



**MADISON**  
Cutting Tools, Inc.

# CATALOG SUPPLEMENT

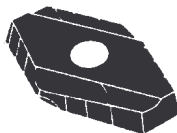
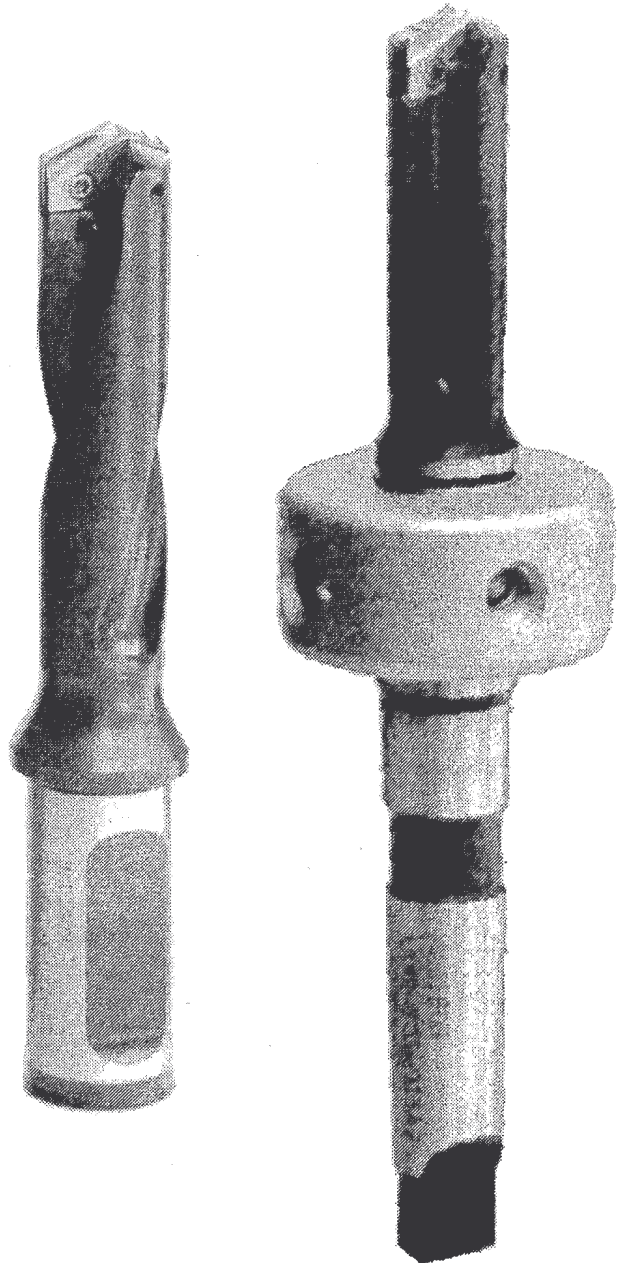
## Madison Spade Drilling System: Now with TRU-LOK<sup>®</sup> Series II Holders and Inserts!

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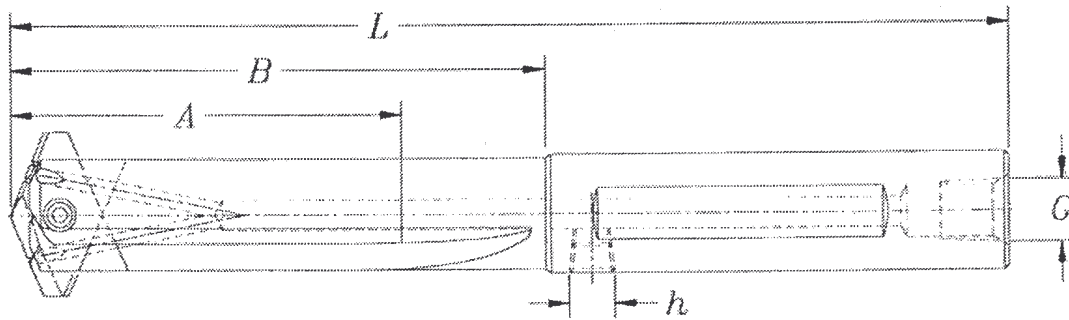
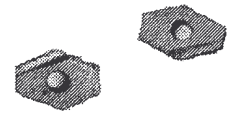
**Other  
news:**  
Duodex<sup>®</sup>  
program  
extended to

5 inch (127 mm)  
diameter.

### **Bertoldi s.r.l.**

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# DUODEX/ACCUSIZE HOLDERS



## STRAIGHT SHANK

Drilling range		Dimensions									
Dia.	Series	Shank	Flange	Length	Flute	Order number	A	B	L	G	h
mm	13-15						48	54	118		
inch	.500-.624	0	5/8	no	short	straight	1206-705-01190	1.88	2.13	4.63	1/8 NPT -
mm	13-15						80	86	149		
inch	.500-.624	0	5/8	no	standard	straight	1206-505-01190	3.13	3.38	5.88	1/8 NPT -
mm	13-15						48	51	118		
inch	.500-.624	0	3/4	no	short	straight	1209-705-01190	1.88	2.13	4.63	1/8 NPT -
mm	13-15						80	86	149		
inch	.500-.624	0	3/4	no	standard	straight	1209-505-01190	3.13	3.38	5.88	1/8 NPT -
mm	16-18						60	67	130		
inch	.625-.748	0+	5/8	no	short	straight	1206-705-01510	2.38	2.63	5.13	1/8 NPT -
mm	16-18						102	108	171		
inch	.625-.748	0+	5/8	no	standard	straight	1206-505-01510	4.00	4.25	6.75	1/8 NPT -
mm	16-18						60	67	130		
inch	.625-.748	0+	3/4	no	short	straight	1209-705-01510	2.38	2.63	5.13	1/8 NPT -
mm	16-18						102	108	171		
inch	.625-.748	0+	3/4	no	standard	straight	1209-505-01510	4.00	4.25	6.75	1/8 NPT -
mm	16-18						120	137	198		
inch	.625-.748	0+	3/4	no	long	straight	1209-507-01510	4.73	5.40	7.80	1/8 NPT -
mm	19-24						49	80	182		
inch	.750-.967	I	3/4	no	short	straight	1209-705-01790	1.91	3.10	7.20	1/4 NPT 1/8 NPT
mm	19-24						106	137	239		
inch	.750-.967	I	3/4	no	standard	straight	1209-505-01790	4.17	5.39	9.41	1/4 NPT 1/8 NPT
mm	19-24						46	80	182		
inch	.750-.967	I	1	no	short	straight	1218-705-01790	1.83	3.10	7.20	1/4 NPT 1/8 NPT
mm	19-24						105	137	239		
inch	.750-.967	I	1	no	standard	straight	1218-505-01790	4.12	5.39	9.41	1/4 NPT 1/8 NPT
mm	19-24						269	305	381		
inch	.750-.967	I	1	no	long	straight	1218-507-01790	10.60	12.00	15.00	1/8 NPT 1/8 NPT
mm	25-35						68	107	209		
inch	.968-1.375	II	1	no	short	straight	1218-705-02380	2.69	4.20	8.20	1/4 NPT 1/8 NPT
mm	25-35						160	205	305		
inch	.968-1.375	II	1	no	standard	straight	1218-505-02380	6.28	8.00	12.00	1/4 NPT 1/8 NPT
mm	25-35						68	107	209		
inch	.968-1.375	II	1 1/4	no	short	straight	1224-705-02380	2.69	4.20	8.20	1/4 NPT 1/8 NPT



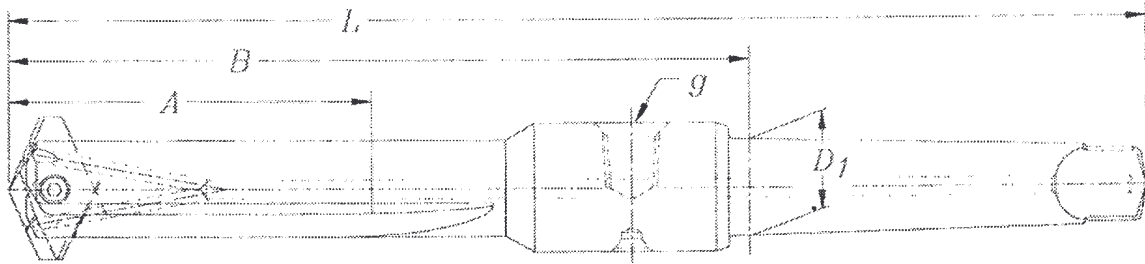
# DUODEX/ACCUSIZE HOLDERS



## STRAIGHT SHANK (cont'd)

Drilling range								Dimensions				
Dia.	Series	Shank	Flange	Length	Flute	Order number	A	B	L	G	h	
mm	25-35						160	203	305			
inch	.968-1.375	II	1 1/4	no	standard	1224-505-02380	6.28	8.00	12.00	1/4 NPT	1/8 NPT	
mm	25-35						282	320	409			
inch	.968-1.375	II	1 1/4	no	long	1224-507-02380	11.10	12.6	16.10	1/8 NPT	1/8 NPT	
mm	25-35	II	32 mm	no	short	1225-705-02380	68	107	209	R 1/4	-	
inch	.968-1.375						2.69	4.20	8.20			
mm	25-35	II	32 mm	no	standard	1225-505-02380	160	203	305	R 1/4	-	
inch	.968-1.375						6.28	8.00	12.00			
mm	36-49						98	146	248			
inch	1.406-1.906	III	1 1/4	no	short	1224-705-03480	3.85	5.80	9.80	3/8 NPT	1/4 NPT	
mm	36-49						192	241	343			
inch	1.406-1.906	III	1 1/4	no	standard	1224-505-03480	7.55	9.50	13.50	3/8 NPT	1/4 NPT	
mm	36-49						98	146	248			
inch	1.406-1.906	III	1 1/2	no	short	1227-705-03480	3.85	5.80	9.80	3/8 NPT	1/4 NPT	
mm	36-49						191	241	343			
inch	1.406-1.906	III	1 1/2	no	standard	1227-505-03480	7.55	9.50	13.50	3/8 NPT	1/4 NPT	
mm	36-49						286	335	437			
inch	1.406-1.906	III	1 1/2	no	long	1227-507-03480	11.25	13.20	17.20	1/4 NPT	1/4 NPT	
mm	36-49	III	40 mm	no	short	1228-705-03480	98	146	248	R 3/8	-	
inch	1.406-1.906						3.85	5.80	9.80			
mm	36-49	III	40 mm	no	standard	1228-505-03480	192	241	343	R 3/8	-	
inch	1.406-1.906						7.55	9.50	13.50			
mm	50-65						98	156	257			
inch	1.937-2.562	IV	1 3/4	no	short	1230-705-04780	3.87	6.10	10.10	3/8 NPT	1/4 NPT	
mm	50-65						206	264	366			
inch	1.937-2.562	IV	1 3/4	no	standard	1230-505-04780	8.12	10.40	14.40	3/8 NPT	1/4 NPT	
mm	50-65						317	373	475			
inch	1.937-2.562	IV	1 3/4	no	long	1230-507-04780	12.49	14.70	18.70	1/4 NPT	1/4 NPT	
mm	50-65	IV	40 mm	no	short	1228-705-04780	98	156	257	R 3/8	-	
inch	1.937-2.562						3.87	6.10	10.10			
mm	50-65	IV	40 mm	no	standard	1228-505-04780	206	264	366	R 3/8	-	
inch	1.937-2.562						8.12	10.40	14.40			
mm	66-88						135	200	302			
inch	2.593-3.500	V	2 1/2	no	short	1239-705-06400	5.30	7.90	11.90	1/2 NPT	3/8 NPT	
mm	66-88						233	300	401			
inch	2.593-3.500	V	2 1/2	no	standard	1239-505-06400	9.16	11.80	15.80	1/2 NPT	3/8 NPT	
mm	66-88	V	60 mm	no	short	1237-705-06400	135	200	302	R 1/2	-	
inch	2.593-3.500						5.30	7.90	11.90			
mm	66-88	V	60 mm	no	standard	1237-505-06400	233	300	401	R 1/2	-	
inch	2.593-3.500						9.16	11.80	15.80			
mm	89-114						164	232	359			
inch	3.530-4.500	VI	3	no	short	1242-705-08700	6.45	9.12	14.12	1/2 NPT	1/2 NPT	
mm	89-114						265	333	460			
inch	3.530-4.500	VI	3	no	standard	1242-505-08700	10.45	13.12	18.12	1/2 NPT	1/2 NPT	

# DUODEX/ACCUSIZE HOLDERS

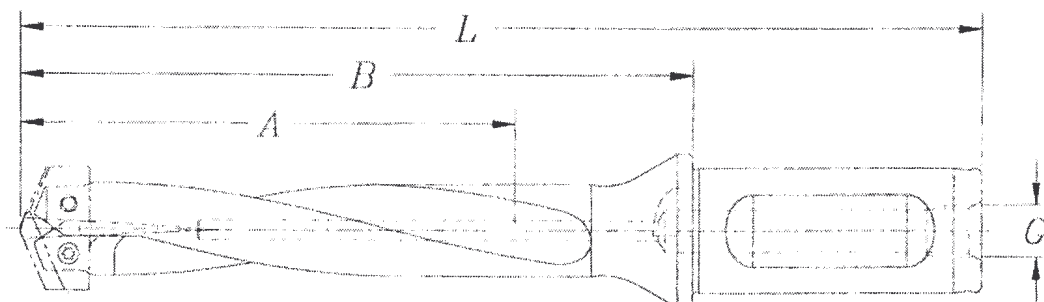


## TAPER SHANK

Drilling range							Dimensions					Coolant inducer
Dia.	Series	Shank	Length	Flute	Order number	D <sub>1</sub>	A	B	L	g		
mm 19-24						31.75	41	129	233		8221-100	
inch .750-.967	I	MT 3	short	straight	1253-705-01790	1.25	1.60	5.11	8.80	R 1/4	-00000	
mm 19-24						31.75	113	199	293		8221-100	
inch .750-.967	I	MT 3	standard	straight	1253-505-01790	1.25	4.44	7.81	11.50	R 1/4	-00000	
mm 22.2-24						31.75	41	129	223		8221-100	
inch .875-.967	I+	MT 3	short	straight	1253-705-02190	1.25	1.60	5.11	8.80	R 1/4	-00000	
mm 22.2-24						31.75	113	199	293		8221-100	
inch .875-.967	I+	MT 3	standard	straight	1253-505-02190	1.25	4.44	7.81	11.50	R 1/4	-00000	
mm 25-35						31.75	45	166	283		8221-100	
inch .968-1.375	II	MT 4	short	straight	1254-705-02380	1.25	2.76	6.45	11.10	R 1/4	-00000	
mm 25-35						31.75	166	266	383		8221-100	
inch .968-1.375	II	MT 4	standard	straight	1254-505-02380	1.25	6.52	10.47	15.10	R 1/4	-00000	
mm 30-35						31.75	70	166	283		8221-100	
inch 1.187-1.375	II+	MT 4	short	straight	1254-705-02936	1.25	2.76	6.45	11.10	R 1/4	-00000	
mm 30-35						31.75	166	266	383		8221-100	
inch 1.187-1.375	II+	MT 4	standard	straight	1254-505-02936	1.25	6.52	10.47	15.10	R 1/4	-00000	
mm 36-49						31.75	98	197	314		8221-100	
inch 1.406-1.906	III	MT 4	short	straight	1254-705-03480	1.25	3.84	7.75	12.40	R 1/4	-00000	
mm 36-49						31.75	198	292	409		8221-100	
inch 1.406-1.906	III	MT 4	standard	straight	1254-505-03480	1.25	7.81	11.47	16.10	R 1/4	-00000	
mm 50-65						31.75	99	206	323		8221-100	
inch 1.937-2.562	IV	MT 4	short	straight	1254-705-04780	1.25	3.88	8.10	12.70	R 1/4	-00000	
mm 50-65						63.5	69	207	356		8222-100	
inch 1.937-2.562	IV	MT 5	short	straight	1255-705-04790M	2.5	2.72	8.15	14.00	R 1/2	-00000	
mm 50-65						31.75	207	314	431		8221-100	
inch 1.937-2.562	IV	MT 4	standard	straight	1254-505-04780	1.25	8.15	12.36	16.98	R 1/4	-00000	
mm 50-65						63.5	170	307	456		8222-100	
inch 1.937-2.562	IV	MT 5	standard	straight	1255-505-04790M	2.5	6.71	12.09	17.95	R 1/2	-00000	
mm 66-88						63.5	133	267	416		8222-100	
inch 2.593-3.500	V	MT 5	short	straight	1255-705-06400	2.5	5.25	10.50	16.40	R 1/2	-00000	
mm 66-76						63.5	232	367	516		8222-100	
inch 2.593-3.000	V	MT 5	standard	straight	1255-505-06400	2.5	9.15	14.43	20.30	R 1/2	-00000	
mm 77-88						63.5	231	367	516		8222-100	
inch 3.031-3.500	V	MT 5	standard	straight	1255-505-07500	2.5	9.11	14.43	20.30	R 1/2	-00000	
mm 89-114						63.5	154	297	440		8222-100	
inch 3.531-4.500	VI	MT 5	short	straight	1255-705-08700	2.5	6.08	11.68	17.55	R 1/2	-00000	
mm 89-144						63.5	256	398	541		8222-100	
inch 3.531-4.500	VI	MT 5	standard	straight	1255-505-08700	2.5	10.1	15.68	21.55	R 1/2	-00000	



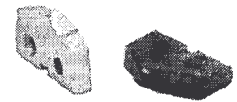
# TRU-LOK DRILL HOLDERS



## STRAIGHT SHANK

Drilling range								Dimensions			
Dia.	Series	Shank	Flange	Length	Flute	Order number	A	B	L	G	
mm	12.7-15.8						38.1	66.3	117.9		
inch	.500-.624	0	3/4 x 2.031	yes	short	straight	1409-705-01232F	1.500	2.609	4.640	1/8 NPT
mm	12.7-15.8						66.7	86.9	147.2		
inch	.500-.624	0	3/4 x 2.375	no	standard	helical	1409-515-01232	2.625	3.422	5.797	1/8 NPT
mm	12.7-15.8						66.7	94.8	146.4		
inch	.500-.624	0	3/4 x 2.031	yes	standard	helical	1409-515-01232F	2.625	3.734	5.765	1/8 NPT
mm	12.7-15.8						117.5	137.7	198.0		
inch	.500-.624	0	3/4 x 2.375	no	long	helical	1409-517-01232	4.625	5.422	7.797	1/8 NPT
mm	12.7-15.8	0	20mm x 50.5	yes	short	straight	1410-705-01232F	38.1	66.3	116.8	1/8 BSP
inch	.500-.624						1.500	2.609	4.597		
mm	12.7-15.8	0	20mm x 60.3	no	standard	helical	1410-515-01232	66.7	86.9	147.2	1/8 BSP
inch	.500-.624						2.625	3.422	5.796		
mm	12.7-15.8	0	20mm x 50.5	yes	standard	helical	1410-515-01232F	66.7	94.8	145.3	1/8 BSP
inch	.500-.624						2.625	3.734	5.722		
mm	12.7-15.8	0	20 mm x 60.3	no	long	helical	1410-517-01232	117.5	137.7	198.0	1/8 BSP
inch	.500-.624						4.625	5.422	7.797		
mm	15.9-19.0						38.9	66.3	117.9		
inch	.625-.748	0+	3/4 x 2.031	yes	short	straight	1409-705-01547F	1.531	2.609	4.640	1/8 NPT
mm	15.9-19.0						67.5	86.9	147.2		
inch	.625-.748	0+	3/4 x 2.375	no	standard	helical	1409-515-01547	2.656	3.422	5.797	1/8 NPT
mm	15.9-19.0						67.5	94.8	146.4		
inch	.625-.748	0+	3/4 x 2.031	yes	standard	helical	1409-515-01547F	2.656	3.734	5.765	1/8 NPT
mm	15.9-19.0						118.3	137.7	198.0		
inch	.625-.748	0+	3/4 x 2.375	no	long	helical	1409-517-01547	4.656	5.422	7.797	1/8 NPT
mm	15.9-19.0	0+	20mm x 50.5	yes	short	straight	1410-705-01547F	38.9	66.3	116.8	1/8 BSP
inch	.625-.748						1.531	2.609	4.597		
mm	15.9-19.0	0+	20mm x 60.3	no	standard	helical	1410-515-01547	67.5	86.9	147.2	1/8 BSP
inch	.625-.748						2.656	3.422	5.796		
mm	15.9-19.0	0+	20mm x 50.5	yes	standard	helical	1410-515-01547F	67.5	94.9	145.3	1/8 BSP
inch	.625-.748						2.656	3.734	5.722		
mm	15.9-19.0	0+	20mm x 60.3	no	long	helical	1410-517-01547	118.3	137.7	198.0	1/8 BSP
inch	.625-.748						4.656	5.422	7.797		
mm	19.0-24.6						71.8	110.7	168.7		
inch	.748-.967	I	1 x 2.281	yes	short	helical	1418-715-01862F	2.828	4.359	6.640	1/8 NPT
mm	19.0-24.6						173.4	203.6	279.8		
inch	.748-.967	I	1 x 3.000	no	standard	helical	1418-515-01862	6.828	8.016	11.016	1/8 NPT

# TRU-LOK DRILL HOLDERS



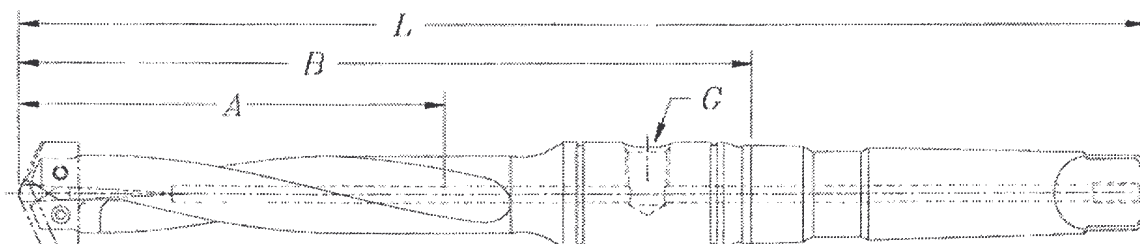
## STRAIGHT SHANK (cont'd)

Drilling range								Dimensions			
Dia.	Series	Shank	Flange	Length	Flute	Order number	A	B	L	G	
mm 19.0-24.6							173.4	209.1	267.1		
inch .748-.967	I	1 x 2.281	yes	standard	helical	1418-515-01862F	6.828	8.234	10.515	1/8 NPT	
mm 19.0-24.6	I	25mm x 56.6	yes	short	helical	1416-715-01862F	71.8	110.7	167.3	1/8 BSP	
inch .748-.967							2.828	4.359	6.587		
mm 19.0-24.6	I	25mm x 76.2	no	standard	helical	1416-515-01862	173.4	203.6	279.8	1/8 BSP	
inch .748-.967							6.828	8.016	11.016		
mm 19.0-24.6	I	25mm x 56.6	yes	standard	helical	1416-515-01862F	173.4	209.1	265.7	1/8 BSP	
inch .748-.967							6.828	8.234	10.462		
mm 22.2-24.6							71.8	110.7	168.7		
inch .875-.967	I+	1 x 2.281	yes	short	helical	1418-715-02261F	2.828	4.359	6.640	1/8 NPT	
mm 22.2-24.6							173.4	209.1	267.1		
inch .875-.967	I+	1 x 2.281	yes	standard	helical	1418-515-02261F	6.828	8.234	10.515	1/8 NPT	
mm 22.2-24.6							173.4	203.6	279.8		
inch .875-.967	I+	1 x 3.000	no	standard	helical	1418-515-02261	6.828	8.016	11.016	1/8 NPT	
mm 22.2-24.6	I+	25mm x 56.6	yes	short	helical	1416-715-02261F	71.8	110.7	167.3	1/8 BSP	
inch .875-.967							2.828	4.359	6.587		
mm 22.2-24.6	I+	25mm x 76.2	no	standard	helical	1416-515-02261	173.4	203.6	279.8	1/8 BSP	
inch .875-.967							6.828	8.016	11.016		
mm 22.2-24.6	I+	25mm x 56.6	yes	standard	helical	1416-515-02261F	173.4	209.1	265.7	1/8 BSP	
inch .875-.967							6.828	8.234	10.462		
mm 24.6-35.0							85.7	117.9	206.8		
inch .968-1.375	II	1 x 3.500	no	short	straight	1418-705-02413	3.375	4.641	8.141	1/8 NPT	
mm 24.6-35.0							187.3	219.5	308.4		
inch .968-1.375	II	1 x 3.500	no	standard	helical	1418-515-02413	7.375	8.641	12.141	1/8 NPT	
mm 24.6-35.0							85.7	132.2	190.1		
inch .968-1.375	II	1-1/4 x 2.281	yes	short	helical	1424-715-02413F	3.375	5.203	7.484	1/4 NPT	
mm 24.6-35.0							187.3	233.8	291.7		
inch .968-1.375	II	1-1/4 x 2.281	yes	standard	helical	1424-515-02413F	7.375	9.203	11.484	1/4 NPT	
mm 24.6-35.0	II	32mm x 57.9	yes	short	helical	1425-715-02413F	85.7	132.2	190.1	1/4 BSP	
inch .968-1.375							3.375	5.203	7.484		
mm 24.6-35.0	II	32mm x 57.9	yes	standard	helical	1425-515-02413F	187.3	233.8	291.7	1/4 BSP	
inch .968-1.375							7.375	9.203	11.484		
mm 30.0-35.0							85.7	117.9	206.8		
inch 1.187-1.375	II+	1 x 3.500	no	short	straight	1418-705-02970	3.375	4.641	8.141	1/8 NPT	
mm 30.0-35.0							187.3	219.5	308.4		
inch 1.187-1.375	II+	1 x 3.500	no	standard	helical	1418-515-02970	7.375	8.641	12.141	1/8 NPT	
mm 30.0-35.0							85.7	132.2	190.1		
inch 1.187-1.375	II+	1-1/4 x 2.281	yes	short	helical	1424-715-02970F	3.375	5.203	7.484	1/4 NPT	
mm 30.0-35.0							187.3	233.8	291.7		
inch 1.187-1.375	II+	1-1/4 x 2.281	yes	standard	helical	1424-515-02970F	7.375	9.203	11.484	1/4 NPT	
mm 30.0-35.0	II+	32mm x 57.9	yes	short	helical	1425-715-02970F	85.7	132.2	190.1	1/4 BSP	
inch 1.187-1.375							3.375	5.203	7.484		
mm 30.0-35.0	II+	32mm x 57.9	yes	standard	helical	1425-515-02970F	187.3	233.8	291.7	1/4 BSP	
inch 1.187-1.375							7.375	9.203	11.484		

### Insert/cap screws, for Madison spade drill holders

Tru-Lok (2 screws req'd)			Duodex/Accusize (1 screw req'd)					
0	T7	9904-075-99053	0	T8	9904-075-99008	III	5 mm hex	9904-001-99033
0+	T7	9904-075-99010	0+	T15	9904-075-99009	IV	6 mm hex	9904-001-99020
I	T9	9904-075-99054	I	3 mm hex	9904-001-99023	V	8 mm hex	9904-001-99084
II	T15	9904-075-99058	II	3 mm hex	9904-001-99002	VI	8 mm hex	9904-001-99084

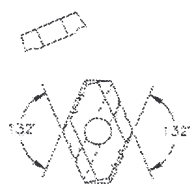
# TRU-LOK DRILL HOLDERS



## TAPER SHANK

Drilling range							Dimensions				Coolant inducer
Dia.	Series	Shank	Length	Flute	Order number	A	B	L	G		
mm 12.7-15.8						38.1	92.5	167.1		8223-100	
inch .500-.624	0	MT 2	short	straight	1452-705-01232	1.500	3.641	6.579	1/16 NPT	-02000	
mm 12.7-15.8						66.7	121.1	195.7		8223-100	
inch .500-.624	0	MT 2	standard	helical	1452-515-01232	2.625	4.766	7.703	1/16 NPT	-02000	
mm 15.9-19.0						38.9	92.5	167.1		8223-100	
inch .625-.748	0+	MT 2	short	straight	1452-705-01547	1.531	3.641	6.579	1/16 NPT	-02000	
mm 15.9-19.0						67.5	121.1	195.7		8223-100	
inch .625-.748	0+	MT 2	standard	helical	1452-515-01547	2.656	4.766	7.703	1/16 NPT	-02000	
mm 19.0-24.6						74.6	142.5	236.1		8223-100	
inch .748-.967	I	MT 3	short	helical	1453-715-01862	2.938	5.609	9.297	1/8 NPT	-03000	
mm 19.0-24.6						176.2	244.1	337.7		8223-100	
inch .748-.967	I	MT 3	standard	helical	1453-515-01862	6.938	9.609	13.297	1/8 NPT	-03000	
mm 22.2-24.6						74.6	142.5	236.1		8223-100	
inch .875-.967	I+	MT 3	short	helical	1453-715-02261	2.938	5.609	9.297	1/8 NPT	-03000	
mm 22.2-24.6						176.2	244.1	337.7		8223-100	
inch .875-.967	I+	MT 3	standard	helical	1453-515-02261	6.938	9.609	13.297	1/8 NPT	-03000	
mm 24.6-35.0						85.7	159.9	277.4		8223-100	
inch .968-1.375	II	MT 4	short	helical	1454-715-02413	3.375	6.297	10.922	1/8 NPT	-04000	
mm 24.6-35.0						187.3	261.5	379.0		8223-100	
inch .968-1.375	II	MT 4	standard	helical	1454-515-02413	7.375	10.297	14.922	1/8 NPT	-04000	
mm 30.0-35.0						85.7	167.1	284.6		8223-100	
inch 1.187-1.375	II+	MT 4	short	helical	1454-715-02970	3.375	6.578	11.203	1/4 NPT	-04000	
mm 30.0-35.0						187.3	268.7	386.2		8223-100	
inch 1.187-1.375	II+	MT 4	standard	helical	1454-515-02970	7.375	10.578	15.203	1/4 NPT	-04000	

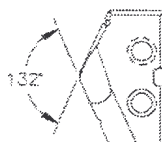
## INSERT AVAILABILITY



Indexable *Duodex* inserts: two factory ground cutting edges for double-the-life.



Cylindrically ground *Accusize* inserts: close hole tolerance and improved surface finish.



New *Tru-Lok* inserts: improved chip clearance in small diameter holes.

Madison's policy is to stock a wide range of spade drill inserts in sizes, materials and coatings that have regular demands. Inserts are usually available from stock in several coatings including TiN, TiCN or TiAlN, and if not in stock within 2-4 weeks.



# INSERT ASSORTMENT (cont'd)

## Range

**Tru-Lok**  
 HSS CPM T-15  
 Carbide C-2, C-5  
**Accusize**  
 HSS CPM T-15  
 Carbide C-5  
**Duodex**  
 HSS CPM T-15

	Series						Recommended coating
	0	I	II	III	IV	V	
							TiN
							TiAlN, TiN
							TiN, TiCN
							TiN
							TiN/CVD, TiCN

## Standard sizes

	Diameter		
	mm	inch	fract.
Series 0	12.7	.500	1/2
	13.0	.511	
	13.1	.515	33/64
	13.5	.531	17/32
	13.5	.532	
	13.9	.546	35/64
	14.0	.551	
	14.3	.562	9/16
	14.5	.571	
	14.7	.578	37/64
	15.0	.591	
	15.1	.593	19/32
	15.5	.609	39/64
	15.5	.610	
	15.9	.625	5/8
	16.0	.629	
	16.3	.640	41/64
	16.5	.650	
16.7	.656	21/32	
17.0	.669		
17.1	.671	43/64	
17.5	.687	11/16	
17.5	.689		
17.9	.703	45/64	
18.0	.709		
18.3	.718	23/32	
18.5	.728		
18.7	.734	47/64	
Series I	19.0	.748	
	19.1	.750	3/4
	19.5	.765	49/64
	19.5	.768	
	19.8	.781	25/32
	20.0	.787	
	20.2	.796	51/64
	20.5	.807	
	20.6	.812	13/16
	21.0	.827	
	21.0	.828	53/64
	21.4	.843	27/32
	21.5	.847	
	21.8	.859	55/64
	22.0	.866	
	22.2	.875	7/8
	22.5	.886	
	22.6	.890	57/64
23.0	.906		
23.0	.906	29/32	
23.4	.921	59/64	
23.5	.925		
23.8	.937	15/16	
24.0	.945		
24.2	.953	61/64	

	Diameter		
	mm	inch	fract.
Series II	24.6	.968	31/32
	25.0	.984	
	25.0	.984	63/64
	25.4	1.000	1
	25.5	1.004	
	25.8	1.015	1 1/64
	26.0	1.024	
	26.2	1.031	1 1/32
	26.5	1.043	
	26.6	1.046	1 3/64
	27.0	1.062	1 1/16
	27.0	1.063	
	27.4	1.078	1 5/64
	27.5	1.082	
	27.8	1.093	1 3/32
	28.0	1.102	
	28.2	1.109	1 7/64
	28.5	1.122	
28.6	1.125	1 1/8	
29.0	1.140	1 9/64	
29.0	1.142		
29.4	1.156	1 5/32	
29.5	1.161		
29.8	1.171	1 11/64	
30.0	1.181		
30.2	1.187	1 3/16	
30.5	1.201		
30.6	1.203	1 13/64	
31.0	1.218	1 7/32	
31.0	1.221		
31.4	1.234	1 15/64	
31.5	1.240		
31.8	1.250	1 1/4	
32.0	1.260		
32.1	1.265	1 17/64	
32.5	1.280		
32.5	1.281	1 9/32	
32.9	1.296	1 19/64	
33.0	1.299		
33.3	1.312	1 5/16	
33.5	1.319		
33.7	1.328	1 21/64	
34.0	1.339		
34.1	1.343	1 11/32	
34.5	1.358		
34.5	1.359	1 23/64	
34.9	1.375	1 3/8	

	Diameter		
	mm	inch	fract.
Series III	35.0	1.378	
	35.7	1.406	1 13/32
	36.0	1.417	
	36.5	1.437	1 7/16
	37.0	1.457	
	37.3	1.468	1 15/32
	38.0	1.496	
	38.1	1.500	1 1/2
	38.9	1.531	1 17/32
	39.0	1.535	
	39.7	1.562	1 9/16
	40.0	1.575	
	40.5	1.593	1 19/32
	41.0	1.614	
	41.3	1.625	1 5/8
	42.0	1.654	
	42.1	1.656	1 21/32
	42.8	1.687	1 11/16
43.0	1.693		
43.6	1.718	1 23/32	
44.0	1.732		
44.4	1.750	1 3/4	
45.0	1.772		
45.2	1.781	1 25/32	
46.0	1.811		
46.0	1.812	1 13/16	
46.8	1.843	1 27/32	
47.0	1.850		
47.6	1.875	1 7/8	
48.0	1.890		
48.4	1.906	1 29/32	
49.0	1.929		
Series IV	49.2	1.937	1 15/16
	50.0	1.968	
	50.0	1.968	1 31/32
	50.8	2.000	2
	51.0	2.008	
	51.6	2.031	2 1/32
	52.0	2.047	
	52.4	2.062	2 1/16
	53.0	2.087	
	53.2	2.093	2 3/32
	54.0	2.125	2 1/8
	54.0	2.126	
	54.8	2.156	2 5/32
	55.0	2.165	
	55.5	2.187	2 3/16
	56.0	2.205	
	56.3	2.218	2 7/32
	57.0	2.244	
57.2	2.250	2 1/4	
57.9	2.281	2 9/32	

	Diameter		
	mm	inch	fract.
Series V	58.0	2.283	
	58.7	2.312	2 5/16
	29.0	2.323	
	59.5	2.343	2 11/32
	60.0	2.362	
	60.3	2.375	2 3/8
	61.0	2.402	
	61.1	2.406	2 13/32
	61.9	2.437	2 7/16
	62.0	2.441	
	62.7	2.468	2 15/32
	63.0	2.480	
	63.5	2.500	2 1/2
	64.0	2.520	
	64.3	2.531	2 17/32
	65.0	2.559	
	65.1	2.562	2 9/16
	Series VI	66.0	2.598
66.7		2.625	2 5/8
68.0		2.677	
69.9		2.750	2 3/4
70.0		2.756	
72.0		2.835	
73.0		2.875	2 7/8
74.0		2.913	
76.0		2.992	
76.2		3.000	3
78.0		3.071	
79.4		3.125	3 1/8
80.0		3.150	
82.0		3.228	
82.6		3.250	3 1/4
84.0		3.308	
85.7		3.375	3 3/8
86.0		3.386	
88.0	3.465		
88.9	3.500	3 1/2	
Series VII	92.1	3.625	3 5/8
	95.3	3.750	3 3/4
	98.4	3.875	3 7/8
	100.0	3.937	3 15/16
	101.6	4.000	4
	104.8	4.125	4 1/8
	108.0	4.250	4 1/4
	111.1	4.375	4 3/8
	114.3	4.500	4 1/2
	117.5	4.625	4 5/8
	120.7	4.750	4 3/4
	123.8	4.875	4 7/8
	127.0	5.000	5