



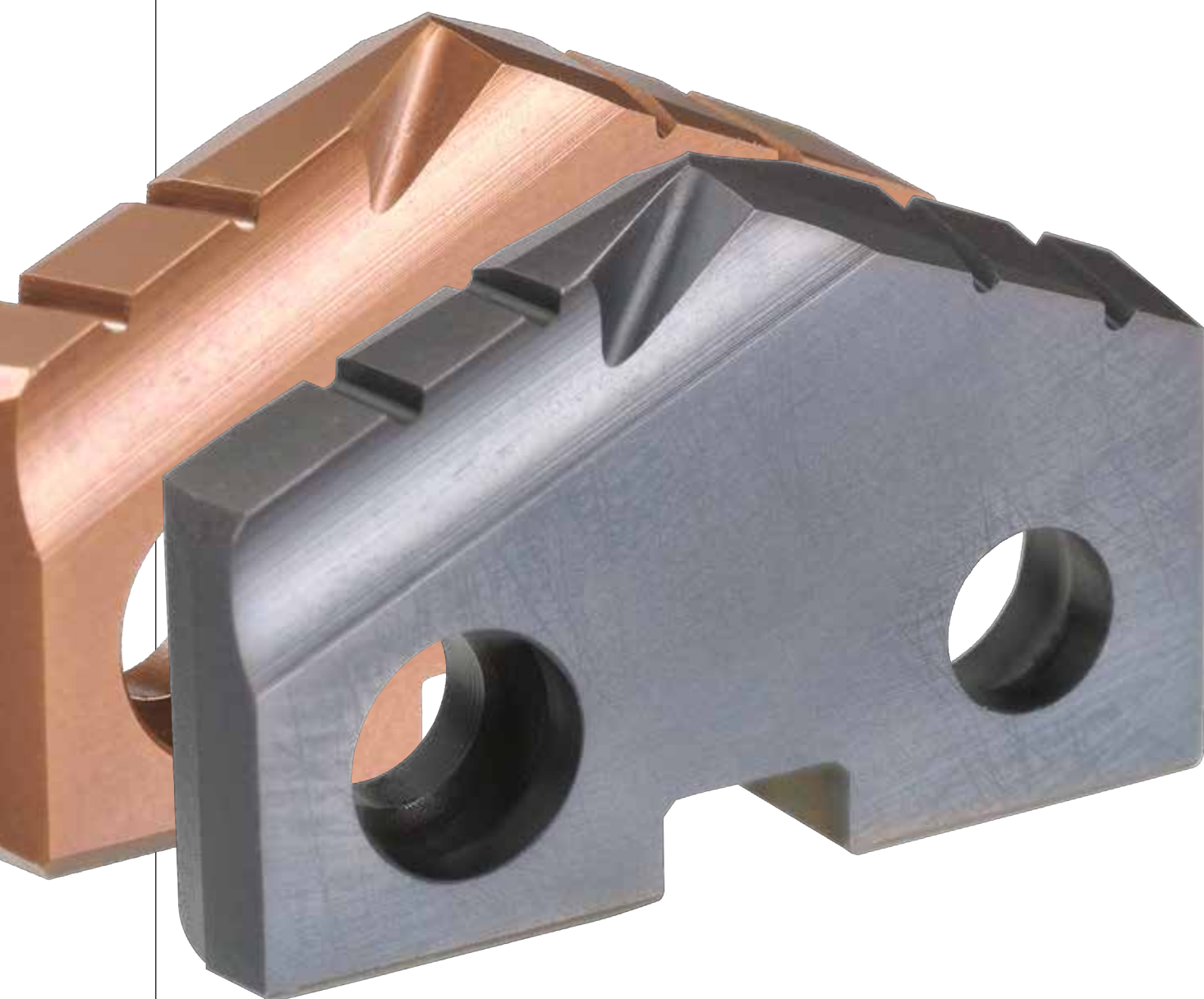
HIGH
PERFORMANCE



SPADE DRILLS
BUYER'S GUIDE 12/2024



HIGH
PERFORMANCE



SPADE DRILLS AND INSERTS

Series Y0 and Z0 : 9.50 – 12.50MM	2
Series 00 and 05 : 13.00 – 17.50MM	4
Series 10 and 15 : 18.00 – 24.00MM	6
Series 20 and 25 : 25.00 – 35.00MM	8
Series 30 and 35 : 36.00 – 47.00MM	10
Series 40 and 45 : 48.00 – 65.00MM	12
Series 50 and 55 : 66.00 – 89.00MM	14
Series 70 and 80 : 90.00 – 114.00MM	16

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Drive Rod	18

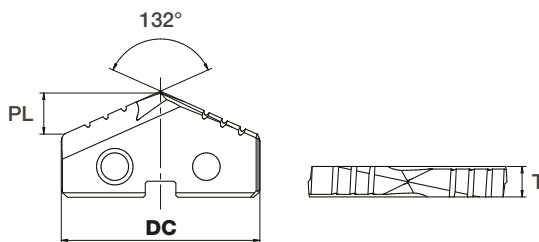
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GROUP

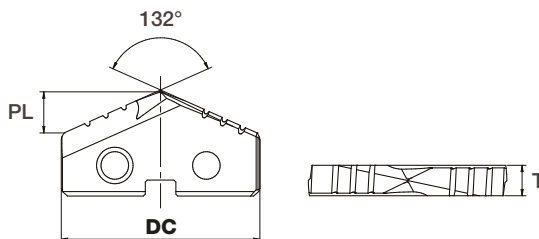
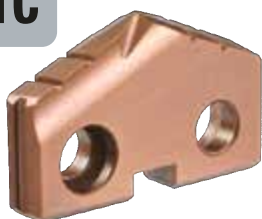
SPDR

**HSS
Co8**



SERIES	SIZE			INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co8
YO	9.50	2.1	2.38	HSS-Co8	AlCrN	6512-9.50
	10.00	2.2				6512-10.00
	10.50	2.3				6512-10.50
	11.00	2.4				6512-11.00
ZO	11.50	2.6	2.38	HSS-Co8	AlCrN	6512-11.50
	12.00	2.7				6512-12.00
	12.50	2.8				6512-12.50

TC



SERIES	SIZE			INSERT		PART NUMBER	PART NUMBER	PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	STEEL	CAST IRON	ALUMINIUM ALLOYS
YO	9.50	2.1	2.38	Tungsten Carbide	AlCrSiN	6513-9.50	6513-9.50K	6513-9.50N
	9.80	2.2				6513-9.80	6513-9.80K	6513-9.80N
	10.00	2.3				6513-10.00	6513-10.00K	6513-10.00N
	11.00	2.4				6513-11.00	6513-11.00K	6513-11.00N
ZO	11.50	2.6	2.38	Tungsten Carbide	AlCrSiN	6513-11.50	6513-11.50K	6513-11.50N
	12.00	2.7				6513-12.00	6513-12.00K	6513-12.00N
	12.50	2.8				6513-12.50	6513-12.50K	6513-12.50N

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N
6512	●	●	●	●	●	●	○	○	○	○	○	●
6513	●	●	●	●	●	○	○	○	○	●	●	●
6513..K	○	○	○			●	○	○				
6513..N							●	●	●	○	○	

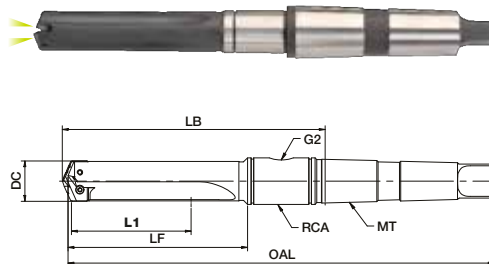
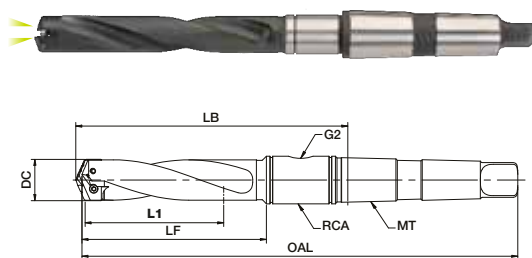
● VERY SUITABLE ○ SUITABLE



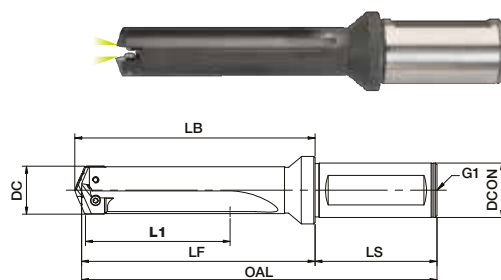
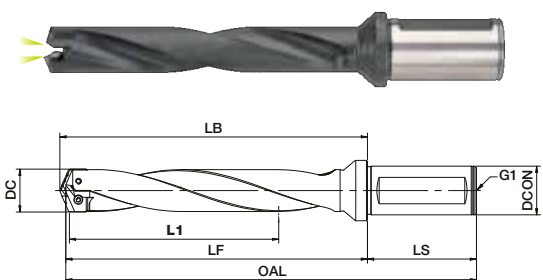
**9.5
TO
12.5
MM**

GROUP

SPDR



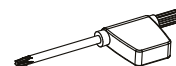
SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
Y0	9.50 to 11.00	32	52	88	160	2	Rc 1/16	6515-Y0HF20	6515-Y0SF20
		60	80	117	189			6515-Y0HF40	
		111	131	167	240			6515-Y0HF50	
Z0	11.50 to 12.50	32	52	88	160	2	Rc 1/16	6515-Z0HF20	6515-Z0SF20
		60	80	117	189			6515-Z0HF40	
		111	131	167	240			6515-Z0HF50	



SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	OAL MM	DCON MM	LS MM	G1 INCH	HELICAL FLUTE	STRAIGHT FLUTE
Y0	9.50 to 11.00	19	48	96	20	50	Rc 1/8		6516-Y0SF10
		32	61	111					6516-Y0SF20
		60	90	140				6516-Y0HF40	
		111	141	191				6516-Y0HF50	
		222	252	302					6516-Y0SF70
		290	320	370					6516-Y0SF90
Z0	11.50 to 12.50	19	48	96	20	50	Rc 1/8		6516-Z0SF10
		32	61	111					6516-Z0SF20
		60	90	140				6516-Z0HF40	
		111	141	191				6516-Z0HF50	
		222	252	302					6516-Z0SF70
		290	320	370					6516-Z0SF90

**9.5
TO
12.5
MM**

RCA



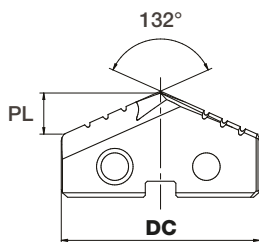
PART NUMBERS

TO SUIT MORSE TAPER Y0 & Z0	Y0	Z0	TO SUIT Y0 & Z0 – TORX® T7
6514-1905R	6518-047	6518-048	6519-018

GROUP

SPDR

**HSS
Co8**



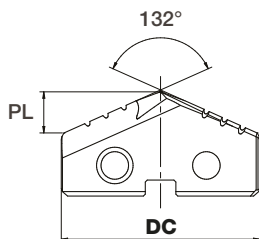
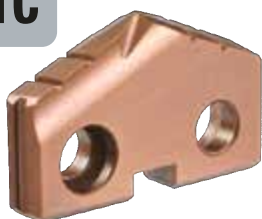
SERIES 05 INSERTS WILL FIT INTO BOTH SERIES 00 AND 05 HOLDERS. HOWEVER, SERIES 00 INSERTS ONLY FIT INTO SERIES 00 HOLDERS.



13.0
TO
17.5
MM

SERIES	SIZE			INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co8
00	13.00	2.9	3.18	HSS-Co8	AlCrN	6512-13.00
	13.50	3.0				6512-13.50
	14.00	3.1				6512-14.00
	14.50	3.2				6512-14.50
	15.00	3.3				6512-15.00
05	15.50	3.5	3.18	HSS-Co8	AlCrN	6512-15.50
	16.00	3.6				6512-16.00
	16.50	3.7				6512-16.50
	17.00	3.8				6512-17.00
	17.50	3.9				6512-17.50

TC



SERIES 05 INSERTS WILL FIT INTO BOTH SERIES 00 AND 05 HOLDERS. HOWEVER, SERIES 00 INSERTS ONLY FIT INTO SERIES 00 HOLDERS.



13.0
TO
17.5
MM

SERIES	SIZE			INSERT		PART NUMBER	PART NUMBER	PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	STEEL	CAST IRON	ALUMINIUM ALLOYS
00	13.00	2.9	3.18	Tungsten Carbide	AlCrSiN	6513-13.00	6513-13.00K	6513-13.00N
	13.50	3.0				6513-13.50	6513-13.50K	6513-13.50N
	14.00	3.1				6513-14.00	6513-14.00K	6513-14.00N
	14.50	3.2				6513-14.50	6513-14.50K	6513-14.50N
	15.00	3.3				6513-15.00	6513-15.00K	6513-15.00N
05	15.50	3.5	3.18	Tungsten Carbide	AlCrSiN	6513-15.50	6513-15.50K	6513-15.50N
	16.00	3.6				6513-16.00	6513-16.00K	6513-16.00N
	16.50	3.7				6513-16.50	6513-16.50K	6513-16.50N
	17.00	3.8				6513-17.00	6513-17.00K	6513-17.00N
	17.50	3.9				6513-17.50	6513-17.50K	6513-17.50N

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N
6512	●	●	●	●	●	●	○	○	○	○	○	●
6513	●	●	●	●	●	○	○	○	○	●	●	●
6513..K	○	○	○			●	○	○				
6513..N							●	●	●	○	○	

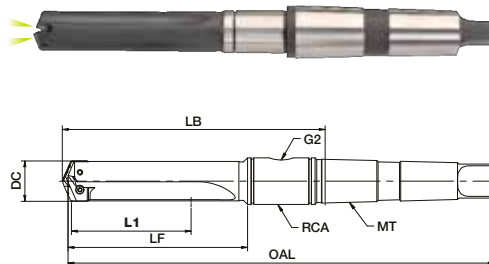
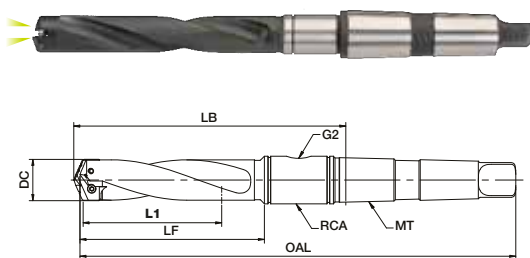
● VERY SUITABLE ○ SUITABLE



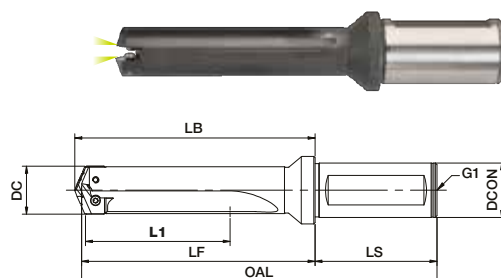
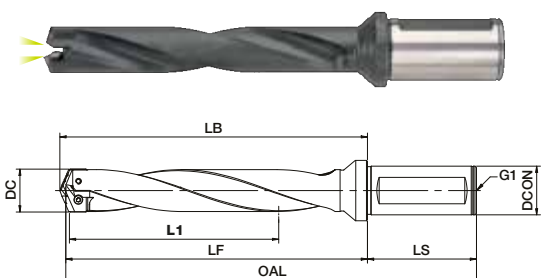
13.0 TO 17.5 MM

GROUP

SPDR



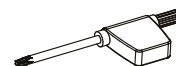
SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
00	13.00 to 17.50	35	56	92	164	2	Rc 1/16	6515-00HF20	6515-00SF20
		64	84	121	193			6515-00HF40	
		114	135	172	244			6515-00HF50	
		178	199	235	307			6515-00HF60	
05	15.50 to 17.50	35	56	92	164	2	Rc 1/16	6515-05HF20	6515-05SF20
		64	84	121	193			6515-05HF40	
		114	135	172	244			6515-05HF50	
		178	199	235	307			6515-05HF60	



SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	OAL MM	DCON MM	LS MM	G1 INCH	HELICAL FLUTE	STRAIGHT FLUTE
00	13.00 to 17.50	22	48	98	20	50	Rc 1/8		6516-00SF10
		35	64	114					6516-00SF20
		64	92	142				6516-00HF40	
		114	143	193				6516-00HF50	
		178	206	256				6516-00HF60	
		295	324	374					6516-00SF70
		387	416	466					6516-00SF90
05	15.50 to 17.50	22	48	98	20	50	Rc 1/8		6516-05SF10
		35	64	114					6516-05SF20
		64	92	142				6516-05HF40	
		114	143	193				6516-05HF50	
		178	206	256				6516-05HF60	
		295	324	374					6516-05SF70

13.0 TO 17.5 MM

RCA

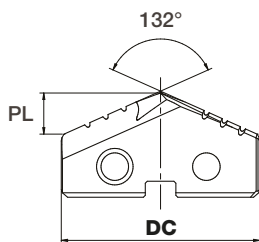


PART NUMBERS

TO SUIT MORSE TAPER 00 & 05	00	05	TO SUIT 00 & 05 - TORX® T8
6514-1905R	6518-230	6518-046	6519-017

HSS
Co5

HSS
Co8



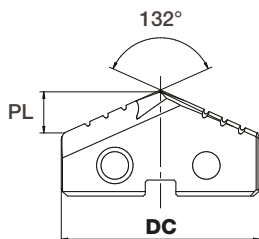
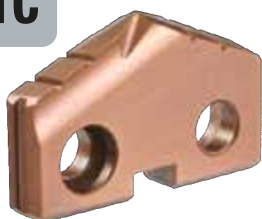
SERIES 15 INSERTS WILL FIT INTO BOTH SERIES 10 AND 15 HOLDERS. HOWEVER, SERIES 10 INSERTS ONLY FIT INTO SERIES 10 HOLDERS.



18.0
TO
24.0
MM

SERIES	SIZE			INSERT		PART NUMBER	INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co5	MATERIAL	COATING	HSS-Co8
10	18.00	4.0	3.97	HSS-Co5	TiAlN	6511-18.00	HSS-Co8	AlCrN	6512-18.00
	18.50	4.1				6511-18.50			6512-18.50
	19.00	4.2				6511-19.00			6512-19.00
	19.50	4.3				6511-19.50			6512-19.50
	20.00	4.5				6511-20.00			6512-20.00
	20.50	4.6				6511-20.50			6512-20.50
	21.00	4.7				6511-21.00			6512-21.00
15	22.00	4.9	3.97	HSS-Co5	TiAlN	6511-22.00	HSS-Co8	AlCrN	6512-22.00
	23.00	5.1				6511-23.00			6512-23.00
	24.00	5.3				6511-24.00			6512-24.00

TC



SERIES 15 INSERTS WILL FIT INTO BOTH SERIES 10 AND 15 HOLDERS. HOWEVER, SERIES 10 INSERTS ONLY FIT INTO SERIES 10 HOLDERS.



18.0
TO
24.0
MM

SERIES	SIZE			INSERT		PART NUMBER	PART NUMBER	PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	STEEL	CAST IRON	ALUMINIUM ALLOYS
10	18.00	4.0	3.97	Tungsten Carbide	AlCrSiN	6513-18.00	6513-18.00K	6513-18.00N
	18.50	4.1				6513-18.50	6513-18.50K	6513-18.50N
	19.00	4.2				6513-19.00	6513-19.00K	6513-19.00N
	19.50	4.3				6513-19.50	6513-19.50K	6513-19.50N
	20.00	4.5				6513-20.00	6513-20.00K	6513-20.00N
	20.50	4.6				6513-20.50	6513-20.50K	6513-20.50N
	21.00	4.7				6513-21.00	6513-21.00K	6513-21.00N
15	22.00	4.9	3.97	Tungsten Carbide	AlCrSiN	6513-22.00	6513-22.00K	6513-22.00N
	23.00	5.1				6513-23.00	6513-23.00K	6513-23.00N
	24.00	5.3				6513-24.00	6513-24.00K	6513-24.00N

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N
6511	●	●	●	●	●	○	○	○	○	○		
6512	●	●	●	●	●	●	○	○	○	○	○	●
6513	●	●	●	●	●	○	○	○	○	●	●	●
6513..K	○	○	○			●	○	○				
6513..N							●	●	●	○	○	

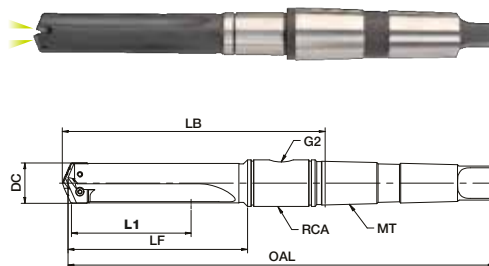
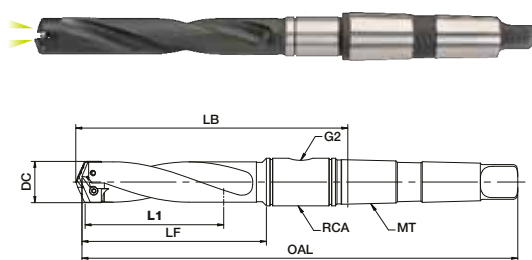
● VERY SUITABLE ○ SUITABLE



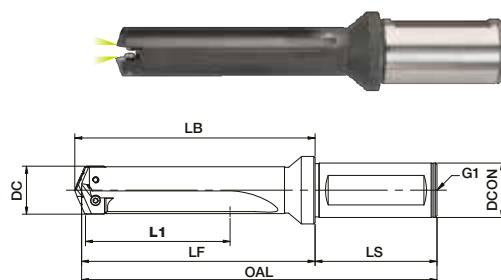
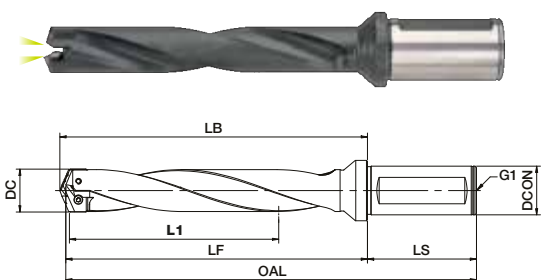
**18.0
TO
24.0
MM**

GROUP

SPDR

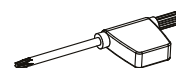


SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
10	18.00 to 24.00	70	98	143	233	3	Rc 1/8	6515-10HF20	6515-10SF20
		121	149	193	283			6515-10HF30	
		172	200	244	334			6515-10HF40	
		273	302	346	436			6515-10HF50	
15	22.00 to 24.00	70	98	143	233	3	Rc 1/8	6515-15HF20	6515-15SF20
		121	149	193	283			6515-15HF30	
		172	200	244	334			6515-15HF40	
		273	302	346	436			6515-15HF50	



SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	OAL MM	DCON MM	LS MM	G1 INCH	HELICAL FLUTE	STRAIGHT FLUTE
10	18.00 to 24.00	48	76	132	25	56	Rc 1/8		6516-10SF10
		67	107	163					6516-10SF20
		118	155	211				6516-10HF30	
		168	206	262				6516-10HF40	
		270	307	363				6516-10HF50	
		457	495	551					6516-10SF70
		569	603	659					6516-10SF90
15	22.00 to 24.00	48	76	132	25	56	Rc 1/8		6516-15SF10
		67	107	163					6516-15SF20
		118	155	211				6516-15HF30	
		168	206	262				6516-15HF40	
		270	307	363				6516-15HF50	

**18.0
TO
24.0
MM**



PART NUMBERS		
TO SUIT MORSE TAPER 10 & 15	TO SUIT 10 & 15	TO SUIT 10 & 15 – TORX® T9
6514-2540R	6518-049	6519-016

25.0
TO
35.0
MM

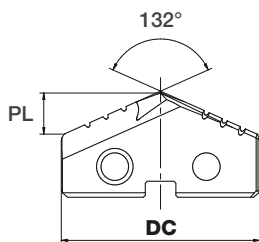
25.0
TO
35.0
MM

GROUP

SPDR

HSS
Co5

HSS
Co8

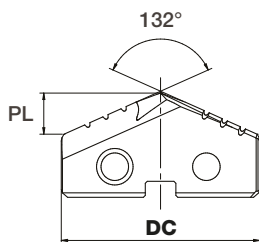


SERIES 25 INSERTS WILL FIT INTO BOTH SERIES 20 AND 25 HOLDERS. HOWEVER, SERIES 20 INSERTS ONLY FIT INTO SERIES 20 HOLDERS.



SERIES	SIZE			INSERT		PART NUMBER	INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co5	MATERIAL	COATING	HSS-Co8
20	25.00	5.6	4.76	HSS-Co5	TiAlN	6511-25.00	HSS-Co8	AlCrN	6512-25.00
	26.00	5.8				6511-26.00			6512-26.00
	27.00	6.0				6511-27.00			6512-27.00
	28.00	6.2				6511-28.00			6512-28.00
	29.00	6.5				6511-29.00			6512-29.00
25	30.00	6.7	4.76	HSS-Co5	TiAlN	6511-30.00	HSS-Co8	AlCrN	6512-30.00
	31.00	6.9				6511-31.00			6512-31.00
	32.00	7.1				6511-32.00			6512-32.00
	33.00	7.3				6511-33.00			6512-33.00
	34.00	7.6				6511-34.00			6512-34.00
	35.00	7.8				6511-35.00			6512-35.00

TC



SERIES 25 INSERTS WILL FIT INTO BOTH SERIES 20 AND 25 HOLDERS. HOWEVER, SERIES 20 INSERTS ONLY FIT INTO SERIES 20 HOLDERS.



SERIES	SIZE			INSERT		PART NUMBER	PART NUMBER	PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	STEEL	CAST IRON	ALUMINIUM ALLOYS
20	25.00	5.6	4.76	Tungsten Carbide	AlCrSiN	6513-25.00	6513-25.00K	6513-25.00N
	26.00	5.8				6513-26.00	6513-26.00K	6513-26.00N
	27.00	6.0				6513-27.00	6513-27.00K	6513-27.00N
	28.00	6.2				6513-28.00	6513-28.00K	6513-28.00N
	29.00	6.5				6513-29.00	6513-29.00K	6513-29.00N
25	30.00	6.7	4.76	Tungsten Carbide	AlCrSiN	6513-30.00	6513-30.00K	6513-30.00N
	31.00	6.9				6513-31.00	6513-31.00K	6513-31.00N
	32.00	7.1				6513-32.00	6513-32.00K	6513-32.00N
	33.00	7.3				6513-33.00	6513-33.00K	6513-33.00N
	34.00	7.6				6513-34.00	6513-34.00K	6513-34.00N
	35.00	7.8				6513-35.00	6513-35.00K	6513-35.00N

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N
6511	●	●	●	●	●	○	○	○	○	○		
6512	●	●	●	●	●	●	○	○	○	○	○	●
6513	●	●	●	●	●	○	○	○	○	●	●	●
6513..K	○	○	○			●	○	○				
6513..N							●	●	●	○	○	

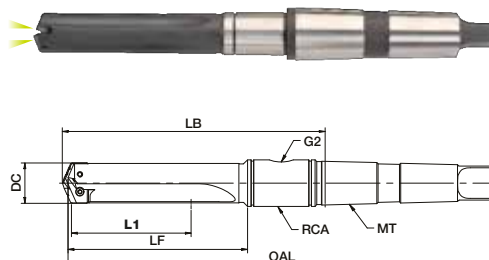
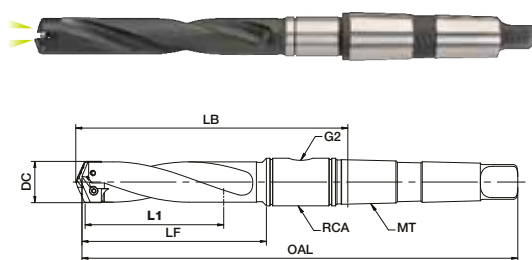
● VERY SUITABLE ○ SUITABLE



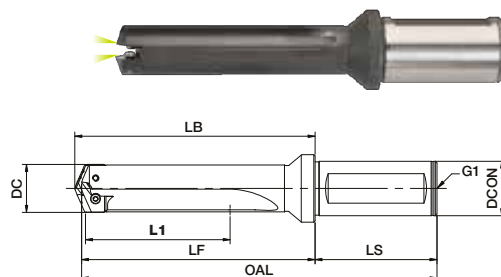
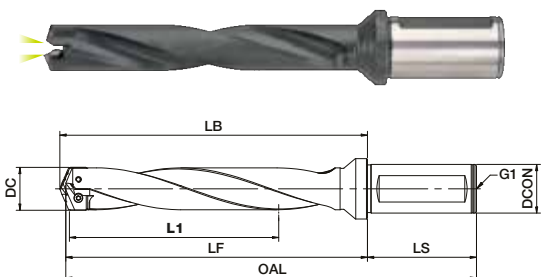
**25.0
TO
35.0
MM**

GROUP

SPDR

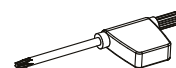


SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
20	25.00 to 35.00	86	114	160	274	4	Rc 1/8	6515-20HF20	6515-20SF20
		137	165	211	325			6515-20HF30	
		187	216	262	375			6515-20HF40	
		289	318	364	477			6515-20HF50	
25	30.00 to 35.00	86	114	168	281	4	Rc 1/4	6515-25HF20	6515-25SF20
		137	165	218	332			6515-25HF30	
		187	216	269	383			6515-25HF40	
		289	318	371	484			6515-25HF50	



SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	OAL MM	DCON MM	LS MM	G1 INCH	HELICAL FLUTE	STRAIGHT FLUTE
20	25.00 to 35.00	57	89	149	32	60	Rc 1/4		6516-20SF10
		86	129	189					6516-20SF20
		137	179	239				6516-20HF30	
		187	230	290				6516-20HF40	
		289	332	392				6516-20HF50	
		511	554	614					6516-20SF70
25	30.00 to 35.00	692	735	795	32	60	Rc 1/4		6516-20SF90
		57	89	149					6516-25SF10
		86	129	189					6516-25SF20
		137	179	239				6516-25HF30	
		187	230	290				6516-25HF40	
		289	332	392				6516-25HF50	
		511	554	614					6516-25SF70
		692	735	795					6516-25SF90

**25.0
TO
35.0
MM**



PART NUMBERS

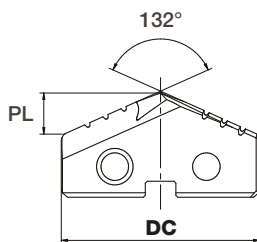
TO SUIT MORSE TAPER 20	TO SUIT MORSE TAPER 25	TO SUIT 20 & 25	TO SUIT 20 & 25 – TORX® T15
6514-2540R	6514-3175R	6518-045	6519-020

GROUP

SPDR

HSS
Co5

HSS
Co8



SERIES 35 INSERTS WILL FIT INTO BOTH SERIES 30 AND 35 HOLDERS. HOWEVER, SERIES 30 INSERTS ONLY FIT INTO SERIES 30 HOLDERS.



36.0
TO
47.0
MM

SERIES	SIZE			INSERT		PART NUMBER	INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co5	MATERIAL	COATING	HSS-Co8
30	36.00	8.0	6.35	HSS-Co5	TiAlN	6511-36.00	HSS-Co8	AlCrN	6512-36.00
	37.00	8.2				6511-37.00			6512-37.00
	38.00	8.5				6511-38.00			6512-38.00
	39.00	8.7				6511-39.00			6512-39.00
	40.00	8.9				6511-40.00			6512-40.00
	41.00	9.1				6511-41.00			6512-41.00
	42.00	9.3				6511-42.00			6512-42.00
35	43.00	9.6	6.35	HSS-Co5	TiAlN	6511-43.00	HSS-Co8	AlCrN	6512-43.00
	44.00	9.8				6511-44.00			6512-44.00
	45.00	10.0				6511-45.00			6512-45.00
	46.00	10.2				6511-46.00			6512-46.00
	47.00	10.5				6511-47.00			6512-47.00

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N
6511	●	●	●	●	●	○	○	○	○	○		
6512	●	●	●	●	●	●	○	○	○	○	○	●

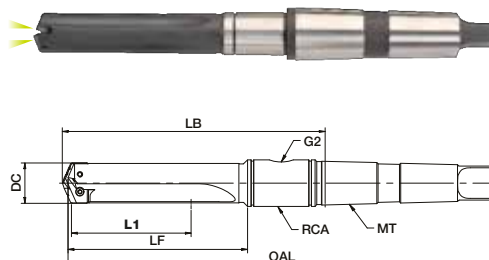
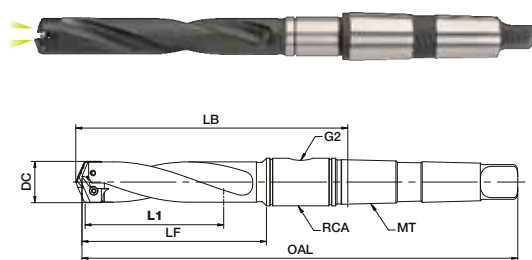
● VERY SUITABLE ○ SUITABLE



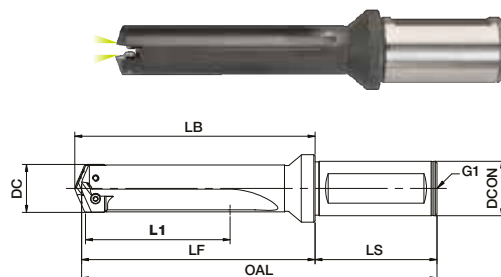
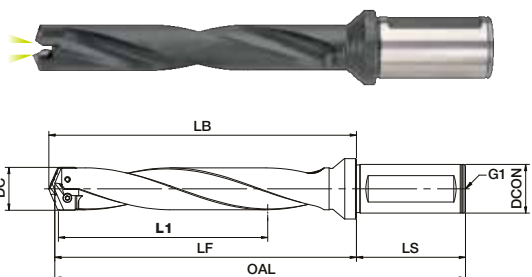
**36.0
TO
47.0
MM**

GROUP

SPDR

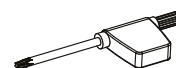


SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
30	36.00 to 47.00	121	152	206	319	4	Rc 1/4	6515-30HF20	6515-30SF20
		165	197	251	364			6515-30HF30	
		210	241	295	408			6515-30HF40	
		349	381	435	548				6515-30SF50
		559	591	645	757				6515-30SF70
		787	819	873	986				6515-30SF90
35	42.00 to 47.00	121	152	206	319	4	Rc 1/4	6515-35HF20	6515-35SF20
		165	197	251	364			6515-35HF30	
		210	241	295	408			6515-35HF40	
		349	381	435	548				6515-35SF50



SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	OAL MM	DCON MM	LS MM	G1 INCH	HELICAL FLUTE	STRAIGHT FLUTE
30	36.00 to 47.00	76	125	195	40	70	Rc 1/4		6516-30SF10
		121	173	243					6516-30SF20
		165	218	288				6516-30HF30	
		210	262	332				6516-30HF40	
		349	402	472					6516-30SF50
		559	611	681					6516-30SF70
		787	840	910					6516-30SF90
35	42.00 to 47.00	121	173	243	40	70	Rc 1/4		6516-35SF20
		165	218	288				6516-35HF30	
		210	262	332				6516-35HF40	
		349	402	472					6516-35SF50
		559	611	681					6516-35SF70
		787	840	910					6516-35SF90

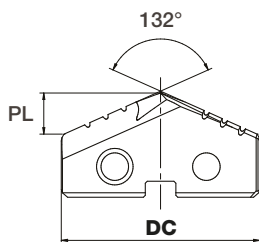
**36.0
TO
47.0
MM**



PART NUMBERS		
TO SUIT MORSE TAPER 30 & 35	TO SUIT 30 & 35	TO SUIT 30 & 35 – TORX® T20
6514-3175R	6518-044	6519-015

HSS
Co5

HSS
Co8



SERIES 45 INSERTS WILL FIT INTO BOTH SERIES 40 AND 45 HOLDERS. HOWEVER, SERIES 40 INSERTS ONLY FIT INTO SERIES 40 HOLDERS.



48.0
TO
65.0
MM

SERIES	SIZE			INSERT		PART NUMBER	INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co5	MATERIAL	COATING	HSS-Co8
40	48.00	10.7	7.94	HSS-Co5	TiAlN	6511-48.00	HSS-Co8	AlCrN	6512-48.00
	49.00	10.9				6511-49.00			6512-49.00
	50.00	11.1				6511-50.00			6512-50.00
	51.00	11.4				6511-51.00			6512-51.00
	52.00	11.6				6511-52.00			6512-52.00
	53.00	11.8				6511-53.00			6512-53.00
	54.00	12.0				6511-54.00			6512-54.00
	55.00	12.2				6511-55.00			6512-55.00
	56.00	12.5				6511-56.00			6512-56.00
45	57.00	12.7	7.94	HSS-Co5	TiAlN	6511-57.00	HSS-Co8	AlCrN	6512-57.00
	58.00	12.9				6511-58.00			6512-58.00
	59.00	13.1				6511-59.00			6512-59.00
	60.00	13.4				6511-60.00			6512-60.00
	61.00	13.6				6511-61.00			6512-61.00
	62.00	13.8				6511-62.00			6512-62.00
	63.00	14.0				6511-63.00			6512-63.00
	64.00	14.2				6511-64.00			6512-64.00
	65.00	14.5				6511-65.00			6512-65.00

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N
6511	●	●	●	●	●	○	○	○	○	○		
6512	●	●	●	●	●	●	○	○	○	○	○	●

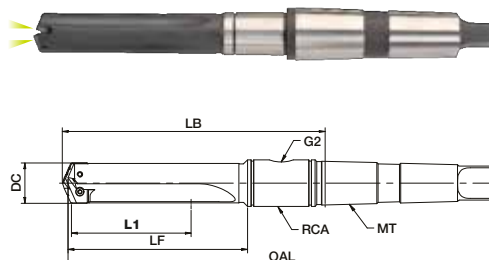
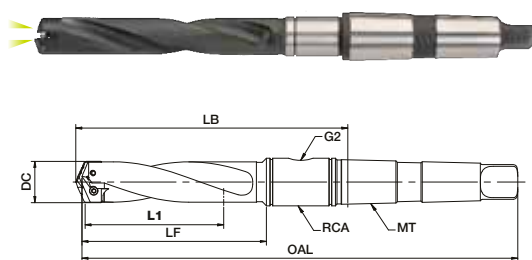
● VERY SUITABLE ○ SUITABLE



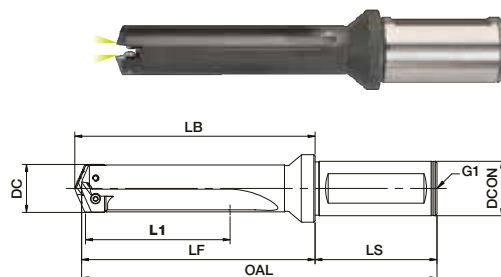
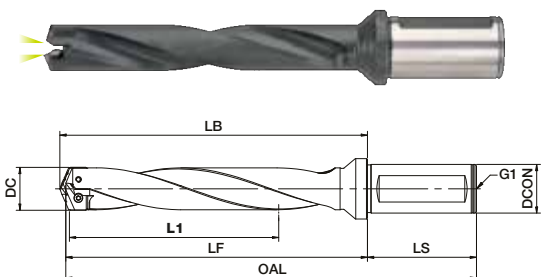
**48.0
TO
65.0
MM**

GROUP

SPDR

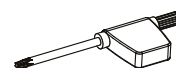


SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
40	48.00 to 65.00	130	165	219	364	5	Rc 1/4	6515-40HF20	6515-40SF20
		232	267	321	465			6515-40HF40	
		422	457	511	656				6515-40SF50
		625	660	714	859				6515-40SF70
		879	914	968	1113				6515-40SF90
45	56.00 to 65.00	130	165	219	364	5	Rc 1/4	6515-45HF20	6515-45SF20
		232	267	321	465			6515-45HF40	
		422	457	511	656				6515-45SF50
		625	660	714	859				6515-45SF70
		879	914	968	1113				6515-45SF90



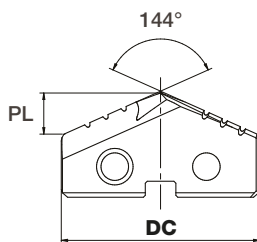
SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	OAL MM	DCON MM	LS MM	G1 INCH	HELICAL FLUTE	STRAIGHT FLUTE
40	48.00 to 65.00	130	179	249	40	70	Rc 1/4		6516-40SF20
		232	281	351				6516-40HF40	
		422	472	542					6516-40SF50
		625	675	745					6516-40SF70
		879	929	999					6516-40SF90
45	56.00 to 65.00	130	179	249	40	70	Rc 1/4		6516-45SF20
		232	281	351				6516-45HF40	
		422	472	542					6516-45SF50
		625	675	745					6516-45SF70

**48.0
TO
65.0
MM**



PART NUMBERS		
TO SUIT MORSE TAPER 40 & 45	TO SUIT 40 & 45	TO SUIT 40 & 45 – TORX® T20
6514-4445R	6518-044	6519-015

**HSS
Co5**



SERIES 55 INSERTS WILL FIT INTO BOTH SERIES 50 AND 55 HOLDERS. HOWEVER, SERIES 50 INSERTS ONLY FIT INTO SERIES 50 HOLDERS.

**66.0
TO
89.0
MM**

SERIES	SIZE			INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co5
50	66.00	10.7	11.11	HSS-Co5	TiAlN	6511-66.00
	68.00	11.0				6511-68.00
	70.00	11.4				6511-70.00
	72.00	11.7				6511-72.00
	74.00	12.0				6511-74.00
	76.00	12.3				6511-76.00
55	77.00	12.5	11.11	HSS-Co5	TiAlN	6511-77.00
	78.00	12.7				6511-78.00
	80.00	13.0				6511-80.00
	82.00	13.3				6511-82.00
	84.00	13.6				6511-84.00
	86.00	14.0				6511-86.00
	88.00	14.3				6511-88.00
	89.00	14.5				6511-89.00

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	SI<12%	SI>12%	<750N	<1100N	<1100N	<1400N
6511	●	●	●	●	●	○	○	○	○	○		

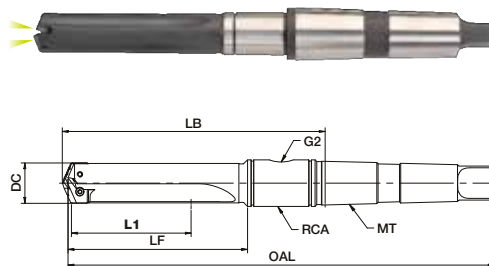
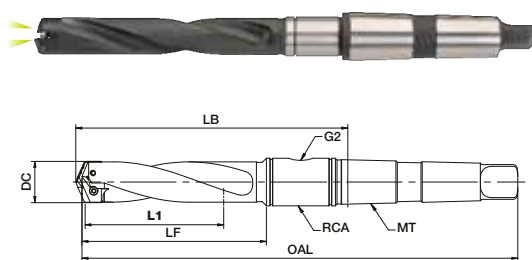
● VERY SUITABLE ○ SUITABLE



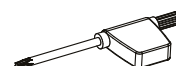
**66.0
TO
89.0
MM**

GROUP

SPDR

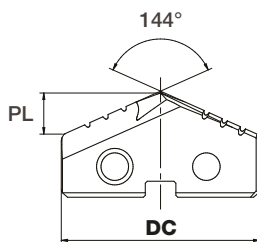


SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
50	66.00 to 89.00	172	216	287	430	5	Rc 1/2	6515-50HF20	6515-50SF20
		273	318	389	532			6515-50HF40	
		464	508	579	722				6515-50SF50
		660	705	776	919				6515-50SF70
		889	933	1005	1148				6515-50SF90
55	78.00 to 89.00	172	216	287	430	5	Rc 1/2	6515-55HF20	6515-55SF20
		273	318	389	532			6515-55HF40	
		464	508	579	722				6515-55SF50
		660	705	776	919				6515-55SF70
		889	933	1005	1148				6515-55SF90



PART NUMBERS		
TO SUIT MORSE TAPER 50 & 55	TO SUIT 50 & 55	TO SUIT 50 & 55 - TORX® T25
6514-5715R	6518-043	6519-019

**HSS
Co5**



SERIES 55 INSERTS WILL FIT INTO BOTH SERIES 50 AND 55 HOLDERS. HOWEVER, SERIES 50 INSERTS ONLY FIT INTO SERIES 50 HOLDERS.

**90.0
TO
114.0
MM**

SERIES	SIZE			INSERT		PART NUMBER
	DC MM	PL MM	T MM	MATERIAL	COATING	HSS-Co5
70	90.00	14.6	11.11	HSS-Co5	TiAIN	6511-90.00
	92.00	14.9				6511-92.00
	94.00	15.3				6511-94.00
	96.00	15.6				6511-96.00
	98.00	15.9				6511-98.00
	100.00	16.2				6511-100.00
80	102.00	16.6	11.11	HSS-Co5	TiAIN	6511-102.00
	104.00	16.9				6511-104.00
	106.00	17.2				6511-106.00
	108.00	17.5				6511-108.00
	110.00	17.9				6511-110.00
	112.00	18.2				6511-112.00
	114.00	18.5				6511-114.00

APPLICATION TABLE OF PROCESSED MATERIALS

ISO	P	P	P	P	M	K	N	N	N	S	S	H
WORKPIECE MATERIAL	MILD STEEL	STRUCT. STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	ALUMINIUM ALLOY	CAST ALUMINIUM	COPPER ALLOYS	SUPER ALLOYS	TITANIUM ALLOYS	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	SI<12%	SI>12%	<750N	<1100N	<1100N	<1400N
6511	●	●	●	●	●	○	○	○	○	○		

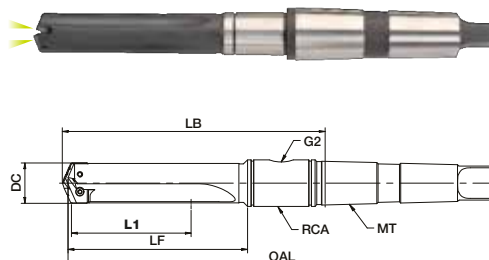
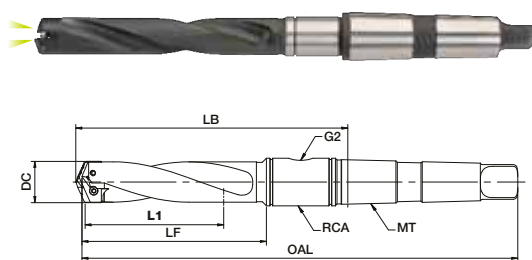
● VERY SUITABLE ○ SUITABLE



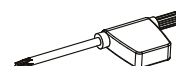
**90.0
TO
114.0
MM**

GROUP

SPDR



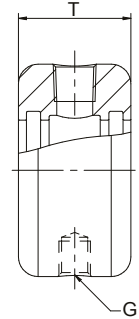
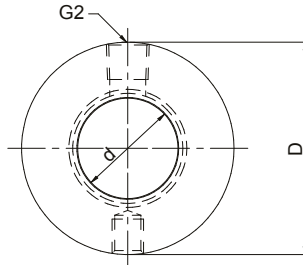
SERIES	SIZE							PART NUMBER	
	DC MM	L1 MM	LF MM	LB MM	OAL MM	MT	G2 INCH	HELICAL FLUTE	STRAIGHT FLUTE
70	90.00 to 114.00	172	225	297	440	5	Rc 1/2	6515-70HF20	6515-70SF20
		273	327	399	541			6515-70HF40	
		556	610	681	824				6515-70SF50
		685	740	811	954				6515-70SF70
		939	994	1065	1208				6515-70SF90
80	102.00 to 114.00	172	225	297	440	5	Rc 1/2	6515-80HF20	6515-80SF20
		273	327	399	541			6515-80HF40	
		556	610	681	824				6515-80SF50
		685	740	811	954				6515-80SF70
		939	994	1065	1208				6515-80SF90



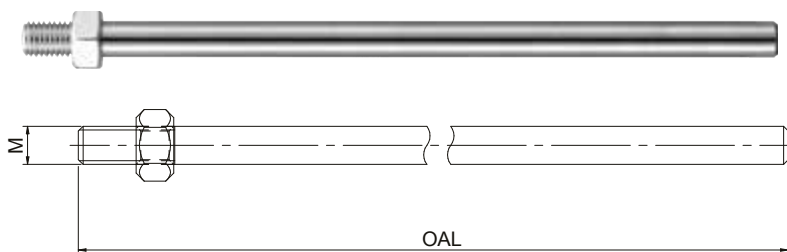
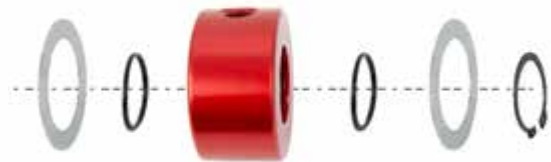
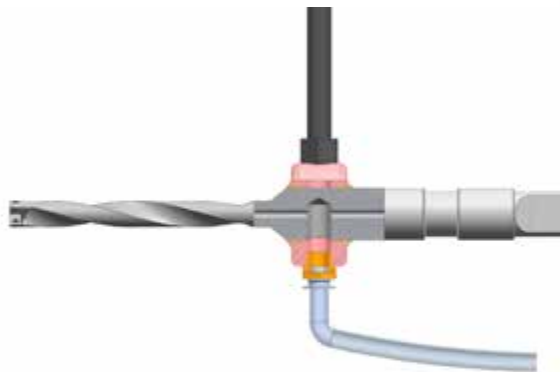
PART NUMBERS		
TO SUIT MORSE TAPER 70 & 80	TO SUIT 70 & 80	TO SUIT 70 & 80 – TORX® T25
6514-5715R	6518-043	6519-019

GROUP

SPDR



PART NUMBER	DIMENSIONS					PART NUMBER
OIL RING	d MM INTERNAL DIA.	D MM EXTERNAL DIA.	T MM THICKNESS	G1 MM DRIVING ROD	G2 INCH COOLANT NOZZLE	O-RING
6514-1905R	19.05	44.45	22.23	M8 X 1.25	Rc 1/8"	6511-90.00
6514-2540R	25.40	53.97	28.57	M8 X 1.25	Rc 1/8"	6511-92.00
6514-3175R	31.75	63.50	34.92	M10 X 1.5	Rc 1/4"	6511-94.00
6514-4445R	44.45	76.20	34.92	M10 X 1.5	Rc 1/4"	6511-96.00
6514-5715R	57.15	95.27	44.45	M12 X 1.75	Rc 1/2"	6511-98.00

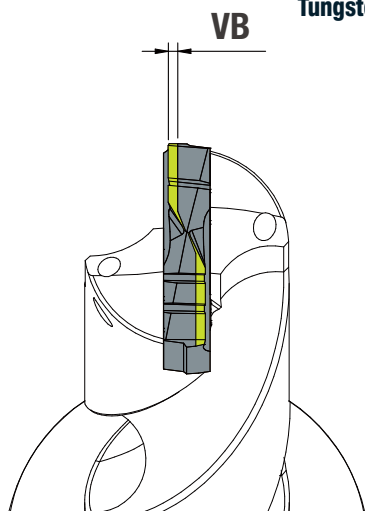


SUITS OIL RING	DIMENSIONS		PART NUMBER
	M MM THREAD	OAL MM LENGTH	DRIVE ROD
6514-1905R	M8 X 1.25	250	6517-M8
6514-2540R	M8 X 1.25	250	6517-M8
6514-3175R	M10 X 1.5	250	6517-M10
6514-4445R	M10 X 1.5	250	6517-M10
6514-5715R	M12 X 1.75	250	6517-M12

DRIVE
ROD

WEAR LIMITS

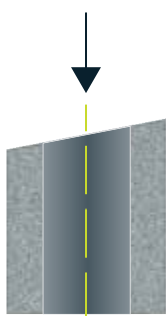
HSS-Co5 Insert VB=0.4mm
HSS-Co8 Insert VB=0.4mm
Tungsten Carbide Insert VB=0.3mm



INSERT INSTALLATION

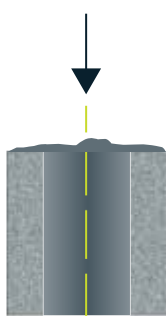


APPLICATIONS



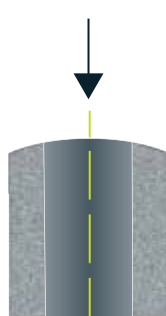
ENTRY SURFACE IS SLANTED

Slope <3°
Reduce Feed Rate to 50% of recommended.



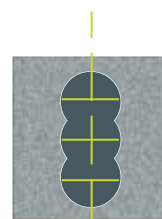
ENTRY SURFACE IS WELDED

Level by spot facing prior to drilling.

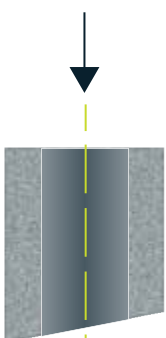


ENTRY SURFACE IS ARC/CURVED

Drilling at center of arc is permitted at reduced feed rate. Spot facing is required if the drilling entry point is not at the centre of the arc.

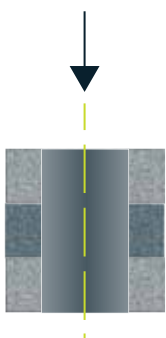


DRILLING AN INCOMPLETE HOLE NOT PERMITTED



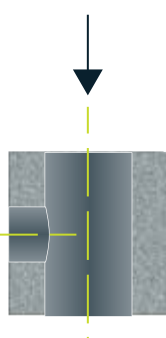
EXIT SURFACE IS SLANTED

Slope <3°
Reduce Feed Rate to 50% of recommended.



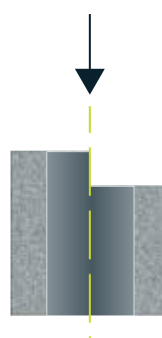
STACKED PLATES

Ensure sufficient clamping.



THROUGH HOLE

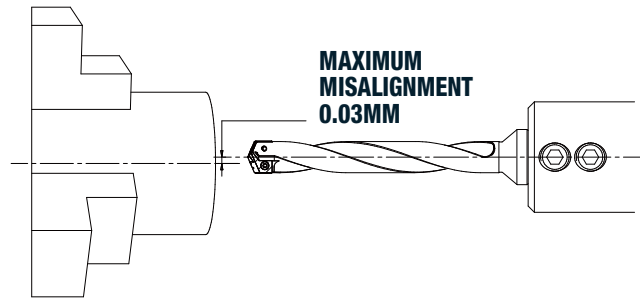
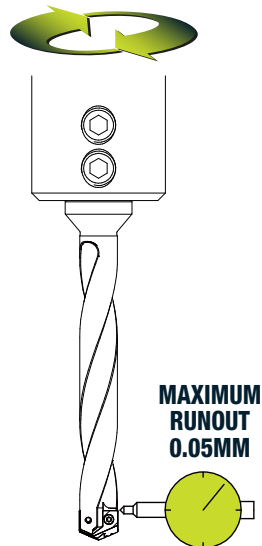
Drilling through a bisecting hole is
NOT PERMITTED



STEPPED ENTRY SURFACE

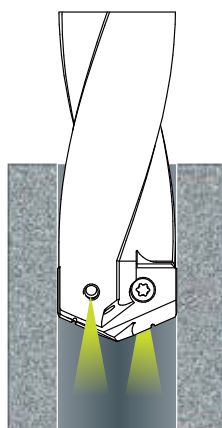
Entry point must be on a flat plane.
NOT PERMITTED

MAXIMUM RUNOUT AND ALIGNMENT



COOLANT PRESSURE

INTERNAL COOLING



9.5–47.0MM

5 Bar, 72 PSI, 500 kPa

48.0–65.0MM

10 Bar, 145 PSI, 1000 kPa

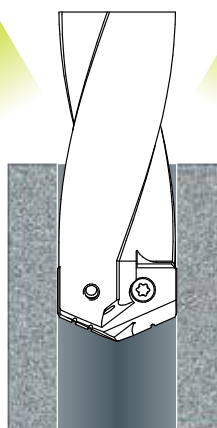
66.0–89.0MM

15 Bar, 217 PSI, 1500 kPa

90.0–114.0MM

20 Bar, 290 PSI, 2000 kPa

EXTERNAL COOLING



9.5–35.0MM

5 Bar, 72 PSI, 500 kPa

48.0–65.0MM

not suitable

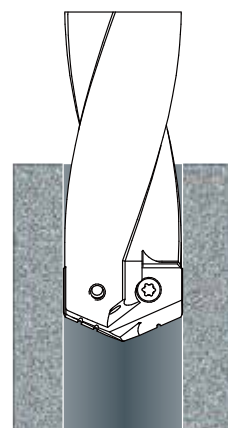
66.0–89.0MM

not suitable

90.0–114.0MM

not suitable

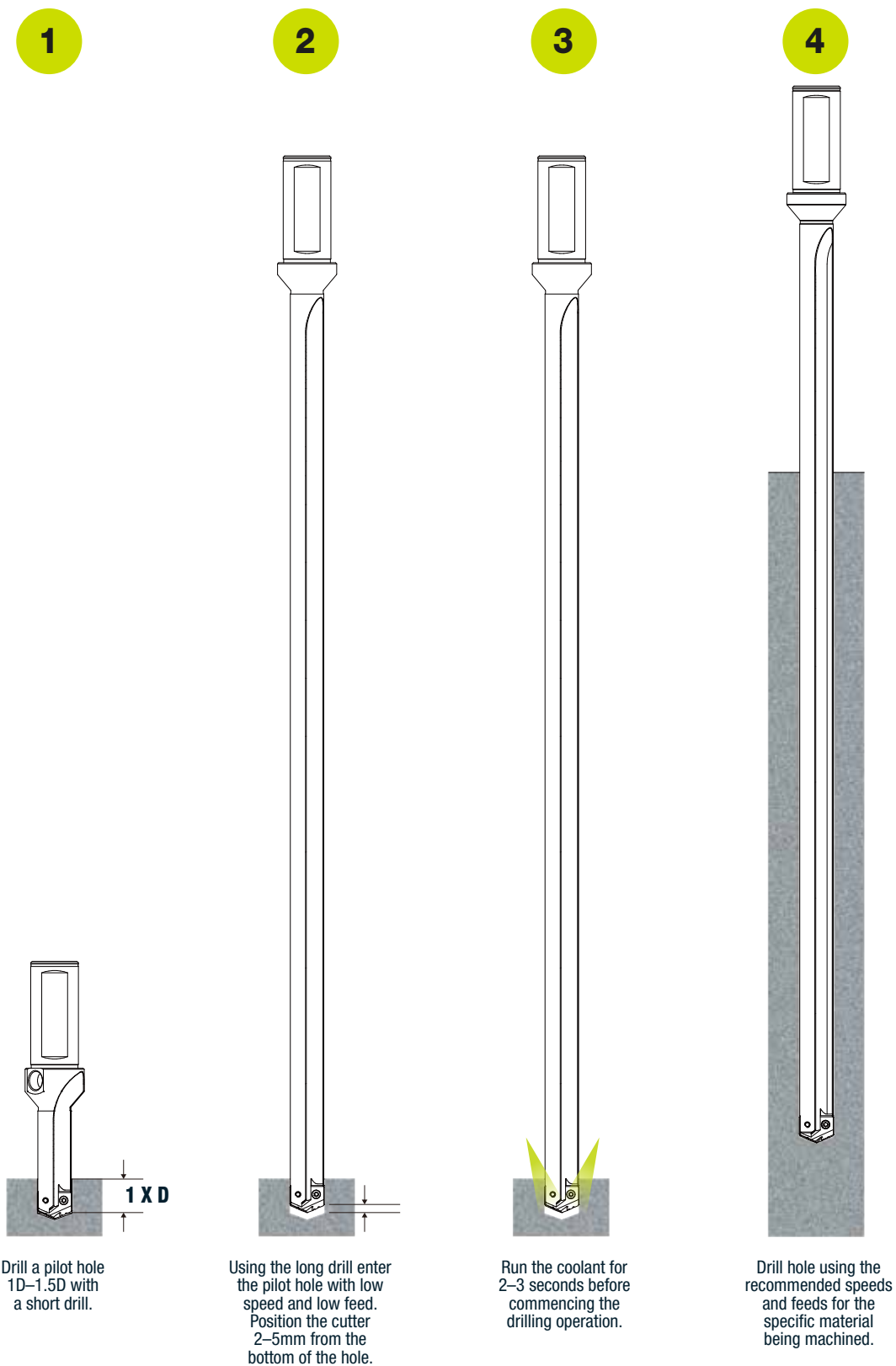
QUASI DRY CUTTING



9.5–35.0MM

Tungsten Carbide ONLY

DEEP HOLE DRILLING WITH LONG HOLDERS





SPADE DRILL FEEDS AND SPEEDS FOR HSS-Co5 AND HSS-Co8 INSERTS

ISO	WORKPIECE MATERIAL		HEAT TREATMENT	BRINELL HARDNESS	TENSILE STRENGTH	CUTTING SPEED			
				HB	N/MM2	MIN	REC	MAX	
P	NON-ALLOY STEEL Y13, 1215, 1.0736 Y15, 1213, 1.0715 LOW CARBON STEEL 45, 1045, 1.0503 Q345B, 1140, 1.7026	<0.25% C	ANNEALED	100-150	370-500	38	54	70	
		≥0.25% C	ANNEALED	175-225	600-775	35	50	64	
		<0.55% C	QUENCHED AND TEMPERED	225-275	775-940	32	45	59	
		≥0.55% C	ANNEALED	275-325	940-1090	25	36	47	
			QUENCHED AND TEMPERED	300	1000	22	32	41	
		LOW ALLOY STEEL 40CR, 5140, 1.7035 42CRMO, 4140, 1.7225	ANNEALED	175-225	600-775	33	47	62	
	ANNEALED		225-275	775-940	32	45	59		
	ANNEALED		275-325	940-1090	28	41	53		
	TEMPERED		325-375	1090-1265	24	34	44		
	HIGH ALLOY STEEL, TOOL STEEL, CAST STEEL CR12, D3, 1.2080, 4CR5MOVS, H13, 1.2344	ANNEALED	225-300	600-1020	22	32	41		
		TEMPERED	300-350	1020-1180	19	27	35		
	STAINLESS STEEL FERRITIC/MARTENSITIC OCR13, 403, 1.400, 2CR13, 410, 1.4021	FERRITIC	185-275	640-940	16	23	29		
MARTENSITIC		275-350	940-1180	19	27	35			
M	STAINLESS STEEL AUSTENITIC OCR18NI9, 304, 1.4301 OCR17NI11MO2, 316, 1.4401	ANNEALED	135-185	480-640	18	25	32		
		CAST	185-275	640-940	18	25	32		
	SUPER DUPLEX STAINLESS STEEL	N <0.1%	60% FERRITIC	135-185	480-640	—	—	—	
		N ≥0.1%	60% FERRITIC	185-275	640-940	—	—	—	
K	GREY CAST IRON HT200, NO.30, GG20 HT250, NO.35, GG25	FERRITIC	120-150	430-500	38	54	70		
		PEARLITIC	150-200	500-700	35	50	64		
	CAST IRON NODULAR QT400-18, 60-40-18, GGG40 QT600-3, 80-60-03, GGG60	FERRITIC	200-220	700-755	32	45	59		
		PEARLITIC	220-260	755-890	32	45	59		
	MALLEABLE CAST IRON	FERRITIC	120-150	430-500	32	45	59		
		PEARLITIC	260-320	890-1020	32	45	59		
N	WROUGHT ALUMINIUM	NOT CUREABIE	30	100	47	68	88		
		CURED	180	600	41	59	76		
	CAST ALUMINIUM	≤12% Si	CURED	30	100	47	68	88	
			CURED	180	600	41	59	76	
		>12% Si	HIGH TEMPERATURE	—	—	41	59	76	
		ALUMINIUM BRONZE	>1% Pb	FREE CUTTING	100-200	370-670	47	68	88
	BRASS		200-250	670-855	47	68	88		
	ELECTROLITIC COPPER		100	370	47	68	88		
NON METALLIC	DUROPLASTICS FIBER PLASTICS	—	—	47	68	88			
	HARD RUBBER	60	200	47	68	88			
S	HIGH TEMP. ALLOY HASTELLOY B, INCONEL 600	Fe BASE	ANNEALED	140-220	480-755	14	20	27	
			CURED	223-310	755-990	11	16	21	
		Ni OR Co BASE	ANNEALED	250	—	11	16	21	
			CURED	350	—	11	16	21	
			CAST	320	—	11	16	21	
	TITANIUM ALLOY	—	320	RM400	11	16	21		
		α+β ALLOYS CURED	—	RM 1050	11	16	21		
H	WEAR PLATE HARDOX, AR400, T-1	HARDENED	400	1365	7	10	13		
		HARDENED	500	1600	—	—	—		
	HARDENED STEEL	HARDENED	300-400	1020-1365	9	13	16		
		HARDENED	400-500	1365+	—	—	—		



WHEN USING INTERMITTENT MACHINING THE FEED RATE SHOULD BE REDUCED BY 30 TO 50%.

THESE RECOMMENDED CUTTING PARAMETERS ARE BASED ON UP TO F40 HOLDERS. WHEN USING LONGER HOLDERS THE SPEEDS SHOULD BE APPROPRIATELY REDUCED ACCORDING TO THE WORKING CONDITIONS. THE FOLLOWING REDUCTIONS SHOULD BE A STARTING GUIDE.

F40 HOLDERS = 100% OF THE TABULATED DATA

F50 HOLDERS = 90% OF THE TABULATED DATA

F70 HOLDERS = 80% OF THE TABULATED DATA

F90 HOLDERS = 70% OF THE TABULATED DATA

HOLDER DESIGNATIONS ARE INCLUDED IN THE PART NUMBER I.E. 6515-55SF70

FEED RATE MM/REV																					
	Ø 9.5–12.5MM			Ø 13.0–17.5MM			Ø 18.0–24.0MM			Ø 25.0–35.0MM			Ø 36.0–47.0MM			Ø 48.0–65.0MM			Ø 66.0–114.0MM		
	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX
	0.09	0.12	0.17	0.13	0.17	0.23	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47	0.29	0.39	0.54	0.36	0.48	0.66
	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.23	0.31	0.43	0.27	0.36	0.5	0.31	0.42	0.57
	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.23	0.31	0.43	0.27	0.36	0.5	0.31	0.42	0.57
	0.05	0.07	0.1	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.25	0.33	0.45	0.29	0.38	0.53
	0.04	0.06	0.08	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.3	0.41	0.26	0.34	0.47
	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.3	0.41	0.25	0.33	0.45	0.29	0.38	0.53
	0.07	0.09	0.12	0.09	0.12	0.17	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.3	0.41	0.25	0.33	0.45	0.29	0.38	0.53
	0.05	0.07	0.1	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.3	0.41	0.26	0.34	0.47
	0.04	0.06	0.08	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.3	0.41	0.26	0.34	0.47
	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.3	0.41	0.26	0.34	0.47
	0.05	0.07	0.1	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.3	0.41	0.26	0.34	0.47
	0.08	0.1	0.14	0.1	0.14	0.19	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.21	0.28	0.39	0.26	0.34	0.47
	0.07	0.09	0.12	0.09	0.12	0.17	0.1	0.14	0.19	0.1	0.14	0.19	0.16	0.21	0.29	0.19	0.25	0.34	0.23	0.31	0.43
	0.04	0.06	0.08	0.09	0.12	0.17	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.21	0.28	0.39	0.26	0.34	0.47
	0.04	0.06	0.08	0.08	0.1	0.14	0.09	0.12	0.17	0.1	0.14	0.19	0.16	0.21	0.29	0.19	0.25	0.34	0.23	0.31	0.43
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.35	0.47	0.65	0.39	0.52	0.72
	0.08	0.1	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.36	0.48	0.66
	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.23	0.31	0.43	0.27	0.36	0.5	0.31	0.42	0.57
	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.22	0.3	0.41	0.26	0.34	0.47
	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.35	0.47	0.65	0.39	0.52	0.72
	0.05	0.07	0.1	0.08	0.1	0.14	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.21	0.28	0.39
	0.05	0.07	0.10	0.08	0.10	0.14	0.13	0.17	0.23	0.16	0.21	0.29	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59
	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43	0.29	0.38	0.53	0.34	0.45	0.62	0.36	0.48	0.66
	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.22	0.30	0.41	0.26	0.34	0.47
	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.36	0.48	0.66	0.39	0.52	0.72
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59
	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	0.19	0.26	0.35	—	—	—
	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	—	—	—
	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	0.19	0.26	0.35	—	—	—
	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	—	—	—
	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	—	—	—
	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.23	0.31	0.43
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.23	0.31	0.43
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



SPADE DRILL FEEDS AND SPEEDS FOR TUNGSTEN CARBIDE INSERTS

ISO	WORKPIECE MATERIAL		HEAT TREATMENT	BRINELL HARDNESS	TENSILE STRENGTH	CUTTING SPEED			
				HB	N/MM2	MIN	REC	MAX	
P	NON-ALLOY STEEL Y13, 1215, 1.0736 Y15, 1213, 1.0715 LOW CARBON STEEL 45, 1045, 1.0503 Q345B, 1140, 1.7026	<0.25% C	ANNEALED	100-150	370-500	75	94	117	
		≥0.25% C	ANNEALED	175-225	600-775	55	69	86	
		<0.55% C	QUENCHED AND TEMPERED	225-275	775-940	49	61	76	
		≥0.55% C	ANNEALED	275-325	940-1090	41	51	64	
			QUENCHED AND TEMPERED	300	1000	41	51	64	
	LOW ALLOY STEEL 40CR, 5140,1.7035 42CRM0, 4140, 1.7225		ANNEALED	175-225	600-775	54	67	84	
			ANNEALED	225-275	775-940	49	61	76	
			ANNEALED	275-325	940-1090	45	56	70	
			TEMPERED	325-375	1090-1265	40	50	62	
	HIGH ALLOY STEEL, TOOL STEEL, CAST STEEL CR12, D3, 1.2080, 4CR5MOV5, H13, 1.2344		ANNEALED	225-300	600-1020	40	50	62	
			TEMPERED	300-350	1020-1180	30	38	47	
STAINLESS STEEL FERRITIC/MARTENSITIC OCR13, 403, 1.400, 2CR13, 410, 1.4021		FERRITIC	185-275	640-940	37	46	58		
		MARTENSITIC	275-350	940-1180	29	36	45		
M	STAINLESS STEEL AUSTENITIC OCR18NI9, 304, 1.4301 OCR17NI11MO2, 316, 1.4401		ANNEALED	135-185	480-640	37	46	58	
			CAST	185-275	640-940	29	36	45	
	SUPER DUPLEX STAINLESS STEEL	N <0.1%	60% FERRITIC	135-185	480-640	—	—	—	
		N ≥0.1%	60% FERRITIC	185-275	640-940	—	—	—	
K	GREY CAST IRON HT200, NO.30, GG20 HT250, NO.35, GG25		FERRITIC	120-150	430-500	78	98	122	
			PEARLITIC	150-200	500-700	75	94	117	
	CAST IRON NODULAR QT400-18, 60-40-18, GGG40 QT600-3, 80-60-03, GGG60		FERRITIC	200-220	700-755	67	84	105	
			PEARLITIC	220-260	755-890	58	72	90	
	MALLEABLE CAST IRON		FERRITIC	120-150	430-500	75	94	117	
			PEARLITIC	260-320	890-1020	52	66	82	
N	WROUGHT ALUMINIUM		NOT CUREABIE	30	100	105	150	195	
			CURED	180	600	91	130	169	
	CAST ALUMINIUM	≤12% Si	CURED	30	100	105	150	195	
			CURED	180	600	91	130	169	
		>12% Si	HIGH TEMPERATURE	—	—	91	130	169	
	ALUMINIUM BRONZE	>1% Pb	FREE CUTTING	100-200	370-670	105	150	195	
			BRASS	200-250	670-855	105	150	195	
			ELECTROLITIC COPPER	100	370	105	150	195	
	NON METALLIC		DUROPLASTICS FIBER PLASTICS	—	—	105	150	195	
			HARD RUBBER	60	200	105	150	195	
S	HIGH TEMP. ALLOY HASTELLOY B, INCONEL 600	Fe BASE	ANNEALED	140-220	480-755	19	24	30	
			CURED	223-310	755-990	15	18	23	
		Ni OR Co BASE	ANNEALED	250	—	19	24	30	
			CURED	350	—	15	18	23	
			CAST	320	—	15	18	23	
	TITANIUM ALLOY		—	320	RM400	22	27	34	
		α+β ALLOYS CURED	—	RM 1050	17	21	26		
H	WEAR PLATE HARDOX, AR400, T-1		HARDENED	400	1365	23	29	36	
			HARDENED	500	1600	19	24	30	
	HARDENED STEEL		HARDENED	300-400	1020-1365	24	30	38	
			HARDENED	400-500	1365+	19	24	30	



WHEN USING INTERMITTENT MACHINING THE FEED RATE SHOULD BE REDUCED BY 30 TO 50%.

THESE RECOMMENDED CUTTING PARAMETERS ARE BASED ON UP TO F40 HOLDERS. WHEN USING LONGER HOLDERS THE SPEEDS SHOULD BE APPROPRIATELY REDUCED ACCORDING TO THE WORKING CONDITIONS. THE FOLLOWING REDUCTIONS SHOULD BE A STARTING GUIDE.

F40 HOLDERS = 100% OF THE TABULATED DATA

F50 HOLDERS = 90% OF THE TABULATED DATA

F70 HOLDERS = 80% OF THE TABULATED DATA

F90 HOLDERS = 70% OF THE TABULATED DATA

**HOLDER DESIGNATIONS ARE INCLUDED IN THE
PART NUMBER I.E. 6515-55SF70**

FEED RATE MM/REV												
	Ø 9.5–12.5MM			Ø 13.0–17.5MM			Ø 18.0–24.0MM			Ø 25.0–35.0MM		
	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX
	0.09	0.12	0.17	0.13	0.17	0.23	0.17	0.22	0.31	0.21	0.28	0.39
	0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
	0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
	0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
	0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29
	0.07	0.09	0.12	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
	0.07	0.09	0.12	0.09	0.12	0.17	0.13	0.17	0.23	0.19	0.25	0.34
	0.05	0.07	0.10	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29
	0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29
	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23
	0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23
	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.13	0.17	0.23
	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19	0.10	0.14	0.19
	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—
	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43
	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39
	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
	0.05	0.07	0.10	0.08	0.10	0.14	0.09	0.12	0.17	0.12	0.16	0.22
	0.05	0.07	0.10	0.08	0.10	0.14	0.13	0.17	0.23	0.16	0.21	0.29
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43
	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22
	0.02	0.03	0.04	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19
	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22
	0.02	0.03	0.04	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19



COMMITMENT TO EXCELLENCE

At Bordo International Pty Ltd, we believe that excellence is not just a goal; it is our guiding principle. Since our establishment in 1987, we have dedicated ourselves to providing the highest quality industrial cutting tools and accessories to our customers across Australia. As a proud 100% family-owned Australian company, we are committed to serving our customers and supporting our local community.

COMPREHENSIVE PRODUCT RANGE

Our extensive product range is designed to meet the diverse needs of our customers in various industries. We take pride in offering one of the most comprehensive selections of industrial tools available, ensuring that you can find everything you need in one convenient location. Our unwavering commitment to "quality without compromise" drives us to source our products from the world's leading manufacturers, ensuring reliability and performance in every tool we offer.

CUSTOMER-CENTRIC APPROACH

At Bordo, our customers are at the heart of everything we do. We understand that each customer has unique requirements, and we are dedicated to fostering strong relationships built on trust and collaboration. Our team works closely with both suppliers and customers to continuously improve and expand our product offerings, ensuring that we can meet even the most specialized tooling needs with precision and care.

ENVIRONMENTAL RESPONSIBILITY

We recognize the importance of sustainability and are committed to minimizing our environmental impact. Our state-of-the-art headquarters features a landmark 5-star certified building, one of Australia's first, equipped with an 105kW solar power array to meet our energy needs. We focus on minimising packaging and using recyclable materials whenever possible. We actively prioritise sea and land freight over air freight to minimise our carbon impact, ensuring that we contribute positively to our community and the planet.

JOIN US ON OUR JOURNEY

At Bordo International, our corporate philosophy is built on a foundation of excellence, customer focus, and environmental stewardship. We invite you to explore our product range and experience the Bordo difference for yourself.



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