

# NX - the universal drill

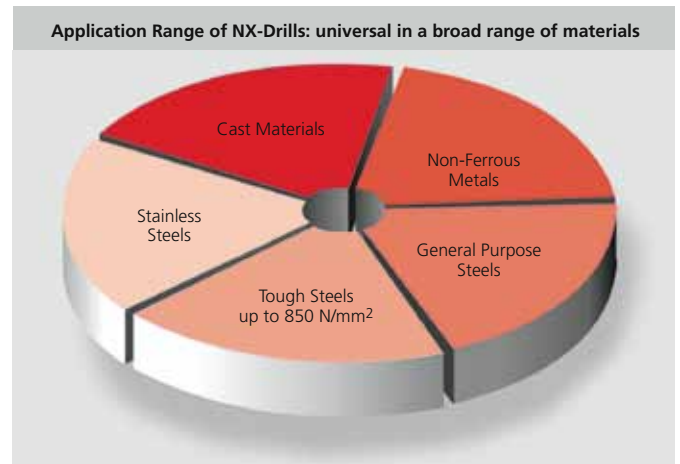
## Advantages

### Universal usage

For all low to medium tensile strength materials Stock offers a universal twist drill. The NX-drill is highly suited to a very broad range of applications. The NX-drill is recommended for

- non-ferrous metals,
- construction and carbon steels,
- high-alloyed steels,
- tool steels,
- cast and cast alloys,
- magnesium alloys,
- plastics and
- aluminium

And all with one type! Subsequently, mistakes in tool selection are eliminated and any indecision by the machine operator is avoided. At the same time, tool inventory is reduced and an optimal cost-performance-ratio is ensured!



### Flutes for the perfect chip-flow

Additional the NX-drill has a rounded flute form allowing improved chip removal.



### From extra short to long

The Stock NX-drill is now available in extra short, short and long length with a diameter-range from 1 upto 14mm. Therefore the NX-drill is universal in any respect: materials, hole sizes and depths.

### Special Flute-geometry

A modified secondary relief cone combined with a special self-centering web thinning let the NX-drill run smoothly at minimum required feed forces. This results in a greater bore accuracy. The TiN-coating increases the tool life and reduces cutting edge build-up.





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### **Products**

- Twist Drills
- Taps
- Milling Cutters
- Reamers
- Countersinks & -bores
- Special HSS and Carbide Tools (to your specifications, or our solutions)

### **Services**

- Regrinding
- Modifications
- Recoating
- Coating
- Coating removal
- Technical assistance
- Intelligent Tool Depot Systems

Your local contact:

### **R. Stock AG**

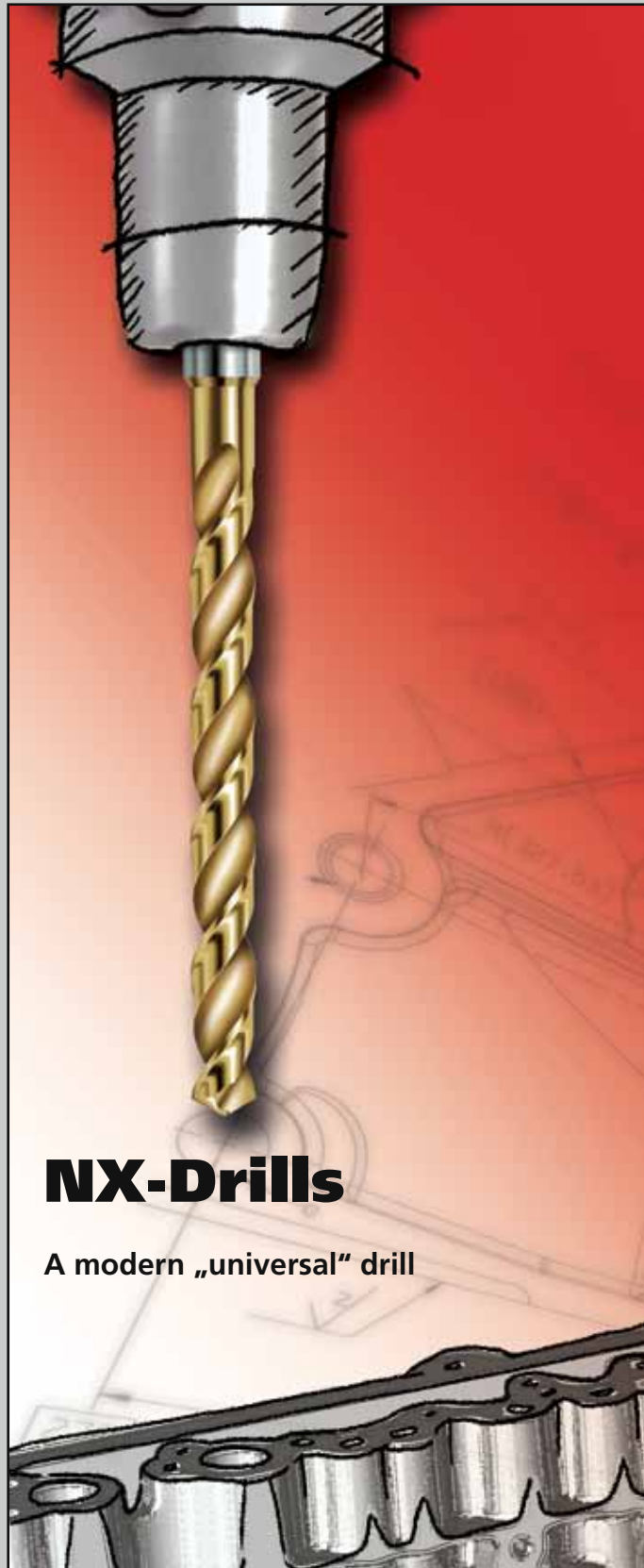
#### **Precision Cutting Tools**

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Chip – by Chip – to the Top



## **NX-Drills**

A modern „universal“ drill

Chip – by Chip – to the Top

# NX - the universal drill

## Overview

Type	DIN	Cutting material	Surface finish	Drilling depth	Shank form	Internal coolant	Point grinding	Point angle	Tolerance	Ø-range	Catalog no.
NX	DIN 1897	HSS-Co	bright	3 x D	DZ	without	facet point	118°	h8	1,000-14,000	<b>71220</b>
	DIN 1897	HSS-Co	TiN	3 x D	DZ	without	facet point	118°	h8	1,000-14,000	<b>61220</b>
	Stock standard	HSS-Co	TiN	3 x D	re-inforced	without	facet point	118°	h8	2,000-20,000	<b>61120</b>
	DIN 338	HSS-Co	bright	5 x D	DZ	without	facet point	118°	h8	1,000-14,000	<b>71221</b>
	DIN 338	HSS-Co	TiN	5 x D	DZ	without	facet point	118°	h8	1,000-14,000	<b>61221</b>
	Stock standard	HSS-Co	TiN	5 x D	re-inforced	without	facet point	118°	h8	2,000-20,000	<b>61121</b>
	DIN 340	HSS-Co	bright	10 x D	DZ	without	facet point	118°	h8	1,000-14,000	<b>71222</b>
	DIN 340	HSS-Co	TiN	10 x D	DZ	without	facet point	118°	h8	1,000-14,000	<b>61222</b>
NX set	DIN 338	HSS-Co	bright	5 x D	DZ	without	facet point	118°	h8	24 pcs. Ø 1.0 to 10.5 mm in incr. of 0.5 mm supplementary Ø 3,3/4,2/6,8/10,2 mm	<b>78879 7,018</b> (consisting of 71221)
	DIN 338	HSS-Co	bright	5 x D	DZ	without	facet point	118°	h8	25 pcs. Ø 1.0 to 13.0 mm in incr. of 0.5 mm	<b>78879 7,014</b> (consisting of 71221)



# Application Recommendations NX-Drills

		Feed column								
Code-letter	A	B	C	D	E	F	G	H	I	
drill- $\phi$ mm	<b>0.50</b>	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
	<b>1.00</b>	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
	<b>2.00</b>	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	<b>2.50</b>	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	<b>3.15</b>	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
	<b>4.00</b>	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
	<b>5.00</b>	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	<b>6.30</b>	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	<b>8.00</b>	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
	<b>10.00</b>	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
	<b>12.50</b>	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	<b>16.00</b>	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	<b>20.00</b>	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
	<b>25.00</b>	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
	<b>31.50</b>	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	<b>40.00</b>	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250
	<b>50.00</b>	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250	1.250

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

f (mm/rev)

### Lubricants:

- cutting oil, highly activated
- soluble oil (emulsion)
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm <sup>2</sup> )	Hard- ness	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) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/>
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/>
Unalloyed tempering steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/>
Alloyed tempering steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Alloyed case hardened steels	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/>
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/>
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		<input checked="" type="checkbox"/>
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi 17.2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850 ≤850 ≤850		<input checked="" type="checkbox"/>
Hardened steels	-	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Cast iron	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Spheroidal graphite iron and maleable cast iron	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMW-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/>
Chilled cast iron	-		≤350 HB	<input checked="" type="checkbox"/>
Ti and Ti-alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/>
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
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		<input checked="" type="checkbox"/>
Al cast alloys ≤ 10 % Si > 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤450		<input type="checkbox"/>
Copper, low alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input checked="" type="checkbox"/>
Brass, short-chipping long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2 <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600 ≤600		<input checked="" type="checkbox"/>
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn <b>2.0790</b> CuNi18Zn19Pb	≤600 >600-850		<input checked="" type="checkbox"/>
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/>
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren		-	<input type="checkbox"/>
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	<input checked="" type="checkbox"/>
Kevlar	Kevlar		-	<input type="checkbox"/>
Glass/carbon-concentr. plastics	GFK/CFK		-	<input type="checkbox"/>

# ≤3xD

# ≤5xD

# ≤10xD

Catalog No.  
Cutting Material  
Surface finish  
DIN  
Type

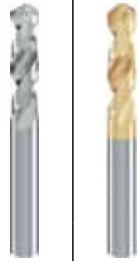
71220	61220
HSS-Co	HSS-Co
bright	TiN
DIN 1897	DIN 1897
NX	NX

61120
HSS-Co
TiN
Stock std.
NX

71221	61221
HSS-Co	HSS-Co
bright	TiN
DIN 338	DIN 338
NX	NX

61121
HSS-Co
TiN
Stock std.
NX

71222	61222
HSS-Co	HSS-Co
bright	TiN
DIN 340	DIN 340
NX	NX



bright	TiN	Feed Rate Code	
v <sub>c</sub> m/min	v <sub>c</sub> m/min		
35	45	F	F
30	35	E	E
40	50	F	F
30	40	F	F
32	42	F	F
28	35	F	F
20	22	E	E
15	18	D	D
13	15	C	C
30	40	F	F
16	20	D	D
12	15	C	C
15	18	D	D
10	12	C	C
15	18	D	D
10	13	C	C
10	13	C	C
14	18	D	D
10	12	D	D
12	15	D	D
36	45	F	F
30	36	F	F
30	40	F	F
22	28	F	F
50	70	G	G
50	70	G	G
65	85	G	G
60	70	F	F
60	70	F	F
25	32	E	E
45	63	E	E
30	40	E	E
36	50	D	D
30	35	D	D
30	32	D	D
25	28	D	D
20	25	D	D
15	15	D	D

v <sub>c</sub> m/min	Feed Rate Code
38	F
33	E
44	F
40	F
44	F
44	F
40	E
27	D
22	C
44	F
22	D
18	C
22	D
16	C
20	D
15	C
13	C
9	B
20	D
16	C
18	D
45	F
40	F
40	F
30	F
80	F
88	E
77	E
44	E
45	D
40	D
30	D
25	D
22	D
27	D

bright	TiN	Feed Rate Code	
v <sub>c</sub> m/min	v <sub>c</sub> m/min		
35	45	F	F
30	35	E	E
40	50	F	F
30	40	F	F
32	42	F	F
28	35	F	F
20	22	E	E
15	18	D	D
13	15	C	C
30	40	F	F
16	20	D	D
12	15	C	C
15	18	D	D
10	12	C	C
15	18	D	D
10	13	C	C
10	13	C	C
14	18	D	D
10	12	D	D
12	15	D	D
36	45	F	F
30	36	F	F
30	40	F	F
22	28	F	F
50	70	G	G
50	70	G	G
65	85	G	G
60	70	F	F
60	70	F	F
25	32	E	E
45	63	E	E
30	40	E	E
36	50	D	D
30	35	D	D
30	32	D	D
25	28	D	D
20	25	D	D
15	15	D	D

v <sub>c</sub> m/min	Feed Rate Code
38	F
33	E
44	F
40	E
44	F
44	F
40	E
27	D
22	C
44	F
22	D
18	C
22	D
16	C
20	D
15	C
13	C
9	B
20	D
16	D
18	D
45	F
40	F
40	F
30	F
80	F
88	E
77	E
44	E
45	D
40	D
30	D
25	D
22	D
27	D

bright	TiN	Feed Rate Code	
v <sub>c</sub> m/min	v <sub>c</sub> m/min		
29	32	F	F
22	25	E	E
32	35	F	F
25	28	F	F
25	28	F	F
22	25	F	F
13	15	E	E
12	13	D	D
11	12	C	C
25	28	F	F
12	14	D	D
11	12	C	C
12	13	D	D
G	8	C	C
12	13	D	D
9	10	C	C
9	10	C	C
12	13	D	D
G	8	D	D
11	12	D	D
29	32	F	F
23	26	F	F
25	28	F	F
18	20	F	F
45	50	G	G
45	50	G	G
54	60	G	G
45	50	F	F
45	50	F	F
21	24	E	E
45	50	E	E
25	28	E	E
31	35	D	D
22	25	D	D
22	24	D	D
18	20	D	D
16	18	D	D
11	12	D	D