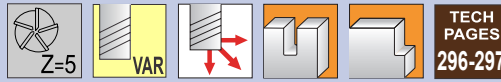


$d1$	+0.000" - .002" (+0.000mm - .050mm)
$d2$	h6
r	+0.001" - .001" (+0.025 - .025mm)

.2362" - .3125"
(6.000mm - 7.938mm)

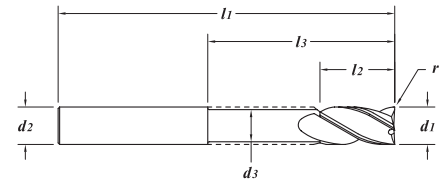


Recommended for titanium, inconel, and stainless steel

Variable Helix End Mill

AlCrN Coating

- Solid submicron grain carbide end mill - center cutting
- Engineered for High Efficiency Milling
- Staggered flutes to control harmonics
- Variable flute design helps with chip evacuation in slots and pockets
- PCT (Polish Carbide Treatment) enhances tool life
- 12mm and larger tools offered with weldon flat
- .375" and larger diameters can be modified within 48 hours
- The combination of an extended flute length with a weldon flat may cause the flute washout to reach inside some end mill holders*



MATERIAL HARDNESS (Rc)

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EDP#	$d1$ †		$d2$	$l1$	$l2$	r	$l3$	$d3$	1-11	12-24	25-49	50-100	
	(plain)	(weldon)											Decimal
50000	-	.2362	6.000	6.0	50	13	-	-	-	22.03	21.08	20.12	19.16
50001	-	.2362	6.000	6.0	50	13	0.5	-	-	25.48	24.38	23.27	22.16
50002	-	.2362	6.000	6.0	65	19	-	-	-	24.84	23.76	22.68	21.60
50003	-	.2362	6.000	6.0	65	19	0.5	-	-	28.24	27.02	25.79	24.56
50004	-	.2362	6.000	6.0	65	13	-	20	5.4	33.13	31.69	30.25	28.81
50005	-	.2362	6.000	6.0	65	13	0.5	20	5.4	36.54	34.95	33.36	31.77
50006	-	.2362	6.000	6.0	65	13	1.0	20	5.4	36.54	34.95	33.36	31.77
50007	-	.2500	6.350	1/4"	2"	3/8"	-	-	-	21.15	20.23	19.31	18.39
51000	-	.2500	6.350	1/4"	2"	3/8"	.010"	-	-	24.53	23.46	22.40	21.33
50008	-	.2500	6.350	1/4"	2"	3/8"	.015"	-	-	24.53	23.46	22.40	21.33
51001	-	.2500	6.350	1/4"	2"	3/8"	.020"	-	-	24.53	23.46	22.40	21.33
50009	-	.2500	6.350	1/4"	2"	3/8"	.030"	-	-	24.53	23.46	22.40	21.33
51002	-	.2500	6.350	1/4"	2"	1/2"	-	-	-	21.15	20.23	19.31	18.39
51003	-	.2500	6.350	1/4"	2"	1/2"	.010"	-	-	24.53	23.46	22.40	21.33
51004	-	.2500	6.350	1/4"	2"	1/2"	.015"	-	-	24.53	23.46	22.40	21.33
50011	-	.2500	6.350	1/4"	2-1/2"	3/4"	-	-	-	23.98	22.94	21.89	20.85
51005	-	.2500	6.350	1/4"	2-1/2"	3/4"	.010"	-	-	27.15	25.97	24.79	23.61
50012	-	.2500	6.350	1/4"	2-1/2"	3/4"	.015"	-	-	27.15	25.97	24.79	23.61
50013	-	.2500	6.350	1/4"	2-1/2"	3/4"	.020"	-	-	27.15	25.97	24.79	23.61
50014	-	.2500	6.350	1/4"	2-1/2"	3/4"	.030"	-	-	27.15	25.97	24.79	23.61
50015	-	.2500	6.350	1/4"	3"	1"	-	-	-	36.63	35.04	33.44	31.85
51006	-	.2500	6.350	1/4"	3"	1"	.010"	-	-	40.25	38.50	36.75	35.00
51007	-	.2500	6.350	1/4"	3"	1"	.015"	-	-	40.25	38.50	36.75	35.00
50016	-	.2500	6.350	1/4"	3"	1"	.030"	-	-	40.25	38.50	36.75	35.00
50113	-	.2500	6.350	1/4"	3"	1-1/8"	.030"	-	-	40.25	38.50	36.75	35.00
50017	-	.2500	6.350	1/4"	4"	1/2"	.015"	1-1/4"	.235"	52.64	50.35	48.06	45.77
51008	-	.2500	6.350	1/4"	4"	1/2"	.015"	2-1/8"	.235"	52.64	50.35	48.06	45.77
50023	-	.2756	7.000	8.0	65	22	0.2	-	-	43.71	41.81	39.91	38.01
50018	-	.3125	7.938	5/16"	2-1/2"	13/16"	-	-	-	34.20	32.71	31.23	29.74
50019	-	.3125	7.938	5/16"	2-1/2"	13/16"	.015"	-	-	36.81	35.21	33.61	32.01
50021	-	.3125	7.938	5/16"	2-1/2"	13/16"	.020"	-	-	36.81	35.21	33.61	32.01
50022	-	.3125	7.938	5/16"	2-1/2"	13/16"	.030"	-	-	36.81	35.21	33.61	32.01

EDP#	<i>d1</i> [†] Diameter	<i>d2</i> Shank Diameter	<i>l1</i> Overall Length	<i>l2</i> Flute Length	<i>r</i> Corner Radius	<i>l3</i> Reach Length	<i>d3</i> Neck Diameter	1-11	12-24	25-49	50-100			
												(plain)	(weldon)	Decimal
50024	-	.3150	8.000	8.0	65	22	0.2	-	-	38.19	36.53	34.87	33.21	
50025	-	.3150	8.000	8.0	65	22	0.5	-	-	38.19	36.53	34.87	33.21	
50026	-	.3150	8.000	8.0	75	19	-	26	7.2	59.31	56.73	54.15	51.57	
50027	-	.3150	8.000	8.0	75	19	0.5	26	7.2	64.17	61.38	58.59	55.80	
50028	-	.3150	8.000	8.0	75	19	1.0	26	7.2	64.17	61.38	58.59	55.80	
50029	-	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-	34.53	33.03	31.53	30.03	
50031	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.015"	-	39.54	37.82	36.10	34.38	
50032	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	39.54	37.82	36.10	34.38	
50033	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.030"	-	39.54	37.82	36.10	34.38	
50034	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	-	-	40.35	38.60	36.84	35.09	
50035	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.015"	-	42.99	41.12	39.25	37.38	
50036	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-	42.99	41.12	39.25	37.38	
50037	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-	42.99	41.12	39.25	37.38	
50038	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.060"	-	42.99	41.12	39.25	37.38	
51009	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-	56.57	54.11	51.65	49.19	
50114	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-	56.57	54.11	51.65	49.19	
51010	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.015"	-	63.68	60.91	58.14	55.37	
50039	-	.3750	3/8"	9.525	3/8"	4"	2"	-	-	58.22	55.69	53.16	50.63	
50041	-	.3750	3/8"	9.525	3/8"	4"	2"	.030"	-	63.68	60.91	58.14	55.37	
51011	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	1-1/8"	.355"	75.98	72.68	69.37	66.07
50042	-	.3750	3/8"	9.525	3/8"	4"	7/8"	.015"	1-7/8"	.355"	75.98	72.68	69.37	66.07
51012	-	.3750	3/8"	9.525	3/8"	6"	1/2"	.015"	2-1/8"	.355"	100.45	96.09	91.72	87.35
51013	-	.3750	3/8"	9.525	3/8"	6"	1/2"	.015"	3-1/8"	.355"	100.45	96.09	91.72	87.35
51014	-	.3750	3/8"	9.525	3/8"	6"	1/2"	.015"	4-1/8"	.355"	100.45	96.09	91.72	87.35
50043	-	.3937	10.000	10.0	70	22	-	-	-	48.39	46.29	44.18	42.08	
51015	-	.3937	10.000	10.0	70	22	0.30	-	-	51.91	49.65	47.40	45.14	
50044	-	.3937	10.000	10.0	70	22	0.50	-	-	51.91	49.65	47.40	45.14	
51016	-	.3937	10.000	10.0	70	22	0.75	-	-	51.91	49.65	47.40	45.14	
51017	-	.3937	10.000	10.0	70	22	1.00	-	-	51.91	49.65	47.40	45.14	
50045	-	.3937	10.000	10.0	75	22	-	32	9.0	67.08	64.16	61.25	58.33	
50046	-	.3937	10.000	10.0	75	22	0.50	32	9.0	72.36	69.21	66.07	62.92	
NEW 51018	-	.3937	10.000	10.0	75	22	0.75	32	9.0	72.36	69.21	66.07	62.92	
50047	-	.3937	10.000	10.0	75	22	1.00	32	9.0	72.36	69.21	66.07	62.92	
51019	-	.4724	12.000	12.0	65	19	-	-	-	58.90	56.34	53.78	51.22	
51020	-	.4724	12.000	12.0	65	19	0.50	-	-	68.52	65.54	62.56	59.58	
50484	50485	.4724	12.000	12.0	75	26	-	-	-	62.85	60.12	57.38	54.65	
51021	-	.4724	12.000	12.0	75	26	0.30	-	-	76.45	73.13	69.80	66.48	
50486	50487	.4724	12.000	12.0	75	26	0.50	-	-	76.45	73.13	69.80	66.48	
51022	-	.4724	12.000	12.0	75	26	0.75	-	-	76.45	73.13	69.80	66.48	
51023	-	.4724	12.000	12.0	75	26	1.00	-	-	76.45	73.13	69.80	66.48	
50112	-	.4724	12.000	12.0	75	26	2.00	-	-	76.45	73.13	69.80	66.48	
50115	-	.4724	12.000	12.0	75	26	2.50	-	-	76.45	73.13	69.80	66.48	
50048	50299	.4724	12.000	12.0	75	32	-	-	-	62.85	60.12	57.38	54.65	
51024	-	.4724	12.000	12.0	75	32	0.30	-	-	76.45	73.13	69.80	66.48	
50049	50300	.4724	12.000	12.0	75	32	0.50	-	-	76.45	73.13	69.80	66.48	
51025	-	.4724	12.000	12.0	75	32	0.75	-	-	76.45	73.13	69.80	66.48	
51026	-	.4724	12.000	12.0	75	32	1.00	-	-	76.45	73.13	69.80	66.48	
51027	-	.4724	12.000	12.0	100	38	-	-	-	84.01	80.36	76.70	73.05	
51028	-	.4724	12.000	12.0	100	38	0.50	-	-	88.96	85.10	81.23	77.36	
50423	-	.4724	12.000	12.0	100	42	-	-	-	84.01	80.36	76.70	73.05	
50425	-	.4724	12.000	12.0	100	42	0.30	-	-	88.96	85.10	81.23	77.36	
50427	-	.4724	12.000	12.0	100	42	0.50	-	-	88.96	85.10	81.23	77.36	
50429	-	.4724	12.000	12.0	100	42	1.00	-	-	88.96	85.10	81.23	77.36	
50431	-	.4724	12.000	12.0	100	42	2.00	-	-	88.96	85.10	81.23	77.36	
51029	-	.4724	12.000	12.0	100	52	-	-	-	84.01	80.36	76.70	73.05	
51030	-	.4724	12.000	12.0	100	52	0.50	-	-	88.96	85.10	81.23	77.36	
50051	50301	.4724	12.000	12.0	100	26	-	38	10.8	96.26	92.07	87.89	83.70	
50052	50302	.4724	12.000	12.0	100	26	0.50	38	10.8	101.21	96.81	92.41	88.01	
50053	50303	.4724	12.000	12.0	100	26	1.00	38	10.8	101.21	96.81	92.41	88.01	

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MATERIAL HARDNESS (Rc)

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continued →

Series V5 (continued)

.5000"
(12.700mm)

EDP#		$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	1-11	12-24	25-49	50-100	
(plain)	(weldon)	Decimal	Metric											
50054	50304	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	-	56.49	54.03	51.58	49.12
50106	50305	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	-	65.70	62.84	59.99	57.13
50055	50306	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	-	65.70	62.84	59.99	57.13
50107	50307	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	-	65.70	62.84	59.99	57.13
50056	50308	.5000	1/2"	12.700	1/2"	3"	1"	-	-	-	60.35	57.73	55.10	52.48
50108	50309	.5000	1/2"	12.700	1/2"	3"	1"	.010"	-	-	73.34	70.15	66.96	63.77
50057	50310	.5000	1/2"	12.700	1/2"	3"	1"	.020"	-	-	73.34	70.15	66.96	63.77
50109	50311	.5000	1/2"	12.700	1/2"	3"	1"	.030"	-	-	73.34	70.15	66.96	63.77
50058	50312	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-	60.35	57.73	55.10	52.48
50111	50313	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-	73.34	70.15	66.96	63.77
50059	50314	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-	73.34	70.15	66.96	63.77
50061	50315	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-	73.34	70.15	66.96	63.77
50062	50316	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-	73.34	70.15	66.96	63.77
50063	50317	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.045"	-	-	73.34	70.15	66.96	63.77
50064	50318	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-	73.34	70.15	66.96	63.77
50065	50319	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-	73.34	70.15	66.96	63.77
50433	50435	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.010"	-	-	86.66	82.90	79.13	75.36
51031	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.015"	-	-	86.66	82.90	79.13	75.36
51032	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.030"	-	-	86.66	82.90	79.13	75.36
50436	50437	.5000	1/2"	12.700	1/2"	4"	1-5/8"	-	-	-	81.66	78.11	74.56	71.01
50438	50439	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.010"	-	-	86.66	82.90	79.13	75.36
50440	50441	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.020"	-	-	86.66	82.90	79.13	75.36
50442	50443	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.030"	-	-	86.66	82.90	79.13	75.36
50444	50445	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.040"	-	-	86.66	82.90	79.13	75.36
50446	50447	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.060"	-	-	86.66	82.90	79.13	75.36
50067	50321	.5000	1/2"	12.700	1/2"	4"	2-1/8"	-	-	-	81.66	78.11	74.56	71.01
51033	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.015"	-	-	86.66	82.90	79.13	75.36
50068	50322	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.030"	-	-	86.66	82.90	79.13	75.36
51034	-	.5000	1/2"	12.700	1/2"	6"	1"	.030"	-	-	122.57	117.24	111.91	106.58
51035	-	.5000	1/2"	12.700	1/2"	6"	3-1/8"	-	-	-	117.10	112.01	106.92	101.83
51036	-	.5000	1/2"	12.700	1/2"	6"	3-1/8"	.030"	-	-	122.57	117.24	111.91	106.58
51037	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.015"	1-1/2"	.475"	98.93	94.63	90.33	86.03
51038	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.015"	2-1/4"	.475"	98.93	94.63	90.33	86.03
50066	50320	.5000	1/2"	12.700	1/2"	4"	1-1/4"	.030"	2-1/4"	.475"	98.93	94.63	90.33	86.03
51039	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.015"	3-3/8"	.475"	134.86	129.00	123.13	117.27
51040	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.015"	4-1/8"	.475"	134.86	129.00	123.13	117.27

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MATERIAL HARDNESS (Rc)

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EDP#		$d1^{\dagger}$ Diameter			$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	1-11	12-24	25-49	50-100
(plain)	(weldon)	Decimal	5/8"	Metric	5/8"	3-1/2"	1-1/4"							
50069	50323	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	-	111.35	106.51	101.67	96.83
51041	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-	116.75	111.67	106.60	101.52
50071	50324	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-	116.75	111.67	106.60	101.52
50072	50325	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-	116.75	111.67	106.60	101.52
50401	50402	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-	116.75	111.67	106.60	101.52
51042	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	-	-	118.92	113.75	108.58	103.41
51043	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.030"	-	-	126.91	121.40	115.88	110.36
51044	-	.6250	5/8"	15.875	5/8"	4"	2-1/8"	-	-	-	118.92	113.75	108.58	103.41
51045	-	.6250	5/8"	15.875	5/8"	4"	2-1/8"	.030"	-	-	126.91	121.40	115.88	110.36
51046	-	.6250	5/8"	15.875	5/8"	6"	2-1/2"	.030"	-	-	174.70	167.10	159.51	151.91
50403	50404	.6250	5/8"	15.875	5/8"	6"	3-1/8"	.030"	-	-	174.70	167.10	159.51	151.91
51047	-	.6250	5/8"	15.875	5/8"	6"	3-1/8"	.060"	-	-	174.70	167.10	159.51	151.91
51048	-	.6250	5/8"	15.875	5/8"	6"	3-1/2"	.030"	-	-	174.70	167.10	159.51	151.91
51049	-	.6250	5/8"	15.875	5/8"	4"	3/4"	.030"	1-5/8"	.590"	137.59	131.60	125.62	119.64
50073	50326	.6250	5/8"	15.875	5/8"	4"	1-1/4"	.030"	2-1/4"	.590"	137.59	131.60	125.62	119.64
51050	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	2-3/8"	.590"	186.98	178.85	170.72	162.59
51051	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	3-3/8"	.590"	186.98	178.85	170.72	162.59
51052	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	4-1/8"	.590"	186.98	178.85	170.72	162.59
51053	-	.6299		16.000	16.0	75	19	-	-	-	113.07	108.15	103.24	98.32
51054	-	.6299		16.000	16.0	75	19	0.50	-	-	118.58	113.42	108.27	103.11
50074	50327	.6299		16.000	16.0	88	32	-	-	-	116.17	111.12	106.07	101.02
50075	50328	.6299		16.000	16.0	88	32	0.50	-	-	121.82	116.52	111.23	105.93
50420	-	.6299		16.000	16.0	88	32	1.00	-	-	121.82	116.52	111.23	105.93
51055	-	.6299		16.000	16.0	88	32	2.00	-	-	121.82	116.52	111.23	105.93
50422	-	.6299		16.000	16.0	88	32	3.00	-	-	121.82	116.52	111.23	105.93
50424	-	.6299		16.000	16.0	88	32	4.00	-	-	121.82	116.52	111.23	105.93
50430	-	.6299		16.000	16.0	100	40	0.50	-	-	129.54	123.90	118.27	112.64
50432	-	.6299		16.000	16.0	100	40	1.00	-	-	129.54	123.90	118.27	112.64
50434	-	.6299		16.000	16.0	100	40	3.00	-	-	129.54	123.90	118.27	112.64
50076	50329	.6299		16.000	16.0	100	32	-	50	14.4	134.25	128.41	122.58	116.74
50077	-	.6299		16.000	16.0	100	32	0.50	50	14.4	140.23	134.13	128.04	121.94
50426	-	.6299		16.000	16.0	100	32	1.00	50	14.4	140.23	134.13	128.04	121.94
51056	-	.6299		16.000	16.0	100	32	2.00	50	14.4	140.23	134.13	128.04	121.94
50428	-	.6299		16.000	16.0	100	32	3.00	50	14.4	140.23	134.13	128.04	121.94
50078	-	.7087		18.000	18.0	100	32	0.75	-	-	174.89	167.29	159.68	152.08

continued →

Series V5 (continued)

.7500"
(19.050mm)

EDP#		$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	1-11	12-24	25-49	50-100	
(plain)	(weldon)	Decimal		Metric										
50079	50332	.7500	3/4"	19.050	3/4"	3"	7/8"	-	-	-	155.39	148.63	141.88	135.12
51103	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.015"	-	-	163.88	156.75	149.63	142.50
50081	50333	.7500	3/4"	19.050	3/4"	3"	7/8"	.030"	-	-	163.86	156.74	149.61	142.49
51057	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.060"	-	-	163.88	156.75	149.63	142.50
51105	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.120"	-	-	163.88	156.75	149.63	142.50
51107	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	.015"	-	-	167.43	160.15	152.87	145.59
51058	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	.030"	-	-	167.43	160.15	152.87	145.59
51109	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	.060"	-	-	167.43	160.15	152.87	145.59
50082	50334	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-	-	-	158.95	152.04	145.13	138.22
51111	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.015"	-	-	167.43	160.15	152.87	145.59
50083	50335	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-	167.43	160.15	152.87	145.59
50084	50336	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-	167.43	160.15	152.87	145.59
51059	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.078"	-	-	167.43	160.15	152.87	145.59
50085	50337	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-	167.43	160.15	152.87	145.59
51113	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.190"	-	-	167.43	160.15	152.87	145.59
51060	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	-	-	-	158.95	152.04	145.13	138.22
51115	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.015"	-	-	167.43	160.15	152.87	145.59
51061	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.030"	-	-	167.43	160.15	152.87	145.59
51119	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.060"	-	-	167.43	160.15	152.87	145.59
51062	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	-	158.95	152.04	145.13	138.22
51121	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.015"	-	-	167.43	160.15	152.87	145.59
51063	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-	167.43	160.15	152.87	145.59
51123	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-	167.43	160.15	152.87	145.59
50086	50338	.7500	3/4"	19.050	3/4"	5"	2-1/8"	-	-	-	213.35	204.07	194.80	185.52
51125	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.015"	-	-	232.24	222.15	212.05	201.95
50087	50339	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.030"	-	-	232.24	222.15	212.05	201.95
51064	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.060"	-	-	232.24	222.15	212.05	201.95
51065	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.120"	-	-	232.24	222.15	212.05	201.95
51127	-	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.015"	-	-	232.24	222.15	212.05	201.95
51066	-	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.030"	-	-	232.24	222.15	212.05	201.95
51129	-	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.060"	-	-	232.24	222.15	212.05	201.95
51131	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.015"	-	-	232.24	222.15	212.05	201.95
51067	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.030"	-	-	232.24	222.15	212.05	201.95
51133	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.060"	-	-	232.24	222.15	212.05	201.95
51135	-	.7500	3/4"	19.050	3/4"	5"	2-3/4"	.015"	-	-	232.24	222.15	212.05	201.95
51068	-	.7500	3/4"	19.050	3/4"	5"	2-3/4"	.030"	-	-	232.24	222.15	212.05	201.95
51137	-	.7500	3/4"	19.050	3/4"	5"	2-3/4"	.060"	-	-	232.24	222.15	212.05	201.95
50089	50341	.7500	3/4"	19.050	3/4"	6"	3-1/4"	-	-	-	249.68	238.82	227.97	217.11
51139	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	.015"	-	-	275.86	263.87	251.87	239.88
50091	50342	.7500	3/4"	19.050	3/4"	6"	3-1/4"	.030"	-	-	275.86	263.87	251.87	239.88
51141	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	.060"	-	-	275.86	263.87	251.87	239.88
51143	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	.015"	-	-	347.92	332.79	317.67	302.54
51145	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	.030"	-	-	347.92	332.79	317.67	302.54
51147	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	.060"	-	-	347.92	332.79	317.67	302.54
51069	-	.7500	3/4"	19.050	3/4"	4"	1"	.030"	2"	.705"	179.72	171.91	164.09	156.28
51070	-	.7500	3/4"	19.050	3/4"	5"	1"	.030"	2-1/2"	.705"	244.55	233.92	223.28	212.65
50088	50340	.7500	3/4"	19.050	3/4"	5-1/2"	1-1/2"	.030"	3-1/4"	.705"	288.21	275.68	263.15	250.62
51071	-	.7500	3/4"	19.050	3/4"	6"	1"	.030"	4-1/8"	.705"	288.21	275.68	263.15	250.62

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MATERIAL HARDNESS (Rc)

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EDP#		$d1^{\dagger}$		$d2$	$l1$	$l2$	r	$l3$	$d3$	1-11	12-24	25-49	50-100
(plain)	(weldon)	Decimal	Metric	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter				
50092	50343	.7874	20.000	20.0	100	38	-	-	-	214.75	205.41	196.08	186.74
51072	-	.7874	20.000	20.0	100	38	0.50	-	-	236.96	226.66	216.35	206.05
50093	50344	.7874	20.000	20.0	100	38	0.75	-	-	236.96	226.66	216.35	206.05
51073	-	.7874	20.000	20.0	100	38	1.00	-	-	236.96	226.66	216.35	206.05
51074	-	.7874	20.000	20.0	100	38	1.50	-	-	236.96	226.66	216.35	206.05
51075	-	.7874	20.000	20.0	100	38	2.00	-	-	236.96	226.66	216.35	206.05
51076	-	.7874	20.000	20.0	100	38	3.00	-	-	236.96	226.66	216.35	206.05
51077	-	.9843	25.000	25.0	100	38	-	-	-	245.26	234.60	223.93	213.27
51078	-	.9843	25.000	25.0	100	38	0.50	-	-	271.58	259.78	247.97	236.16
NEW 51079	-	.9843	25.000	25.0	100	38	0.75	-	-	271.58	259.78	247.97	236.16
51080	-	.9843	25.000	25.0	100	38	1.50	-	-	271.58	259.78	247.97	236.16
51081	-	.9843	25.000	25.0	100	38	3.00	-	-	271.58	259.78	247.97	236.16
50094	-	1.000	25.400	1"	4"	1-1/4"	-	-	-	237.46	227.14	216.81	206.49
50095	-	1.000	25.400	1"	4"	1-1/4"	.030"	-	-	285.84	273.42	260.99	248.56
NEW 51082	-	1.000	25.400	1"	4"	1-1/4"	.120"	-	-	285.84	273.42	260.99	248.56
-	50348	1.000	25.400	1"	4"	1-1/2"	-	-	-	237.46	227.14	216.81	206.49
-	50349	1.000	25.400	1"	4"	1-1/2"	.030"	-	-	285.84	273.42	260.99	248.56
-	50350	1.000	25.400	1"	4"	1-1/2"	.060"	-	-	285.84	273.42	260.99	248.56
51083	-	1.000	25.400	1"	4"	1-1/2"	.120"	-	-	285.84	273.42	260.99	248.56
NEW 50116	-	1.000	25.400	1"	4"	1-1/2"	.125"	-	-	285.84	273.42	260.99	248.56
50097	-	1.000	25.400	1"	4"	1-3/4"	-	-	-	237.46	227.14	216.81	206.49
50098	-	1.000	25.400	1"	4"	1-3/4"	.030"	-	-	285.84	273.42	260.99	248.56
50099	-	1.000	25.400	1"	4"	1-3/4"	.060"	-	-	285.84	273.42	260.99	248.56
51084	-	1.000	25.400	1"	4"	1-3/4"	.120"	-	-	285.84	273.42	260.99	248.56
51085	-	1.000	25.400	1"	4-1/2"	2"	.030"	-	-	318.76	304.90	291.04	277.18
51086	-	1.000	25.400	1"	4-1/2"	2"	.060"	-	-	318.76	304.90	291.04	277.18
51087	-	1.000	25.400	1"	4-1/2"	2"	.120"	-	-	318.76	304.90	291.04	277.18
51088	-	1.000	25.400	1"	4-1/2"	2"	.250"	-	-	318.76	304.90	291.04	277.18
51089	-	1.000	25.400	1"	5"	2-1/2"	.030"	-	-	351.68	336.39	321.10	305.81
51090	-	1.000	25.400	1"	5"	2-5/8"	.030"	-	-	351.68	336.39	321.10	305.81
50104	50354	1.000	25.400	1"	6"	3-1/4"	-	-	-	414.07	396.07	378.06	360.06
50105	-	1.000	25.400	1"	6"	3-1/4"	.030"	-	-	458.68	438.74	418.79	398.85
51091	-	1.000	25.400	1"	6"	3-3/8"	.060"	-	-	458.68	438.74	418.79	398.85
51092	-	1.000	25.400	1"	7"	4-1/4"	.030"	-	-	559.73	535.39	511.06	486.72
51093	-	1.000	25.400	1"	7"	4-1/4"	.060"	-	-	559.73	535.39	511.06	486.72
51094	-	1.000	25.400	1"	5"	1-1/4"	.030"	2-5/8"	.940"	364.00	348.17	332.35	316.52
50101	-	1.000	25.400	1"	5-1/2"	1-3/4"	.030"	3-1/4"	.940"	466.37	446.09	425.82	405.54
50102	50352	1.000	25.400	1"	5-1/2"	1-3/4"	.060"	3-1/4"	.940"	466.37	446.09	425.82	405.54
51095	-	1.000	25.400	1"	6"	1-1/4"	.030"	3-3/8"	.940"	470.98	450.51	430.03	409.55
51096	-	1.000	25.400	1"	7"	1-1/4"	.030"	4-1/4"	.940"	572.26	547.38	522.50	497.62

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MATERIAL HARDNESS (Rc)

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