

HSS - HSS/CO Drills



HSS-HSS/CO DRILLS

🇬🇧 A wide variety of geometries and standards, as well as a profitable mix of performance and price.

🇮🇹 Un'ampia varietà di geometrie e standard costruttivi, ed una vantaggiosa combinazione di rendimento e convenienza, sono i punti di forza delle punte in HSS ed HSS/Co Osawa.

🇩🇪 Die breite Palette an Geometrien und genormten Baumaßen bieten eine außergewöhnlich vorteilhafte Verbindung von Preis und Leistung: unschlagbare Stärken der Osawa Bohrer aus HSS und HSS/Co.

🇫🇷 La gamme de forets HSS et HSS/Co Osawa offre une grande variété de géométries et de normes constructives, aussi que une combinaison très rentable de performance et prix.

n Vf
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**DIN
1897**

118N - 218NVA (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

N
HSS
OX+
118°
25-30°

NH
HSS/CO
HT
130°
30°

D(h8)	I	L	Stock	Stock
mm 1.00	6	26	●	●
1.10	7	28	○	○
1.20	8	30	○	●
1.25	8	30	●	○
1.30	8	30	●	○
1.40	9	32	○	○
1.50	9	32	●	●
1.60	10	34	●	○
1.70	10	34	●	○
1.75	11	36	●	○
1.80	11	36	●	○
1.90	11	36	●	○
2.00	12	38	●	●
2.10	12	38	●	○
2.20	13	40	●	○
2.25	13	40	●	○
2.30	13	40	●	○
2.40	14	43	●	●
2.50	14	43	●	●
2.60	14	43	●	○
2.70	16	46	●	○
2.75	16	46	●	○
2.80	16	46	●	○
2.90	16	46	●	○
3.00	16	46	●	●
3.10	18	49	●	○
3.20	18	49	●	●
3.25	18	49	●	●
3.30	18	49	●	●
3.40	20	52	●	●
3.50	20	52	●	●
3.60	20	52	●	○
3.70	20	52	●	○
3.75	20	52	●	○
3.80	22	55	●	○
3.90	22	55	●	○

* OX ≥ mm. 2 ● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN
1897

118N - 218NVA (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

N

NH

HSS
OX

HSS/CO
HT

118°

130°

25-30°

30°

D(h8)	I	L	Stock	Stock
mm 4.00	22	55	●	●
4.10	22	55	●	●
4.20	22	55	●	●
4.25	22	55	●	●
4.30	24	58	●	●
4.40	24	58	○	○
4.50	24	58	●	●
4.60	24	58	●	●
4.70	24	58	●	○
4.75	24	58	●	○
4.80	26	62	●	●
4.90	26	62	●	○
5.00	26	62	●	●
5.10	26	62	●	●
5.20	26	62	●	●
5.25	26	62	●	○
5.30	26	62	●	○
5.40	28	66	●	○
5.50	28	66	●	●
5.60	28	66	●	○
5.70	28	66	●	○
5.75	28	66	●	○
5.80	28	66	●	○
5.90	28	66	○	○
6.00	28	66	●	●
6.10	31	70	●	○
6.20	31	70	●	○
6.25	31	70	●	○
6.30	31	70	●	○
6.40	31	70	●	○
6.50	31	70	●	●
6.60	31	70	○	○
6.70	31	70	●	●
6.75	34	74	●	●
6.80	34	74	●	●
6.90	34	74	●	○

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 1897

118N - 218NVA (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

N

NH

HSS
OX

HSS/CO
HT

118°

130°

25-30°

30°

D(h8)	I	L	Stock	Stock
mm 7.00	34	74	●	●
7.10	34	74	●	○
7.20	34	74	●	○
7.25	34	74	●	○
7.30	34	74	●	○
7.40	34	74	○	○
7.50	34	74	●	●
7.60	37	79	●	○
7.70	37	79	○	○
7.75	37	79	●	○
7.80	37	79	●	○
7.90	37	79	○	○
8.00	37	79	●	●
8.10	37	79	●	○
8.20	37	79	●	●
8.25	37	79	●	○
8.30	37	79	○	●
8.40	37	79	○	○
8.50	37	79	●	●
8.60	40	84	●	●
8.70	40	84	○	●
8.75	40	84	●	●
8.80	40	84	○	○
8.90	40	84	○	○
9.00	40	84	●	●
9.10	40	84	●	○
9.20	40	84	○	○
9.25	40	84	○	○
9.30	40	84	○	○
9.40	40	84	○	○
9.50	40	84	●	●
9.60	43	89	○	○
9.70	43	89	○	○
9.75	43	89	○	○
9.80	43	89	○	○
9.90	43	89	○	○

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN
1897

118N - 218NVA (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

N

NH

HSS
OX

HSS/CO
HT

118°

130°

25-30°

30°

D(h8)	I	L	Stock	Stock
mm 10.00	43	89	●	●
10.20	43	89	●	●
10.25	43	89	●	●
10.50	43	89	●	●
10.75	47	95	●	●
11.00	47	95	●	●
11.25	47	95	●	○
11.50	47	95	●	●
11.75	47	95	●	●
12.00	51	102	●	●
12.25	51	102	●	●
12.50	51	102	●	●
12.75	51	102	●	●
13.00	51	102	●	●
13.25	54	107	●	○
13.50	54	107	●	●
13.75	54	107	●	○
14.00	54	107	●	●
14.25	56	111	●	●
14.50	56	111	●	●
14.75	56	111	●	○
15.00	56	111	●	●
15.25	58	115	●	○
15.50	58	115	●	●
15.75	58	115	○	○
16.00	58	115	●	●
16.25	60	119		○
16.50	60	119		●
16.75	60	119		○
17.00	60	119		●
17.25	62	123		○
17.50	62	123		●
17.75	62	123		○
18.00	62	123		●
18.25	64	127		○
18.50	64	127		●

● stock standard ○ non-standard stock EX stock exhaustion

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DIN 1897

118N - 218NVA (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

N

NH

HSS
OX

HSS/CO
HT

118°

130°

25-30°

30°

D(h8)	I	L	Stock	Stock
mm 18.75	64	127		○
19.00	64	127		●
19.25	66	131		○
19.50	66	131		●
19.75	66	131		●
20.00	66	131		●

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 338

138N - 1386STI - 138NTI - 138HB - 138WB (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

138N	1386STI	138NTI	138HB	138WB
N	SPLIT POINT	N	H	W
HSS OX+	HSS TiN	HSS TiN	HSS BR	HSS BR
118°	118°	118°	118°	130°
25-30°	30°	25-30°	12-15°	35-40°

D(h8)	I	L	Stock	Stock	Stock	Stock	Stock
mm 0.20	2.5	19	●				
0.30	3	19	●				
0.40	5	20	●				
0.50	6	22	●				
0.60	7	24	●				
0.70	9	28	●				
0.75	9	28	●				
0.80	10	30	●				
0.90	11	32	●				
1.00	12	34	●	●**	●		
1.10	14	36	●	●**	●		
1.20	16	38	●	●**	●		
1.25	16	38	●				
1.30	16	38	●	●**	●		
1.40	18	40	●	●**	●		
1.50	18	40	●	●**	●	●	●
1.60	20	43	●	●	●	○	○
1.70	20	43	●	●	●	○	○
1.75	22	46	●				
1.80	22	46	●	●	●	○	○
1.90	22	46	●	●	●	○	○
2.00	24	49	●	●	●	●	●
2.10	24	49	●	●	●	○	○
2.20	27	53	●	●	●	●	○
2.25	27	53	●				
2.30	27	53	●	●	●	○	○
2.40	30	57	●	●	○	●	●
2.50	30	57	●	●	●	●	●
2.60	30	57	●	●	○	○	○
2.70	33	61	●	●	●	○	○
2.75	33	61	●				
2.80	33	61	●	●	●	○	○
2.90	33	61	●	●	●	○	○
3.00	33	61	●	●	●	●	●
3.10	36	65	●	●	●	○	○
3.20	36	65	●	●	●	○	●

* OX ≥ mm. 2
** N TYPE ≤ mm. 1.5 = 1385NTI

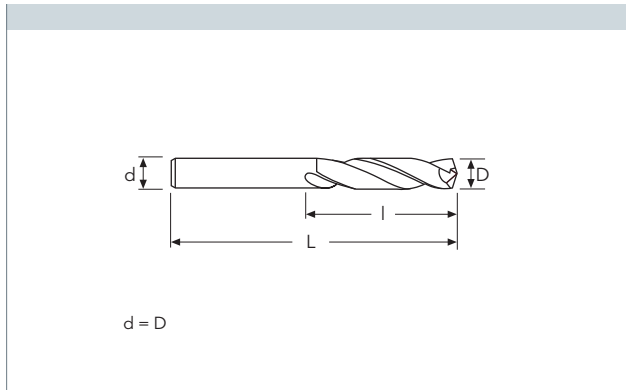
● stock standard ○ non-standard stock EX stock exhaustion

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DIN 338

138N - 1386STI - 138NTI - 138HB - 138WB (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



138N	1386STI	138NTI	138HB	138WB
HSS	HSS	HSS	HSS	HSS
OX	TiN	TiN	BR	BR

D(h8)	l	L	Stock	Stock	Stock	Stock	Stock
mm 3.25	36	65	●				
3.30	36	65	●	●	●	●	●
3.40	39	70	●	●	●	○	○
3.50	39	70	●	●	●	●	●
3.60	39	70	●	●	●	○	●
3.70	39	70	●	●	●	○	●
3.75	39	70	●	●	○		
3.80	43	75	●	●	●	●	●
3.90	43	75	●	●	●	○	●
4.00	43	75	●	●	●	●	●
4.10	43	75	●	●	●	○	●
4.20	43	75	●	●	●	●	●
4.25	43	75	●				
4.30	47	80	●	●	●	○	○
4.40	47	80	●	●	●	○	○
4.50	47	80	●	●	●	●	●
4.60	47	80	●	●	●	○	●
4.70	47	80	●	●	●	○	○
4.75	47	80	●		○		
4.80	52	86	●	●	●	●	○
4.90	52	86	●	●	●	○	○
5.00	52	86	●	●	●	●	●
5.10	52	86	●	●	●	○	○
5.20	52	86	●	●	●	○	●
5.25	52	86	●				
5.30	52	86	●	●	●	○	○
5.40	57	93	●	●	●	○	○
5.50	57	93	●	●	●	●	●
5.60	57	93	●	●	●	○	●
5.70	57	93	●	●	●	○	○
5.75	57	93	●				
5.80	57	93	●	●	●	○	○
5.90	57	93	●	●	●	○	○
6.00	57	93	●	●	●	●	●
6.10	63	101	●	●	●	○	○
6.20	63	101	●	●	●	○	○

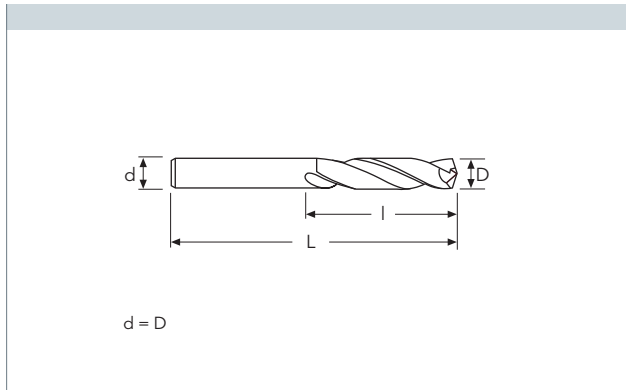
● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 338

138N - 1386STI - 138NTI - 138HB - 138WB (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



HSS	HSS	HSS	HSS	HSS
OX	TiN	TiN	BR	BR

D(h8)	I	L	Stock	Stock	Stock	Stock	Stock
mm 6.25	63	101	●				
6.30	63	101	●	●	●	○	○
6.40	63	101	●	●	●	○	○
6.50	63	101	●	●	●	●	●
6.60	63	101	●	●	●	○	○
6.70	63	101	●	●	●	○	○
6.75	69	109	●				
6.80	69	109	●	●	●	○	●
6.90	69	109	●	●	○	○	○
7.00	69	109	●	●	●	●	●
7.10	69	109	●	●	○	○	○
7.20	69	109	●	●	●	○	○
7.25	69	109	●				
7.30	69	109	●	●	●	○	○
7.40	69	109	●	●	●	○	○
7.50	69	109	●	●	●	●	●
7.60	75	117	●	●	○	○	○
7.70	75	117	●	●	●	○	○
7.75	75	117	●				
7.80	75	117	●	●	●	●	○
7.90	75	117	●	●	●	○	○
8.00	75	117	●	●	●	●	●
8.10	75	117	●	●	●	○	○
8.20	75	117	●	●	●	○	○
8.25	75	117	●				
8.30	75	117	●	●	●	○	○
8.40	75	117	●	●	○	○	○
8.50	75	117	●	●	●	●	●
8.60	81	125	●	●	●	○	○
8.70	81	125	●	●	●	○	○
8.75	81	125	●				
8.80	81	125	●	●	●	○	○
8.90	81	125	●	●	●	○	○
9.00	81	125	●	●	●	●	●
9.10	81	125	●	●	○	○	○
9.20	81	125	●	●	○	○	○

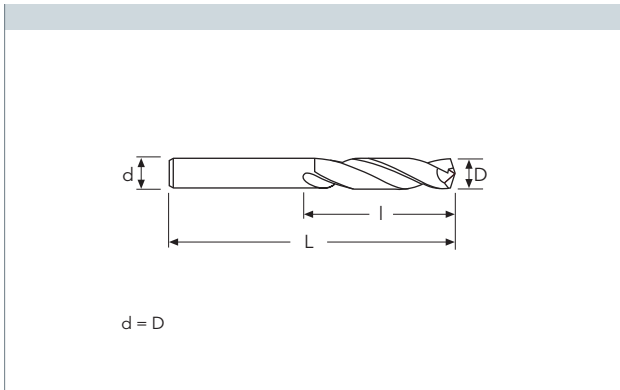
● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 338

138N - 1386STI - 138NTI - 138HB - 138WB (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



HSS	HSS	HSS	HSS	HSS
OX	TiN	TiN	BR	BR

D(h8)	I	L	Stock	Stock	Stock	Stock	Stock
mm 9.25	81	125	●	●	○	○	○
9.30	81	125	●	●	○	○	○
9.40	81	125	●	●	○	○	○
9.50	81	125	●	●	●	●	●
9.60	87	133	●	●	○	○	○
9.70	87	133	●	●	○	○	○
9.75	87	133	●	●	○	○	○
9.80	87	133	●	●	○	○	○
9.90	87	133	●	●	○	○	○
10.00	87	133	●	●	●	●	●
10.10	87	133	●	●			
10.20	87	133	●	●	●		
10.25	87	133	●				
10.30	87	133	●	●			
10.40	87	133	●	●			
10.50	87	133	●	●	●	○	○
10.60	87	133	●	●			
10.70	94	142	●	●			
10.75	94	142	●				
10.80	94	142	●	●			
10.90	94	142	●	●			
11.00	94	142	●	●	●	○	○
11.10	94	142	●	●			
11.20	94	142	●	●			
11.25	94	142	●				
11.30	94	142	●	●			
11.40	94	142	●	●			
11.50	94	142	●	●	●	○	○
11.60	94	142	●	●			
11.70	94	142	●	●			
11.75	94	142	●				
11.80	94	142	●	●			
11.90	101	151	●	●			
12.00	101	151	●	●	●	○	○
12.10	101	151	●	●			
12.20	101	151	●	●			

● stock standard ○ non-standard stock EX stock exhaustion

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138N - 1386STI - 138NTI - 138HB - 138WB (h8)

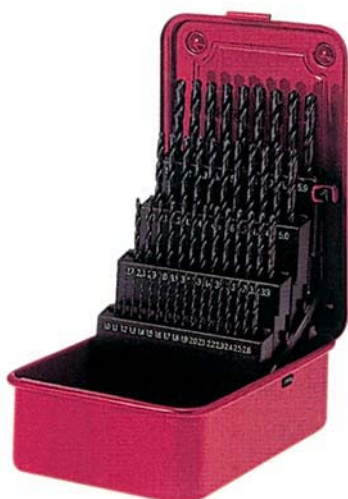
Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



<p>d = D</p>					
	HSS	HSS	HSS	HSS	HSS
	OX	TiN	TiN	BR	BR

D(h8)	I	L	Stock	Stock	Stock	Stock	Stock
mm 12.25	101	151	●				
12.30	101	151	●	●			
12.40	101	151	●	●			
12.50	101	151	●	●	●	○	○
12.60	101	151	●	●			
12.70	101	151	●	●			
12.75	101	151	●	●			
12.80	101	151	●	●			
12.90	101	151	●	●			
13.00	101	151	●	●	●	○	○
13.25	108	160	●				
13.50	108	160	●		●		
13.75	108	160	●				
14.00	108	160	●		●		
14.25	114	169	●				
14.50	114	169	●		●		
14.75	114	169	●				
15.00	114	169	●		●		
15.25	120	178	●				
15.50	120	178	●		●		
15.75	120	178	●				
16.00	120	178	●		●		
16.25	125	184	●				
16.50	125	184	●				
16.75	125	184	○				
17.00	125	184	●				
17.50	130	191	●				
18.00	130	191	●				
18.50	135	198	●				
19.00	135	198	●				
19.50	140	205	●				
20.00	140	205	●				

● stock standard ○ non-standard stock EX stock exhaustion



138NA01A
Set 50pcs.
 138N DIN338 HSS
 Ø1mm~Ø5,9mm x 0,1mm



138NA01B
Set 41pcs.
 138N DIN338 HSS
 Ø6mm~Ø10mm x 0,1mm



138NA05C
Set 25pcs.
 138N DIN338 HSS
 Ø1mm~Ø13mm x 0,5mm



1386STIA01A
Set 50pcs.
 1386STI DIN338 HSS TIN POINTED
 Ø1mm~Ø5,9mm x 0,1mm



1386STIA01B
Set 41pcs.
 1386STI DIN338 HSS TIN POINTED
 Ø6mm~Ø10mm x 0,1mm



1386STIA05C
Set 25pcs.
 1386STI DIN338 HSS TIN POINTED
 Ø1mm~Ø13mm x 0,5mm

	DIN 338
PAGE 230-232	

238NVA 2386STI*



238NVA - 2386STI (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33

d = D

NH

HSS/CO

HT

130°

30°

SPLIT POINT

HSS/Co

TiN

135°

33°

D(h8)	I	L	Stock	Stock
mm 1.00	12	34	●	●*
1.10	14	36	●	●*
1.20	16	38	●	●*
1.25	16	38	●	
1.30	16	38	●	●*
1.40	18	40	●	●*
1.50	18	40	●	●*
1.60	20	43	●	●
1.70	20	43	●	●
1.75	22	46	●	
1.80	22	46	●	●
1.90	22	46	●	●
2.00	24	49	●	●
2.10	24	49	●	●
2.20	27	53	●	●
2.25	27	53	●	
2.30	27	53	●	●
2.40	30	57	●	●
2.50	30	57	●	●
2.60	30	57	●	●
2.70	33	61	●	●
2.75	33	61	●	
2.80	33	61	●	●
2.90	33	61	●	●
3.00	33	61	●	●
3.10	36	65	●	●
3.20	36	65	●	●
3.25	36	65	●	
3.30	36	65	●	●
3.40	39	70	●	●
3.50	39	70	●	●
3.60	39	70	●	●
3.70	39	70	●	●
3.75	39	70	●	
3.80	43	75	●	●
3.90	43	75	●	●

* N TYPE ≤ mm. 1.5 = 2385NTI

● stock standard ○ non-standard stock EX stock exhaustion

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DIN 338

238NVA - 2386STI (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

NH

HSS/CO

HT

130°

30°

SPLIT POINT

HSS/Co

TiN

135°

33°

D(h8)	I	L	Stock	Stock
mm 4.00	43	75	●	●
4.10	43	75	●	●
4.20	43	75	●	●
4.25	43	75	●	●
4.30	47	80	●	●
4.40	47	80	●	●
4.50	47	80	●	●
4.60	47	80	●	●
4.70	47	80	●	●
4.75	47	80	●	●
4.80	52	86	●	●
4.90	52	86	●	●
5.00	52	86	●	●
5.10	52	86	●	●
5.20	52	86	●	●
5.25	52	86	●	●
5.30	52	86	●	●
5.40	57	93	●	●
5.50	57	93	●	●
5.60	57	93	●	●
5.70	57	93	●	●
5.75	57	93	●	●
5.80	57	93	●	●
5.90	57	93	●	●
6.00	57	93	●	●
6.10	63	101	●	●
6.20	63	101	●	●
6.25	63	101	●	●
6.30	63	101	●	●
6.40	63	101	●	●
6.50	63	101	●	●
6.60	63	101	●	●
6.70	63	101	●	●
6.75	69	109	●	●
6.80	69	109	●	●
6.90	69	109	●	●

● stock standard ○ non-standard stock EX stock exhaustion



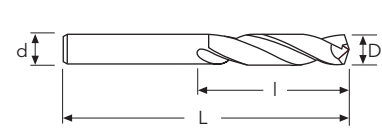
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DIN 338


238NVA - 2386STI (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33







d = D




NH




HSS/CO




HT




130°




30°




SPLIT POINT




HSS/Co



TiN



135°



33°

D(h8)	I	L	Stock	Stock
mm 7.00	69	109	●	●
7.10	69	109	●	●
7.20	69	109	●	●
7.25	69	109	●	●
7.30	69	109	●	●
7.40	69	109	●	●
7.50	69	109	●	●
7.60	75	117	●	●
7.70	75	117	●	●
7.75	75	117	●	●
7.80	75	117	●	●
7.90	75	117	●	●
8.00	75	117	●	●
8.10	75	117	●	●
8.20	75	117	●	●
8.25	75	117	●	●
8.30	75	117	●	●
8.40	75	117	●	●
8.50	75	117	●	●
8.60	81	125	●	●
8.70	81	125	●	●
8.75	81	125	●	●
8.80	81	125	●	●
8.90	81	125	●	●
9.00	81	125	●	●
9.10	81	125	●	●
9.20	81	125	●	●
9.25	81	125	●	●
9.30	81	125	●	●
9.40	81	125	●	●
9.50	81	125	●	●
9.60	87	133	●	●
9.70	87	133	●	●
9.75	87	133	●	●
9.80	87	133	●	●
9.90	87	133	●	●

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
PAGE 230-232

DIN 338

238NVA - 2386STI (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

NH

HSS/CO

HT

130°

30°

SPLIT POINT

HSS/Co

TiN

135°

33°

D(h8)	I	L	Stock	Stock
mm 10.00	87	133	●	●
10.10	87	133	●	●
10.20	87	133	●	●
10.30	87	133		●
10.40	87	133		●
10.50	87	133	●	●
10.60	87	133		●
10.70	87	133		●
10.80	94	142		●
10.90	94	142		●
11.00	94	142	●	●
11.10	94	142		●
11.20	94	142		●
11.30	94	142		●
11.40	94	142		●
11.50	94	142	●	●
11.60	94	142		●
11.70	94	142		●
11.80	94	142		●
11.90	101	151		●
12.00	101	151	●	●
12.10	101	151		●
12.20	101	151		●
12.30	101	151		●
12.40	101	151		●
12.50	101	151	●	●
12.60	101	151		●
12.70	101	151		●
12.80	101	151		●
12.90	101	151		●
13.00	101	151	●	●
13.50	108	160	●	
14.00	108	160	●	
14.50	114	169	●	
15.00	114	169	●	
15.50	120	178	●	

● stock standard ○ non-standard stock EX stock exhaustion


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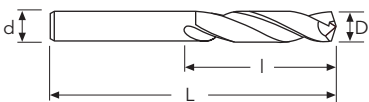
DIN
338

238NVA 2386STI





238NVA - 2386STI (h8)


Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33





d = D


 NH


 SPLIT POINT


 HSS/CO


 HT


 HSS/Co

 TiN

 130°

 135°

 30°

 33°

D(h8)	I	L	Stock	Stock
mm 16.00	120	178	●	
16.50	125	184	●	
17.00	125	184	●	
17.50	130	191	●	
18.00	130	191	●	
18.50	135	198	●	
19.00	135	198	●	
19.50	104	205	○	
20.00	104	205	●	

● stock standard ○ non-standard stock EX stock exhaustion

n
PAGE 230

Vf

DIN
340

234NVA - 234LS - 234LSTH (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

HSS/CO

HT

HSS/CO

OX

HSS/CO

PV15

D(h8)	I	L	Stock	Stock	Stock
mm 0.50	12	32	●*		
0.60	15	35	●*		
0.70	21	42	●*		
0.80	25	46	●*		
0.90	29	51	●*		
1.00	33	56	●*		
1.10	37	60	●*		
1.20	41	65	●*		
1.30	41	65	●*		
1.40	45	70	●*		
1.50	45	70	●*		
1.60	50	76	●*		
1.70	50	76	●*		
1.80	53	80	●*		
1.90	53	80	●*		
2.00	56	85	●	●	●
2.10	56	85	●	●	●
2.20	59	90	●	●	●
2.30	59	90	●	●	●
2.40	62	95	●	●	●
2.50	62	95	●	●	●
2.60	62	95	●	●	●
2.70	66	100	●	●	●
2.80	66	100	●	○	●
2.90	66	100	●	●	●
3.00	66	100	●	●	●
3.10	69	106	●	●	●
3.20	69	106	●	●	●
3.30	69	106	●	●	●
3.40	73	112	●	●	●
3.50	73	112	●	●	●
3.60	73	112	●	●	●
3.70	73	112	●	●	●
3.80	78	119	●	●	●
3.90	78	119	●	●	●
4.00	78	119	●	●	●

* ≤ mm. 1.9 = 134N HSS

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 340

234NVA - 234LS - 234LSTH (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

HSS/CO HT	HSS/CO OX	HSS/CO PV15

D(h8)	I	L	Stock	Stock	Stock
mm 4.10	78	119	●		
4.20	78	119	●	●	●
4.30	82	126	●		
4.40	82	126	●		
4.50	82	126	●	●	●
4.60	82	126	●		
4.70	82	126	●		
4.80	87	132	●	●	●
4.90	87	132	●		
5.00	87	132	●	●	●
5.10	87	132	●		
5.20	87	132	●	●	●
5.30	87	132	●		
5.40	91	139	●		
5.50	91	139	●	●	●
5.60	91	139	●		
5.70	91	139	●		
5.80	91	139	●	●	●
5.90	91	139	●		
6.00	91	139	●	●	●
6.10	97	148	●		
6.20	97	148	●	●	●
6.30	97	148	●		
6.40	97	148	○		
6.50	97	148	●	●	●
6.60	97	148	●		
6.70	97	148	●		
6.80	102	156	●	●	●
6.90	102	156	●		
7.00	102	156	●	●	●
7.10	102	156	●		
7.20	102	156	●	●	○
7.30	102	156	○		
7.40	102	156	●		
7.50	102	156	●	●	●
7.60	109	165	●		

● stock standard ○ non-standard stock EX stock exhaustion

n
PAGE 230

Vf

DIN
340

234NVA - 234LS - 234LSTH (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



d = D

HSS/CO

HT

HSS/CO

OX

HSS/CO

PV15

D(h8)	I	L	Stock	Stock	Stock
mm 7.70	109	165	●		
7.80	109	165	●	●	○
7.90	109	165	●		
8.00	109	165	●	●	●
8.10	109	165	●		
8.20	109	165	●	●	○
8.30	109	165	○		
8.40	109	165	○		
8.50	109	165	●	●	●
8.60	115	175	●		
8.70	115	175	●		
8.80	115	175	●		
8.90	115	175	●		
9.00	115	175	●	●	●
9.10	115	175	●		
9.20	115	175	●		
9.30	115	175	●		
9.40	115	175	●		
9.50	115	175	●	●	●
9.60	121	184	●		
9.70	121	184	●		
9.80	121	184	●	●	○
9.90	121	184	●		
10.00	121	184	●	●	●
10.20	121	184	●		
10.50	121	184	●	●	●
10.80	128	195	●		
11.00	128	195	●	●	●
11.20	128	195	●		
11.50	128	195	●	●	●
11.80	128	195	●		
12.00	134	205	●	●	●
12.50	134	205		●	●
13.00	134	205		●	●

● stock standard ○ non-standard stock EX stock exhaustion

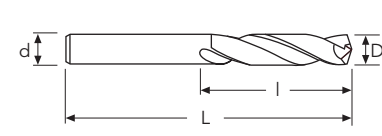

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DIN 1869 1


2691LS - 2691LSTH (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33






d = D



LS




LS

HSS/Co


BR

HSS/CO


PV15




130°



130°



35~40°



35~40°

D(h8)	I	L	Stock	Stock
mm 2.00	85	125	●	●
2.25	90	135	○	○
2.50	95	140	●	●
2.75	100	150	○	○
3.00	100	150	●	●
3.25	105	155	●	○
3.50	115	165	●	●
3.75	115	165	○	○
4.00	120	175	●	●
4.25	120	175	●	○
4.50	125	185	●	●
4.75	125	185	○	○
5.00	135	195	●	●
5.25	135	195	●	○
5.50	140	205	●	●
5.75	140	205	○	○
6.00	140	205	●	●
6.25	150	215	○	○
6.50	150	215	●	●
6.75	155	225	●	○
7.00	155	225	●	●
7.25	155	225	○	○
7.50	155	225	●	●
7.75	165	240	○	○
8.00	165	240	●	●
8.25	165	240	○	○
8.50	165	240	●	●
8.75	175	250	○	○
9.00	175	250	●	●
9.25	175	250	○	○
9.50	175	250	●	●
9.75	185	265	○	○
10.00	185	265	●	●
10.50	185	265	●	●
11.00	195	280	●	●
11.50	195	280	●	●

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 1869 1



2691LS - 2691LSTH (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33

d = D

LS

HSS/Co
BR

130°

35~40°

LS

HSS/CO
PV15

130°

35~40°

D	I	L	Stock	Stock
mm 12.00	205	295	●	●
12.50	205	295	●	●
13.00	205	295	●	●

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN
1869
2-3

1692LS - 1693LS (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~20
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



LS

HSS

BR

130°

35-40°

LS

HSS

BR

130°

35-40°

D	I	L	Stock	Stock
mm 3.00	130	190	●	
3.50	145	210	●	
3.50	180	265		●
4.00	150	220	●	
4.00	190	280		●
4.50	160	235	●	
4.50	200	295		●
5.00	170	245	●	
5.00	210	315		●
5.50	180	260	●	
5.50	225	330		●
6.00	180	260	●	
6.00	225	330		●
6.50	190	275	●	
6.50	235	350		●
7.00	200	290	●	
7.00	250	370		●
7.50	200	290	●	
7.50	250	370		●
8.00	210	305	●	
8.00	265	390		●
8.50	210	305	●	
8.50	265	390		●
9.00	220	320	●	
9.00	280	410		●
9.50	220	320	●	
9.50	280	410		●
10.00	235	340	●	
10.00	295	430		●
10.50	235	340	●	
10.50	295	430		●
11.00	250	365	●	
11.00	310	455		●
12.00	260	375	●	
12.00	330	480		●

● stock standard ○ non-standard stock EX stock exhaustion

	DIN 345
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145N - 145NTI - 245N (h8)

Ø mm	3.1~6	6.1~10	10.1~18	18.1~30	30.1~50	50.1~80
tol. D µ	0 / -18	0 / -22	0 / -27	0 / -33	0 / -39	0 / -46



	HSS	HSS	HSS/CO
	OX	TiN	HT
	118°	118°	130°
	25-30°	25-30°	30°

D(h8)	I	L	MT	Stock	Stock	Stock
mm 5.00	52	133	1	●		
5.25	52	133	1	○		
5.50	57	138	1	●		
5.75	57	138	1	○		
6.00	57	138	1	●		
6.25	63	144	1	○		
6.50	63	144	1	●		
6.75	69	150	1	●		
7.00	69	150	1	●		
7.25	69	150	1	○		
7.50	69	150	1	●		
7.75	75	156	1	○		
8.00	75	156	1	●		
8.25	75	156	1	○		
8.50	75	156	1	●		
8.75	81	162	1	○		
9.00	81	162	1	●		
9.25	81	162	1	○		
9.50	81	162	1	●		
9.75	87	168	1	○		
10.00	87	168	1	●		
10.25	87	168	1	●		
10.50	87	168	1	●		
10.75	94	175	1	○		
11.00	94	175	1	●		
11.25	94	175	1	○		
11.50	94	175	1	●		
11.75	94	175	1	○		
12.00	101	182	1	●		
12.25	101	182	1	○		
12.50	101	182	1	●		
12.75	101	182	1	○		
13.00	101	182	1	●	●	●
13.25	108	189	1	●		
13.50	108	189	1	●	●	●
13.75	108	189	1	●		

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 345

145N - 145NTI - 245N (h8)

Ø mm	3.1~6	6.1~10	10.1~18	18.1~30	30.1~50	50.1~80
tol. D µ	0 / -18	0 / -22	0 / -27	0 / -33	0 / -39	0 / -46



D(h8)	I	L	MT	Stock	Stock	Stock
mm 14.00	108	189	1	●	●	●
14.25	114	212	2	●	●	●
14.50	114	212	2	●	●	●
14.75	114	212	2	●	●	●
15.00	114	212	2	●	●	●
15.25	120	218	2	●	●	●
15.50	120	218	2	●	●	●
15.75	120	218	2	●	●	●
16.00	120	218	2	●	●	●
16.25	125	223	2	●	●	●
16.50	125	223	2	●	●	●
16.75	125	223	2	●	●	●
17.00	125	223	2	●	●	●
17.25	130	228	2	●	●	●
17.50	130	228	2	●	●	●
17.75	130	228	2	●	●	●
18.00	130	228	2	●	●	●
18.25	135	233	2	●	●	●
18.50	135	233	2	●	●	●
18.75	135	233	2	●	●	●
19.00	135	233	2	●	●	●
19.25	140	238	2	●	●	●
19.50	140	238	2	●	●	●
19.75	140	238	2	●	●	●
20.00	140	238	2	●	●	●
20.25	145	243	2	●	●	●
20.50	145	243	2	●	●	●
20.75	145	243	2	●	●	●
21.00	145	243	2	●	●	●
21.25	150	248	2	●	●	●
21.50	150	248	2	●	●	●
21.75	150	248	2	●	●	●
22.00	150	248	2	●	●	●
22.25	150	248	2	●	●	●
22.50	155	253	2	●	●	●
22.75	155	253	2	●	●	●

● stock standard ○ non-standard stock EX stock exhaustion

	DIN 345
PAGE 230	

145N - 145NTI - 245N (h8)

Ø mm	3.1~6	6.1~10	10.1~18	18.1~30	30.1~50	50.1~80
tol. D µ	0 / -18	0 / -22	0 / -27	0 / -33	0 / -39	0 / -46



	HSS	HSS	HSS/CO
	OX	TiN	HT

D(h8)	I	L	MT	Stock	Stock	Stock
mm 23.00	155	253	2	●	●	●
23.25	155	276	3	●		
23.50	155	276	3	●	●	●
23.75	160	281	3	●		
24.00	160	281	3	●	●	●
24.25	160	281	3	●		
24.50	160	281	3	●	●	●
24.75	160	281	3	●		
25.00	160	281	3	●	●	●
25.25	165	286	3	○		
25.50	165	286	3	●	○	●
25.75	165	286	3	○		
26.00	165	286	3	●	●	●
26.25	165	286	3	○		
26.50	165	286	3	●	○	●
26.75	170	291	3	○		
27.00	170	291	3	●	●	●
27.25	170	291	3	○		
27.50	170	291	3	●	○	●
27.75	170	291	3	○		
28.00	170	291	3	●	●	●
28.25	175	296	3	○		
28.50	175	296	3	●	○	●
28.75	175	296	3	○		
29.00	175	296	3	●	●	●
29.25	175	296	3	○		
29.50	175	296	3	●	○	●
29.75	175	296	3	○		
30.00	175	296	3	●	●	●
30.25	180	301	3	○		
30.50	180	301	3	●		
30.75	180	301	3	○		
31.00	180	301	3	●		
31.25	180	301	3	○		
31.50	180	301	3	●		
31.75	185	306	3	○		

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 345

145N - 145NTI - 245N (h8)

Ø mm	3.1~6	6.1~10	10.1~18	18.1~30	30.1~50	50.1~80
tol. D µ	0 / -18	0 / -22	0 / -27	0 / -33	0 / -39	0 / -46



	HSS OX	HSS TiN	HSS/CO HT
	Stock	Stock	Stock

D(h8)	I	L	MT	Stock	Stock	Stock
mm 32.00	185	334	4	●		
32.50	185	334	4	●		
33.00	185	334	4	●		
33.50	185	334	4	●		
34.00	190	339	4	●		
34.50	190	339	4	●		
35.00	190	339	4	●		
35.50	190	339	4	●		
36.00	195	344	4	●		
36.50	195	344	4	●		
37.00	195	344	4	●		
37.50	195	344	4	●		
38.00	200	349	4	●		
38.50	200	349	4	●		
39.00	200	349	4	●		
39.50	200	349	4	●		
40.00	200	349	4	●		
40.50	205	354	4	○		
41.00	205	354	4	●		
41.50	205	354	4	○		
42.00	205	354	4	●		
42.50	205	354	4	○		
43.00	210	359	4	●		
43.50	210	359	4	○		
44.00	210	359	4	●		
44.50	210	359	4	○		
45.00	210	359	4	●		
45.50	215	364	4	○		
46.00	215	364	4	●		
46.50	215	364	4	○		
47.00	215	364	4	●		
47.50	215	364	4	○		
48.00	220	369	4	●		
48.50	220	369	4	○		
49.00	220	369	4	●		
49.50	220	369	4	○		

● stock standard ○ non-standard stock EX stock exhaustion

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DIN
345

145N - 145NTI - 245N (h8)

Ø mm	3.1~6	6.1~10	10.1~18	18.1~30	30.1~50	50.1~80
tol. D µ	0 / -18	0 / -22	0 / -27	0 / -33	0 / -39	0 / -46

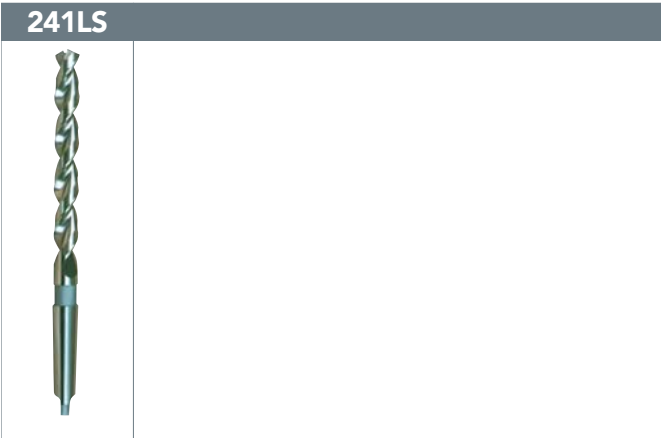


	 N	 N	 NH	
	HSS OX	HSS TiN	HSS/CO HT	
	 118°	 118°	 130°	
	 25-30°	 25-30°	 30°	
	Stock	Stock	Stock	
D(h8)	I	L	MT	
mm 50.00	220	369	4	●
51.00	225	412	5	○
52.00	225	412	5	○
53.00	225	412	5	○
54.00	230	417	5	○
55.00	230	417	5	●
56.00	230	417	5	○
57.00	235	422	5	○
58.00	235	422	5	○
59.00	235	422	5	○
60.00	235	422	5	●

● stock standard ○ non-standard stock EX stock exhaustion

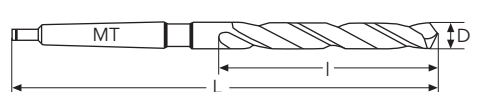

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**DIN
341**



241LS (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~30
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



LS

HSS/Co
BR

130°

35~40°

D(h8)	I	L	MT	Stock
mm 13.00	134	215	1	●
13.50	142	223	1	●
14.00	142	223	1	●
14.50	147	245	2	●
15.00	147	245	2	●
15.50	153	251	2	●
16.00	153	251	2	●
16.50	159	257	2	●
17.00	159	257	2	●
17.50	165	263	2	●
18.00	165	263	2	●
18.50	171	269	2	●
19.00	171	269	2	●
19.50	177	275	2	●
20.00	177	275	2	●
21.00	184	282	2	●
22.00	191	289	2	●
23.00	198	296	2	●
24.00	206	327	3	●
25.00	206	327	3	●
26.00	214	335	3	●
27.00	222	343	3	●
28.00	222	343	3	●
29.00	230	351	3	●
30.00	230	351	3	●

● stock standard ○ non-standard stock EX stock exhaustion

n **Vf**
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DIN 1870 1-2

2701LS - 2702LS (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~30
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33



LS

HSS/Co

BR

130°

35-40°

LS

HSS/Co

BR

130°

35-40°

D(h8)	I	L	MT	Stock	Stock
mm 13.00	205	310	1	●	●
13.00	260	395	1	●	●
13.50	220	325	1	●	●
13.50	275	410	1	●	●
14.00	220	325	1	●	●
14.00	275	410	1	●	●
14.50	220	340	2	●	●
14.50	275	425	2	●	●
15.00	220	340	2	●	●
15.00	275	425	2	●	●
15.50	230	355	2	●	●
15.50	295	445	2	●	●
16.00	230	355	2	●	●
16.00	295	445	2	●	●
16.50	230	355	2	●	●
16.50	295	445	2	●	●
17.00	230	355	2	●	●
17.00	295	445	2	●	●
17.50	245	370	2	●	●
17.50	310	465	2	●	●
18.00	245	370	2	●	●
18.00	310	465	2	●	●
18.50	245	370	2	●	●
18.50	310	465	2	●	●
19.00	245	370	2	●	●
19.00	310	465	2	●	●
19.50	260	385	2	●	●
19.50	325	490	2	●	●
20.00	260	385	2	●	●
20.00	325	490	2	●	●
20.50	260	385	2	○	○
20.50	325	490	2	○	○
21.00	260	385	2	●	●
21.00	325	490	2	●	●
21.50	270	405	2	○	○
21.50	345	515	2	○	○
22.00	270	405	2	●	●

● stock standard ○ non-standard stock EX stock exhaustion

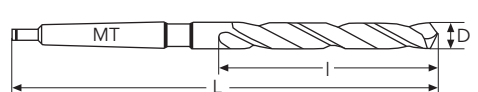

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
**DIN
1870
1-2**






2701LS - 2702LS (h8)

Ø mm	1~3	3.1~6	6.1~10	10.1~18	18.1~30
tol. D µ	0 / -14	0 / -18	0 / -22	0 / -27	0 / -33





D(h8)	I	L	MT	Stock	Stock
mm 22.00	345	515	2		●
22.50	270	405	2	○	
22.50	345	515	2		○
23.00	270	405	2	●	
23.00	345	515	2		●
23.50	270	425	3	○	
23.50	345	535	3		○
24.00	290	440	3	●	
24.00	365	555	3		●
24.50	290	440	3	○	
24.50	365	555	3		○
25.00	290	440	3	●	
25.00	365	555	3		●
25.50	290	440	3	○	
25.50	365	555	3		○
26.00	290	440	3	●	
26.00	365	555	3		●
26.50	290	440	3	○	
26.50	365	555	3		○
27.00	305	460	3	●	
27.00	385	580	3		●
27.50	305	460	3	○	
27.50	385	580	3		○
28.00	305	460	3	●	
28.00	385	580	3		●
28.50	305	460	3	○	
28.50	385	580	3		○
29.00	305	460	3	●	
29.00	385	580	3		●
29.50	305	460	3	○	
29.50	385	580	3		○
30.00	305	460	3	●	
30.00	385	580	3		●

● stock standard ○ non-standard stock EX stock exhaustion