

PREMIUM HSS-PM MULTI-1 DRILLS

CDRA05, CDRA06, CDRA07 SERIES

WORK MATERIAL DIAMETER	STRUCTURAL STEEL CARBON STEEL			ALLOY STEEL			MOLD STEEL STAINLESS STEEL		
	RPM	FEED		RPM	FEED		RPM	FEED	
		(IPR)	(inch/min)		(IPR)	(inch/min)		(IPR)	(inch/min)
3/32	5000	.0030	15.00	4000	.0030	12.00	1800	.0030	5.40
1/8	3800	.0050	19.00	3000	.0040	12.00	1400	.0040	5.60
5/32	3000	.0060	18.00	2400	.0050	12.00	1100	.0040	4.40
3/16	2500	.0070	17.50	2000	.0050	10.00	900	.0040	3.60
1/4	1900	.0080	15.20	1500	.0070	10.50	700	.0050	3.50
5/16	1500	.0090	13.50	1200	.0080	9.60	550	.0070	3.85
3/8	1250	.0100	12.50	1000	.0090	9.00	450	.0080	3.60
1/2	950	.0110	10.45	750	.0100	7.50	350	.0090	3.15

WORK MATERIAL DIAMETER	NICKEL ALLOY TITANIUM ALLOY			CAST IRON			ALUMINIUM ALLOY COPPER ALLOY NONFERROUS ALLOY		
	RPM	FEED		RPM	FEED		RPM	FEED	
		(IPR)	(inch/min)		(IPR)	(inch/min)		(IPR)	(inch/min)
3/32	800	.0010	0.80	5700	.0040	22.80	8700	.0040	34.80
1/8	600	.0020	1.20	4250	.0060	25.50	6500	.0060	39.00
5/32	500	.0020	1.00	3400	.0070	23.80	5200	.0070	36.40
3/16	400	.0020	0.80	2850	.0080	22.80	4300	.0080	34.40
1/4	300	.0030	0.90	2100	.0100	21.00	3200	.0090	28.80
5/16	250	.0030	0.75	1750	.0120	21.00	2600	.0110	28.60
3/8	200	.0040	0.80	1450	.0120	17.40	2200	.0130	28.60
1/2	150	.0050	0.75	1100	.0150	16.50	1650	.0150	24.75

N = R.P.M
S = Inch per Revolution(inch/rev.)

i-DREAM DRILLS

DREAM DRILLS

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

STANDARD CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

STRAIGHT SHANK DRILLS

AIRCRAFT DRILLS

SILVER & DEMING DRILLS

TAPER SHANK DRILLS

NC SPOTTING DRILLS

COMBINATION DRILL & COUNTER SINK

SPADE DRILLS

TECHNICAL DATA

HSS-EX, HPD-SUS TWIST DRILLS SPEED and FEED DATA

DJ543, DJ544 SERIES

Please decrease the feed rate 15% in JOBBERS SERIES.
Please decrease the feed and speed 20% for cast surface.

WORK MATERIAL DIAMETER	STAINLESS STEELS (SUS304, 200)		STAINLESS STEELS (SUS420, 440)		ALUMINUM & ALUMINUM ALLOY		PLASTICS, COPPER, COPPER ALLOYS		MILD STEELS, LOW CARBON STEELS	
	N	S	N	S	N	S	N	S	N	S
2.0	2600	0.003	3100	0.003	11000	0.004	5600	0.002	6300	0.003
3.0	1800	0.003	2100	0.003	7350	0.005	3750	0.003	4200	0.005
4.0	1300	0.004	1600	0.004	7050	0.007	2800	0.004	3200	0.006
5.0	1050	0.006	1250	0.006	5500	0.009	2250	0.005	2500	0.006
6.0	900	0.007	1050	0.007	4600	0.010	1850	0.006	2100	0.007
8.0	650	0.009	800	0.009	3500	0.013	1350	0.008	1550	0.009
10.0	550	0.010	630	0.012	2800	0.016	1100	0.010	1250	0.010
12.0	450	0.013	530	0.014	2300	0.020	950	0.012	1050	0.013
14.0	400	0.014	450	0.017	2050	0.022	800	0.013	900	0.014
16.0	350	0.016	390	0.019	1750	0.024	700	0.014	790	0.016
18.0	300	0.017	350	0.020	1600	0.028	620	0.016	700	0.018
20.0	260	0.018	320	0.021	1450	0.030	560	0.016	620	0.019

N = R.P.M
S = Inch per Revolution(inch/rev.)



HSS & HSSCo5, STRAIGHT SHANK, GOLD-P COATED

D1GP182, D1GP139, D1GP138, D2GP185, D2GP186, D2GP187, DLGP195, SERIES

WORK MATERIAL			CARBON STEELS		CARBON STEELS		ALLOY STEELS		STAINLESS STEELS	
HARDNESS					~ HRC23		HRC23 ~ 34		~ HRC23	
STRENGTH			~ 570N/mm ²		~ 830N/mm ²		830~1110N/mm ²		~ 830N/mm ²	
DIAMETER			N	S	N	S	N	S	N	S
Fractional	Decimal	Metric								
3/64	.0469	1.0	14000	0.0008	12500	0.0008	7700	0.0008	7000	0.0008
#47	.0785	2.0	7000	0.0023	6100	0.0024	3850	0.0024	3500	0.0024
#32	.1160	3.0	4650	0.0038	4100	0.0031	2550	0.0031	2350	0.0031
#22	.1570	4.0	3500	0.0044	3050	0.0043	1950	0.0039	1750	0.0039
#9	.1960	5.0	2800	0.0049	2450	0.0043	1550	0.0039	1400	0.0039
B	.2380	6.0	2350	0.0056	2050	0.0051	1300	0.0047	1150	0.0047
J	.2770	7.0	2000	0.0064	1750	0.0059	1100	0.0055	1000	0.0055
O	.3160	8.0	1750	0.0072	1550	0.0071	960	0.0059	875	0.0059
T	.3580	9.0	1550	0.0077	1350	0.0087	855	0.0071	780	0.0071
X	.3970	10.0	1400	0.0084	1250	0.0087	770	0.0071	700	0.0071
7/16	.4375	11.0	1250	0.0087	1100	0.0087	700	0.0071	650	0.0071
15/32	.4688	12.0	1150	0.0090	1000	0.0087	650	0.0079	585	0.0079
1/2	.5000	13.0	1050	0.0090	950	0.0087	595	0.0079	540	0.0079

WORK MATERIAL			TITANIUM ALLOYS		ALUMINUM ALLOYS, ZINC ALLOYS		MAGNESIUM ALLOYS	
HARDNESS								
STRENGTH			~410N/mm ²					
DIAMETER			N	S	N	S	N	S
Fractional	Decimal	Metric						
3/64	.0469	1.0	8050	0.0008	30000	0.0008	11500	0.0012
#47	.0785	2.0	4050	0.0024	15000	0.0023	5800	0.0035
#32	.1160	3.0	2700	0.0031	9900	0.0038	3850	0.0051
#22	.1570	4.0	2000	0.0035	7450	0.0044	2900	0.0059
#9	.1960	5.0	1600	0.0039	5950	0.0049	2300	0.0067
B	.2380	6.0	1350	0.0047	4950	0.0056	1950	0.0075
J	.2770	7.0	1150	0.0055	4250	0.0064	1650	0.0087
O	.3160	8.0	1000	0.0059	3700	0.0072	1450	0.0094
T	.3580	9.0	895	0.0067	3300	0.0079	1280	0.0106
X	.3970	10.0	805	0.0071	3000	0.0090	1150	0.0114
7/16	.4375	11.0	730	0.0071	2700	0.0090	1050	0.0118
15/32	.4688	12.0	670	0.0079	2480	0.0090	960	0.0122
1/2	.5000	13.0	620	0.0079	2300	0.0090	890	0.0122

N = R.P.M

S = Inch per Revolution(inch/rev.)

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE, GOLD-P COATED

DLGP511, DLGP513, DLGP512, DLGP506 SERIES

WORK MATERIAL			CARBON STEELS ALLOY STEELS		TOOL STEELS HARDENED STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
HARDNESS			HRc15 ~ 30		HRc20 ~ 40					
STRENGTH			700 ~ 1000N/mm ²		800~1200N/mm ²					
DIAMETER			N	S	N	S	N	S	N	S
Fractional	Decimal	Metric								
3/64	.0469	1.0	8750	0.0008	6300	0.0008	16000	0.0008	9800	0.0008
#47	.0785	2.0	4400	0.0022	3150	0.0022	7900	0.0027	4900	0.0027
#32	.1160	3.0	2900	0.0032	2100	0.0032	5250	0.0043	3250	0.0043
#22	.1570	4.0	2200	0.0036	1600	0.0036	3950	0.0054	2450	0.0054
#9	.1960	5.0	1750	0.0041	1250	0.0041	3150	0.0054	1950	0.0054
B	.2380	6.0	1450	0.0047	1050	0.0047	2650	0.0069	1650	0.0069
J	.2770	7.0	1250	0.0054	900	0.0054	2250	0.0078	1400	0.0078
O	.3160	8.0	1100	0.0060	790	0.0060	1950	0.0087	1250	0.0087
T	.3580	9.0	975	0.0066	700	0.0066	1750	0.0095	1100	0.0095
X	.3970	10.0	875	0.0071	630	0.0071	1600	0.0108	980	0.0108
7/16	.4375	11.0	800	0.0077	575	0.0077	1450	0.0108	890	0.0108
15/32	.4688	12.0	730	0.0077	525	0.0077	1300	0.0108	815	0.0108
1/2	.5000	13.0	675	0.0077	485	0.0077	1200	0.0108	755	0.0108

N = R.P.M
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I-DREAM DRILLS

DREAM DRILLS

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

STANDARD CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

STRAIGHT SHANK DRILLS

AIRCRAFT DRILLS

SILVER & DEMING DRILLS

TAPER SHANK DRILLS

NC SPOTTING DRILLS

COMBINATION DRILL & COUNTER SINK

SPADE DRILLS

TECHNICAL DATA



HSS & HSSCo8, STRAIGHT SHANK SCREW MACHINE DRILLS

D1118, D1115, D1119, D2146, D2147, D2148 SERIES

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS	
			~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34		HRc34 ~ 38	
HARDNESS										
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S
0 ~ 3/32	3380	.0010	2550	.0010	1900	.0006	2380	.0008	1400	.0006
3/32 ~ 5/32	2700	.0020	2000	.0020	1500	.0010	1880	.0020	1100	.0008
11/64 ~ 1/4	1700	.0025	1280	.0025	960	.0015	1190	.0025	700	.0010
17/64 ~ 23/64	1050	.0051	780	.0051	590	.0030	730	.0051	430	.0015
3/8 ~ 37/64	750	.0059	560	.0060	425	.0030	520	.0070	310	.0020
19/32 ~ 1	440	.0090	330	.0090	255	.0051	300	.0090	180	.0020
1 ~	260	.0110	195	.0110	145	.0070	180	.0070	107	.0030

WORK MATERIAL	STAINLESS STEELS		TITANIUM ALLOYS		TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
	HRc23						~ HRc21			
HARDNESS										
STRENGTH	830 N/mm ²		410 N/mm ²		~ 270 N/mm ²		~ 800 N/mm ²			
DIAMETER	N	S	N	S	N	S	N	S	N	S
0 ~ 3/32	2550	.0010	1400	.0008	3180	.0016	2250	.0010	6400	.0015
3/32 ~ 5/32	2000	.0020	1100	.0010	2500	.0020	2000	.0020	5000	.0025
11/64 ~ 1/4	1280	.0025	700	.0015	1590	.0025	1280	.0025	3200	.0030
17/64 ~ 23/64	780	.0051	430	.0030	970	.0051	780	.0051	2000	.0070
3/8 ~ 37/64	560	.0060	430	.0030	700	.0070	560	.0060	1400	.0078
19/32 ~ 1	330	.0090	180	.0051	440	.0090	330	.0090	820	.0118
1 ~	195	.0110	107	.0070	240	.1180	195	.0110	490	.0150

WORK MATERIAL	MAGNESIUM ALLOYS		ZINC ALLOYS		PLASTIC	
HARDNESS						
STRENGTH						
DIAMETER	N	S	N	S	N	S
0 ~ 3/32	8600	.0015	6400	.0015	3380	.0010
3/32 ~ 5/32	6800	.0025	5000	.0025	2700	.0020
11/64 ~ 1/4	4300	.0030	3200	.0030	1700	.0025
17/64 ~ 23/64	2600	.0070	2000	.0070	1050	.0051
3/8 ~ 37/64	1900	.0078	1400	.0078	750	.0060
19/32 ~ 1	1100	.0118	820	.0118	440	.0090
1 ~	660	.0150	490	.0150	260	.0110

N = R.P.M
S = Inch per Revolution (inch/rev.)



RECOMMENDED CUTTING CONDITIONS

CARBIDE

HSS

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE SCREW MACHINE, TIN COATED

DN514, DN516, DN515 SERIES

WORK MATERIAL	CARBON STEELS ALLOY STEELS		TOOL STEELS HARDENED STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
	HRC15 - 30		HRC20 ~ 40					
HARDNESS	700 ~ 1000 N/mm ²		800 ~ 1200 N/mm ²					
STRENGTH								
DIAMETER	N	S	N	S	N	S	N	S
~ 5/64	2630	.0012	2100	.0010	4200	.0023	1680	.0500
3/32 ~ 7/64	2100	.0015	1680	.0012	3300	.0031	1310	.0023
1/8 ~ 5/32	1680	.0020	1310	.0015	2630	.0039	1050	.0031
11/64 ~ 3/16	1310	.0023	1050	.0019	2100	.0051	840	.0039
13/64 ~ 15/64	1050	.0023	840	.0019	1680	.0051	660	.0039
1/4 ~ 9/32	840	.0031	660	.0023	1310	.0063	530	.0051
19/64 ~ 11/32	660	.0039	530	.0031	1050	.0078	420	.0067
23/64 ~ 7/16	530	.0051	420	.0039	840	.0098	330	.0082
29/64 ~ 9/16	420	.0051	330	.0039	660	.0098	260	.0082
37/64 ~ 45/64	330	.0059	260	.0051	530	.0118	210	.0098
23/32 ~ 7/8	260	.0078	210	.0059	420	.0157	170	.0118
57/64 ~ 1-1/8	210	.0098	170	.0078	330	.0196	130	.0196
1-9/64 ~	170	.0098	130	.0078	260	.0196	110	.0196

N = R.P.M
S =Inch per Revolution(inch/rev.)

I-DREAM DRILLS

DREAM DRILLS

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

STANDARD CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

STRAIGHT SHANK DRILLS

AIRCRAFT DRILLS

SILVER & DEMING DRILLS

TAPER SHANK DRILLS

NC SPOTTING DRILLS

COMBINATION DRILL & COUNTER SINK

SPADE DRILLS

TECHNICAL DATA

**HSSCo5, TAPER LENGTH STRAIGHT SHANK DRILL, TiCN COATED****DX517 SERIES**

WORK MATERIAL	CARBON STEELS ALLOY STEELS		TOOL STEELS HARDENED STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
	HRC15 ~ 30		HRC20 ~ 40					
HARDNESS	700 ~ 1000 N/mm ²		800 ~ 1200 N/mm ²					
STRENGTH								
DIAMETER	N	S	N	S	N	S	N	S
~ 5/64	4900	.0023	3400	.0023	8500	.0027	5400	.0027
3/32 ~ 7/64	3000	.0031	2350	.0031	5700	.0043	3500	.0043
1/8 ~ 5/32	2440	.0035	1800	.0035	4300	.0055	2700	.0055
11/64 ~ 15/64	1950	.0039	1400	.0039	3450	.0055	2150	.0055
1/4 ~ 9/32	1400	.0055	1000	.0055	2450	.0078	1550	.0078
19/64 ~ 5/16	1200	.0059	850	.0059	2100	.0086	1350	.0086
21/64 ~ 23/64	1100	.0066	800	.0066	1950	.0094	1200	.0094
3/8 ~ 25/64	950	.0071	660	.0071	1750	.0110	1050	.0110
13/32 ~ 7/16	900	.0078	630	.0078	1600	.0110	960	.0110
29/64 ~ 15/32	800	.0078	575	.0078	1450	.0110	900	.0110
31/64 ~ 1/2	720	.0078	500	.0078	1300	.0110	830	.0110

N = R.P.M

S = Inch per Revolution(inch/rev.)

HSSCo5, TAPER LENGTH STRAIGHT SHANK DRILL**DL517 SERIES**

WORK MATERIAL	CARBON STEELS ALLOY STEELS		TOOL STEELS HARDENED STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
	HRC15 ~ 30		HRC20 ~ 40					
HARDNESS	700 ~ 1000 N/mm ²		800 ~ 1200 N/mm ²					
STRENGTH								
DIAMETER	N	S	N	S	N	S	N	S
~ 5/64	3990	.0023	2770	.0023	6920	.0027	4400	.0027
3/32 ~ 7/64	2440	.0031	1910	.0031	4640	.0043	2850	.0043
1/8 ~ 5/32	1990	.0035	1470	.0035	3500	.0055	2200	.0055
11/64 ~ 15/64	1590	.0039	1140	.0039	2810	.0055	1750	.0055
1/4 ~ 9/32	1140	.0055	810	.0055	1990	.0078	1260	.0078
19/64 ~ 5/16	980	.0059	690	.0059	1710	.0086	1100	.0086
21/64 ~ 23/64	900	.0066	650	.0066	1590	.0094	980	.0094
3/8 ~ 25/64	770	.0071	540	.0071	1420	.0110	850	.0110
13/32 ~ 7/16	730	.0078	510	.0078	1300	.0110	780	.0110
29/64 ~ 15/32	650	.0078	470	.0078	1180	.0110	730	.0110
31/64 ~ 1/2	590	.0078	410	.0078	1060	.0110	680	.0110

N = R.P.M

S = Inch per Revolution(inch/rev.)

HSSCo8, STRAIGHT SHANK SCREW MACHINE
D4107 SERIES

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS		STAINLESS STEELS		TITANIUM ALLOYS	
	~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34		HRc34 ~ 38		HRc23					
HARDNESS	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²		830 N/mm ²		410 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S
2.5	4225	.0010	3200	.0010	2500	.0006	2980	.0008	1750	.0006	3200	.0010	1750	.0008
3.0	3375	.0020	2500	.0020	2000	.0010	2350	.0020	1375	.0008	2500	.0020	1375	.0010
5.0	2125	.0025	1600	.0025	1280	.0015	1500	.0025	875	.0010	1600	.0025	875	.0015
8.0	1310	.0051	975	.0051	785	.0030	910	.0051	535	.0015	975	.0051	535	.0030
11.0	935	.0059	700	.0059	565	.0030	650	.0071	385	.0020	700	.0059	535	.0030
19.0	550	.0091	410	.0091	340	.0051	375	.0091	225	.0020	410	.0091	225	.0051
31.0	325	.0110	244	.0110	193	.0071	225	.0071	134	.0030	244	.0110	134	.0071

WORK MATERIAL	TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		MAGNESIUM ALLOYS		ZINC ALLOYS		PLASTIC	
	~ HRc21		~ 800 N/mm ²									
HARDNESS	~ 270 N/mm ²		~ 800 N/mm ²									
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
2.5	3975	.0017	2800	.0010	7950	.0015	10700	.0015	7950	.0015	4225	.0010
3.0	3125	.0020	2500	.0020	6200	.0025	8450	.0025	6200	.0025	3350	.0020
5.0	2000	.0025	1600	.0025	3950	.0030	5350	.0030	3950	.0030	2125	.0025
8.0	1210	.0051	975	.0051	2490	.0071	3240	.0071	2490	.0071	1310	.0051
11.0	875	.0071	700	.0059	1740	.0079	2365	.0079	1740	.0079	935	.0059
19.0	550	.0091	410	.0091	1020	.0118	1370	.0118	1020	.0118	550	.0091
31.0	300	.0118	244	.0110	610	.0150	820	.0150	610	.0150	325	.0110

N = R.P.M
S = Inch per Revolution(inch/rev.)

I-DREAM DRILLS

DREAM DRILLS

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

STANDARD CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

STRAIGHT SHANK DRILLS

AIRCRAFT DRILLS

SILVER & DEMING DRILLS

TAPER SHANK DRILLS

NC SPOTTING DRILLS

COMBINATION DRILL & COUNTER SINK

SPADE DRILLS

TECHNICAL DATA



HSS & HSSCo5, AIRCRAFT EXTENSION DRILL 135° SPLIT POINT

DL601, DL602, DL603, D1631, D1632, D1633 SERIES

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS	
			~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34		HRc34 ~ 38	
HARDNESS										
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S
0 ~ 3/32	3380	.0010	2550	.0010	1900	.0006	2380	.0008	1400	.0006
3/32 ~ 5/32	2700	.0020	2000	.0020	1500	.0010	1880	.0020	1100	.0008
11/64 ~ 1/4	1700	.0025	1280	.0025	960	.0015	1190	.0025	700	.0010
17/64 ~ 23/64	1050	.0051	780	.0051	590	.0030	730	.0051	430	.0015
3/8 ~ 37/64	750	.0059	560	.0060	425	.0030	520	.0070	310	.0020
19/32 ~ 1	440	.0090	330	.0090	255	.0051	300	.0090	180	.0020
1 ~	260	.0110	195	.0110	145	.0070	180	.0070	107	.0030

WORK MATERIAL	STAINLESS STEELS		TITANIUM ALLOYS		TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
	HRc23						~ HRc21			
HARDNESS										
STRENGTH	830 N/mm ²		410 N/mm ²		~ 270 N/mm ²		~ 800 N/mm ²			
DIAMETER	N	S	N	S	N	S	N	S	N	S
0 ~ 3/32	2550	.0010	1400	.0008	3180	.0016	2250	.0010	6400	.0015
3/32 ~ 5/32	2000	.0020	1100	.0010	2500	.0020	2000	.0020	5000	.0025
11/64 ~ 1/4	1280	.0025	700	.0015	1590	.0025	1280	.0025	3200	.0030
17/64 ~ 23/64	780	.0051	430	.0030	970	.0051	780	.0051	2000	.0070
3/8 ~ 37/64	560	.0060	430	.0030	700	.0070	560	.0060	1400	.0078
19/32 ~ 1	330	.0090	180	.0051	440	.0090	330	.0090	820	.0118
1 ~	195	.0110	107	.0070	240	.1180	195	.0110	490	.0150

WORK MATERIAL	MAGNESIUM ALLOYS		ZINC ALLOYS		PLASTIC	
HARDNESS						
STRENGTH						
DIAMETER	N	S	N	S	N	S
0 ~ 3/32	8600	.0015	6400	.0015	3380	.0010
3/32 ~ 5/32	6800	.0025	5000	.0025	2700	.0020
11/64 ~ 1/4	4300	.0030	3200	.0030	1700	.0025
17/64 ~ 23/64	2600	.0070	2000	.0070	1050	.0051
3/8 ~ 37/64	1900	.0078	1400	.0078	750	.0060
19/32 ~ 1	1100	.0118	820	.0118	440	.0090
1 ~	660	.0150	490	.0150	260	.0110

N = R.P.M
S = Inch per Revolution (inch/rev.)

HSS(M2), 118° SPLIT POINT 3FLAT BLACK&GOLD SILVER & DEMING DRILLS

D1191 SERIES

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS		STAINLESS STEELS	
	N	S	N	S	N	S	N	S	N	S	N	S
HARDNESS			~ HRC23		~ HRC23 ~ 28		HRC23 ~ 34		HRC34 ~ 38		HRC23	
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²		830 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
1/2	645	.0067	480	.0067	370	.0035	440	.0067	265	.0020	480	.0067
3/4	440	.0091	330	.0091	255	.0051	300	.0091	180	.0020	330	.0091
1	325	.0110	245	.0110	185	.0063	220	.0110	133	.0030	245	.0110
1-9/32	260	.0110	195	.0110	145	.0071	180	.0110	107	.0030	195	.0110
1-1/2	220	.0130	165	.0130	120	.0076	150	.0130	90	.0030	165	.0130

WORK MATERIAL	TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		MAGNESIUM ALLOYS		ZINC ALLOYS		PLASTIC	
	N	S	N	S	N	S	N	S	N	S	N	S
HARDNESS			~ HRC21									
STRENGTH	~ 270 N/mm ²		~ 800 N/mm ²									
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
1/2	645	.0067	480	.0067	1200	.0100	1600	.0100	1200	.0100	645	.0067
3/4	440	.0091	330	.0091	820	.0118	1100	.0118	820	.0118	440	.0091
1	325	.0110	245	.0110	605	.0146	810	.0150	605	.0146	325	.0110
1-9/32	240	.0118	195	.0110	490	.0150	660	.0150	490	.0150	260	.0110
1-1/2	198	.0121	165	.0130	410	.0172	550	.0180	410	.0172	220	.0130

N = R.P.M
S = Inch per Revolution(inch/rev.)

i-DREAM DRILLS

DREAM DRILLS

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

STANDARD CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

STRAIGHT SHANK DRILLS

AIRCRAFT DRILLS

SILVER & DEMING DRILLS

TAPER SHANK DRILLS

NC SPOTTING DRILLS

COMBINATION DRILL & COUNTER SINK

COMBINATION DRILL & COUNTER SINK

TECHNICAL DATA



i-DREAM DRILLS

DREAM DRILLS

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

STANDARD CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

STRAIGHT SHANK DRILLS

AIRCRAFT DRILLS

SILVER & DEMING DRILLS

TAPER SHANK DRILLS

NC SPOTTING DRILLS

COMBINATION DRILL & COUNTER SINK

SPADE DRILLS

TECHNICAL DATA

HSS(M2) MORSE TAPER SHANK TWIST DRILL

D1211 SERIES

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS		STAINLESS STEELS	
			~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34		HRc34 ~ 38		HRc23	
HARDNESS												
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²		830 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
	1/2	645	.0067	480	.0067	370	.0035	440	.0067	265	.0020	480
3/4	440	.0091	330	.0091	255	.0051	300	.0091	180	.0020	330	.0091
1	325	.0110	245	.0110	185	.0063	220	.0110	133	.0030	245	.0110
1-17/64	260	.0110	195	.0110	145	.0071	180	.0110	107	.0030	195	.0110
1-1/2	220	.0130	165	.0130	120	.0076	150	.0130	90	.0030	165	.0130
1-31/32	165	.0130	125	.0130	93	.0079	115	.0130	68	.0030	125	.0130
2-3/8	140	.0157	105	.0157	78	.0091	95	.0157	57	.0039	105	.0157

WORK MATERIAL	TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		MAGNESIUM ALLOYS		ZINC ALLOYS		PLASTIC	
			~ HRc21									
HARDNESS												
STRENGTH	~ 270 N/mm ²		~ 800 N/mm ²									
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
	1/2	645	.0067	480	.0067	1200	.0100	1600	.0100	1200	.0100	645
3/4	440	.0091	330	.0091	820	.0118	1100	.0118	820	.0118	440	.0091
1	325	.0110	245	.0110	605	.0146	810	.0150	605	.0146	325	.0110
1-17/64	240	.0118	195	.0110	490	.0150	660	.0150	490	.0150	260	.0110
1-1/2	198	.0121	165	.0130	410	.0172	550	.0180	410	.0172	220	.0130
1-31/32	150	.0169	125	.0130	310	.0181	415	.0181	310	.0181	165	.0130
2-3/8	125	.0188	105	.0157	260	.0196	345	.0196	260	.0196	140	.0157

N = R.P.M
S = Inch per Revolution(inch/rev.)

HSSCo8, NC-SPOTTING DRILLS
D2N90 SERIES

WORK MATERIAL DIAMETER	CARBON STEELS		ALLOY STEELS		ALLOY STEELS, TOOL STEELS, HARDENED STEELS		STAINLESS STEELS		ALUMINUM, ALUMINUM ALLOYS	
	N	S	N	S	N	S	N	S	N	S
1/8 ~5/32	2460	.002	2110	.002	1080	.002	940	.002	7040	.005
11/64 ~3/16	1850	.002	1580	.002	800	.002	700	.002	5280	.006
13/64 ~15/64	1510	.003	1300	.003	670	.003	580	.003	4400	.006
1/4 ~5/16	1170	.003	1030	.003	540	.003	460	.003	3520	.007
21/64 ~25/64	880	.004	790	.004	400	.004	350	.004	2640	.008
13/32 ~15/32	700	.004	630	.004	320	.004	290	.004	2110	.009
31/64 ~5/8	590	.005	530	.005	260	.005	240	.005	1760	.011
41/64 ~47/64	460	.007	400	.007	200	.007	180	.007	1320	.012
3/4 ~1	350	.009	320	.009	150	.009	140	.009	1060	.017

N = R.P.M

S = Inch per Revolution(inch/rev.)

 I-DREAM
DRILLS

 DREAM
DRILLS

 DREAM
DRILLS
-INOX

 DREAM
DRILLS
-ALU

 DREAM
DRILLS
-MQL TYPE

 DREAM
DRILLS
for HARDENED
STEELS

 STANDARD
CARBIDE
DRILLS

 MULTI-1
DRILLS

HPD DRILLS

 GOLD-P
DRILLS

 STRAIGHT
SHANK
DRILLS

 AIRCRAFT
DRILLS

 SILVER &
DEMING
DRILLS

 TAPER
SHANK
DRILLS

 NC SPOTTING
DRILLS

 COMBINATION
DRILL &
COUNTER
SINK

 SPADE
DRILLS

 TECHNICAL
DATA