

YU-MD25 AMERICAS

BEST VALUE IN THE WORLD OF CUTTING TOOLS



MULTI-1 DRILLS

TiAlN Coated HSS-PM Drills

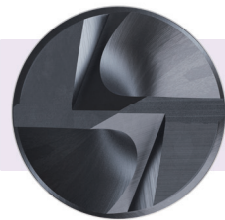
Wide range of work materials;
Carbon Steels, Alloy Steels, Structural Steels,
Hardened Steels(HRc30 - HRc45), Cast Iron,
Stainless Steels, Aluminum and Titanium





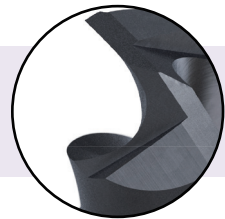
Wide range of work materials;

Carbon Steels, Alloy Steels, Structural Steels,
Hardened Steels(up to HRC45), Cast Iron,
Stainless Steels, Aluminum and Titanium



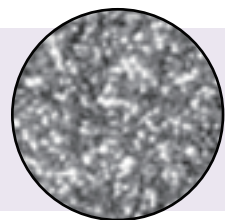
Point Shape to Maximize Self-centering

► Excellent positioning - bush is not necessary



Flute Design for the Best Chip Evacuation

► Prevent chip clogging and reduce axial thrust



Premium Powder Material with Excellent Toughness

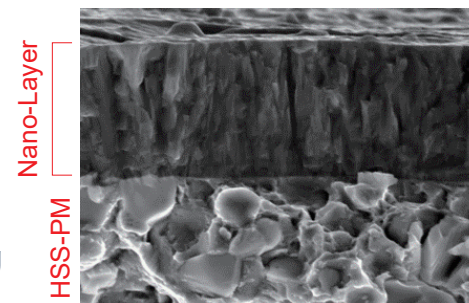
► Improve cutting edge strength
with higher stability and rigidity

TiAlN Coating

(Upgraded Titanium Aluminum Nitride :
Nano-Layer Coating)

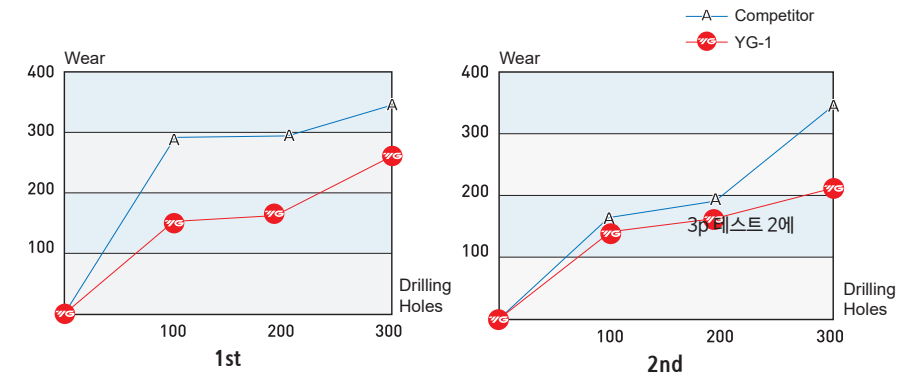
- Higher Wear Resistance and Lower Friction
- Higher Cutting Speed and Feed
- Improved Drill Hole Quality

Special surface treatment after coating
to reduce friction and better chip flow.



CASE STUDY

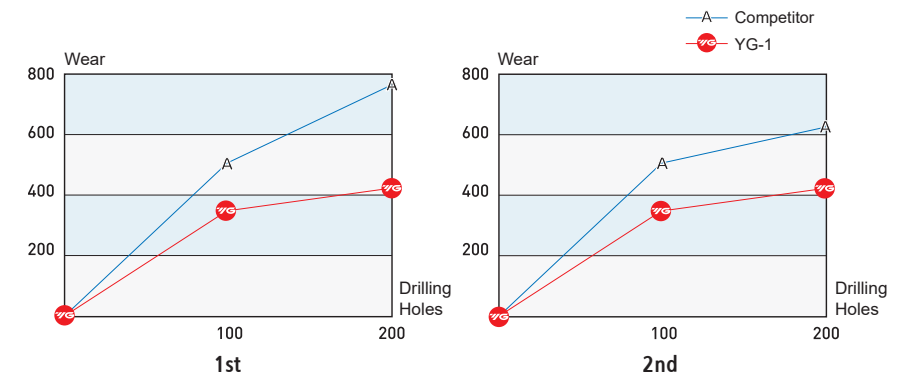
TEST I Comparison of edge wear



Cutting Condition

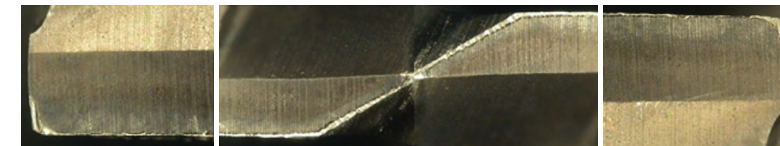
Work Material	- AISI : 316 - JIS : SUS316 - DIN : X3CrNiMo17-13-3
Drilling Depth	.94"
Total Drilling	300 Holes
RPM	600 rev./min.
Feed	4.3307 inch/min.

TEST II Comparison of edge wear

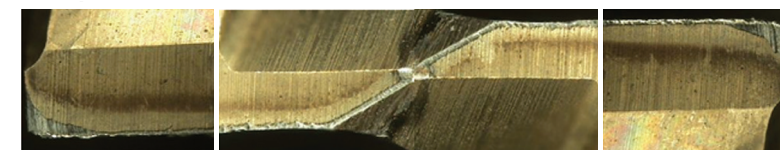


Cutting Condition

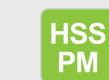
Work Material	- AISI : D2 - JIS : SKD11 - DIN : X155CrMo12-1
Drilling Depth	.94"
Total Drilling	300 Holes
RPM	600 rev./min.
Feed	4.3307 inch/min.



Competitor



GUIDE TO ICONS



Tool Material



Helix Angle



Tolerance of
Dimension



Point Angle



Type of
Coating



Cutting
Conditions

SERIES
TOOL MATERIAL
LENGTH
SIZE MIN
SIZE MAX
PAGE

SERIES	CDRA05	CDRA06	CDRA07	CDRA08	CDRA09	CDRA10
TOOL MATERIAL	HSS-PM					
LENGTH	STUB			JOBBER		
SIZE MIN	D3/32	#45	B	D3/32	#45	B
SIZE MAX	D1/2	#1	Z	D1/2	#1	Z
PAGE	5	6	7	8	9	10

SURFACE TREATMENT

TiAIN

HSS-PM MULTI-1 DRILLS



Please visit
globalyg1.com/mat
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.11-12

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc						
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	○	○	○	○	○
	4		About 0.75% C Annealed	270	28						
	5		About 0.75% C Quenched & Tempered	300	32						
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	○	○	○	○	○	○
	8		Quenched & Tempered	300	32	○	○	○	○	○	○
	9		Quenched & Tempered	350	38	○	○	○	○	○	○
	10	High alloyed steel, and tool steel	Annealed	200	15						
	11		Quenched & Tempered	325	35						
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○	○	○	○
	13		Martensitic Quenched & Tempered	240	23						
	14		Austenitic	180	10	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10						
	16		Pearlitic (Martensitic)	260	26						
	17	Nodular cast iron	Ferritic	160	3						
	18		Pearlitic	250	25						
	19	Malleable cast iron	Ferritic	130							
	20		Pearlitic	230	21						
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎	◎	◎	◎	◎
	22		Curable Hardened	100		◎	◎	◎	◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○	○	○	○
	24		≤ 12% Si, Curable Hardened	90		○	○	○	○	○	○
	25		> 12% Si, Not Curable	130							
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110							
	27		CuZn, CuSnZn (Brass)	90							
	28		CuSn, lead-free copper and electrolytic copper	100							
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15						
	32		Cured	280	30						
	33		Annealed	250	25						
	34		Ni or Co Based Cured	350	38						
	35	Titanium Alloys	Cast	320	34						
	36		Pure Titanium	400Rm		○	○	○	○	○	○
H	37		Alpha + Beta Alloys Hardened	1050Rm							
	38	Hardened steel	Hardened	550	55						
	39		Hardened	630	60						
	40	Chilled Cast Iron	Cast	400	42						
	41	Hardened Cast Iron	Hardened	550	55						

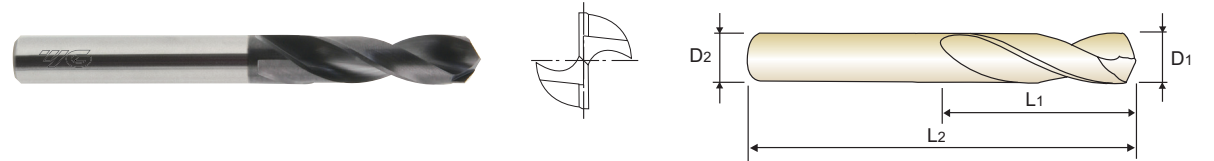
MULTI-1 DRILLS

SERIES

CDRA05

TiAIN-COATED HSS-PM, MULTI-1 DRILLS

- **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30 - HRc45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
- **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



p.11

STUB

► M15 / Fractional sizes

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
	D1				
			D2	L1	L2
M15006	3/32	.0938	1/8	1/2	1-3/4
M15007	7/64	.1094	1/8	5/8	1-7/8
M15008	1/8	.1250	1/8	3/4	2
M15009	9/64	.1406	3/16	13/16	2-1/8
M15010	5/32	.1563	3/16	13/16	2-1/8
M15011	11/64	.1719	3/16	1	2-3/8
M15012	3/16	.1875	3/16	1	2-3/8
M15013	13/64	.2031	1/4	1-1/8	2-7/8
M15014	7/32	.2188	1/4	1-1/8	2-7/8
M15015	15/64	.2344	1/4	1-1/4	3
M15016	1/4	.2500	1/4	1-1/4	3
M15017	17/64	.2656	3/8	1-3/8	3-3/16
M15018	9/32	.2813	3/8	1-3/8	3-3/16
M15019	19/64	.2969	3/8	1-3/8	3-3/16

Unit : Inch

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
	D1				
M15020	5/16	.3125	3/8	1-1/2	3-3/8
M15021	21/64	.3281	3/8	1-1/2	3-3/8
M15022	11/32	.3438	3/8	1-5/8	3-1/2
M15023	23/64	.3594	3/8	1-5/8	3-1/2
M15024	3/8	.3750	3/8	1-5/8	3-1/2
M15025	25/64	.3906	1/2	1-11/16	3-7/8
M15026	13/32	.4063	1/2	1-11/16	3-7/8
M15027	27/64	.4219	1/2	1-7/8	4-1/8
M15028	7/16	.4375	1/2	1-7/8	4-1/8
M15029	29/64	.4531	1/2	1-7/8	4-1/8
M15030	15/32	.4688	1/2	2	4-1/4
M15031	31/64	.4844	1/2	2	4-1/4
M15032	1/2	.5000	1/2	2	4-1/4

Unit : Inch

◎ : Excellent ○ : Good

ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32		29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○			◎	○	○	○			○		◎							
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast iron	Hardened Cast iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

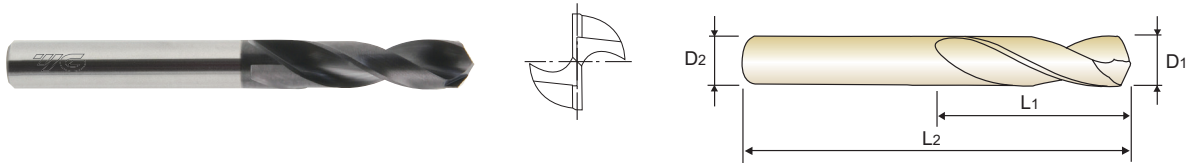


TiAIN-COATED
HSS-PM, MULTI-1 DRILLS

SERIES

CDRA06

- **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30 - HRc45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
- **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



p.11

STUB

► M16 / Wire gauge sizes

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Wire gauge	Decimal			
	D1				
M16045	45	.0820	1/8	3/4	2
M16044	44	.0860	1/8	3/4	2
M16043	43	.0890	1/8	3/4	2
M16042	42	.0935	1/8	3/4	2
M16041	41	.0960	1/8	13/16	2-1/16
M16040	40	.0980	1/8	13/16	2-1/16
M16039	39	.0995	1/8	13/16	2-1/4
M16038	38	.1015	1/8	13/16	2-1/4
M16037	37	.1040	1/8	13/16	2-1/4
M16036	36	.1065	1/8	13/16	2-1/4
M16035	35	.1100	1/8	7/8	2-5/16
M16034	34	.1110	1/8	7/8	2-5/16
M16033	33	.1130	1/8	7/8	2-5/16
M16032	32	.1160	1/8	7/8	2-5/16
M16031	31	.1200	1/8	7/8	2-5/16
M16030	30	.1285	3/16	15/16	2-3/8
M16029	29	.1360	3/16	15/16	2-3/8
M16028	28	.1405	3/16	15/16	2-3/8
M16027	27	.1440	3/16	1	2-7/16
M16026	26	.1470	3/16	1	2-7/16
M16025	25	.1495	3/16	1	2-7/16
M16024	24	.1520	3/16	1	2-7/16
M16023	23	.1540	3/16	1	2-7/16

Unit : Inch

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Wire gauge	Decimal			
	D1				
M16022	22	.1570	3/16	1-1/16	2-1/2
M16021	21	.1590	3/16	1-1/16	2-1/2
M16020	20	.1610	3/16	1-1/16	2-1/2
M16019	19	.1660	3/16	1-1/16	2-1/2
M16018	18	.1695	3/16	1-1/16	2-1/2
M16017	17	.1730	3/16	1-1/8	2-9/16
M16016	16	.1770	3/16	1-1/8	2-9/16
M16015	15	.1800	3/16	1-1/8	2-9/16
M16014	14	.1820	3/16	1-1/8	2-9/16
M16013	13	.1850	3/16	1-1/8	2-9/16
M16012	12	.1890	1/4	1-3/16	3
M16011	11	.1910	1/4	1-3/16	3
M16010	10	.1935	1/4	1-3/16	3
M16009	9	.1960	1/4	1-3/16	3
M16008	8	.1990	1/4	1-3/16	3
M16007	7	.2010	1/4	1-3/16	3
M16006	6	.2040	1/4	1-1/4	3-1/16
M16005	5	.2055	1/4	1-1/4	3-1/16
M16004	4	.2090	1/4	1-1/4	3-1/16
M16003	3	.2130	1/4	1-1/4	3-1/16
M16002	2	.2210	1/4	1-5/16	3-1/8
M16001	1	.2280	1/4	1-5/16	3-1/8

◎ : Excellent ○ : Good

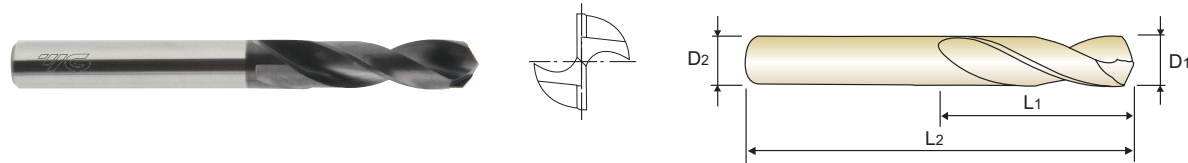
ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○			◎	○	○	○			○		◎							
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

TiAIN-COATED
HSS-PM, MULTI-1 DRILLS

SERIES

CDRA07

- **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30 - HRc45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
- **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



p.11

STUB

► M17 / Letter sizes

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Letter	Decimal			
	D1				
M1700B	B	.2380	1/4	1-3/8	3-3/16
M1700C	C	.2420	1/4	1-3/8	3-3/16
M1700D	D	.2460	1/4	1-3/8	3-3/16
M1700F	F	.2570	3/8	1-7/16	3-1/4
M1700G	G	.2610	3/8	1-7/16	3-1/4
M1700I	I	.2720	3/8	1-1/2	3-5/16
M1700J	J	.2770	3/8	1-1/2	3-5/16
M1700L	L	.2900	3/8	1-9/16	3-3/8
M1700M	M	.2950	3/8	1-9/16	3-3/8

Unit : Inch

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Letter	Decimal			
	D1				
M1700N	N	.3020	3/8	1-5/8	3-7/16
M1700O	O	.3160	3/8	1-11/16	3-1/2
M1700Q	Q	.3320	3/8	1-11/16	3-1/2
M1700R	R	.3390	3/8	1-11/16	3-1/2
M1700U	U	.3680	3/8	1-13/16	3-5/8
M1700V	V	.3770	1/2	1-7/8	3-31/32
M1700X	X	.3970	1/2	1-15/16	4-1/32
M1700Y	Y	.4040	1/2	1-15/16	4-1/32
M1700Z	Z	.4130	1/2	2	4-1/32

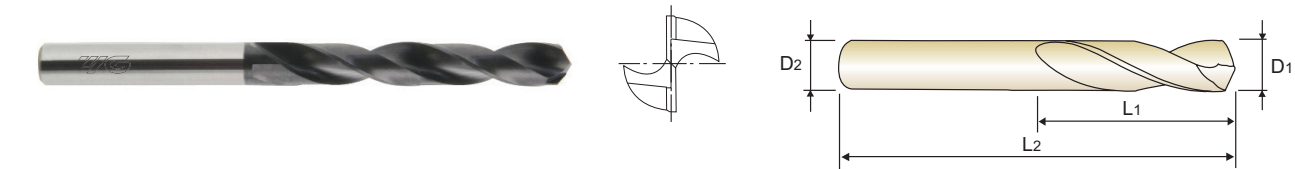
◎ : Excellent ○ : Good

ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○			◎	○	○	○			○		◎							
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					



TiAIN-COATED
HSS-PM, MULTI-1 DRILLS

- **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30 - HRc45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
- **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



p.12

JOBBER

► Fractional sizes

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
	D1		D2	L1	L2
CDRA08006	3/32	.0938	1/8	1-1/8	2-3/8
CDRA08007	7/64	.1094	1/8	1-1/4	2-1/2
CDRA08008	1/8	.1250	1/8	1-3/8	2-5/8
CDRA08009	9/64	.1406	3/16	1-1/2	2-7/8
CDRA08010	5/32	.1563	3/16	1-3/4	3-1/8
CDRA08011	11/64	.1719	3/16	1-7/8	3-1/4
CDRA08012	3/16	.1875	3/16	2	3-3/8
CDRA08013	13/64	.2031	1/4	2-1/16	3-7/8
CDRA08014	7/32	.2188	1/4	2-1/16	3-7/8
CDRA08015	15/64	.2344	1/4	2-3/8	4-1/4
CDRA08016	1/4	.2500	1/4	2-3/8	4-1/4
CDRA08017	17/64	.2656	3/8	2-3/4	4-5/8
CDRA08018	9/32	.2813	3/8	2-3/4	4-5/8
CDRA08019	19/64	.2969	3/8	2-7/8	4-3/4

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
	D1		D2	L1	L2
CDRA08020	5/16	.3125	3/8	2-7/8	4-3/4
CDRA08021	21/64	.3281	3/8	2-7/8	4-3/4
CDRA08022	11/32	.3438	3/8	3-1/4	5-1/8
CDRA08023	23/64	.3594	3/8	3-1/4	5-1/8
CDRA08024	3/8	.3750	3/8	3-1/4	5-1/8
CDRA08025	25/64	.3906	1/2	3-3/8	5-1/2
CDRA08026	13/32	.4063	1/2	3-3/8	5-1/2
CDRA08027	27/64	.4219	1/2	3-3/4	5-7/8
CDRA08028	7/16	.4375	1/2	3-3/4	5-7/8
CDRA08029	29/64	.4531	1/2	3-3/4	5-7/8
CDRA08030	15/32	.4688	1/2	4	6-1/4
CDRA08031	31/64	.4844	1/2	4	6-1/4
CDRA08032	1/2	.5000	1/2	4	6-1/4

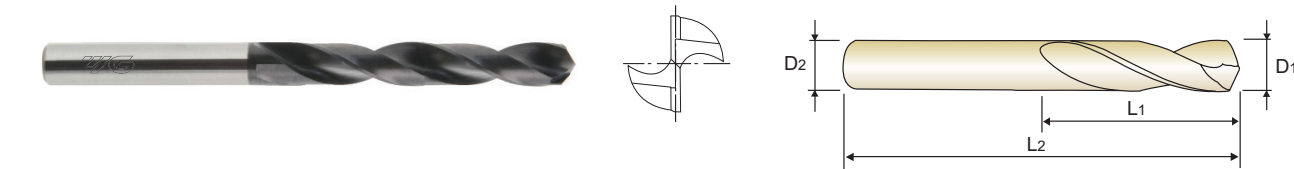
Unit : Inch

ISO	P										M					K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎						
ISO	N										S					H				
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc																				
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42
Recommended	◎	◎	○	○												○				

◎ : Excellent ○ : Good

TiAIN-COATED
HSS-PM, MULTI-1 DRILLS

- **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30 - HRc45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
- **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



p.12

JOBBER

► Wire gauge sizes

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Wire gauge	Decimal			
	D1		D2	L1	L2
CDRA09045	45	.0820	1/8	1-1/8	2-3/8
CDRA09044	44	.0860	1/8	1-1/8	2-3/8
CDRA09043	43	.0890	1/8	1-1/4	2-1/2
CDRA09042	42	.0935	1/8	1-1/4	2-1/2
CDRA09041	41	.0960	1/8	1-3/8	2-5/8
CDRA09040	40	.0980	1/8	1-3/8	2-5/8
CDRA09039	39	.0995	1/8	1-3/8	2-13/16
CDRA09038	38	.1015	1/8	1-7/16	2-7/8
CDRA09037	37	.1040	1/8	1-7/16	2-7/8
CDRA09036	36	.1065	1/8	1-7/16	2-7/8
CDRA09035	35	.1100	1/8	1-1/2	2-15/16
CDRA09034	34	.1110	1/8	1-1/2	2-15/16
CDRA09033	33	.1130	1/8	1-1/2	2-15/16
CDRA09032	32	.1160	1/8	1-1/2	2-15/16
CDRA09031	31	.1200	1/8	1-1/2	2-15/16
CDRA09030	30	.1285	3/16	1-5/8	3-1/16
CDRA09029	29	.1360	3/16	1-3/4	3-3/16
CDRA09028	28	.1405	3/16	1-3/4	3-3/16
CDRA09027	27	.1440	3/16	1-7/8	3-5/16
CDRA09026	26	.1470	3/16	1-7/8	3-5/16
CDRA09025	25	.1495	3/16	1-7/8	3-5/16
CDRA09024	24	.1520	3/16	2	3-7/16
CDRA09023	23	.1540	3/16	2	3-7/16

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Wire gauge	Decimal			
	D1		D2	L1	L2
CDRA09022	22	.1570	3/16	2	3-7/16
CDRA09021	21	.1590	3/16	2-1/8	3-9/16
CDRA09020	20	.1610	3/16	2-1/8	3-9/16
CDRA09019	19	.1660	3/16	2-1/8	3-9/16
CDRA09018	18	.1695	3/16	2-1/8	3-9/16
CDRA09017	17	.1730	3/16	2-3/16	3-5/8
CDRA09016	16	.1770	3/16	2-3/16	3-5/8
CDRA09015	15	.1800	3/16	2-3/16	3-5/8
CDRA09014	14	.1820	3/16	2-3/16	3-5/8
CDRA09013	13	.1850	3/16	2-3/16	3-5/8
CDRA09012	12	.1890	1/4	2-7/16	4-1/4
CDRA09011	11	.1910	1/4	2-7/16	4-1/4
CDRA09010	10	.1935	1/4	2-7/16	4-1/4
CDRA09009	9	.1960	1/4	2-7/16	4-1/4
CDRA09008	8	.1990	1/4	2-7/16	4-1/4
CDRA09007	7	.2010	1/4	2-7/16	4-1/4
CDRA09006	6	.2040	1/4	2-7/16	4-1/4
CDRA09005	5	.2055	1/4	2-1/2	4-5/16
CDRA09004	4	.2090	1/4	2-1/2	4-5/16
CDRA09003	3	.2130	1/4	2-1/2	4-5/16
CDRA09002	2	.2210	1/4	2-5/8	4-7/16
CDRA09001	1	.2280	1/4	2-5/8	4-7/16

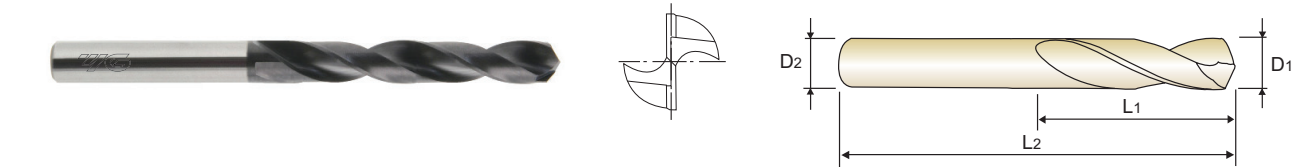
Unit : Inch

ISO	P										M					K				
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎						
ISO	N										S					H				
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc																				
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42
Recommended	◎	◎	○	○												○				

◎ : Excellent ○ : Good

TiAIN-COATED
HSS-PM, MULTI-1 DRILLS

- **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30 - HRc45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
- **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



HSS PM

30°

h6

h7

135°

TiAIN

p.12

JOBBER

► Letter sizes

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Letter	Decimal			
	D1				
CDRA1000B	B	.2380	1/4	2-3/4	4-9/16
CDRA1000C	C	.2420	1/4	2-3/4	4-9/16
CDRA1000D	D	.2460	1/4	2-3/4	4-9/16
CDRA1000F	F	.2570	3/8	2-7/8	4-11/16
CDRA1000G	G	.2610	3/8	2-7/8	4-11/16
CDRA1000I	I	.2720	3/8	2-7/8	4-11/16
CDRA1000J	J	.2770	3/8	2-7/8	4-11/16
CDRA1000L	L	.2900	3/8	2-15/16	4-3/4
CDRA1000M	M	.2950	3/8	3-1/16	4-7/8

Unit : Inch					
EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Letter	Decimal			
	D1				
CDRA1000N	N	.3020	3/8	3-1/16	4-7/8
CDRA1000O	O	.3160	3/8	3-3/16	5
CDRA1000Q	Q	.3320	3/8	3-7/16	5-1/4
CDRA1000R	R	.3390	3/8	3-7/16	5-1/4
CDRA1000U	U	.3680	3/8	3-5/8	5-7/16
CDRA1000V	V	.3770	1/2	3-5/8	5-23/32
CDRA1000X	X	.3970	1/2	3-3/4	5-27/32
CDRA1000Y	Y	.4040	1/2	3-7/8	5-31/32
CDRA1000Z	Z	.4130	1/2	3-7/8	5-31/32

Unit : Inch

◎ : Excellent ○ : Good

ISO	P										M				K							
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	○			◎	○	○	○			○		◎								
ISO	N										S										H	
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommended	◎	◎	○	○												○						

◎ : Excellent ○ : Good

RECOMMENDED CUTTING CONDITIONS

MULTI-1 DRILLS

CDRA05, CDRA06, CDRA07 SERIES

SFM = ft/min.
RPM = rev/min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter														
				METRIC	2.0	3.0	-	4.0	-	5.0	6.0	-	-	8.0	-	10.0	12.0	-
				FRACTIONAL	-	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-	-	1/2
				DECIMAL	.0787	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937	-	.5000
P	1	Non-alloy steel	130	RPM	6370	4240	3180	2550	2120	1590	1270	1060						
				FEED	.0012 - .0024	.0031 - .0047	.0035 - .0059	.0047 - .0071	.0055 - .0079	.0071 - .0094	.0071 - .0110	.0079 - .0118						
	2		120	RPM	5570	3710	2790	2230	1860	1390	1110	930						
				FEED	.0012 - .0024	.0031 - .0047	.0035 - .0059	.0047 - .0071	.0055 - .0079	.0071 - .0094	.0071 - .0110	.0079 - .0118						
	3		120	RPM	5570	3710	2790	2230	1860	1390	1110	930						
				FEED	.0012 - .0024	.0031 - .0047	.0035 - .0059	.0047 - .0071	.0055 - .0079	.0071 - .0094	.0071 - .0110	.0079 - .0118						
	Low alloy steel	120	RPM	5570	3710	2790	2230	1860	1390	1110	930							
			FEED	.0012 - .0024	.0031 - .0047	.0035 - .0059	.0047 - .0071	.0055 - .0079	.0071 - .0094	.0071 - .0110	.0079 - .0118							
		100	RPM	4770	3180	2390	1910	1590	1190	950	800							
			FEED	.0012 - .0020	.0024 - .0039	.0028 - .0051	.0039 - .0063	.0047 - .0071	.0055 - .0079	.0055 - .0094	.0063 - .0102							
80		RPM	3980	2650	1990	1590	1330	990	800	660								
		FEED	.0008 - .0020	.0012 - .0028	.0016 - .0039	.0024 - .0047	.0028 - .0051	.0039 - .0079	.0047 - .0087	.0055 - .0094								
70	RPM	3180	2120	1590	1270	1060	800	640	530									
	FEED	.0008 - .0020	.0012 - .0028	.0016 - .0039	.0024 - .0047	.0028 - .0051	.0039 - .0079	.0047 - .0087	.0055 - .0094									
M	12	Stainless steel	70	RPM	3180	2120	1590	1270	1060	800	640	530						
	FEED			.0012 - .0028	.0020 - .0035	.0024 - .0047	.0035 - .0059	.0047 - .0071	.0071 - .0094	.0079 - .0118	.0102 - .0142							
14	50	RPM	2390	1590	1190	950	800	600	480	400								
		FEED	.0008 - .0020	.0012 - .0028	.0016 - .0039	.0024 - .0047	.0028 - .0051	.0039 - .0079	.0047 - .0087	.0055 - .0094								
K	15	Grey cast iron	130	RPM	6370	4240	3180	2550	2120	1590	1270	1060						
				FEED	.0016 - .0039	.0028 - .0051	.0035 - .0059	.0047 - .0071	.0051 - .0075	.0071 - .0094	.0079 - .0118	.0087 - .0126						
N	21	Aluminum-wrought alloy	300	RPM	14320	9550	7160	5730	4770	3580	2860	2390						
				FEED	.0051 - .0067	.0091 - .0106	.0106 - .0130	.0130 - .0154	.0157 - .0181	.0177 - .0201	.0201 - .0240	.0248 - .0287						
	22	300	RPM	14320	9550	7160	5730	4770	3580	2860	2390							
			FEED	.0051 - .0067	.0091 - .0106	.0106 - .0130	.0130 - .0154	.0157 - .0181	.0177 - .0201	.0201 - .0240	.0248 - .0287							
	23	Aluminum-cast, alloyed	260	RPM	12730	8490	6370	5090	4240	3180	2550	2120						
				FEED	.0051 - .0067	.0091 - .0106	.0106 - .0130	.0130 - .0154	.0157 - .0181	.0177 - .0201	.0201 - .0240	.0248 - .0287						
24	230	RPM	11140	7430	5570	4460	3710	2790	2230	1860								
		FEED	.0039 - .0055	.0059 - .0075	.0079 - .0102	.0094 - .0118	.110 - .0134	.0118 - .0142	.0134 - .0173	.0142 - .0181								
S	36	Titanium Alloys	20	RPM	800	530	400	320	270	200	160	130						
				FEED	.0008 - .0020	.0012 - .0028	.0016 - .0031	.0024 - .0047	.0028 - .0051	.0035 - .0059	.0047 - .0087	.0055 - .0094						



RECOMMENDED CUTTING CONDITIONS

CDRA08, CDRA09, CDRA10 SERIES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter													
				FRACTIONAL	-	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-	1/2
				DECIMAL	.0787	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937	.5000
P	1	Non-alloy steel	130	RPM	6370	4240		3180	2550		2120		1590		1270		1060
	FEED			.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	2		120	RPM	5570	3710		2790	2230		1860		1390		1110		930
	FEED			.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	3	Low alloy steel	120	RPM	5570	3710		2790	2230		1860		1390		1110		930
	FEED			.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	6		120	RPM	5570	3710		2790	2230		1860		1390		1110		930
	FEED			.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	7		100	RPM	4770	3180		2390	1910		1590		1190		950		800
	FEED			.0012 - .0020	.0024 - .0039		.0028 - .0051	.0039 - .0063		.0047 - .0071		.0055 - .0079		.0055 - .0094		.0063 - .0102	
8	80		RPM	3980	2650		1990	1590		1330		990		800		660	
FEED			.0008 - .0020	.0012 - .0028		.0016 - .0039	.0024 - .0047		.0028 - .0051		.0039 - .0079		.0047 - .0087		.0055 - .0094		
9	70		RPM	3180	2120		1590	1270		1060		800		640		530	
FEED			.0008 - .0020	.0012 - .0028		.0016 - .0039	.0024 - .0047		.0028 - .0051		.0039 - .0079		.0047 - .0087		.0055 - .0094		
M	12	Stainless steel	70	RPM	3180	2120		1590	1270		1060		800		640		530
	FEED			.0012 - .0028	.002 - .0035		.0024 - .0047	.0035 - .0059		.0047 - .0071		.0071 - .0094		.0079 - .0118		.0102 - .0142	
	14		50	RPM	2390	1590		1190	950		800		600		480		400
	FEED			.0008 - .0020	.0012 - .0028		.0016 - .0039	.0024 - .0047		.0028 - .0051		.0039 - .0079		.0047 - .0087		.0055 - .0094	
K	15	Grey cast iron	130	RPM	6370	4240		3180	2550		2120		1590		1270		1060
				FEED	.0016 - .0039	.0028 - .0051		.0035 - .0059	.0047 - .0071		.0051 - .0075		.0071 - .0094		.0079 - .0118		.0087 - .0126
N	21	Aluminum-wrought alloy	300	RPM	14320	9550		7160	5730		4770		3580		2860		2390
	FEED			.0051 - .0067	.0091 - .0106		.0106 - .0130	.013 - .0154		.0157 - .0181		.0177 - .0201		.0201 - .0240		.0248 - .0287	
	22		300	RPM	14320	9550		7160	5730		4770		3580		2860		2390
	FEED			.0051 - .0067	.0091 - .0106		.0106 - .0130	.013 - .0154		.0157 - .0181		.0177 - .0201		.0201 - .0240		.0248 - .0287	
	23	Aluminum-cast, alloyed	260	RPM	12730	8490		6370	5090		4240		3180		2550		2120
	FEED			.0051 - .0067	.0091 - .0106		.0106 - .0130	.013 - .0154		.0157 - .0181		.0177 - .0201		.0201 - .0240		.0248 - .0287	
	24		230	RPM	11140	7430		5570	4460		3710		2790		2230		1860
	FEED			.0039 - .0055	.0059 - .0075		.0079 - .0102	.0094 - .0118		.011 - .0134		.0118 - .0142		.0134 - .0173		.0142 - .0181	
S	36	Titanium Alloys	20	RPM	800	530		400	320		270		200		160		130
				FEED	.0008 - .0020	.0012 - .0028		.0016 - .0031	.0024 - .0047		.0028 - .0051		.0035 - .0059		.0047 - .0087		.0055 - .0094

MEMO



MEMO



HIGH QUALITY PRODUCTS and ON TIME DELIVERY
for WORLD-WIDE CUSTOMERS

Since 1981, YG-1 has been committed to quality, innovation and the unique customer experience. Our performance and experience have granted YG-1 the global impression of one of the leading manufacturers of high quality cutting tool solutions. This global footprint expands over 75 countries, with international logistic centers, pledging to our customers to give the best service available today - and tomorrow.

EUROPE

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EGYPT	SOUTH AFRICA
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YG-1 CO., LTD.

* For the more information on sales network, please contact the head office as below;

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