6X6X8(32)X90 | 6 | 6 | 3 | 8 | 90 | 32 | 2 |
| 109 | NBHR2-080-040-200-S08-L80 | 8X8X10(20)X80 | 8 | 8 | 4 | 10 | 80 | 20 | 2 |
| 110 | NBHR2-080-040-150-S08-L65 | 8X8X10(15)X65 | 8 | 8 | 4 | 10 | 65 | 15 | 2 |
| 111 | NBHR2-080-040-300-S08-L100 | 8X8X10(30)X100 | 8 | 8 | 4 | 10 | 100 | 30 | 2 |
| 112 | NBHR2-100-050-250-S10-L80 | 10X10X12(25)X80 | 10 | 10 | 5 | 12 | 80 | 25 | 2 |
| 113 | NBHR2-100-050-200-S10-L60 | 10X10X12(20)X60 | 10 | 10 | 5 | 12 | 60 | 20 | 2 |
| 114 | NBHR2-100-050-350-S10-L100 | 10X10X12(35)X100 | 10 | 10 | 5 | 12 | 100 | 35 | 2 |
| 115 | NBHR2-120-060-250-S12-L80 | 12X12X14(25)X80 | 12 | 12 | 6 | 14 | 80 | 25 | 2 |
| 116 | NBHR2-120-060-400-S12-L110 | 12X12X14(40)X110 | 12 | 12 | 6 | 14 | 110 | 40 | 2 |

# "N-SG" CARBIDE ENDMILL SERIES FOR GENERAL PURPOSE

## "N-SG" 普通钢专用铣刀

## N-SH Series / 系列

### CARBIDE ENDMILL SERIES FOR HARDENED STEEL
### 高硬度钢专用铣刀

1. Superior material, coating, geometry for general materials (HRC 50↓)
   适合 HRc50以下通用材料使用的涂层、形状。
2. Excellent quality and performance for mold and parts machining
   在模具加工及配件加工产业中拥有卓越的品质及性能
3. Wide range of applications with various geometries and specifications
   多种形态和产品可适用于大范围的加工

## PRODUCT FEATURE

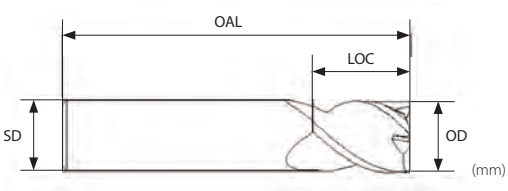
**Optimized coating and made by high qudity material guarantee excellent cutting and tool life in mold and parts for general material machining.**

**采用最优化的涂层及再加工,**
**拥有模具加工等一般性效果卓越的工具寿命**

- Improve wear resistance with NANO ultrafine grade
- 采用了NANOLOY超微粒材料提高耐磨性
- Improve surface quality, high precision machining with high quality of end mills
- 拥有卓越的品质, 加工物的表面照度及精密度优秀
- Stable machining with optimized rake-angle and clearance
- 采用最佳余裕角和湖边角, 可实现稳定的加工

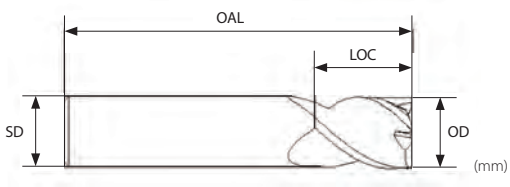
# “N-SG” CARBIDE ENDMILL SERIES FOR GENERAL PURPOSE
## “N-SG” 普通钢专用铣刀

### NANO GENERAL PURPOSE 2 FLUTE FLAT
NANO 普通刚钢 2刃 平头




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFGS2-010-025-S04-L40 | 1X4X2.5X40 | 1 | 4 | 2.5 | 40 | 2 |
| 2 | NFGS2-010-060-S06-L50 | 1X6X6X50 | 1 | 6 | 6 | 50 | 2 |
| 3 | NFGS2-010-040-S06-L60 | 1X6X4X60 | 1 | 6 | 4 | 60 | 2 |
| 4 | NFGS2-012-030-S04-L40 | 1.2X4X3X40 | 1.2 | 4 | 3 | 40 | 2 |
| 5 | NFGS2-014-035-S04-L40 | 1.4X4X3.5X40 | 1.4 | 4 | 3.5 | 40 | 2 |
| 6 | NFGS2-016-040-S04-L40 | 1.6X4X4X40 | 1.6 | 4 | 4 | 40 | 2 |
| 7 | NFGS2-018-045-S04-L40 | 1.8X4X4.5X40 | 1.8 | 4 | 4.5 | 40 | 2 |
| 8 | NFGS2-020-060-S04-L40 | 2X4X6X40 | 2 | 4 | 6 | 40 | 2 |
| 9 | NFGS2-020-100-S06-L60 | 2X0X10X60 | 2 | 0 | 10 | 60 | 2 |
| 10 | NFGS2-025-080-S04-L45 | 2.5X4X8X45 | 2.5 | 4 | 8 | 45 | 2 |
| 11 | NFGS2-030-080-S06-L45 | 3X6X8X45 | 3 | 6 | 8 | 45 | 2 |
| 12 | NFGS2-030-120-S06-L70 | 3X6X12X70 | 3 | 6 | 12 | 70 | 2 |
| 13 | NFGS2-040-110-S06-L45 | 4X6X11X45 | 4 | 6 | 11 | 45 | 2 |
| 14 | NFGS2-050-130-S06-L50 | 5X6X13X50 | 5 | 6 | 13 | 50 | 2 |
| 15 | NFGS2-060-130-S06-L50 | 6X6X13X50 | 6 | 6 | 13 | 50 | 2 |
| 16 | NFGS2-080-190-S08-L60 | 8X8X19X60 | 8 | 8 | 19 | 60 | 2 |
| 17 | NFGS2-100-220-S10-L70 | 10X10X22X70 | 10 | 10 | 22 | 70 | 2 |
| 18 | NFGS2-120-260-S12-L75 | 12X12X26X75 | 12 | 12 | 26 | 75 | 2 |

## NANO GENERAL PURPOSE 4 FLUTE FLAT ①
## NANO 普通刚钢 4刃 平头 ①

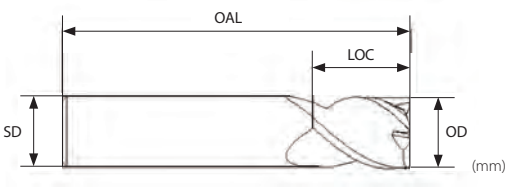



| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFGS4-010-025-S04-L40 | 1X4X2.5X40 | 1 | 4 | 2.5 | 40 | 4 |
| 2 | NFGS4-012-030-S04-L40 | 1.2X4X3X40 | 1.2 | 4 | 3 | 40 | 4 |
| 3 | NFGS4-015-040-S04-L40 | 1.5X4X4X40 | 1.5 | 4 | 4 | 40 | 4 |
| 4 | NFGS4-020-060-S04-L40 | 2X4X6X40 | 2 | 4 | 6 | 40 | 4 |
| 5 | NFGS4-025-080-S04-L45 | 2.5X4X8X45 | 2.5 | 4 | 8 | 45 | 4 |
| 6 | NFGS4-030-080-S06-L45 | 3X6X8X45 | 3 | 6 | 8 | 45 | 4 |
| 7 | NFGS4-040-110-S06-L45 | 4X6X11X45 | 4 | 6 | 11 | 45 | 4 |
| 8 | NFGS4-050-130-S06-L50 | 5X6X13X50 | 5 | 6 | 13 | 50 | 4 |
| 9 | NFGS4-060-130-S06-L50 | 6X6X13X50 | 6 | 6 | 13 | 50 | 4 |
| 10 | NFGS4-060-150-S06-L50 | 6X6X15X50 | 6 | 6 | 15 | 50 | 4 |
| 11 | NFGS4-060-150-S06-L60 | 6X6X15X60 | 6 | 6 | 15 | 60 | 4 |
| 12 | NFGS4-080-190-S08-L60 | 8X8X19X60 | 8 | 8 | 19 | 60 | 4 |
| 13 | NFGS4-080-200-S08-L60 | 8X8X20X60 | 8 | 8 | 20 | 60 | 4 |
| 14 | NFGS4-080-200-S08-L70 | 8X8X20X70 | 8 | 8 | 20 | 70 | 4 |
| 15 | NFGS4-100-220-S10-L70 | 10X10X22X70 | 10 | 10 | 22 | 70 | 4 |
| 16 | NFGS4-100-350-S10-L75 | 10X10X35X75 | 10 | 10 | 35 | 75 | 4 |
| 17 | NFGS4-100-300-S10-L75 | 10X10X30X75 | 10 | 10 | 30 | 75 | 4 |
| 18 | NFGS4-120-260-S12-L75 | 12X12X26X75 | 12 | 12 | 26 | 75 | 4 |
| 19 | NFGS4-010-025-S06-L40 | 1X6X2.5X40 | 1 | 6 | 2.5 | 40 | 4 |
| 20 | NFGS4-010-025-S06-L60 | 1X6X2.5X60 | 1 | 6 | 2.5 | 60 | 4 |
| 21 | NFGS4-010-025-S06-L80 | 1X6X2.5X80 | 1 | 6 | 2.5 | 80 | 4 |
| 22 | NFGS4-010-040-S06-L50 | 1X6X4X50 | 1 | 6 | 4 | 50 | 4 |
| 23 | NFGS4-020-060-S06-L40 | 2X6X6X40 | 2 | 6 | 6 | 40 | 4 |
| 24 | NFGS4-020-060-S06-L60 | 2X6X6X60 | 2 | 6 | 6 | 60 | 4 |
| 25 | NFGS4-020-060-S06-L100 | 2X6X6X100 | 2 | 6 | 6 | 100 | 4 |
| 26 | NFGS4-030-080-S04-L45 | 3X4X8X45 | 3 | 4 | 8 | 45 | 4 |
| 27 | NFGS4-030-080-S06-L70 | 3X6X8X70 | 3 | 6 | 8 | 70 | 4 |
| 28 | NFGS4-030-080-S06-L100 | 3X6X8X100 | 3 | 6 | 8 | 100 | 4 |
| 29 | NFGS4-035-100-S06-L45 | 3.5X6X10X45 | 3.5 | 6 | 10 | 45 | 4 |
| 30 | NFGS4-040-110-S04-L45 | 4X4X11X45 | 4 | 4 | 11 | 45 | 4 |

# “N-SG” CARBIDE ENDMILL SERIES FOR GENERAL PURPOSE
## “N-SG” 普通钢专用铣刀

### NANO GENERAL PURPOSE 4 FLUTE FLAT ②
### NANO 普通刚钢 4刃 平头 ②

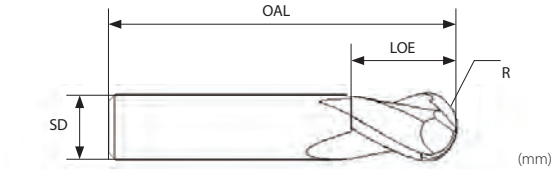
d1 -0.01~0 d≤6 | d2 -0.01~0 6 < d | 35° HELIX | h5




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 31 | NFGS4-040-110-S06-L70 | 4X6X11X70 | 4 | 6 | 11 | 70 | 4 |
| 32 | NFGS4-040-110-S06-L100 | 4X6X11X100 | 4 | 6 | 11 | 100 | 4 |
| 33 | NFGS4-045-110-S06-L45 | 4.5X6X11X45 | 4.5 | 6 | 11 | 45 | 4 |
| 34 | NFGS4-050-130-S06-L80 | 5X6X13X80 | 5 | 6 | 13 | 80 | 4 |
| 35 | NFGS4-050-130-S06-L100 | 5X6X13X100 | 5 | 6 | 13 | 100 | 4 |
| 36 | NFGS4-055-130-S06-L50 | 5.5X6X13X50 | 5.5 | 6 | 13 | 50 | 4 |
| 37 | NFGS4-060-130-S06-L80 | 6X6X13X80 | 6 | 6 | 13 | 80 | 4 |
| 38 | NFGS4-060-130-S06-L100 | 6X6X13X100 | 6 | 6 | 13 | 100 | 4 |
| 39 | NFGS4-065-160-S08-L60 | 6.5X8X16X60 | 6.5 | 8 | 16 | 60 | 4 |
| 40 | NFGS4-070-160-S08-L60 | 7X8X16X60 | 7 | 8 | 16 | 60 | 4 |
| 41 | NFGS4-075-160-S08-L60 | 7.5X8X16X60 | 7.5 | 8 | 16 | 60 | 4 |
| 42 | NFGS4-085-190-S10-L70 | 8.5X10X19X70 | 8.5 | 10 | 19 | 70 | 4 |
| 43 | NFGS4-090-190-S10-L70 | 9X10X19X70 | 9 | 10 | 19 | 70 | 4 |
| 44 | NFGS4-095-190-S10-L70 | 9.5X10X19X70 | 9.5 | 10 | 19 | 70 | 4 |
| 45 | NFGS4-100-250-S10-L70 | 10X10X25X70 | 10 | 10 | 25 | 70 | 4 |
| 46 | NFGS4-100-250-S10-L75 | 10X10X25X75 | 10 | 10 | 25 | 75 | 4 |
| 47 | NFGS4-105-220-S12-L75 | 10.5X12X22X75 | 10.5 | 12 | 22 | 75 | 4 |
| 48 | NFGS4-110-220-S12-L75 | 11X12X22X75 | 11 | 12 | 22 | 75 | 4 |
| 49 | NFGS4-120-300-S12-L75 | 12X12X30X75 | 12 | 12 | 30 | 75 | 4 |
| 50 | NFGS4-120-300-S12-L80 | 12X12X30X80 | 12 | 12 | 30 | 80 | 4 |
| 51 | NFGS4-140-260-S14-L80 | 14X14X26X80 | 14 | 14 | 26 | 80 | 4 |
| 52 | NFGS4-140-260-S16-L85 | 14X16X26X85 | 14 | 16 | 26 | 85 | 4 |
| 53 | NFGS4-160-350-S16-L100 | 16X16X35X100 | 16 | 16 | 35 | 100 | 4 |
| 54 | NFGS4-160-400-S16-L100 | 16X16X40X100 | 16 | 16 | 40 | 100 | 4 |
| 55 | NFGS4-180-350-S18-L100 | 18X18X35X100 | 18 | 18 | 35 | 100 | 4 |
| 56 | NFGS4-200-400-S20-L100 | 20X20X40X100 | 20 | 20 | 40 | 100 | 4 |
| 57 | NFGS4-200-450-S20-L100 | 20X20X45X100 | 20 | 20 | 45 | 100 | 4 |

## NANO GENERAL PURPOSE 2 FLUTE BALL ①
## NANO 普通刚钢 2刃 球头 ①

| d1 | d2 | r1 | r2 | 35° | h5 |
|---|---|---|---|---|---|
| -0.005 ~0 | -0.01~0 | ±0.005 | ±0.01 | HELIX | |
| d≤6 | 6 < d | d≤6 | 6 < d | | |

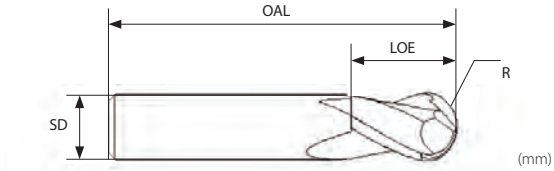



| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 1 | NBGS2-010-005-025-S04-L50 | 1(R0.5)X4X2.5X50 | 1 | 4 | 0.5 | 2.5 | 50 | 2 |
| 2 | NBGS2-020-010-050-S04-L50 | 2(R1)X4X5X50 | 2 | 4 | 1 | 5 | 50 | 2 |
| 3 | NBGS2-040-020-080-S04-L60 | 4(R2)X4X8X60 | 4 | 4 | 2 | 8 | 60 | 2 |
| 4 | NBGS2-060-030-120-S06-L80 | 6(R3)X6X12X80 | 6 | 6 | 3 | 12 | 80 | 2 |
| 5 | NBGS2-060-030-120-S06-L90 | 6(R3)X6X12X90 | 6 | 6 | 3 | 12 | 90 | 2 |
| 6 | NBGS2-080-040-120-S08-L60 | 8(R4)X8X12X60 | 8 | 8 | 4 | 12 | 60 | 2 |
| 7 | NBGS2-080-040-140-S08-L90 | 8(R4)X8X14X90 | 8 | 8 | 4 | 14 | 90 | 2 |
| 8 | NBGS2-080-040-140-S08-L100 | 8(R4)X8X14X100 | 8 | 8 | 4 | 14 | 100 | 2 |
| 9 | NBGS2-100-050-180-S10-L100 | 10(R5)X10X18X100 | 10 | 10 | 5 | 18 | 100 | 2 |
| 10 | NBGS2-120-060-220-S12-L110 | 12(R6)X12X22X110 | 12 | 12 | 6 | 22 | 110 | 2 |
| 11 | NBGS2-010-005-025-S06-L50 | 1(R0.5)X6X2.5X50 | 1 | 6 | 0.5 | 2.5 | 50 | 2 |
| 12 | NBGS2-010-005-025-S06-L70 | 1(R0.5)X6X2.5X70 | 1 | 6 | 0.5 | 2.5 | 70 | 2 |
| 13 | NBGS2-010-005-025-S06-L100 | 1(R0.5)X6X2.5X100 | 1 | 6 | 0.5 | 2.5 | 100 | 2 |
| 14 | NBGS2-012-006-030-S04-L50 | 1.2(R0.6)X4X3X50 | 1.2 | 4 | 0.6 | 3 | 50 | 2 |
| 15 | NBGS2-015-0075-040-S04-L50 | 1.5(R0.75)X4X4X50 | 1.5 | 4 | 0.75 | 4 | 50 | 2 |
| 16 | NBGS2-015-0075-040-S06-L50 | 1.5(R0.75)X6X4X50 | 1.5 | 6 | 0.75 | 4 | 50 | 2 |
| 17 | NBGS2-015-0075-040-S06-L70 | 1.5(R0.75)X6X4X70 | 1.5 | 6 | 0.75 | 4 | 70 | 2 |
| 18 | NBGS2-015-0075-040-S06-L100 | 1.5(R0.75)X6X4X100 | 1.5 | 6 | 0.75 | 4 | 100 | 2 |
| 19 | NBGS2-020-010-050-S06-L50 | 2(R1)X6X5X50 | 2 | 6 | 1 | 5 | 50 | 2 |
| 20 | NBGS2-020-010-050-S06-L75 | 2(R1)X6X5X75 | 2 | 6 | 1 | 5 | 75 | 2 |
| 21 | NBGS2-020-010-050-S06-L100 | 2(R1)X6X5X100 | 2 | 6 | 1 | 5 | 100 | 2 |
| 22 | NBGS2-025-0125-060-S04-L50 | 2.5(R1.25)X4X6X50 | 2.5 | 4 | 1.25 | 6 | 50 | 2 |
| 23 | NBGS2-025-0125-060-S06-L60 | 2.5(R1.25)X6X6X60 | 2.5 | 6 | 1.25 | 6 | 60 | 2 |
| 24 | NBGS2-025-0125-060-S06-L75 | 2.5(R1.25)X6X6X75 | 2.5 | 6 | 1.25 | 6 | 75 | 2 |
| 25 | NBGS2-025-0125-060-S06-L100 | 2.5(R1.25)X6X6X100 | 2.5 | 6 | 1.25 | 6 | 100 | 2 |
| 26 | NBGS2-030-015-080-S04-L50 | 3(R1.5)X4X8X50 | 3 | 4 | 1.5 | 8 | 50 | 2 |
| 27 | NBGS2-030-015-080-S06-L60 | 3(R1.5)X6X8X60 | 3 | 6 | 1.5 | 8 | 60 | 2 |
| 28 | NBGS2-030-015-080-S06-L80 | 3(R1.5)X6X8X80 | 3 | 6 | 1.5 | 8 | 80 | 2 |
| 29 | NBGS2-030-015-080-S06-L100 | 3(R1.5)X6X8X100 | 3 | 6 | 1.5 | 8 | 100 | 2 |
| 30 | NBGS2-035-0175-080-S06-L60 | 3.5(R1.75)X6X8X60 | 3.5 | 6 | 1.75 | 8 | 60 | 2 |

# “N-SG” CARBIDE ENDMILL SERIES FOR GENERAL PURPOSE
## “N-SG” 普通钢专用铣刀

### NANO GENERAL PURPOSE 2 FLUTE BALL ②
### NANO 普通刚钢 2刃 球头 ②

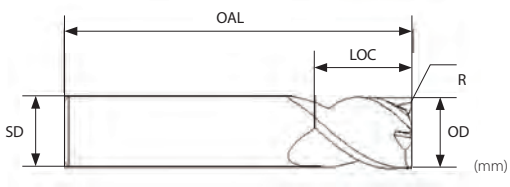
| d1 | d2 | r1 | r2 | 35° | h5 |
|---|---|---|---|---|---|
| -0.005 ~0 | -0.01~0 | ±0.005 | ±0.01 | HELIX | |
| d≤6 | 6 < d | d≤6 | 6 < d | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 31 | NBGS2-040-020-080-S04-L80 | 4(R2)X4X8X80 | 4 | 4 | 2 | 8 | 80 | 2 |
| 32 | NBGS2-040-020-080-S06-L70 | 4(R2)X6X8X70 | 4 | 6 | 2 | 8 | 70 | 2 |
| 33 | NBGS2-040-020-080-S06-L90 | 4(R2)X6X8X90 | 4 | 6 | 2 | 8 | 90 | 2 |
| 34 | NBGS2-040-020-080-S06-L120 | 4(R2)X6X8X120 | 4 | 6 | 2 | 8 | 120 | 2 |
| 35 | NBGS2-045-0225-080-S06-L70 | 4.5(R2.25)X6X8X70 | 4.5 | 6 | 2.25 | 8 | 70 | 2 |
| 36 | NBGS2-050-025-100-S06-L75 | 5(R2.5)X6X10X75 | 5 | 6 | 2.5 | 10 | 75 | 2 |
| 37 | NBGS2-055-0275-100-S06-L75 | 5.5(R2.75)X6X10X75 | 5.5 | 6 | 2.75 | 10 | 75 | 2 |
| 38 | NBGS2-060-030-100-S06-L60 | 6(R3)X6X10X60 | 6 | 6 | 3 | 10 | 60 | 2 |
| 39 | NBGS2-060-030-120-S06-L100 | 6(R3)X6X12X100 | 6 | 6 | 3 | 12 | 100 | 2 |
| 40 | NBGS2-060-030-120-S06-L120 | 6(R3)X6X12X120 | 6 | 6 | 3 | 12 | 120 | 2 |
| 41 | NBGS2-070-035-140-S08-L80 | 7(R3.5)X8X14X80 | 7 | 8 | 3.5 | 14 | 80 | 2 |
| 42 | NBGS2-080-040-140-S08-L110 | 8(R4)X8X14X110 | 8 | 8 | 4 | 14 | 110 | 2 |
| 43 | NBGS2-080-040-140-S08-L150 | 8(R4)X8X14X150 | 8 | 8 | 4 | 14 | 150 | 2 |
| 44 | NBGS2-090-045-160-S10-L100 | 9(R4.5)X10X16X100 | 9 | 10 | 4.5 | 16 | 100 | 2 |
| 45 | NBGS2-100-050-150-S10-L70 | 10(R5)X10X15X70 | 10 | 10 | 5 | 15 | 70 | 2 |
| 46 | NBGS2-100-050-180-S10-L120 | 10(R5)X10X18X120 | 10 | 10 | 5 | 18 | 120 | 2 |
| 47 | NBGS2-100-050-180-S10-L150 | 10(R5)X10X18X150 | 10 | 10 | 5 | 18 | 150 | 2 |
| 48 | NBGS2-100-050-180-S10-L180 | 10(R5)X10X18X180 | 10 | 10 | 5 | 18 | 180 | 2 |
| 49 | NBGS2-110-055-200-S12-L110 | 11(R5.5)X12X20X110 | 11 | 12 | 5.5 | 20 | 110 | 2 |
| 50 | NBGS2-120-060-180-S12-L70 | 12(R6)X12X18X70 | 12 | 12 | 6 | 18 | 70 | 2 |
| 51 | NBGS2-120-060-220-S12-L130 | 12(R6)X12X22X130 | 12 | 12 | 6 | 22 | 130 | 2 |
| 52 | NBGS2-120-060-220-S12-L150 | 12(R6)X12X22X150 | 12 | 12 | 6 | 22 | 150 | 2 |
| 53 | NBGS2-120-060-220-S12-L200 | 12(R6)X12X22X200 | 12 | 12 | 6 | 22 | 200 | 2 |
| 54 | NBGS2-130-065-240-S14-L110 | 13(R6.5)X14X24X110 | 13 | 14 | 6.5 | 24 | 110 | 2 |
| 55 | NBGS2-140-070-240-S14-L110 | 14(R7)X14X24X110 | 14 | 14 | 7 | 24 | 110 | 2 |
| 56 | NBGS2-160-080-300-S16-L130 | 16(R8)X16X30X130 | 16 | 16 | 8 | 30 | 130 | 2 |
| 57 | NBGS2-160-080-300-S16-L160 | 16(R8)X16X30X160 | 16 | 16 | 8 | 30 | 160 | 2 |
| 58 | NBGS2-160-080-300-S16-L200 | 16(R8)X16X30X200 | 16 | 16 | 8 | 30 | 200 | 2 |
| 59 | NBGS2-200-100-380-S20-L160 | 20(R10)X20X38X160 | 20 | 20 | 10 | 38 | 160 | 2 |
| 60 | NBGS2-200-100-380-S20-L200 | 20(R10)X20X38X200 | 20 | 20 | 10 | 38 | 200 | 2 |

## NANO GENERAL PURPOSE 2 FLUTE CORNER RADIUS
## NANO 普通刚钢 2刃 圆鼻

| d1 | d2 | r1 | r2 | r3 | 30° | H5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.01~0 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |

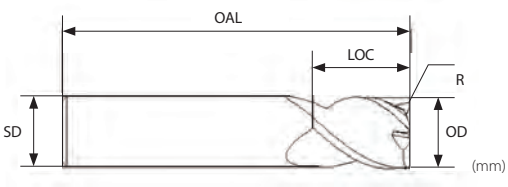



| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 1 | NRGS2-010-001-025-S04-L45 | 1(R0.1)X4X2.5X45 | 1 | 4 | 0.1 | 2.5 | 45 | 2 |
| 2 | NRGS2-020-002-060-S04-L45 | 2(R0.2)X4X6X45 | 2 | 4 | 0.2 | 6 | 45 | 2 |
| 3 | NRGS2-030-002-080-S06-L60 | 3(R0.2)X6X8X60 | 3 | 6 | 0.2 | 8 | 60 | 2 |
| 4 | NRGS2-040-002-090-S04-L60 | 4(R0.2)X4X9X60 | 4 | 4 | 0.2 | 9 | 60 | 2 |
| 5 | NRGS2-040-002-100-S06-L70 | 4(R0.2)X6X10X70 | 4 | 6 | 0.2 | 10 | 70 | 2 |
| 6 | NRGS2-040-003-090-S04-L80 | 4(R0.3)X4X9X80 | 4 | 4 | 0.3 | 9 | 80 | 2 |
| 7 | NRGS2-050-002-130-S06-L75 | 5(R0.2)X6X13X75 | 5 | 6 | 0.2 | 13 | 75 | 2 |
| 8 | NRGS2-060-003-130-S06-L90 | 6(R0.3)X6X13X90 | 6 | 6 | 0.3 | 13 | 90 | 2 |
| 9 | NRGS2-060-010-130-S06-L90 | 6(R1)X6X13X90 | 6 | 6 | 1 | 13 | 90 | 2 |
| 10 | NRGS2-080-005-190-S08-L100 | 8(R0.5)X8X19X100 | 8 | 8 | 0.5 | 19 | 100 | 2 |
| 11 | NRGS2-080-010-190-S08-L120 | 8(R1)X8X19X120 | 8 | 8 | 1 | 19 | 120 | 2 |
| 12 | NRGS2-100-005-220-S10-L100 | 10(R0.5)X10X22X100 | 10 | 10 | 0.5 | 22 | 100 | 2 |
| 13 | NRGS2-100-010-220-S10-L130 | 10(R1)X10X22X130 | 10 | 10 | 1 | 22 | 130 | 2 |
| 14 | NRGS2-120-005-260-S12-L110 | 12(R0.5)X12X26X110 | 12 | 12 | 0.5 | 26 | 110 | 2 |

# "N-SG" CARBIDE ENDMILL SERIES FOR GENERAL PURPOSE
## "N-SG" 普通钢专用铣刀

### NANO GENERAL PURPOSE 4 FLUTE CORNER RADIUS
### NANO 普通刚钢 4刃 圆鼻

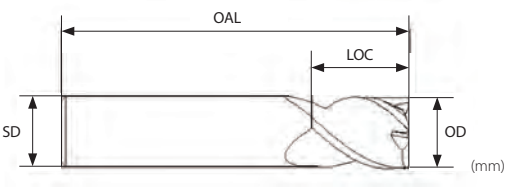
| d1 | d2 | r1 | r2 | r3 | 30° | h5 |
|---|---|---|---|---|---|---|
| -0.01~0 | -0.01~0 | ±0.005 | ±0.01 | ±0.015 | HELIX | |
| d≤6 | 6 < d | r≤0.5 | 0.5 < r < 2 | 2≤r | | |




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | R 角 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|---|
| 1 | NRGS4-010-001-025-S04-L45 | 1(R0.1)X4X2.5X45 | 1 | 4 | 0.1 | 2.5 | 45 | 4 |
| 2 | NRGS4-015-001-040-S04-L45 | 1.5(R0.1)X4X4X45 | 1.5 | 4 | 0.1 | 4 | 45 | 4 |
| 3 | NRGS4-020-002-060-S04-L45 | 2(R0.2)X4X6X45 | 2 | 4 | 0.2 | 6 | 45 | 4 |
| 4 | NRGS4-030-002-080-S06-L60 | 3(R0.2)X6X8X60 | 3 | 6 | 0.2 | 8 | 60 | 4 |
| 5 | NRGS4-040-002-090-S04-L60 | 4(R0.2)X4X9X60 | 4 | 4 | 0.2 | 9 | 60 | 4 |
| 6 | NRGS4-040-002-100-S06-L70 | 4(R0.2)X6X10X70 | 4 | 6 | 0.2 | 10 | 70 | 4 |
| 7 | NRGS4-040-003-090-S04-L80 | 4(R0.3)X4X9X80 | 4 | 4 | 0.3 | 9 | 80 | 4 |
| 8 | NRGS4-040-005-100-S06-L70 | 4(R0.5)X6X10X70 | 4 | 6 | 0.5 | 10 | 70 | 4 |
| 9 | NRGS4-050-002-130-S06-L75 | 5(R0.2)X6X13X75 | 5 | 6 | 0.2 | 13 | 75 | 4 |
| 10 | NRGS4-060-002-110-S06-L60 | 6(R0.2)X6X11X60 | 6 | 6 | 0.2 | 11 | 60 | 4 |
| 11 | NRGS4-060-003-130-S06-L80 | 6(R0.3)X6X13X80 | 6 | 6 | 0.3 | 13 | 80 | 4 |
| 12 | NRGS4-060-005-130-S06-L80 | 6(R0.5)X6X13X80 | 6 | 6 | 0.5 | 13 | 80 | 4 |
| 13 | NRGS4-060-010-130-S06-L80 | 6(R1)X6X13X80 | 6 | 6 | 1 | 13 | 80 | 4 |
| 14 | NRGS4-080-002-160-S08-L70 | 8(R0.2)X8X16X70 | 8 | 8 | 0.2 | 16 | 70 | 4 |
| 15 | NRGS4-080-005-190-S08-L90 | 8(R0.5)X8X19X90 | 8 | 8 | 0.5 | 19 | 90 | 4 |
| 16 | NRGS4-080-010-190-S08-L110 | 8(R1)X8X19X110 | 8 | 8 | 1 | 19 | 110 | 4 |
| 17 | NRGS4-100-002-190-S10-L75 | 10(R0.2)X10X19X75 | 10 | 10 | 0.2 | 19 | 75 | 4 |
| 18 | NRGS4-100-005-220-S10-L100 | 10(R0.5)X10X22X100 | 10 | 10 | 0.5 | 22 | 100 | 4 |
| 19 | NRGS4-100-010-220-S10-L70 | 10(R1)X10X22X70 | 10 | 10 | 1 | 22 | 70 | 4 |
| 20 | NRGS4-100-010-220-S10-L120 | 10(R1)X10X22X120 | 10 | 10 | 1 | 22 | 120 | 4 |
| 21 | NRGS4-120-003-220-S12-L80 | 12(R0.3)X12X22X80 | 12 | 12 | 0.3 | 22 | 80 | 4 |
| 22 | NRGS4-120-010-260-S12-L75 | 12(R1)X12X26X75 | 12 | 12 | 1 | 26 | 75 | 4 |
| 23 | NRGS4-120-010-260-S12-L110 | 12(R1)X12X26X110 | 12 | 12 | 1 | 26 | 110 | 4 |
| 24 | NRGS4-120-020-260-S12-L130 | 12(R2)X12X26X130 | 12 | 12 | 2 | 26 | 130 | 4 |

## NANO GENERAL PURPOSE 4 FLUTE LONG FLAT ①
## NANO 普通刚钢 4刃 长刃 平头 ①

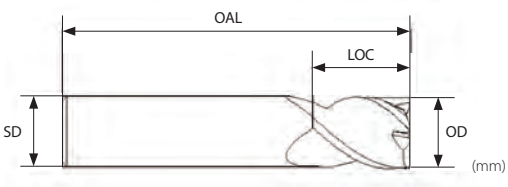
d1 -0.01~0 d≤6 | d2 -0.01~0 6 < d | 35° HELIX | h5




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFGL4-010-030-S06-L60 | 1X6X3X60 | 1 | 6 | 3 | 60 | 4 |
| 2 | NFGL4-010-050-S06-L60 | 1X6X5X60 | 1 | 6 | 5 | 60 | 4 |
| 3 | NFGL4-015-060-S06-L60 | 1.5X6X6X60 | 1.5 | 6 | 6 | 60 | 4 |
| 4 | NFGL4-015-080-S06-L60 | 1.5X6X8X60 | 1.5 | 6 | 8 | 60 | 4 |
| 5 | NFGL4-020-080-S06-L60 | 2X6X8X60 | 2 | 6 | 8 | 60 | 4 |
| 6 | NFGL4-020-100-S06-L60 | 2X6X10X60 | 2 | 6 | 10 | 60 | 4 |
| 7 | NFGL4-030-100-S06-L70 | 3X6X10X70 | 3 | 6 | 10 | 70 | 4 |
| 8 | NFGL4-030-150-S06-L70 | 3X6X15X70 | 3 | 6 | 15 | 70 | 4 |
| 9 | NFGL4-030-200-S06-L70 | 3X6X20X70 | 3 | 6 | 20 | 70 | 4 |
| 10 | NFGL4-030-250-S06-L70 | 3X6X25X70 | 3 | 6 | 25 | 70 | 4 |
| 11 | NFGL4-040-120-S06-L70 | 4X6X12X70 | 4 | 6 | 12 | 70 | 4 |
| 12 | NFGL4-040-150-S06-L70 | 4X6X15X70 | 4 | 6 | 15 | 70 | 4 |
| 13 | NFGL4-040-200-S06-L70 | 4X6X20X70 | 4 | 6 | 20 | 70 | 4 |
| 14 | NFGL4-040-250-S06-L70 | 4X6X25X70 | 4 | 6 | 25 | 70 | 4 |
| 15 | NFGL4-040-300-S06-L75 | 4X6X30X75 | 4 | 6 | 30 | 75 | 4 |
| 16 | NFGL4-050-200-S06-L70 | 5X6X20X70 | 5 | 6 | 20 | 70 | 4 |
| 17 | NFGL4-050-250-S06-L75 | 5X6X25X75 | 5 | 6 | 25 | 75 | 4 |
| 18 | NFGL4-050-300-S06-L80 | 5X6X30X80 | 5 | 6 | 30 | 80 | 4 |
| 19 | NFGL4-060-200-S06-L75 | 6X6X20X75 | 6 | 6 | 20 | 75 | 4 |
| 20 | NFGL4-060-200-S06-L100 | 6X6X20X100 | 6 | 6 | 20 | 100 | 4 |
| 21 | NFGL4-060-250-S06-L75 | 6X6X25X75 | 6 | 6 | 25 | 75 | 4 |
| 22 | NFGL4-060-300-S06-L80 | 6X6X30X80 | 6 | 6 | 30 | 80 | 4 |
| 23 | NFGL4-060-350-S06-L80 | 6X6X35X80 | 6 | 6 | 35 | 80 | 4 |
| 24 | NFGL4-080-250-S08-L75 | 8X8X25X75 | 8 | 8 | 25 | 75 | 4 |
| 25 | NFGL4-080-250-S08-L100 | 8X8X25X100 | 8 | 8 | 25 | 100 | 4 |
| 26 | NFGL4-080-300-S08-L80 | 8X8X30X80 | 8 | 8 | 30 | 80 | 4 |
| 27 | NFGL4-080-350-S08-L90 | 8X8X35X90 | 8 | 8 | 35 | 90 | 4 |
| 28 | NFGL4-080-400-S08-L90 | 8X8X40X90 | 8 | 8 | 40 | 90 | 4 |
| 29 | NFGL4-080-450-S08-L100 | 8X8X45X100 | 8 | 8 | 45 | 100 | 4 |
| 30 | NFGL4-100-300-S10-L80 | 10X10X30X80 | 10 | 10 | 30 | 80 | 4 |

# “N-SG” CARBIDE ENDMILL SERIES FOR GENERAL PURPOSE
## “N-SG” 普通钢专用铣刀

### NANO GENERAL PURPOSE 4 FLUTE LONG FLAT ②
### NANO 普通刚钢 4刃 长刃 平头 ②




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 31 | NFGL4-100-300-S10-L110 | 10X10X30X110 | 10 | 10 | 30 | 110 | 4 |
| 32 | NFGL4-100-350-S10-L90 | 10X10X35X90 | 10 | 10 | 35 | 90 | 4 |
| 33 | NFGL4-100-400-S10-L90 | 10X10X40X90 | 10 | 10 | 40 | 90 | 4 |
| 34 | NFGL4-100-500-S10-L100 | 10X10X50X100 | 10 | 10 | 50 | 100 | 4 |
| 35 | NFGL4-100-600-S10-L110 | 10X10X60X110 | 10 | 10 | 60 | 110 | 4 |
| 36 | NFGL4-120-300-S12-L90 | 12X12X30X90 | 12 | 12 | 30 | 90 | 4 |
| 37 | NFGL4-120-350-S12-L110 | 12X12X35X110 | 12 | 12 | 35 | 110 | 4 |
| 38 | NFGL4-120-400-S12-L100 | 12X12X40X100 | 12 | 12 | 40 | 100 | 4 |
| 39 | NFGL4-120-500-S12-L100 | 12X12X50X100 | 12 | 12 | 50 | 100 | 4 |
| 40 | NFGL4-120-600-S12-L110 | 12X12X60X110 | 12 | 12 | 60 | 110 | 4 |
| 41 | NFGL4-120-700-S12-L130 | 12X12X70X130 | 12 | 12 | 70 | 130 | 4 |
| 42 | NFGL4-140-500-S14-L110 | 14X14X50X110 | 14 | 14 | 50 | 110 | 4 |
| 43 | NFGL4-160-550-S16-L120 | 16X16X55X120 | 16 | 16 | 55 | 120 | 4 |
| 44 | NFGL4-160-700-S16-L130 | 16X16X70X130 | 16 | 16 | 70 | 130 | 4 |
| 45 | NFGL4-180-800-S18-L160 | 18X18X80X160 | 18 | 18 | 80 | 160 | 4 |
| 46 | NFGL4-200-500-S20-L160 | 20X20X50X160 | 20 | 20 | 50 | 160 | 4 |
| 47 | NFGL4-200-600-S20-L130 | 20X20X60X130 | 20 | 20 | 60 | 130 | 4 |
| 48 | NFGL4-200-1000-S20-L200 | 20X20X100X200 | 20 | 20 | 100 | 200 | 4 |

# "N-SN" CARBIDE ENDMILL SERIES FOR ALUMINUM

## "N-SN" 铝专用铣刀

## N-SN Series 系列

### CARBIDE ENDMILL SERIES FOR ALUMINUM
铝专用铣刀

1. Solution for machining "Aluminium alloy" and "Nonferrous metal"
   最佳方案为铝合金及有色金属
2. Applying proper geometry for preventing B.U.E and high surface roughness
   采用合适的形状为防止沾屑
3. Using NANOLOY powder technology for reducing sudden break and increasing wearness
   为了提升耐磨性和防止破损，应用NANOLOY独自原料技术

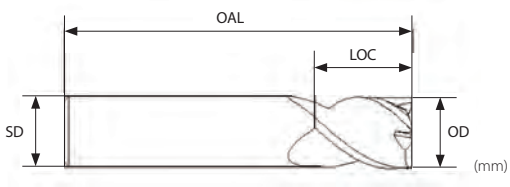
## PRODUCT FEATURE

- Optimal design for reducing cutting resistance and increasing surface roughness
- 应用优秀的形状为减少切削阻力和提高粗糙度
- Using NANOLOY powder technology for improving tool life
- 为提升铣刀寿命应用NANOLOY独自原料技术
- Suitable geometry for preventing B.U.E. and breaking
- 防止沾屑和突然性破损，采用最佳的形状
- Solution for machining Aluminium and Aluminium alloy, Non-ferrous metal.
- 适合加工铝，铝，铝合金，有色金属

# “N-SN” CARBIDE ENDMILL SERIES FOR ALUMINUM
## “N-SN” 铝专用铣刀

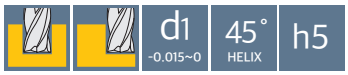
### NANO ALU 3 FLUTE FLAT
“N–SN” 铝专用铣刀

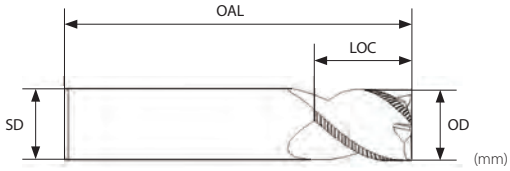
d1 -0.015~0 | 45° HELIX | h5




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFNS3-010-030-S06-L50 | 1X6X3X50 | 1 | 6 | 3 | 50 | 3 |
| 2 | NFNS3-010-060-S06-L60 | 1X6X6X60 | 1 | 6 | 6 | 60 | 3 |
| 3 | NFNS3-015-050-S06-L50 | 1.5X6X5X50 | 1.5 | 6 | 5 | 50 | 3 |
| 4 | NFNS3-015-060-S06-L60 | 1.5X6X6X60 | 1.5 | 6 | 6 | 60 | 3 |
| 5 | NFNS3-020-060-S06-L50 | 2X6X6X50 | 2 | 6 | 6 | 50 | 3 |
| 6 | NFNS3-020-080-S06-L60 | 2X6X8X60 | 2 | 6 | 8 | 60 | 3 |
| 7 | NFNS3-020-100-S06-L60 | 2X6X10X60 | 2 | 6 | 10 | 60 | 3 |
| 8 | NFNS3-020-120-S06-L60 | 2X6X12X60 | 2 | 6 | 12 | 60 | 3 |
| 9 | NFNS3-025-100-S06-L55 | 2.5X6X10X55 | 2.5 | 6 | 10 | 55 | 3 |
| 10 | NFNS3-030-110-S06-L55 | 3X6X11X55 | 3 | 6 | 11 | 55 | 3 |
| 11 | NFNS3-030-150-S06-L65 | 3X6X15X65 | 3 | 6 | 15 | 65 | 3 |
| 12 | NFNS3-030-200-S06-L70 | 3X6X20X70 | 3 | 6 | 20 | 70 | 3 |
| 13 | NFNS3-040-130-S06-L55 | 4X6X13X55 | 4 | 6 | 13 | 55 | 3 |
| 14 | NFNS3-040-160-S06-L65 | 4X6X16X65 | 4 | 6 | 16 | 65 | 3 |
| 15 | NFNS3-040-200-S06-L70 | 4X6X20X70 | 4 | 6 | 20 | 70 | 3 |
| 16 | NFNS3-050-170-S06-L55 | 5X6X17X55 | 5 | 6 | 17 | 55 | 3 |
| 17 | NFNS3-060-170-S06-L60 | 6X6X17X60 | 6 | 6 | 17 | 60 | 3 |
| 18 | NFNS3-060-220-S06-L60 | 6X6X22X60 | 6 | 6 | 22 | 60 | 3 |
| 19 | NFNS3-060-250-S06-L70 | 6X6X25X70 | 6 | 6 | 25 | 70 | 3 |
| 20 | NFNS3-060-300-S06-L75 | 6X6X30X75 | 6 | 6 | 30 | 75 | 3 |
| 21 | NFNS3-080-220-S08-L70 | 8X8X22X70 | 8 | 8 | 22 | 70 | 3 |
| 22 | NFNS3-080-300-S08-L80 | 8X8X30X80 | 8 | 8 | 30 | 80 | 3 |
| 23 | NFNS3-100-270-S10-L75 | 10X10X27X75 | 10 | 10 | 27 | 75 | 3 |
| 24 | NFNS3-100-320-S10-L90 | 10X10X32X90 | 10 | 10 | 32 | 90 | 3 |
| 25 | NFNS3-100-350-S10-L90 | 10X10X35X90 | 10 | 10 | 35 | 90 | 3 |
| 26 | NFNS3-100-400-S10-L90 | 10X10X40X90 | 10 | 10 | 40 | 90 | 3 |
| 27 | NFNS3-120-320-S12-L80 | 12X12X32X80 | 12 | 12 | 32 | 80 | 3 |
| 28 | NFNS3-120-400-S12-L95 | 12X12X40X95 | 12 | 12 | 40 | 95 | 3 |
| 29 | NFNS3-120-450-S12-L100 | 12X12X45X100 | 12 | 12 | 45 | 100 | 3 |

## NANO ALU 3 FLUTE ROUGHING
## NANO 铝 3刃 粗加工




| NO 编号 | Item Code 产品型号 | Dimension 规格 | OD 直径 | SD 柄径 | LOC 刃长 | OAL 全长 | FL.No 刃数 |
|---|---|---|---|---|---|---|---|
| 1 | NFNS3R-040-100-S06-L55 | 4X6X10X55 | 4 | 6 | 10 | 55 | 3 |
| 2 | NFNS3R-050-150-S06-L55 | 5X6X15X55 | 5 | 6 | 15 | 55 | 3 |
| 3 | NFNS3R-060-150-S06-L60 | 6X6X15X60 | 6 | 6 | 15 | 60 | 3 |
| 4 | NFNS3R-060-200(8)-S06-L70 | 6X6X8(20)X70 | 6 | 6 | 8(20) | 70 | 3 |
| 5 | NFNS3R-060-250-S06-L80 | 6X6X25X80 | 6 | 6 | 25 | 80 | 3 |
| 6 | NFNS3R-080-200-S08-L65 | 8X8X20X65 | 8 | 8 | 20 | 65 | 3 |
| 7 | NFNS3R-080-260(10)-S08-L80 | 8X8X10(26)X80 | 8 | 8 | 10(26) | 80 | 3 |
| 8 | NFNS3R-080-300-S08-L90 | 8X8X30X90 | 8 | 8 | 30 | 90 | 3 |
| 9 | NFNS3R-100-250-S10-L70 | 10X10X25X70 | 10 | 10 | 25 | 70 | 3 |
| 10 | NFNS3R-100-320(12)-S10-L90 | 10X10X12(32)X90 | 10 | 10 | 12(32) | 90 | 3 |
| 11 | NFNS3R-100-400-S10-L100 | 10X10X40X100 | 10 | 10 | 40 | 100 | 3 |
| 12 | NFNS3R-120-300-S12-L80 | 12X12X30X80 | 12 | 12 | 30 | 80 | 3 |
| 13 | NFNS3R-120-360(14)-S12-L100 | 12X12X14(36)X100 | 12 | 12 | 14(36) | 100 | 3 |
| 14 | NFNS3R-120-500-S12-L110 | 12X12X50X110 | 12 | 12 | 50 | 110 | 3 |

# INDEXABLE ENDMILL INSERTS

## 高硬度模具钢专用可转位铣刀片

# "N-IB/IR" INDEXABLE ENDMILL INSERTS

# "N–IB/IR" 高硬度模具钢专用可转位铣刀片

## Indexable end mill series for hardened materials of mold steel machining

## 高硬度模具钢材料加工可转位铣刀片系列

1. New coating layer with nano grade
   : specially designed for mold steel machining

1. 采用NANOLOY超微符合粉末材料以及新型纳米级涂层适合加工高硬度钢材料

2. Excellent performance with optimal geometry

2. 具有最佳几何结构的卓越性能

3. Wide range of machining application
   : various geometries and specifications

3. 拥有多种形状, 可适用于宽阔的加工领域

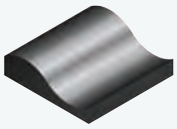
# “N-IB/IR” INDEXABLE ENDMILL INSERTS
## “N-IB/IR” 高硬度模具钢专用可转位铣刀片

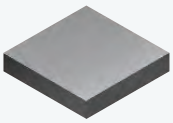
### Features / 特点

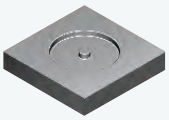
**Excellent tool life for high hardened materials machining with superior NANO ultrafine grade**
**采用了NANOLOY超微粒材料提高耐磨性适合加工高硬度材料**

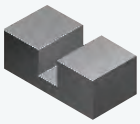
1. High precision in R (ball type : ±0.01 / corner R type : ±0.015) / 高精密度,刀片安装R精度
2. Wide range of applications with various geometries and specifications / 拥有多种形状,可适用于宽阔的加工领域
3. Excellent quality and performance for mold and parts machining / 确保模具及配件加工的卓越性能和质量

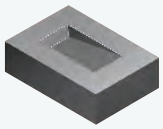
### APPLICATION / 应用

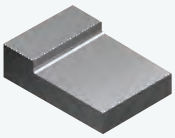

Profiling
仿形铣


Face milling
面铣


Helical milling
螺旋铣


Slotting
开槽


Ramping
线性坡走铣


Shouldering
侧铣

### CLAMPING PROCEDURE / 装配顺序

① Cleaning the clamping area. (Use air blow)
清扫刀片座, 通过气冷等方法清扫刀片座面

② Inserts the engraving side of indexable endmills insert to be forward into the holder and fighten the screw.
将刀片的数字面标记对准刀具本体 的螺钉紧固侧, 插入刀片

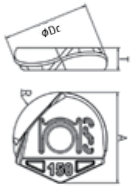
③ Tighten the screw using the torque wrench at a given torque.
Don’t push the insert during tightening.
用专用扳手紧固高精度螺钉, 此时请无按压刀片

④ Clamping complete
紧固结束

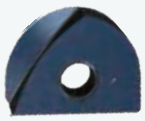
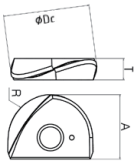
※ Follow this procedure for optimal precision / 请根据如下夹紧为最佳精密度

| ITEM CODE / 型号 | | CLAMPING TORQUE / 夹紧扭矩 (N*M) |
|---|---|---|
| BALL TYPE / 球形 | CORNER RADIUS TYPE / 圆鼻型 | |
| NBGT-XX-5R | JRGT-HS-100(110)-Rx.x | 1.8 |
| NBGT-XX-6R | JRGT-HS-120(130)-Rx.x | 3.7 |
| NBGT-XX-8R | JRGT-HS-160(170)-Rx.x | 3.7 |
| NBGT-XX-10R | JRGT-HS-200(210)-Rx.x | 3.8 |
| NBGT-XX-12.5R | JRGT-HS-250(260)-Rx.x | 5.2 |
| NBGT-XX-15R | JRGT-HS-300-Rx.x | 5.7 |

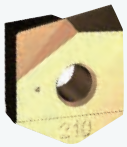
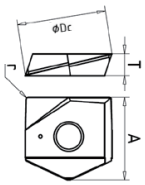
## N-IB SERIES (BALL TYPE)
## N–IB 系列 (球头刀片)

| SHAPE 形状 | ITEM CODE 型号 | SPECIFICATION / 规格 R | ØDc | A | T | Configuration 主要尺寸 |
|---|---|---|---|---|---|---|
| | NBGT-NHS-5R/5.5R | 5.0/5.5 | 10.0/11.0 | 12.2/12.0 | 2.7 |  |
| | NBGT-NHS-6R/6.5R | 6.0/6.5 | 12.0/13.0 | 14.6 | 3.2 | |
| | NBGT-NHS-8R/8.5R | 8.0/8.5 | 16.0/17 | 16.6/17.1 | 4.2 | |
| | NBGT-NHS-10R/10.5R | 10.0/10.5 | 20.0/21.0 | 20.3/20.8 | 5.2 | |
| | NBGT-NHS-12.5R | 12.5 | 25.0 | 24.1 | 6.2 | |
| | NBGT-NHS-13R | 13.0 | 26.0 | 24.6 | 6.2 | |
| | NBGT-NHS-15R | 15.0 | 30.0 | 29.2 | 7.2 | |
| | NBGT-NHS-16R | 16.0 | 32.0 | 30.2 | 7.2 | |

## N-IB SERIES (BALL TYPE)
## N–IB 系列 (球头刀片)

| SHAPE 形状 | ITEM CODE 型号 | SPECIFICATION / 规格 R | ØDc | A | T | Configuration 主要尺寸 |
|---|---|---|---|---|---|---|
|  | HBGT-HS-5R | 5.0 | 10.0 | 8.5 | 2.3 |  |
| | HBGT-HS-6R | 6.0 | 12.0 | 10.0 | 3.0 | |
| | HBGT-HS-8R | 8.0 | 16.0 | 12.0 | 4.0 | |
| | HBGT-HS-10R | 10.0 | 20.0 | 15.0 | 5.0 | |
| | HBGT-HS-12.5R | 12.5 | 25.0 | 18.5 | 6.0 | |
| | HBGT-HS-15R | 15.0 | 30.0 | 22.5 | 7.0 | |

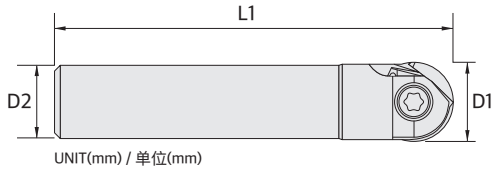
## N-IR SERIES (CORNER RADIUS TYPE)
## N–IR 系列 (圆鼻刀片)

| SHAPE 形状 | ITEM CODE 型号 | SPECIFICATION / 规格 R | ØDc | A | T | Configuration 主要尺寸 |
|---|---|---|---|---|---|---|
|  | JRGT-HS-100-R0.5 | 0.5 | 10.0 | 12.0 | 2.7 |  |
| | JRGT-HS-100-R1.0 | 1.0 | 10.0 | 12.0 | 2.7 | |
| | JRGT-HS-110-R0.5 | 0.5 | 11 | 12.1 | 2.7 | |
| | JRGT-HS-110-R1.0 | 1.0 | 11 | 12.1 | 2.7 | |
| | JRGT-HS-120-R0.5 | 0.5 | 12 | 14.6 | 3.2 | |
| | JRGT-HS-120-R1.0 | 1.0 | 12 | 14.6 | 3.2 | |
| | JRGT-HS-130-R0.5 | 0.5 | 13 | 14.6 | 3.2 | |
| | JRGT-HS-130-R1.0 | 1.0 | 13 | 14.6 | 3.2 | |
| | JRGT-HS-160-R0.5 | 0.5 | 16 | 16.6 | 4.2 | |
| | JRGT-HS-160-R1.0 | 1.0 | 16 | 16.6 | 4.2 | |
| | JRGT-HS-170-R0.5 | 0.5 | 17 | 16.4 | 4.2 | |
| | JRGT-HS-170-R1.0 | 1.0 | 17 | 16.4 | 4.2 | |
| | JRGT-HS-200-R0.5 | 0.5 | 20 | 19.8 | 5.2 | |
| | JRGT-HS-200-R1.0 | 1.0 | 20 | 19.8 | 5.2 | |
| | JRGT-HS-210-R0.5 | 0.5 | 21 | 19.8 | 5.2 | |
| | JRGT-HS-210-R1.0 | 1.0 | 21 | 19.8 | 5.2 | |
| | JRGT-HS-260-R0.5 | 0.5 | 26 | 22.6 | 6.2 | |
| | JRGT-HS-260-R1.0 | 1.0 | 26 | 22.6 | 6.2 | |
| | JRGT-HS-300-R0.5 | 0.5 | 30 | 27.2 | 7.2 | |
| | JRGT-HS-300-R1.0 | 1.0 | 30 | 27.2 | 7.2 | |

# “N-IB/IR” HOLDER
## “N-IB/IR” 刀杆

| Steel type and cemented carbide type / 钢种类和钨钢种类的刀杆

| Both ball and corner R inserts are available / 求刀片和圆弧刀片都能受用




| ITEM CODE 型号 | | OD 直径 | SD 柄径 | OAL 全长 | SCREW 螺钉 | WRENCH 扳手 |
|---|---|---|---|---|---|---|
| NMC (CARBIDE/钨钢) | 100 10 145 | 10 | 10 | 2.5 | TPM35082 | T10-T |
| | 100 10 200 | 10 | 10 | 2.5 | | |
| | 120 12 155 | 12 | 12 | 2.5 | TPM50098 | T20-T |
| | 120 12 200 | 12 | 12 | 3 | | |
| | 160 16 200 | 16 | 16 | 3 | TPM50136 | |
| | 160 16 250 | 16 | 16 | 3 | | |
| | 200 20 220 | 20 | 20 | 3 | TPM60168 | T25-T |
| | 200 20 250 | 20 | 20 | 3 | | |
| | 200 20 300 | 20 | 20 | 3 | | |
| | 250 25 250 | 25 | 25 | 3 | TPM60219 | T30-T |
| | 250 25 300 | 25 | 25 | 3 | | |
| | 300 30 300 | 30 | 30 | 3 | TPM80251 | |
| | 300 30 350 | 30 | 30 | 3 | | |
| NMS (STEEL/钢) | 160 16 220 | 16 | 16 | 3 | TPM50136 | T20-T |
| | 160 16 250 | 16 | 16 | 4 | | |
| | 200 20 220 | 20 | 20 | 4 | TPM60168 | T25-T |
| | 200 20 250 | 20 | 20 | 4 | | |
| | 250 25 220 | 25 | 25 | 4 | TPM60219 | T30-T |
| | 250 25 250 | 25 | 25 | 4 | | |
| | 250 25 300 | 25 | 25 | 4 | | |
| | 300 32 220 | 30 | 30 | 4 | TPM80251 | |
| | 300 32 250 | 30 | 30 | 4 | | |
| | 300 32 300 | 30 | 30 | 5 | | |
| | 300 32 350 | 30 | 30 | 5 | | |
| | 300 32 400 | 30 | 30 | 6 | | |

# RECOMMENDED CUTTING CONDITION
## 推荐加工参数

### N-IB SERIES (BALL TYPE) / N–IB 系列 (球头刀片)
[HARDEDED STEEL (HRC 45~63) / 高硬度钢 (HRC 45~63)]

| | Hardness 硬度 | Cutting condition TEST 参数条件 | 5R | | 6R | | 8R | | 10R | | 12.5R | | 15R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 |
| H | HRC 45~55 | vc (m/min) | 100~210 | 260 | 100~200 | 290 | 100~150 | 350 | 100~150 | 400 | 100~150 | 450 | 100~150 | 500 |
| | | fz (mm/t) | 0.10~0.20 | 0.2 | 0.10~0.20 | 0.2 | 0.12~0.24 | 0.3 | 0.12~0.24 | 0.4 | 0.12~0.24 | 0.5 | 0.12~0.24 | 0.6 |
| | | ap (mm) | 0.15~0.25 | 0.1 | 0.20~0.30 | 0.1 | 0.60~0.80 | 0.1 | 0.70~1.00 | 0.1 | 0.90~1.25 | 0.1 | 1.10~1.60 | 0.1 |
| | | ae (mm) | 0.80~1.00 | 0.25 | 0.90~1.20 | 0.3 | 1.10~1.60 | 0.3 | 1.50~2.00 | 0.4 | 1.80~2.50 | 0.5 | 2.40~3.20 | 0.6 |
| | HRC 55~63 | vc (m/min) | 80~170 | 200 | 80~160 | 230 | 80~200 | 280 | 80~120 | 320 | 80~120 | 360 | 80~120 | 400 |
| | | fz (mm/t) | 0.10~0.20 | 0.2 | 0.10~0.20 | 0.2 | 0.12~0.24 | 0.3 | 0.12~0.24 | 0.4 | 0.12~0.24 | 0.5 | 0.12~0.24 | 0.6 |
| | | ap (mm) | 0.15~0.25 | 0.1 | 0.20~0.30 | 0.1 | 0.60~0.80 | 0.1 | 0.70~1.00 | 0.1 | 0.90~1.25 | 0.1 | 1.10~1.60 | 0.1 |
| | | ae (mm) | 0.80~1.00 | 0.25 | 0.90~1.20 | 0.3 | 1.10~1.60 | 0.3 | 1.50~2.00 | 0.4 | 1.80~2.50 | 0.5 | 2.40~3.20 | 0.6 |

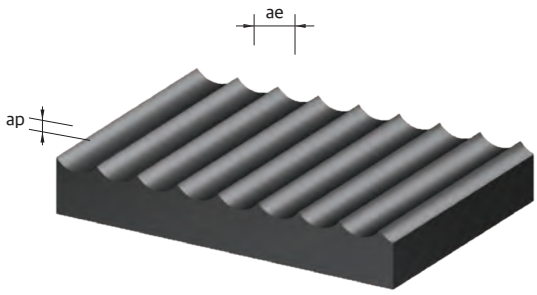
## ※Caution / 备注

1. Using suitable coolant for the cutting materials and machining types
   按照被加工材料和加工条件, 请使用适当的冷却液
2. Conditions shown in above table are general guidance.
   Adjust the parameters by the user's processing conditions.
   表上推荐的加工条件是参考用, 请按照贵司的条件来调整参数
3. Tools are possible to damaged during machining
   Please follow the safety caution (safety glasses, cover, shoes, etc)
   加工时工具可能会受伤, 为了安全请戴保护装备（安全眼镜, 鞋子等等）

| Overhang | vc (m/min) | fz (mm/t) |
|---|---|---|
| 0~3D | 100% | 100% |
| 3D~5D | 70% | 70% |
| 5D~8D | 60% | 60% |
| 8D~10D | 50% | 50% |

※ If overhang length is 3 times over than diameter,
Please adjust the speed and feed condition lower
to use shown in right table

※ 如果悬伸比外径大于3倍的话, 请减速和减进给率, 如图所示



# RECOMMENDED CUTTING CONDITION
## 推荐加工参数

### N-IR SERIES (CORNER RADIUS TYPE) / N–IR 系列 (圆鼻刀片)
[HARDEDED STEEL (HRC 45~63) / 高硬度钢 (HRC 45~63)]

| | Hardness 硬度 | Cutting condition TEST 参数条件 | Φ10 | | Φ11 | | Φ12 | | Φ13 | | Φ16 | | Φ17 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 |
| H | HRC 45~55 | vc (m/min) | 100~280 | 280 | 110~310 | 310 | 100~280 | 280 | 110~300 | 300 | 100~280 | 280 | 110~300 | 300 |
| | | fz (mm/t) | 0.05~0.10 | 0.05 | 0.05~0.10 | 0.05 | 0.05~0.10 | 0.05 | 0.05~0.10 | 0.05 | 0.06~0.12 | 0.06 | 0.06~0.12 | 0.06 |
| | | ap (mm) | 0.25 | 0.1 | 0.25 | 0.1 | 0.3 | 0.1 | 0.3 | 0.1 | 0.8 | 0.2 | 0.8 | 0.2 |
| | | ae (mm) | 0.25~1.00 | 0.2 | 0.25~1.00 | 0.2 | 0.30~1.20 | 0.2 | 0.30~1.20 | 0.2 | 0.80~1.60 | 0.2 | 0.80~1.60 | 0.2 |
| | HRC 55~63 | vc (m/min) | 80~220 | 220 | 90~240 | 240 | 80~220 | 220 | 90~240 | 240 | 80~220 | 220 | 80~230 | 230 |
| | | fz (mm/t) | 0.05~0.10 | 0.05 | 0.05~0.10 | 0.05 | 0.05~0.10 | 0.05 | 0.05~0.10 | 0.05 | 0.06~0.12 | 0.06 | 0.06~0.13 | 0.06 |
| | | ap (mm) | 0.25 | 0.1 | 0.25 | 0.1 | 0.3 | 0.1 | 0.3 | 0.1 | 0.8 | 0.2 | 0.8 | 0.2 |
| | | ae (mm) | 0.25~1.00 | 0.2 | 0.25~1.00 | 0.2 | 0.30~1.20 | 0.2 | 0.30~1.20 | 0.2 | 0.80~1.60 | 0.2 | 0.80~1.60 | 0.2 |

| | Hardness 硬度 | Cutting condition TEST 参数条件 | Φ20 | | Φ21 | | Φ25 | | Φ26 | | Φ30 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 | Semi Finishing 半精加工 | Finishing 精加工 |
| H | HRC 45~55 | vc (m/min) | 100~280 | 280 | 100~290 | 290 | 100~280 | 280 | 100~290 | 290 | 100~280 | 280 |
| | | fz (mm/t) | 0.06~0.12 | 0.06 | 0.06~0.13 | 0.06 | 0.06~0.12 | 0.06 | 0.06~0.12 | 0.06 | 0.06~0.12 | 0.06 |
| | | ap (mm) | 1.0 | 0.2 | 1.0 | 0.2 | 1.25 | 0.2 | 1.25 | 0.2 | 1.6 | 0.2 |
| | | ae (mm) | 1.00~2.00 | 0.2 | 1.00~2.00 | 0.2 | 1.25~2.50 | 0.2 | 1.25~2.50 | 0.2 | 1.60~3.20 | 0.2 |
| | HRC 55~63 | vc (m/min) | 80~220 | 220 | 80~230 | 230 | 80~220 | 220 | 80~230 | 230 | 80~220 | 220 |
| | | fz (mm/t) | 0.06~0.12 | 0.06 | 0.06~0.12 | 0.06 | 0.06~0.12 | 0.06 | 0.06~0.12 | 0.06 | 0.06~0.12 | 0.06 |
| | | ap (mm) | 1.0 | 0.2 | 1.0 | 0.2 | 1.25 | 0.2 | 1.25 | 0.2 | 1.6 | 0.2 |
| | | ae (mm) | 1.00~2.00 | 0.2 | 1.00~2.00 | 0.2 | 1.25~2.50 | 0.2 | 1.25~2.50 | 0.2 | 1.60~3.20 | 0.2 |

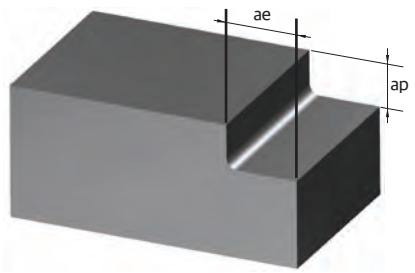
## ※Caution / 备注

1. Using suitable coolant for the cutting materials and machining types
   按照被加工材料和加工条件, 请使用适当的冷却液
2. Conditions shown in above table are general guidance.
   Adjust the parameters by the user's processing conditions.
   表上推荐的加工条件是参考用, 请按照贵司的条件来调整参数
3. Tools are possible to damaged during machining
   Please follow the safety caution (safety glasses, cover, shoes, etc)
   加工时工具可能会受伤, 为了安全请戴保护装备（安全眼镜, 鞋子等等）

※ If overhang length is 3 times over than diameter,
Please adjust the speed and feed condition lower
to use shown in right table

※ 如果悬伸比外径大于3倍的话, 请减速和减进给率, 如图所示

| Overhang | vc (m/min) | fz (mm/t) |
|---|---|---|
| 0~3D | 100% | 100% |
| 3D~5D | 70% | 70% |
| 5D~8D | 60% | 60% |
| 8D~10D | 50% | 50% |



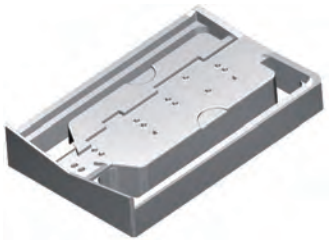
## 终端客户实地测试结果

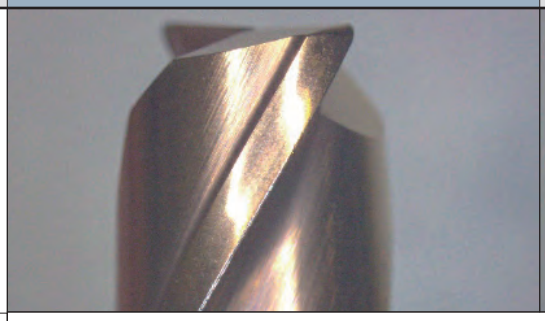
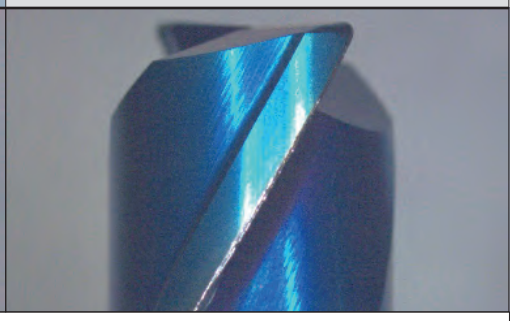
# RESULTS OF USER TEST

# RESULTS OF USER TEST
## 终端客户实地测试结果

N-SM TEST REPORT 1 / N–SM 测试报告 1 | FOR HARDENED STEEL / 高硬度钢 | ISO H GRADE / ISO H系列

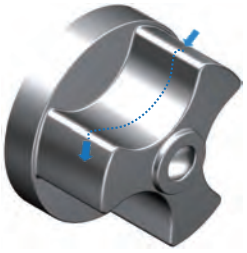
| | |
|---|---|
| ITEM CODE / 产品型号 | NRHR2-080-002-200-S08-L65 |
| WOEKPIECE / 被加工材料 | SKD11(HRC60) |
| CONDITION / 参数 | $Vc$ 100m/min $fz$ 0.037mm/tooth $ap$ 8mm $ae$ 0.24mm |
| APPLICATION / 应用 | SHOULDERING |

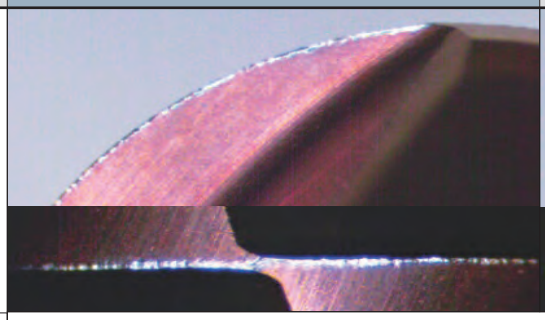
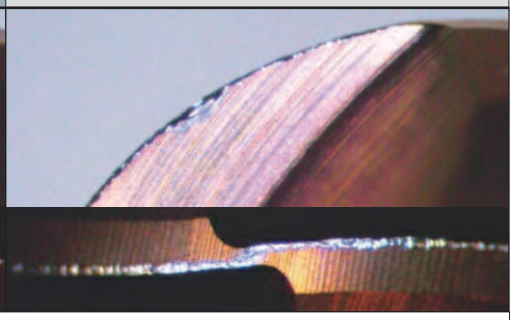


| Division / 区分 | NANOLOY | COMPETITOR / 竞争对手 |
|---|---|---|
| WEAR IMAGE 磨损对比 |  |  |
| TOOL LIFE (PATH) 寿命 (路径) | Nanoloy 360 min<br>Competitor 对手 240 min | |
| RESULT / 结果 | NANOLOY比竞争对手产品寿命高于50% | |

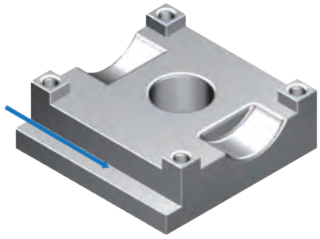
N-SH TEST REPORT 2 / N–SM 测试报告 2 | FOR HARDENED STEEL / 高硬度钢 | ISO H GRADE / ISO H系列

| | |
|---|---|
| ITEM CODE / 产品型号 | NBHS2-040-020-060-S06-L70 |
| WOEKPIECE / 被加工材料 | SKD11(HRC60) |
| CONDITION / 参数 | $Vc$ 120m/min $fz$ 0.075mm/tooth $ap$ 0.1mm $ae$ 0.08mm |
| APPLICATION / 应用 | SHOULDERING |

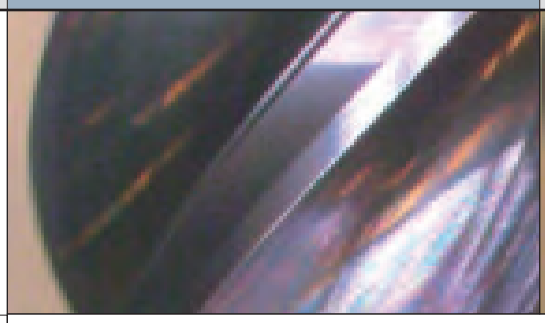
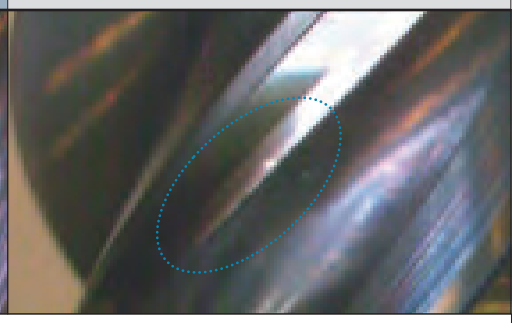


| Division / 区分 | NANOLOY | COMPETITOR / 竞争对手 |
|---|---|---|
| WEAR IMAGE 磨损对比 |  |  |
| TOOL LIFE (PATH) 寿命 (路径) | Nanoloy 76 min<br>Competitor 对手 51 min | |
| RESULT / 结果 | NANOLOY比竞争对手产品寿命高于50% | |

N-SM TEST REPORT 1 / N–SM 测试报告 1 | FOR STAINLESS STEE / 不锈钢 | ISO M GRADE / ISO M系列

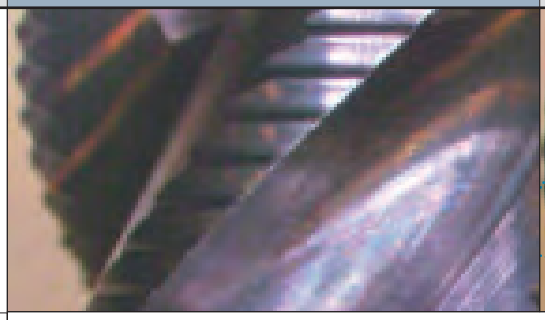
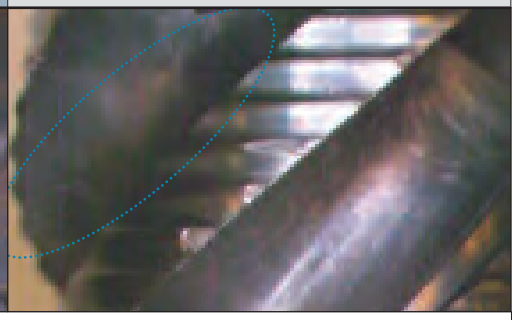


| | |
|---|---|
| ITEM CODE / 产品型号 | NFMS-120-300-S12-L80 |
| WOEKPIECE / 被加工材料 | INCONEL 718 |
| CONDITION / 参数 | *Vc* 110m/min *fz* 0.085mm/tooth *ap* 12mm *ae* 0.48mm |
| APPLICATION / 应用 | SIDE CUTTING |

| Division / 区分 | NANOLOY | COMPETITOR / 竞争对手 |
|---|---|---|
| WEAR IMAGE 磨损对比 |  |  |
| TOOL LIFE (PATH) 寿命 (路径) | Nanoloy 180%<br>Competitor 对手 100% | |
| RESULT / 结果 | NANOLOY品牌稳定的加工和优秀的耐磨性 | |

N-SH TEST REPORT 2 / N–SM 测试报告 2 | FOR STAINLESS STEEL / 不锈钢 | ISO M GRADE / ISO M系列

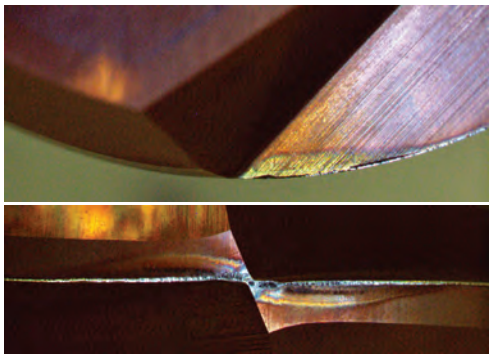
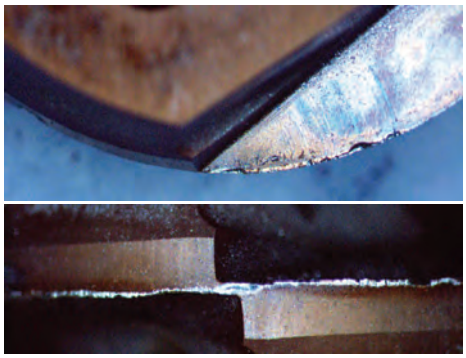
| | |
|---|---|
| ITEM CODE / 产品型号 | NRMR4R-120-003-350-S12-L80 |
| WOEKPIECE / 被加工材料 | SUS36 |
| CONDITION / 参数 | *Vc* 60m/min *fz* 0.15mm/tooth *ap* 12mm *ae* 6mm |
| APPLICATION / 应用 | SLOTTING |

| Division / 区分 | NANOLOY | COMPETITOR / 竞争对手 |
|---|---|---|
| WEAR IMAGE 磨损对比 |  |  |
| TOOL LIFE (PATH) 寿命 (路径) | Nanoloy 220%<br>Competitor 对手 100% | |
| RESULT / 结果 | NANOLOY品牌优秀的耐磨性及排屑 | |

# RESULTS OF USER TEST
## 终端客户实地测试结果

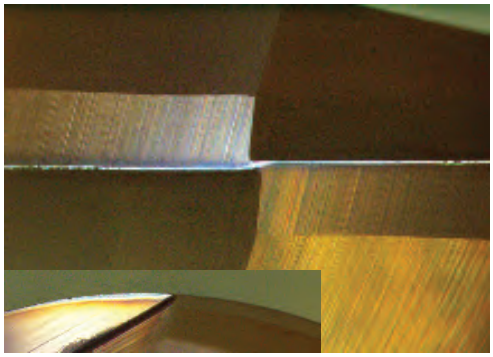
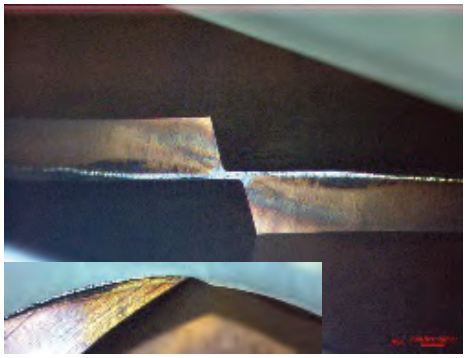
User test (automobile) / NANOLOY测试成功案例 (汽车行业) | Indexable endmill / 球刀片 | H grade (high hardness) / H系列(高硬度钢)

| | | | |
|---|---|---|---|
| Workpiece name / 被加工材料名称 | Automobile mold parts / 汽车摸具加工 | Workpiece material/ 被加工材料 | SKD11 (HRC55~62) |
| Machining type / TEST摘要 | Face milling / Finishing / Dry 面加工/ 精加工 / Dry Cut | | |
| Cutting condition / TEST参数条件 | vc 330m/min fn 0.42mm/tooth ap 0.15mm 速度 330m/min 单刃进给 0.42mm/tooth 切削深度 0.15mm | | |
| Item / 产品型号 | NBGT-HS-15R TS114NBGT-HS-15R TS1145 | | |

| Division / 区分 | NANOLOY | COMPETITOR / 竞争对手 |
|---|---|---|
| Tool life / Wear image (8 hours)<br>寿命 / 磨损 对比 (8小时加工) |  |  |
| Status comparison<br>现象对比 | After 9 hours machining (normal wear)<br>最终加工9个小时加工完成 (正常磨损) | After 8 hours machining (side edge chipping)<br>最终加工8个小时加工(侧面崩刃发生 _ 刀片交换) |
| Result<br>判断标准/结果 | Wear and damage comparison → 1.5 times better wear resistance performance than competitor<br>同等时间加工后磨损量对比 → NANOLOY产品比竞争对手耐磨性优秀 (比竞争对手高10%) | |

User test (automobile) / NANOLOY测试成功案例 (汽车行业) | Indexable endmill / 球刀片 | H grade (high hardness) / H系列(高硬度钢)

| | | | |
|---|---|---|---|
| Workpiece name / 被加工材料名称 | Automobile door mold / 汽车摸具加工 | Workpiece material/ 被加工材料 | SKD11 (HRC55) |
| Machining type / TEST摘要 | Face milling / Finishing / Dry 面加工/ 精加工 / Dry Cut | | |
| Cutting condition / TEST参数条件 | vc 500m/min fn 0.47mm/tooth ap 0.15mm 速度 500m/min 单刃进给 0.47mm/tooth 切削深度 0.15mm | | |
| Item / 产品型号 | NBGT-HS-15R TS1145 | | |

| Division / 区分 | NANOLOY | COMPETITOR / 竞争对手 |
|---|---|---|
| Tool life / Wear image (16 hours)<br>寿命 / 磨损 对比 (16小时加工) |  |  |
| Status comparison<br>现象对比 | After 24 hours machining<br>最终 24个小时 加工完成 | After 16 hours machining<br>最终 16 个小时 加工完成 |
| Result<br>判断标准/结果 | Wear and damage comparison → 1.5 times better wear resistance performance than competitor<br>同等时间加工后磨损量对比 → NANOLOY产品比竞争对手耐磨性优秀 (比竞争对手高50%) | |

# Note

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