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**Twisted  
countersink V-NX**

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 **STOCK**

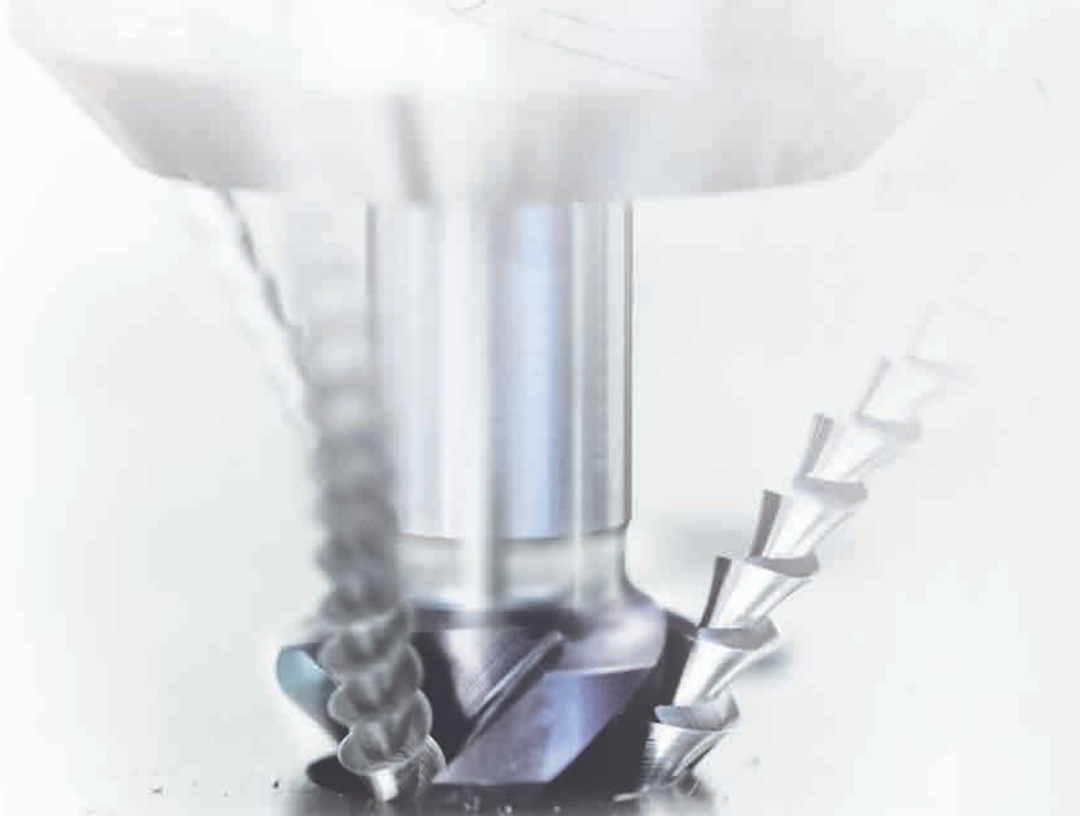
The logo consists of a red square icon on the left containing a white stylized figure of a person climbing a staircase. To the right of the icon, the word "STOCK" is written in a bold, red, sans-serif font.

Chip – by Chip – to the Top

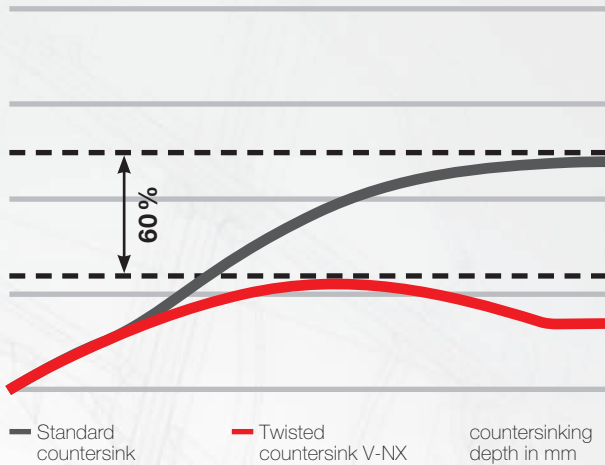
# The innovative, twisted HSCO countersink

The axial and radial forces that occur during countersinking operations are strongly reduced due to the newly developed geometry of the V-NX cutting edges. Even with hand drills easy and convenient countersinking is guaranteed. The convex different radii of the cutting edges with variable helical pitch

provide a stable and low-vibration countersinking process. Round, precise and chatter-free countersinking is guaranteed. The specially designed AlTiN coating ensures a higher wear resistance and high-temperature hardness which guarantee longer tool life for nearly all materials and applications.

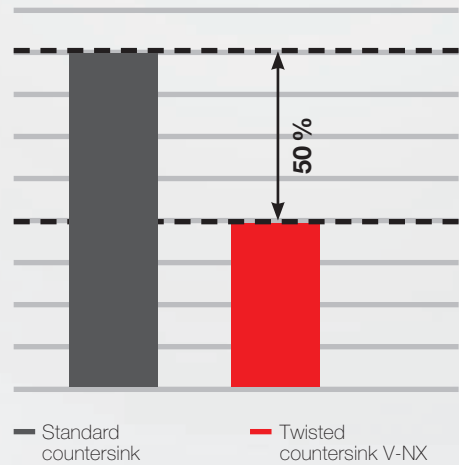


Feed force in N



lower feed force by approx. 60% compared to standard countersinks

Radial force in N

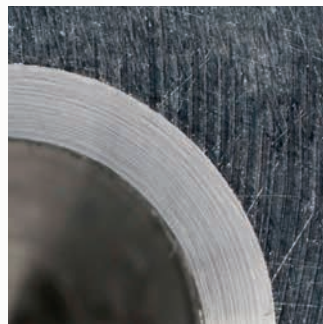


lower radial force by approx. 50% compared to standard countersinks

- standard programme
- 14 dimensions  $\text{\O} 6.3 - 31.0\text{mm}$
- $90^\circ$  countersink according to DIN 335 form C
- straight shank version
- version with 3-surface shank



Countersinking with standard countersink



Countersinking with twisted countersink V-NX

# Countersink

# V-NIX

## CONVEX CUTTING EDGES

Three different convex cutting edges in combination with three unequal helix angles enable extremely stable and low-vibration cutting processes without any chatter marks.

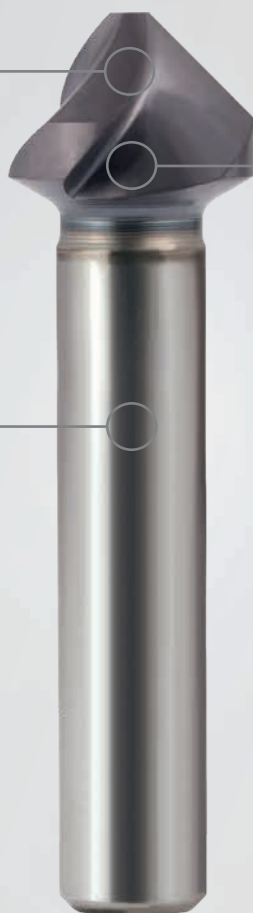
## AlTiN COATING

The aluminium-titanium coating is characterised by a high hardness and a good thermal resistance.

## CUTTING MATERIAL

The high-speed steel containing 5% of cobalt provides a good high-temperature hardness and temper resistance.

This guarantees a long tool life and the cutting material enables machining of nearly all materials.





## ISO CODES

|          |  |
|----------|--|
| <b>P</b> | Steel, high-alloyed steel                          |
| <b>M</b> | Stainless steel                                    |
| <b>K</b> | Grey cast iron, spheroidal and malleable cast iron |
| <b>N</b> | Aluminium and other non-ferrous metals             |
| <b>S</b> | Special-, super- and Ti-alloys                     |
| <b>H</b> | Hardened steel and hard cast iron                  |

Recommendations regarding tool suitability for the following application groups can be found on the following program pages:

- optimal suitability
- limited suitability

## PICTOGRAMS



|                   |                                   |
|-------------------|-----------------------------------|
| TOOL MATERIAL     | <b>HSS-Co</b><br>High speed steel |
| SURFACE FINISH    | <b>Al-TiN</b>                     |
| FORM              | <b>C</b>                          |
| CUTTING DIRECTION | <b>R</b><br>right-hand            |
| SHANK FORM        | <b>Cyl</b> <b>3</b>               |
| POINT ANGLE       | <b>90°</b>                        |
| STANDARD          | <b>DIN 335</b>                    |
| TYPE              | <b>V-NX</b>                       |

## Countersinks HSS

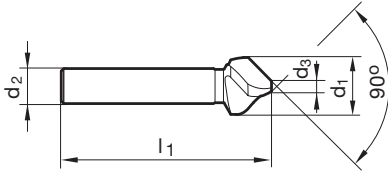
### 90° Countersinks, spiral-fluted



Catalogue no. 52348

|      |         |   |        |        |     |   |     |
|------|---------|---|--------|--------|-----|---|-----|
| V-NX | DIN 335 | C | HSS-Co | Al-TiN | 90° | R | Cyl |
| P    | M       | K | N      | S      | H   |   |     |
| ●    | ●       | ● | ○      | ○      |     |   |     |

- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application



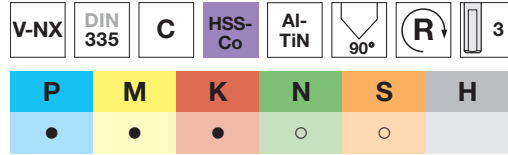
| d1<br>mm | d2<br>mm | d3<br>mm | l1<br>mm | Z | Code no. |
|----------|----------|----------|----------|---|----------|
| 6.300    | 5.000    | 1.500    | 45.000   | 3 | 6.300    |
| 8.000    | 6.000    | 2.000    | 50.000   | 3 | 8.000    |
| 8.300    | 6.000    | 2.000    | 50.000   | 3 | 8.300    |
| 10.000   | 6.000    | 2.500    | 50.000   | 3 | 10.000   |
| 10.400   | 6.000    | 2.500    | 50.000   | 3 | 10.400   |
| 11.500   | 8.000    | 2.800    | 56.000   | 3 | 11.500   |
| 12.400   | 8.000    | 2.800    | 56.000   | 3 | 12.400   |
| 15.000   | 10.000   | 3.200    | 60.000   | 3 | 15.000   |
| 16.500   | 10.000   | 3.200    | 60.000   | 3 | 16.500   |
| 19.000   | 10.000   | 3.500    | 63.000   | 3 | 19.000   |
| 20.500   | 10.000   | 3.500    | 63.000   | 3 | 20.500   |
| 23.000   | 10.000   | 3.800    | 67.000   | 3 | 23.000   |
| 25.000   | 10.000   | 3.800    | 67.000   | 3 | 25.000   |
| 31.000   | 12.000   | 4.200    | 71.000   | 3 | 31.000   |
| 40.000   | 12.000   | 10.000   | 75.000   | 3 | 40.000   |

## Countersinks HSS

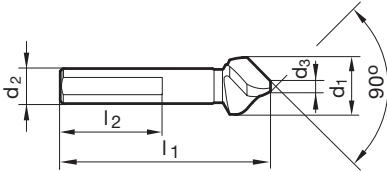
### 90° Countersinks, spiral-fluted



Catalogue no. 52350



- 3-flats on shank prevent slipping in the chuck
- 3 different convex cutting edges
- perfect for hand drills
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application



| d1<br>mm | d2<br>mm | d3<br>mm | l1<br>mm | l2<br>mm | Z | Code no. |
|----------|----------|----------|----------|----------|---|----------|
| 6.300    | 5.000    | 1.500    | 45.000   | 30.000   | 3 | 6.300    |
| 8.000    | 6.000    | 2.000    | 50.000   | 30.000   | 3 | 8.000    |
| 8.300    | 6.000    | 2.000    | 50.000   | 30.000   | 3 | 8.300    |
| 10.000   | 6.000    | 2.500    | 50.000   | 30.000   | 3 | 10.000   |
| 10.400   | 6.000    | 2.500    | 50.000   | 30.000   | 3 | 10.400   |
| 11.500   | 8.000    | 2.800    | 56.000   | 30.000   | 3 | 11.500   |
| 12.400   | 8.000    | 2.800    | 56.000   | 30.000   | 3 | 12.400   |
| 15.000   | 10.000   | 3.200    | 60.000   | 30.000   | 3 | 15.000   |
| 16.500   | 10.000   | 3.200    | 60.000   | 30.000   | 3 | 16.500   |
| 19.000   | 10.000   | 3.500    | 63.000   | 30.000   | 3 | 19.000   |
| 20.500   | 10.000   | 3.500    | 63.000   | 30.000   | 3 | 20.500   |
| 23.000   | 10.000   | 3.800    | 67.000   | 30.000   | 3 | 23.000   |
| 25.000   | 10.000   | 3.800    | 67.000   | 30.000   | 3 | 25.000   |
| 31.000   | 12.000   | 4.200    | 71.000   | 30.000   | 3 | 31.000   |
| 40.000   | 12.000   | 10.000   | 75.000   | 30.000   | 3 | 40.000   |

## Countersinks HSS

### 90° Countersink sets, spiral-fluted



|      |         |   |        |        |     |   |     |
|------|---------|---|--------|--------|-----|---|-----|
| V-NX | DIN 335 | C | HSS-Co | Al-TiN | 90° | R | Cyl |
| P    | M       | K | N      | S      | H   |   |     |
| ●    | ●       | ● | ○      | ○      |     |   |     |

- consisting of catalogue no. 52348
- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

### Catalogue no. 52398

| Code no. | Ø-range<br>mm               | Pieces/set |
|----------|-----------------------------|------------|
| 1.000    | 6.3/8.3/10.4/12.4/16.5/20.5 | 6          |



## Countersinks HSS

### 90° Countersink sets, spiral-fluted



|      |         |   |        |        |     |   |   |
|------|---------|---|--------|--------|-----|---|---|
| V-NX | DIN 335 | C | HSS-Co | Al-TiN | 90° | R | 3 |
| P    | M       | K | N      | S      | H   |   |   |
| ●    | ●       | ● | ○      | ○      |     |   |   |

- consisting of catalogue no. 52350
- 3-flats on shank prevent slipping in the chuck
- 3 different convex cutting edges
- perfect for hand drills
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

#### Catalogue no. 52399

| Code no. | Ø-range<br>mm               | Pieces/set |
|----------|-----------------------------|------------|
| 1.000    | 6.3/8.3/10.4/12.4/16.5/20.5 | 6          |

# Countersink V-NX

## Application recommendations

|             |              | Feed column no. |          |          |          |          |          |
|-------------|--------------|-----------------|----------|----------|----------|----------|----------|
| Code letter |              | <b>E</b>        | <b>F</b> | <b>G</b> | <b>H</b> | <b>I</b> | <b>J</b> |
| Tool-Ø mm   | <b>2.00</b>  | 0.03            | 0.04     | 0.06     | 0.08     | 0.10     | 0.13     |
|             | <b>2.50</b>  | 0.03            | 0.05     | 0.07     | 0.10     | 0.13     | 0.16     |
|             | <b>3.15</b>  | 0.03            | 0.05     | 0.08     | 0.11     | 0.15     | 0.20     |
|             | <b>4.00</b>  | 0.04            | 0.06     | 0.09     | 0.13     | 0.17     | 0.22     |
|             | <b>5.00</b>  | 0.04            | 0.07     | 0.10     | 0.14     | 0.18     | 0.23     |
|             | <b>6.30</b>  | 0.04            | 0.07     | 0.12     | 0.15     | 0.19     | 0.24     |
|             | <b>8.00</b>  | 0.05            | 0.08     | 0.13     | 0.16     | 0.20     | 0.25     |
|             | <b>10.00</b> | 0.06            | 0.09     | 0.14     | 0.17     | 0.22     | 0.26     |
|             | <b>12.50</b> | 0.06            | 0.10     | 0.15     | 0.19     | 0.23     | 0.28     |
|             | <b>16.00</b> | 0.07            | 0.11     | 0.17     | 0.21     | 0.26     | 0.31     |
|             | <b>20.00</b> | 0.08            | 0.13     | 0.18     | 0.23     | 0.28     | 0.33     |
|             | <b>25.00</b> | 0.09            | 0.15     | 0.21     | 0.26     | 0.30     | 0.38     |
|             | <b>31.50</b> | 0.12            | 0.17     | 0.24     | 0.30     | 0.36     | 0.42     |
|             | <b>40.00</b> | 0.14            | 0.21     | 0.28     | 0.34     | 0.40     | 0.46     |

Tools with feed column no. in bold are preferred choices for listed material group.

### Lubricants:

cutting oil, highly activated, surface active ■  
 lubricant with effective additives which  
 chemically react and result in a special adhesive  
 and abrasion reducing lubricant film.

soluble oil (emulsion) ■

without lubricant □

air only ! □

| Material group   | Materials examples, new designations (old designation in brackets)<br>Figures in bold = material no. to DIN EN  | Tensile strength<br>MPa (N/mm <sup>2</sup> ) | Hardness                 | Coolant     |
|--|---|--|--------------------------|-------------|
| General purpose steels                                   | <b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)<br><b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)   | ≤500<br>>500-850                             |                          | ■<br>■      |
| Free-cutting steels                                      | <b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)<br><b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)   | ≤850<br>850-1000                             |                          | ■<br>■      |
| Unalloyed tempering steels                               | <b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)<br><b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)<br><b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)  | ≤ 700<br>700-850<br>850-1000                 |                          | ■<br>■<br>■ |
| Alloyed tempering steels                                 | <b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4<br><b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4  | 850-≤1000<br>1000-1200                       |                          | ■<br>■      |
| Unalloyed case hardened steels                           | <b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)  | ≤750   |                          | ■           |
| Alloyed case hardened steels                             | <b>1.7043</b> 38Cr4<br><b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5  | 850-≤1000<br>1000-1200                       |                          | ■<br>■      |
| Nitriding steels   | <b>1.8504</b> 34CrAl6<br><b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7  | ≥850-≤1000<br>>1000-1200                     |                          | ■<br>■      |
| Tool steels  | <b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9<br><b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4  | ≤850<br>>850-1000                            |                          | ■<br>■      |
| High speed steels  | <b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3   | ≥650-1000                                    |                          | ■           |
| Spring steels  | <b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)   |  | ≤330 HB                  | ■           |
| Hardened steels  | -   |  | ≤40-48 HRC<br>>48-60 HRC | ■<br>■      |
| Stainless steels, sulphured<br>austenitic<br>martensitic | <b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9<br><b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)<br><b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2 | ≤850<br>≤850<br>≤850                         |                          | ■<br>■<br>■ |
| Cast iron  | <b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20)<br><b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)  | 850-≤1000<br>1000-1200                       |                          | ■ □<br>■ □  |
| Spheroidal graphite iron and<br>malleable cast iron      | <b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMW-350-4(GTW35)<br><b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)  |  | ≤240 HB<br><300 HB       | ■<br>■      |
| Chilled cast iron  | -   |  | ≤350 HB                  | ■           |
| New Cast iron GGV  | <b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)<br><b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6   |  |                          | ■ □<br>■ □  |
| New Cast iron ADI  | <b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)<br><b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)  | 800-1000<br>1200-1400                        |                          | ■ □<br>■ □  |
| Special alloys   | Nimonic, Inconel, Monel, Hastelloy  | ≤1200  |                          | ■           |
| Ti and Ti-alloys   | <b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2<br><b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1   | ≤850<br>>850-1200                            |                          | ■<br>■      |
| Aluminium and Al-alloys                                  | <b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1  | ≤400   |                          | ■           |
| Al wrought alloys  | <b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5   | ≤450   |                          | ■           |
| Al cast alloys 10 % Si                                   | <b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9   | ≤600   |                          | ■           |
| > 10 % Si  | <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg  | ≤600   |                          | ■           |
| Magnesium alloys   | <b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5812.05</b> G-MgAl6Zn1   | ≤450   |                          | ! □         |
| Copper, low alloyed                                      | <b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb   | ≤400   |                          | ■ □         |
| Brass, short-chipping                                    | <b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2   | ≤600   |                          | ■ □         |
| long-chipping  | <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5   | ≤600   |                          | ■ □         |
| Bronze, short-chipping                                   | <b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn<br><b>2.0790</b> CuNi18Zn19Pb   | ≤600<br>>600-850                             |                          | ■ □<br>■    |
| Bronze, long-chipping                                    | <b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10<br><b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2   | ≤850<br>>850-1000                            |                          | ■<br>■      |
| Duroplastics   | Epoxy resin, Resopal, Pertinax, Moltopren   |  | -                        | □           |
| Thermoplastics   | Plexiglas, Hostalen, Novodur, Makralon  |  | -                        | ■ □         |
| Kevlar   | Kevlar  |  | -                        | □           |
| Glass/carbon-concentr. plastics                          | GFK/CFK   |  | -                        | □           |

|                   |               |
|-------------------|---------------|
| Catalogue no.     | <b>52348</b>  |
| Tool material     | <b>HSS-Co</b> |
| Surface finish    | AlTiN         |
| DIN               | 335           |
| Countersink angle | 90°           |
| Shank form        | cylindrical   |

|                   |               |
|-------------------|---------------|
| Catalogue no.     | <b>52350</b>  |
| Tool material     | <b>HSS-Co</b> |
| Surface finish    | AlTiN         |
| DIN               | 335           |
| Countersink angle | 90°           |
| Shank form        | 3-surface     |



| V <sub>c</sub><br>m/min | Feed column no. |
|-------------------------|-----------------|
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | G               |
| 25                      | F               |
| 19                      | G               |
| 15                      | F               |
| 32                      | G               |
| 19                      | G               |
| 13                      | F               |
| 19                      | F               |
| 15                      | E               |
| 22                      | F               |
| 19                      | E               |
| 19                      | E               |
| 13                      | E               |
|                         |                 |
| 20                      | F               |
| 15                      | E               |
| 18                      | E               |
| 32                      | G               |
| 20                      | G               |
| 28                      | G               |
| 25                      | G               |
| 10                      | E               |
| 28                      | G               |
| 18                      | G               |
|                         |                 |
| 10                      | E               |
| 19                      | F               |
| 13                      | E               |
| 101                     | H               |
| 89                      | H               |
| 51                      | G               |
| 39                      | G               |
| 127                     | H               |
| 76                      | H               |
| 101                     | H               |
| 64                      | H               |
| 39                      | H               |
| 33                      | H               |
| 31                      | H               |
| 25                      | H               |
| 39                      | H               |
| 51                      | H               |

| V <sub>c</sub><br>m/min | Feed column no. |
|-------------------------|-----------------|
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | G               |
| 25                      | F               |
| 19                      | G               |
| 15                      | F               |
| 32                      | G               |
| 19                      | G               |
| 13                      | F               |
| 19                      | F               |
| 15                      | E               |
| 22                      | F               |
| 19                      | E               |
| 19                      | E               |
| 13                      | E               |
|                         |                 |
| 20                      | F               |
| 15                      | E               |
| 18                      | E               |
| 32                      | G               |
| 20                      | G               |
| 28                      | G               |
| 25                      | G               |
| 10                      | E               |
| 28                      | G               |
| 18                      | G               |
|                         |                 |
| 10                      | E               |
| 19                      | F               |
| 13                      | E               |
| 114                     | H               |
| 89                      | H               |
| 51                      | G               |
| 39                      | G               |
| 127                     | H               |
| 76                      | H               |
| 101                     | H               |
| 64                      | H               |
| 39                      | H               |
| 33                      | H               |
| 31                      | H               |
| 25                      | H               |
| 39                      | H               |
| 51                      | H               |

# Countersink V-NX

## Application recommendations

|             |              | Feed column no. |          |          |          |          |          |
|-------------|--------------|-----------------|----------|----------|----------|----------|----------|
| Code letter |              | <b>E</b>        | <b>F</b> | <b>G</b> | <b>H</b> | <b>I</b> | <b>J</b> |
| Tool-Ø mm   | <b>2.00</b>  | 0.03            | 0.04     | 0.06     | 0.08     | 0.10     | 0.13     |
|             | <b>2.50</b>  | 0.03            | 0.05     | 0.07     | 0.10     | 0.13     | 0.16     |
|             | <b>3.15</b>  | 0.03            | 0.05     | 0.08     | 0.11     | 0.15     | 0.20     |
|             | <b>4.00</b>  | 0.04            | 0.06     | 0.09     | 0.13     | 0.17     | 0.22     |
|             | <b>5.00</b>  | 0.04            | 0.07     | 0.10     | 0.14     | 0.18     | 0.23     |
|             | <b>6.30</b>  | 0.04            | 0.07     | 0.12     | 0.15     | 0.19     | 0.24     |
|             | <b>8.00</b>  | 0.05            | 0.08     | 0.13     | 0.16     | 0.20     | 0.25     |
|             | <b>10.00</b> | 0.06            | 0.09     | 0.14     | 0.17     | 0.22     | 0.26     |
|             | <b>12.50</b> | 0.06            | 0.10     | 0.15     | 0.19     | 0.23     | 0.28     |
|             | <b>16.00</b> | 0.07            | 0.11     | 0.17     | 0.21     | 0.26     | 0.31     |
|             | <b>20.00</b> | 0.08            | 0.13     | 0.18     | 0.23     | 0.28     | 0.33     |
|             | <b>25.00</b> | 0.09            | 0.15     | 0.21     | 0.26     | 0.30     | 0.38     |
|             | <b>31.50</b> | 0.12            | 0.17     | 0.24     | 0.30     | 0.36     | 0.42     |
|             | <b>40.00</b> | 0.14            | 0.21     | 0.28     | 0.34     | 0.40     | 0.46     |

Tools with feed column no. in bold are preferred choices for listed material group.

### Lubricants:

cutting oil, highly activated, surface active ■  
 lubricant with effective additives which  
 chemically react and result in a special adhesive  
 and abrasion reducing lubricant film.

soluble oil (emulsion) ■

without lubricant □

air only ! □

| Material group   | Materials examples, <b>new designations</b> (old designation in brackets)<br>Figures in bold = material no. to DIN EN   | Tensile strength<br>MPa (N/mm <sup>2</sup> ) | Hardness                 | Coolant     |
|--|---|--|--------------------------|-------------|
| General purpose steels                                   | <b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)<br><b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)   | ≤500<br>>500-850                             |                          | ■<br>■      |
| Free-cutting steels                                      | <b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)<br><b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)   | ≤850<br>850-1000                             |                          | ■<br>■      |
| Unalloyed tempering steels                               | <b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)<br><b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)<br><b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)  | ≤ 700<br>700-850<br>850-1000                 |                          | ■<br>■<br>■ |
| Alloyed tempering steels                                 | <b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4<br><b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4  | 850-≤1000<br>1000-1200                       |                          | ■<br>■      |
| Unalloyed case hardened steels                           | <b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)  | ≤750   |                          | ■           |
| Alloyed case hardened steels                             | <b>1.7043</b> 38Cr4<br><b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5  | 850-≤1000<br>1000-1200                       |                          | ■<br>■      |
| Nitriding steels   | <b>1.8504</b> 34CrAl6<br><b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7  | ≥850-≤1000<br>>1000-1200                     |                          | ■<br>■      |
| Tool steels  | <b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9<br><b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4  | ≤850<br>>850-1000                            |                          | ■<br>■      |
| High speed steels  | <b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3   | ≥650-1000                                    |                          | ■           |
| Spring steels  | <b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)   |  | ≤330 HB                  | ■           |
| Hardened steels  | -   |  | ≤40-48 HRC<br>>48-60 HRC | ■<br>■      |
| Stainless steels, sulphured<br>austenitic<br>martensitic | <b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9<br><b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)<br><b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2 | ≤850<br>≤850<br>≤850                         |                          | ■<br>■<br>■ |
| Cast iron  | <b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20)<br><b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)  | 850-≤1000<br>1000-1200                       |                          | ■ □<br>■ □  |
| Spheroidal graphite iron and<br>malleable cast iron      | <b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMW-350-4(GTW35)<br><b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)  |  | ≤240 HB<br><300 HB       | ■<br>■      |
| Chilled cast iron  | -   |  | ≤350 HB                  | ■           |
| New Cast iron GGV  | <b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)<br><b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6   |  |                          | ■ □<br>■ □  |
| New Cast iron ADI  | <b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)<br><b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)  | 800-1000<br>1200-1400                        |                          | ■ □<br>■ □  |
| Special alloys   | Nimonic, Inconel, Monel, Hastelloy  | ≤1200  |                          | ■           |
| Ti and Ti-alloys   | <b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2<br><b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1   | ≤850<br>>850-1200                            |                          | ■<br>■      |
| Aluminium and Al-alloys                                  | <b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1  | ≤400   |                          | ■           |
| Al wrought alloys  | <b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5   | ≤450   |                          | ■           |
| Al cast alloys 10 % Si                                   | <b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9   | ≤600   |                          | ■           |
| > 10 % Si  | <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg  | ≤600   |                          | ■           |
| Magnesium alloys   | <b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5812.05</b> G-MgAl6Zn1   | ≤450   |                          | ! □         |
| Copper, low alloyed                                      | <b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb   | ≤400   |                          | ■ □         |
| Brass, short-chipping                                    | <b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2   | ≤600   |                          | ■ □         |
| long-chipping  | <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5   | ≤600   |                          | ■ □         |
| Bronze, short-chipping                                   | <b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn<br><b>2.0790</b> CuNi18Zn19Pb   | ≤600<br>>600-850                             |                          | ■ □<br>■    |
| Bronze, long-chipping                                    | <b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10<br><b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2   | ≤850<br>>850-1000                            |                          | ■<br>■      |
| Duroplastics   | Epoxy resin, Resopal, Pertinax, Moltopren   |  | -                        | □           |
| Thermoplastics   | Plexiglas, Hostalen, Novodur, Makralon  |  | -                        | ■ □         |
| Kevlar   | Kevlar  |  | -                        | □           |
| Glass/carbon-concentr. plastics                          | GFK/CFK   |  | -                        | □           |

|                   |               |
|-------------------|---------------|
| Catalogue no.     | <b>52398</b>  |
| Tool material     | <b>HSS-Co</b> |
| Surface finish    | AlTiN         |
| DIN               | 335           |
| Countersink angle | 90°           |
| Shank form        | cylindrical   |

|                   |               |
|-------------------|---------------|
| Catalogue no.     | <b>52399</b>  |
| Tool material     | <b>HSS-Co</b> |
| Surface finish    | AlTiN         |
| DIN               | 335           |
| Countersink angle | 90°           |
| Shank form        | 3-surface     |

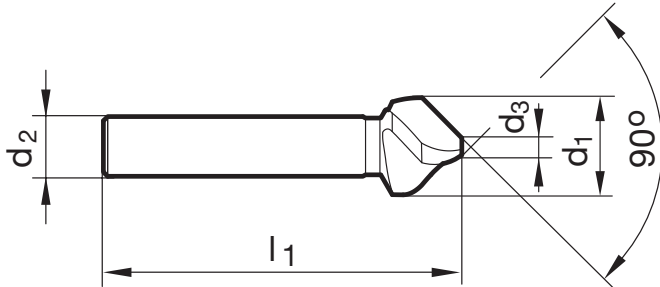


| V <sub>c</sub><br>m/min | Feed column no. |
|-------------------------|-----------------|
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | G               |
| 25                      | F               |
| 19                      | G               |
| 15                      | F               |
| 32                      | G               |
| 19                      | G               |
| 13                      | F               |
| 19                      | F               |
| 15                      | E               |
| 22                      | F               |
| 19                      | E               |
| 19                      | E               |
| 13                      | E               |
|                         |                 |
| 20                      | F               |
| 15                      | E               |
| 18                      | E               |
| 32                      | G               |
| 20                      | G               |
| 28                      | G               |
| 25                      | G               |
| 10                      | E               |
| 28                      | G               |
| 18                      | G               |
|                         |                 |
| 10                      | E               |
| 19                      | F               |
| 13                      | E               |
| 101                     | H               |
| 89                      | H               |
| 51                      | G               |
| 39                      | G               |
| 127                     | H               |
| 76                      | H               |
| 101                     | H               |
| 64                      | H               |
| 39                      | H               |
| 33                      | H               |
| 31                      | H               |
| 25                      | H               |
| 39                      | H               |
| 51                      | H               |

| V <sub>c</sub><br>m/min | Feed column no. |
|-------------------------|-----------------|
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | F               |
| 41                      | G               |
| 39                      | G               |
| 25                      | F               |
| 19                      | G               |
| 15                      | F               |
| 32                      | G               |
| 19                      | G               |
| 13                      | F               |
| 19                      | F               |
| 15                      | E               |
| 22                      | F               |
| 19                      | E               |
| 19                      | E               |
| 13                      | E               |
|                         |                 |
| 20                      | F               |
| 15                      | E               |
| 18                      | E               |
| 32                      | G               |
| 20                      | G               |
| 28                      | G               |
| 25                      | G               |
| 10                      | E               |
| 28                      | G               |
| 18                      | G               |
|                         |                 |
| 10                      | E               |
| 19                      | F               |
| 13                      | E               |
| 114                     | H               |
| 89                      | H               |
| 51                      | G               |
| 39                      | G               |
| 127                     | H               |
| 76                      | H               |
| 101                     | H               |
| 64                      | H               |
| 39                      | H               |
| 33                      | H               |
| 31                      | H               |
| 25                      | H               |
| 39                      | H               |
| 51                      | H               |

# Countersink V-NX

Smallest hole diameter to allow countersinking and suitable for countersunk screws



| d1     | smallest hole-Ø to allow countersinking | for countersunk screws ISO 2009, 2010, 7046, 7047 | for countersunk screws DIN 7991 |
|--------|---|---|---------------------------------|
| 6.300  | 2.00                                    | -   | M3                              |
| 8.000  | 2.50                                    | M4  | -                               |
| 8.300  | 2.50                                    | -   | M4                              |
| 10.000 | 3.00                                    | M5  | -                               |
| 10.400 | 3.00                                    | -   | M5                              |
| 11.500 | 3.30                                    | M6  | -                               |
| 12.400 | 3.30                                    | -   | M6                              |
| 15.000 | 3.70                                    | M8  | -                               |
| 16.500 | 3.70                                    | -   | M8                              |
| 19.000 | 4.50                                    | M10   | -                               |
| 20.500 | 4.50                                    | -   | M10                             |
| 23.000 | 4.80                                    | M12   | -                               |
| 25.000 | 4.80                                    | -   | M12                             |
| 31.000 | 5.20                                    | -   | M16                             |
| 40.000 | 12.00                                   | -   | M24                             |







# Twisted countersink V-NX

## Our Programme

### Products

Twist Drills  
Taps  
Milling Cutters  
Reamers  
Countersinks & -bores  
Chamfering Tools  
Special HSS and Carbide Tools  
(according to your specification or Stock solution)  
Tool holders

### Services

Regrinding  
Modifications  
Recoating  
Paid labour coating  
Coating removal  
Intelligent Tool Depot Systems  
Technical assistance

Your local contact:



R. Stock AG

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