

The Cutting Edge Mastered



- 2 Flute and 3 Flute
- Square
- Square Chipbreaker
- Corner Radius
- Ball
- Uncoated
- PowerZ
- Necked





Unique Geometry

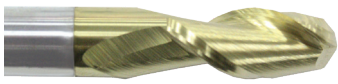
Highest Possible Feed Rates

Strongest and Most Rugged Tool for the Milling of Aluminum and Non-Ferrous Materials

**POWERZ**

## Standard AxMill Coating

### Zirconium Nitride (ZrN)

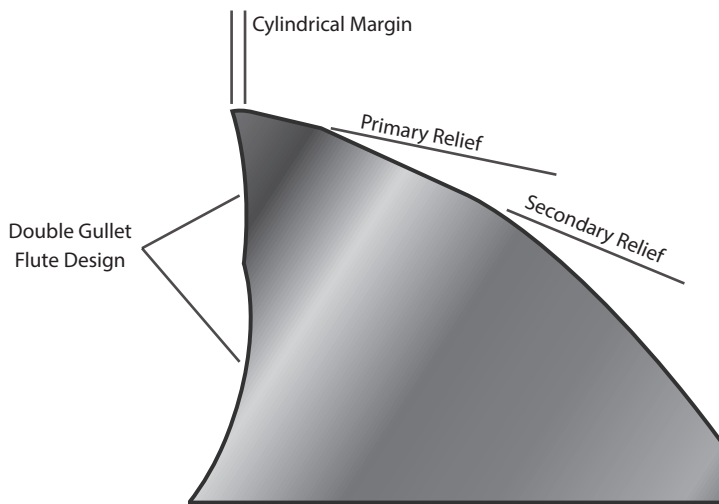


**PowerZ**, Zirconium Nitride (ZrN) based Coating has proven itself over the years in many industries. PowerZ has shown to provide significant SFM gains versus an uncoated AxMill, resulting in impressive gains in both throughput and tool life. The characteristics of PowerZ coating have made it suitable for applications where PowerT (TiN) coating has not performed well. It has excellent erosion resistance, good lubricity and ductility, combined with an attractive appearance. PowerZ works well in all aluminum and non-ferrous applications. Recommended Applications: Aluminum, Brass, Cast Iron, Graphite, Ni Alloys, Ti Alloys, 300/PH Series Stainless Zinc, Glass-filled Plastics (Not recommended for carbon steels). Coating Characteristics: Thickness (2-5 microns), Hardness (2800 Vickers), Thermal 1,049°F (550°C), Lubricity (0.5 coefficient of friction).

## Also in Metric Sizes

The AxMill Series is also available in a wide range of metric sizes, in uncoated and PowerZ coated options.

## The Intelligence Behind AxMill Flute Design



### 37° Helix Flute

- Increased tool strength = higher feed-rate capacity
- Decreased axial load demands
- Robust corner integrity
- Less vertical pull on workpiece
- Broad-spectrum "roughing-finishing" applications

### Cylindrical Margins

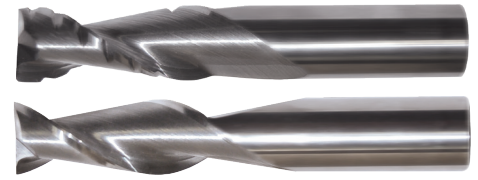
- Reduced chatter and improved surface finishes
- Both cutting diameter and shank diameter maintain h6 tolerance

### Double Gullet Flute Design

- Aids in efficient chip evacuation

# 2 Flute Uncoated AxMill

D1 - Cutting Diameter  
L1 - Cutting Length  
D2 - Shank Diameter  
L2 - Overall Length



Cutting Edge Tolerance  $\pm .0001/- .0004$   
Shank Tolerance  $\pm .0001/- .0004$  (ISO h6)

## Uncoated

Square, Square Chipbreaker, Corner Radius, and Ball

Standard Length    Stub Length    Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length	Square End		Corner Radius							Ball
				Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR	
D1	L1	D2	L2										
1/8	1/2	1/8	1-1/2	Standard	Chipbreaker	414-401	414-402	414-403	414-404				414-202
	5/8	1/8	2	Standard	Chipbreaker	415-401	415-402	415-403	415-404				415-202
	3/4	1/8	2	Standard	Chipbreaker	415-411	415-412	415-413	415-414				415-204
	1	1/8	3	Standard	Chipbreaker	415-421	415-422	415-423	415-424				415-206
5/32	9/16	5/32	2	Standard	Chipbreaker	414-411	414-412	414-413	414-414				414-204
3/16	3/4	3/16	2	Standard	Chipbreaker	414-421	414-422	414-423	414-424				414-206
	3/4	3/16	2-1/2	Standard	Chipbreaker	415-431	415-432	415-433	415-434				415-208
	1	3/16	4	Standard	Chipbreaker	415-451	415-452	415-453	415-454				415-212
	1-1/8	3/16	3	Standard	Chipbreaker	415-441	415-442	415-443	415-444				415-210
1/4	3/4	1/4	2-1/2	Standard	Chipbreaker	414-431	414-432	414-433	414-434	414-425			414-208
	1	1/4	2-1/2	Standard	Chipbreaker	414-441	414-442	414-443	414-444	414-445			414-210
	1	1/4	4	Standard	Chipbreaker	415-471	415-472	415-473	415-474	415-475			415-216
	1-1/8	1/4	3	Standard	Chipbreaker	415-461	415-462	415-463	415-464	415-465			415-214
	1-1/2	1/4	4	Standard	Chipbreaker	415-481	415-482	415-483	415-484	415-485			415-218
	1-1/2	1/4	6	Standard	Chipbreaker	415-491	415-492	415-493	415-494	415-495			415-220
5/16	3/4	5/16	2-1/2	Standard	Chipbreaker	414-451	414-452	414-453	414-454	414-455			414-212
	1	5/16	3	Standard	Chipbreaker	414-461	414-462	414-463	414-464	414-465			414-214
	1	5/16	4	Standard	Chipbreaker	415-511	415-512	415-513	415-514	415-515			415-224
	1-1/8	5/16	3	Standard	Chipbreaker	415-501	415-502	415-503	415-504	415-505			415-222
	1-1/2	5/16	6	Standard	Chipbreaker	415-531	415-532	415-533	415-534	415-535			415-228
	1-5/8	5/16	4	Standard	Chipbreaker	415-521	415-522	415-523	415-524	415-525			415-226
3/8	7/8	3/8	2-1/2	Standard	Chipbreaker		414-472	414-473	414-474	414-475			414-216
	1	3/8	2-1/2	Standard	Chipbreaker	414-481	414-482	414-483	414-484	414-485			414-218
	1-1/8	3/8	3	Standard	Chipbreaker	415-541	415-542	415-543	415-544	415-545			415-230
	1-1/2	3/8	6	Standard	Chipbreaker	415-571	415-572	415-573	415-574	415-575			415-236
	1-3/4	3/8	4	Standard	Chipbreaker	415-551	415-552	415-553	415-554	415-555			415-232
	2	3/8	4	Standard	Chipbreaker	415-561	415-562	415-563	415-564	415-565			415-234
	3	3/8	6	Standard	Chipbreaker	415-581	415-582	415-583	415-584	415-585			415-238
7/16	1	7/16	2-1/2	Standard	Chipbreaker	414-491	414-492	414-493	414-494	414-495			414-220
	1	7/16	4	Standard	Chipbreaker	415-591	415-592	415-593	415-594	415-595			415-240
	1-1/2	7/16	6	Standard	Chipbreaker	415-611	415-612	415-613	415-614	415-615			415-244
	2	7/16	4	Standard	Chipbreaker	415-601	415-602	415-603	415-604	415-605			415-242
	3	7/16	6	Standard	Chipbreaker	415-621	415-622	415-623	415-624	415-625			415-246
1/2	1	1/2	3	Standard	Chipbreaker	414-501	414-502	414-503	414-504	414-505	414-506	414-507	414-222
	1	1/2	4	Standard	Chipbreaker	415-631	415-632	415-633	415-634	415-635	415-636	415-637	415-248
	1-1/4	1/2	3	Standard	Chipbreaker	414-511	414-512	414-513	414-514	414-515	414-516	414-517	414-224
	1-1/2	1/2	6	Standard	Chipbreaker	415-641	415-642	415-643	415-644	415-645	415-646	415-647	415-250
	2	1/2	4	Standard	Chipbreaker	415-651	415-652	415-653	415-654	415-655	415-656	415-657	415-252
	3	1/2	6	Standard	Chipbreaker	415-661	415-662	415-663	415-664	415-665	415-666	415-667	415-254



Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

2 Flute Axmills allow large chip load and efficient chip evacuation.

## 2 Flute Uncoated AxMill, continued

■ Standard Length   
 ■ Stub Length   
 ■ Long Length

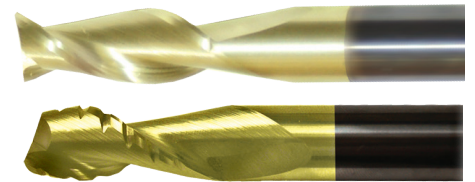
Cut Dia.	Length of Cut	Shank Dia.	Overall Length	Square End		Corner Radius							Ball	
				Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR		
D1	L1	D2	L2											
9/16	1-1/4	9/16	3		414-026	417-026	414-521	414-522	414-523	414-524	414-525	414-526	414-527	414-226
	1-1/4	5/8	3-1/2		414-028	417-028	414-531	414-532	414-533	414-534	414-535	414-536	414-537	414-228
	1-5/8	5/8	3-1/2		414-030	417-030	414-541	414-542	414-543	414-544	414-545	414-546	414-547	414-230
	2-1/4	5/8	5		415-056		415-671	415-672	415-673	415-674	415-675	415-676	415-677	415-256
5/8	3	5/8	6		415-058		415-681	415-682	415-683	415-684	415-685	415-686	415-687	415-258
	1	3/4	4				414-551	414-552	414-553	414-554	414-555	414-556	414-557	
	1-1/2	3/4	4		414-032	417-032	414-561	414-562	414-563	414-564	414-565	414-566	414-567	414-232
	1-5/8	3/4	4				414-571	414-572	414-573	414-574	414-575	414-576	414-577	
3/4	1-3/4	3/4	4		414-034	417-034	414-581	414-582	414-583	414-584	414-585	414-586	414-587	414-234
	2-1/4	3/4	5		415-060	418-060	415-691	415-692	415-693	415-694	415-695	415-696	415-697	415-260
	3	3/4	6		415-062	418-062	415-701		415-703	415-704	415-705	415-706	415-707	415-262
1	1-1/2	1	4		414-036	417-036	414-591	414-592	414-593	414-594	414-595	414-596	414-597	414-236
	2	1	6		415-064	418-064	415-711	415-712	415-713	415-714	415-715	415-716	415-717	415-264
	3	1	6		415-068	418-066	415-731	415-732	415-733	415-734	415-735	415-736	415-737	415-268
	4	1	6		415-066	418-068	415-721	415-722	415-723	415-724	415-725	415-726	415-727	415-266

## 2 Flute PowerZ AxMill

### PowerZ Coated (ZrN)

Square, Square Chipbreaker, Corner Radius, and Ball

D1 - Cutting Diameter  
 L1 - Cutting Length  
 D2 - Shank Diameter  
 L2 - Overall Length



Cutting Edge Tolerance +.0001/- .0004  
 Shank Tolerance + .0001/-0.0004 (ISO h6)

■ Standard Length   
 ■ Stub Length   
 ■ Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length	Square End		Corner Radius							Ball	
				Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR		
D1	L1	D2	L2											
1/8	1/2	1/8	1-1/2		414-002-4	417-002-4	414-401-4	414-402-4	414-403-4	414-404-4				414-202-4
	5/8	1/8	2		415-002-4	418-002-4	415-401-4	415-402-4	415-403-4	415-404-4				415-202-4
	3/4	1/8	2		415-004-4	418-004-4	415-411-4	415-412-4	415-413-4	415-414-4				415-204-4
	1	1/8	3		415-006-4	418-006-4	415-421-4	415-422-4	415-423-4	415-424-4				415-206-4
5/32	9/16	5/32	2		414-004-4	417-004-4	414-411-4	414-412-4	414-413-4	414-414-4				414-204-4
3/16	3/4	3/16	2		414-006-4	417-006-4	414-421-4	414-422-4	414-423-4	414-424-4				414-206-4
	3/4	3/16	2-1/2		415-008-4		415-431-4	415-432-4	415-433-4	415-434-4				415-208-4
	1	3/16	4		415-012-4		415-451-4	415-452-4	415-453-4	415-454-4				415-212-4
	1-1/8	3/16	3		415-010-4		415-441-4	415-442-4	415-443-4	415-444-4				415-210-4
1/4	3/4	1/4	2-1/2		414-008-4	417-008-4	414-431-4	414-432-4	414-433-4	414-434-4	414-425-4			414-208-4
	1	1/4	2-1/2		414-010-4	417-010-4	414-441-4	414-442-4	414-443-4	414-444-4	414-445-4			414-210-4
	1	1/4	4		415-016-4	418-016-4	415-471-4	415-472-4	415-473-4	415-474-4	415-475-4			415-216-4
	1-1/8	1/4	3		415-014-4	418-014-4	415-461-4	415-462-4	415-463-4	415-464-4	415-465-4			415-214-4
	1-1/2	1/4	4		415-018-4	418-018-4	415-481-4	415-482-4	415-483-4	415-484-4	415-485-4			415-218-4
	1-1/2	1/4	6		415-020-4	418-020-4	415-491-4	415-492-4	415-493-4	415-494-4	415-495-4			415-220-4

Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

2 Flute Axmills allow large chip load and efficient chip evacuation.

PowerZ has shown to provide significant SFM gains versus an uncoated AxMill, resulting in impressive gains in both throughput and tool life.

# 2 Flute PowerZ AxMill, continued

■ Standard Length   
 ■ Stub Length   
 ■ Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length	Square End		Corner Radius							Ball
				Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR	
D1	L1	D2	L2										
5/16	3/4	5/16	2-1/2	414-012-4	417-012-4	414-451-4	414-452-4	414-453-4	414-454-4	414-455-4			414-212-4
	1	5/16	3	414-014-4	417-014-4	414-461-4	414-462-4	414-463-4	414-464-4	414-465-4			414-214-4
	1	5/16	4	415-024-4		415-511-4	415-512-4	415-513-4	415-514-4	415-515-4			415-224-4
	1-1/8	5/16	3	415-022-4		415-501-4	415-502-4	415-503-4	415-504-4	415-505-4			415-222-4
	1-1/2	5/16	6	415-028-4		415-531-4	415-532-4	415-533-4	415-534-4	415-535-4			415-228-4
	1-5/8	5/16	4	415-026-4		415-521-4	415-522-4	415-523-4	415-524-4	415-525-4			415-226-4
3/8	7/8	3/8	2-1/2	414-016-4	417-016-4		414-472-4	414-473-4	414-474-4	414-475-4			414-216-4
	1	3/8	2-1/2	414-018-4	417-018-4	414-481-4	414-482-4	414-483-4	414-484-4	414-485-4			414-218-4
	1-1/8	3/8	3	415-030-4	418-030-4	415-541-4	415-542-4	415-543-4	415-544-4	415-545-4			415-230-4
	1-1/2	3/8	6	415-036-4	418-036-4	415-571-4	415-572-4	415-573-4	415-574-4	415-575-4			415-236-4
	1-3/4	3/8	4	415-032-4	418-032-4	415-551-4	415-552-4	415-553-4	415-554-4	415-555-4			415-232-4
	2	3/8	4	415-034-4	418-034-4	415-561-4	415-562-4	415-563-4	415-564-4	415-565-4			415-234-4
7/16	3	3/8	6	415-038-4	418-038-4	415-581-4	415-582-4	415-583-4	415-584-4	415-585-4			415-238-4
	1	7/16	2-1/2	414-020-4	417-020-4	414-491-4	414-492-4	414-493-4	414-494-4	414-495-4			414-220-4
	1	7/16	4	415-040-4		415-591-4	415-592-4	415-593-4	415-594-4	415-595-4			415-240-4
	1-1/2	7/16	6	415-044-4		415-611-4	415-612-4	415-613-4	415-614-4	415-615-4			415-244-4
	2	7/16	4	415-042-4		415-601-4	415-602-4	415-603-4	415-604-4	415-605-4			415-242-4
	3	7/16	6	415-046-4		415-621-4	415-622-4	415-623-4	415-624-4	415-625-4			415-246-4
1/2	1	1/2	3	414-022-4	417-022-4	414-501-4	414-502-4	414-503-4	414-504-4	414-505-4	414-506-4	414-507-4	414-222-4
	1	1/2	4	415-048-4	418-048-4	415-631-4	415-632-4	415-633-4	415-634-4	415-635-4	415-636-4	415-637-4	415-248-4
	1-1/4	1/2	3	414-024-4	417-024-4	414-511-4	414-512-4	414-513-4	414-514-4	414-515-4	414-516-4	414-517-4	414-224-4
	1-1/2	1/2	6	415-050-4	418-050-4	415-641-4	415-642-4	415-643-4	415-644-4	415-645-4	415-646-4	415-647-4	415-250-4
	2	1/2	4	415-052-4	418-052-4	415-651-4	415-652-4	415-653-4	415-654-4	415-655-4	415-656-4	415-657-4	415-252-4
	3	1/2	6	415-054-4	418-054-4	415-661-4	415-662-4	415-663-4	415-664-4	415-665-4	415-666-4	415-667-4	415-254-4
9/16	1-1/4	9/16	3	414-026-4	417-026-4	414-521-4	414-522-4	414-523-4	414-524-4	414-525-4	414-526-4	414-527-4	414-226-4
5/8	1-1/4	5/8	3-1/2	414-028-4	417-028-4	414-531-4	414-532-4	414-533-4	414-534-4	414-535-4	414-536-4	414-537-4	414-228-4
	1-5/8	5/8	3-1/2	414-030-4	417-030-4	414-541-4	414-542-4	414-543-4	414-544-4	414-545-4	414-546-4	414-547-4	414-230-4
	2-1/4	5/8	5	415-056-4		415-671-4	415-672-4	415-673-4	415-674-4	415-675-4	415-676-4	415-677-4	415-256-4
	3	5/8	6	415-058-4		415-681-4	415-682-4	415-683-4	415-684-4	415-685-4	415-686-4	415-687-4	415-258-4
3/4	1	3/4	4			414-551-4	414-552-4	414-553-4	414-554-4	414-555-4	414-556-4	414-557-4	
	1-1/2	3/4	4	414-032-4	417-032-4	414-561-4	414-562-4	414-563-4	414-564-4	414-565-4	414-566-4	414-567-4	414-232-4
	1-5/8	3/4	4			414-571-4	414-572-4	414-573-4	414-574-4	414-575-4	414-576-4	414-577-4	
	1-3/4	3/4	4	414-034-4	417-034-4	414-581-4	414-582-4	414-583-4	414-584-4	414-585-4	414-586-4	414-587-4	414-234-4
	2-1/4	3/4	5	415-060-4	418-060-4	415-691-4	415-692-4	415-693-4	415-694-4	415-695-4	415-696-4	415-697-4	415-260-4
	3	3/4	6	415-062-4	418-062-4	415-701-4		415-703-4	415-704-4	415-705-4	415-706-4	415-707-4	415-262-4
1	1-1/2	1	4	414-036-4	417-036-4	414-591-4	414-592-4	414-593-4	414-594-4	414-595-4	414-596-4	414-597-4	414-236-4
	2	1	6	415-064-4	418-064-4	415-711-4	415-712-4	415-713-4	415-714-4	415-715-4	415-716-4	415-717-4	415-264-4
	3	1	6	415-068-4	418-066-4	415-731-4	415-732-4	415-733-4	415-734-4	415-735-4	415-736-4	415-737-4	415-268-4
	4	1	6	415-066-4	418-068-4	415-721-4	415-722-4	415-723-4	415-724-4	415-725-4	415-726-4	415-727-4	415-266-4

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# 3 Flute AxMill

## Uncoated

Square, Square Chipbreaker, Corner Radius, and Ball

D1 - Cutting Diameter  
L1 - Cutting Length  
D2 - Shank Diameter  
L2 - Overall Length



Cutting Edge Tolerance +.0001/- .0004  
Shank Tolerance + .0001/- .0004 (ISO h6)

Standard Length    Stub Length    Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length		Square End		Corner Radius							Ball	
					Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR		
D1	L1	D2	L2		Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR	Ball	
1/8	1/4	1/8	1-1/2	Standard	422-002										
	1/4	1/8	3	Long	421-074										
	5/16	1/8	1-1/2	Standard	422-004										
	3/8	1/8	1-1/2	Stub	422-006										
	1/2	1/8	1-1/2	Standard	420-002	423-002	420-401	420-402	420-403	420-404				420-202	
	1/2	1/8	2	Long	421-070										
	5/8	1/8	2	Standard	421-002	424-002	421-401	421-402	421-403	421-404				421-202	
	3/4	1/8	2	Standard	421-004	424-004	421-411	421-412	421-413	421-414				421-204	
	1	1/8	2-1/2	Long	421-072										
5/32	1	1/8	3	Standard	421-006	424-006	421-421	421-422	421-423	421-424				421-206	
	5/16	3/16	2	Stub	422-008										
	9/16	5/32	2	Standard	420-004	423-004	420-411	420-412	420-413	420-414				420-204	
3/16	9/16	3/16	2	Standard	420-038										
	5/16	3/16	2	Stub	422-010										
	5/16	3/16	3	Long	421-080										
	3/8	3/16	2	Stub	422-012										
	5/8	3/16	2-1/2	Standard	421-076										
	3/4	3/16	2	Standard	420-006	423-006	420-421	420-422	420-423	420-424				420-206	
	3/4	3/16	2-1/2	Standard	421-008		421-431	421-432	421-433	421-434				421-208	
	1	3/16	2-1/2	Standard	421-078										
	1	3/16	4	Long	421-012		421-451	421-452	421-453	421-454				421-212	
7/32	1-1/8	3/16	3	Standard	421-010		421-441	421-442	421-443	421-444				421-210	
	3/8	1/4	2-1/2	Stub	422-014										
	3/4	1/4	2-1/2	Standard	420-040										
1/4	3/8	1/4	2-1/2	Standard	422-016		422-401	422-402	422-403					422-216	
	3/8	1/4	4	Long	421-088									421-288	
	1/2	1/4	2-1/2	Stub	422-018										
	5/8	1/4	2-1/2	Standard	420-042										
	3/4	1/4	2-1/2	Standard	420-008	423-008	420-431	420-432	420-433	420-434	420-425			420-208	
	3/4	1/4	4	Long	421-090										
	1	1/4	2-1/2	Standard	420-010	423-010	420-441	420-442	420-443	420-444	420-445			420-210	
	1	1/4	4	Long	421-016	424-016	421-471	421-472	421-473	421-474	421-475			421-216	
	1-1/8	1/4	2-1/2	Standard	421-082										
	1-1/8	1/4	3	Standard	421-014	424-014	421-461	421-462	421-463	421-464	421-465			421-214	
	1-1/4	1/4	3	Standard	421-084										421-284
	1-1/2	1/4	3	Standard	421-086										
	1-1/2	1/4	4	Standard	421-018	424-018	421-481	421-482	421-483	421-484	421-485			421-218	
1-1/2	1/4	6	Standard	421-020	424-020	421-491	421-492	421-493	421-494	421-495			421-220		
9/32	2	1/4	4	Standard	421-092										
	7/16	5/16	2-1/2	Stub	422-020										
	13/16	5/16	2-1/2	Standard	420-044										
5/16	7/16	5/16	2-1/2	Stub	422-022									422-222	
	7/16	5/16	4	Long	421-100									421-300	
	1/2	5/16	2-1/2	Standard	422-024										
	3/4	5/16	2-1/2	Standard	420-012	423-012	420-451	420-452	420-453	420-454	420-455			420-212	
	13/16	5/16	2-1/2	Standard	420-046										420-246
	13/16	5/16	4	Standard	421-102										
1	5/16	3	Standard	420-014	423-014	420-461	420-462	420-463	420-464	420-465				420-214	

Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

3 Flute design provides higher feed rates, superior finishes and extended tool life.

# 3 Flute Uncoated AxMill, continued

Square, Square Chipbreaker, Corner Radius, and Ball

■ Standard Length   
 ■ Stub Length   
 ■ Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length	Square End		Corner Radius							Ball
				Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR	
5/16	1	5/16	4	421-024		421-511	421-512	421-513	421-514	421-515			421-224
	1-1/8	5/16	2-1/2	421-094									
	1-1/8	5/16	3	421-022		421-501	421-502	421-503	421-504	421-505			421-222
	1-1/4	5/16	3-1/2	421-096									421-296
	1-1/2	5/16	3-1/2	421-098									
	1-1/2	5/16	6	421-028		421-531	421-532	421-533	421-534	421-535			421-228
	1-5/8	5/16	4	421-026		421-521	421-522	421-523	421-524	421-525			421-226
	2-1/8	5/16	4	421-104									
11/32	1/2	3/8	2-1/2	422-026									
	1	3/8	2-1/2	420-048									
3/8	1/2	3/8	2-1/2	422-028			422-412	422-413	422-414				422-228
	1/2	3/8	4	421-108									421-308
	5/8	3/8	2-1/2	422-030									
	3/4	3/8	2-1/2	420-050									
	7/8	3/8	2-1/2	420-016	423-016		420-472	420-473	420-474	420-475			420-216
	1	3/8	2-1/2	420-018	423-018	420-481	420-482	420-483	420-484	420-485			420-218
3/8	1	3/8	4	421-110									
	1-1/8	3/8	3	421-030	424-030	421-541	421-542	421-543	421-544	421-545			421-230
	1-1/4	3/8	3	421-106									
	1-1/2	3/8	4	421-112									421-312
	1-1/2	3/8	6	421-036	424-036	421-571	421-572	421-573	421-574	421-575			421-236
	1-3/4	3/8	4	421-032	424-032	421-551	421-552	421-553	421-554	421-555			421-232
	2	3/8	4	421-034	424-034	421-561	421-562	421-563	421-564	421-565			421-234
	2-1/2	3/8	6	421-114									
3	3/8	6	421-038	424-038	421-581	421-582	421-583	421-584	421-585			421-238	
13/32	9/16	7/16	2-3/4	422-032									
	1	7/16	2-3/4	420-052									
7/16	9/16	7/16	2-3/4	422-034									422-234
	1	7/16	2-1/2	420-020	423-020	420-491	420-492	420-493	420-494	420-495			420-220
	1	7/16	2-3/4	420-054									420-254
	1	7/16	4	421-040		421-591	421-592	421-593	421-594	421-595			421-240
	1-1/2	7/16	6	421-044		421-611	421-612	421-613	421-614	421-615			421-244
	2	7/16	4	421-042		421-601	421-602	421-603	421-604	421-605			421-242
	3	7/16	6	421-046		421-621	421-622	421-623	421-624	421-625			421-246
15/32	5/8	1/2	3	422-036									
	1-1/4	1/2	3	420-056									
1/2	5/8	1/2	3	422-038			422-422	422-423		422-425	422-426		422-238
	5/8	1/2	4	421-116									421-316
	5/8	1/2	6	421-120									421-320
	3/4	1/2	3	420-058									
	1	1/2	3	420-022	423-022	420-501	420-502	420-503	420-504	420-505	420-506	420-507	420-222
	1	1/2	4	421-048	424-048	421-631	421-632	421-633	421-634	421-635	421-636	421-637	421-248
	1-1/4	1/2	3	420-024	423-024	420-511	420-512	420-513	420-514	420-515	420-516	420-517	420-224
	1-1/4	1/2	6	421-122									
	1-1/2	1/2	4	421-118									
	1-1/2	1/2	6	421-050	424-050	421-641	421-642	421-643	421-644	421-645	421-646	421-647	421-250
	2	1/2	4	421-052	424-052	421-651	421-652	421-653	421-654	421-655	421-656	421-657	421-252
	2-1/4	1/2	6	421-124									



Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

3 Flute design provides higher feed rates, superior finishes and extended tool life.

# 3 Flute Uncoated AxMill, continued

Square, Square Chipbreaker, Corner Radius, and Ball

■ Standard Length   
 ■ Stub Length   
 ■ Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length	Square End		Corner Radius							Ball	
				Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR		
D1	L1	D2	L2											
1/2	2-1/2	1/2	6		421-126									
	3	1/2	6		421-054	424-054	421-661	421-662	421-663	421-664	421-665	421-666	421-667	421-254
	3-1/4	1/2	6		421-128									
	4	1/2	8		421-130									
9/16	1-1/4	9/16	3		420-026	423-026	420-521	420-522	420-523	420-524	420-525	420-526	420-527	420-226
5/8	3/4	5/8	3-1/2		422-040									422-240
	3/4	5/8	5		422-042									422-242
	3/4	5/8	6		421-138									421-338
	1-1/4	5/8	3-1/2		420-028	423-028	420-531	420-532	420-533	420-534	420-535	420-536	420-537	420-228
	1-5/8	5/8	3-1/2		420-030	423-030	420-541	420-542	420-543	420-544	420-545	420-546	420-547	420-230
	1-5/8	5/8	6		421-140									
	2	5/8	5		421-132									
	2-1/4	5/8	5		421-056		421-671	421-672	421-673	421-674	421-675	421-676	421-677	421-256
	2-1/2	5/8	5		421-134									421-334
	2-3/4	5/8	5		421-136									
	3	5/8	6		421-058		421-681	421-682	421-683	421-684	421-685	421-686	421-687	421-258
	3-1/4	5/8	6		421-142									
4	5/8	8		421-144										
3/4	1	3/4	4		420-060		420-551	420-552	420-553	420-554	420-555	420-556	420-557	420-260
	1	3/4	5		421-146									421-346
	1	3/4	6		421-152									421-352
	1-1/2	3/4	4		420-032	423-032	420-561	420-562	420-563	420-564	420-565	420-566	420-567	420-232
	1-5/8	3/4	4		420-062		420-571	420-572	420-573	420-574	420-575	420-576	420-577	420-262
	1-5/8	3/4	6		421-154									
	1-3/4	3/4	4		420-034	423-034	420-581	420-582	420-583	420-584	420-585	420-586	420-587	420-234
	2	3/4	5		421-148									
	2-1/4	3/4	5		421-060	424-060	421-691	421-692	421-693	421-694	421-695	421-696	421-697	421-260
	2-1/2	3/4	5		421-150									
	3	3/4	6		421-062	424-062	421-701		421-703	421-704	421-705	421-706	421-707	421-262
	3-1/4	3/4	6		421-156									421-356
	3-1/2	3/4	6		421-158									
4	3/4	7		421-160										
5	3/4	8		421-162										
1	1-1/4	1	5		421-164									421-364
	1-1/4	1	6		421-172									421-372
	1-1/4	1	7		421-176									421-376
	1-1/2	1	4		420-036	423-036	420-591	420-592	420-593	420-594	420-595	420-596	420-597	420-236
	1-1/2	1	5		421-166									
	2	1	5		421-168									421-368
	2	1	6		421-064	424-064	421-711	421-712	421-713	421-714	421-715	421-716	421-717	421-264
	2	1	7		421-178									
	2-1/2	1	5		421-170									
	3	1	6		421-068	424-068	421-731	421-732	421-733	421-734	421-735	421-736	421-737	421-268
	3-1/2	1	6		421-174									421-374
	4	1	6		421-066	424-066	421-721	421-722	421-723	421-724	421-725	421-726	421-727	421-266
4-1/8	1	7		421-180										
5-1/2	1	8		421-182										
1-1/4	1-1/4	1-1/4	4-1/2		420-064									
	2	1-1/4	4-1/2		421-184									
	3-1/4	1-1/4	6		421-186									
	5	1-1/4	7-1/2		421-188									

Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

3 Flute design provides higher feed rates, superior finishes and extended tool life.



# 3 Flute AxMill

## PowerZ Coated (ZrN)

Square, Square Chipbreaker, Corner Radius, and Ball

D1 - Cutting Diameter  
L1 - Cutting Length  
D2 - Shank Diameter  
L2 - Overall Length



Cutting Edge Tolerance +.0001/- .0004  
Shank Tolerance +.0001/- .0004 (ISO h6)

■ Standard Length    ■ Stub Length    ■ Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length		Square End		Corner Radius						Ball		
					Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR		.120 CR	
D1	L1	D2	L2		Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR		
1/8	1/4	1/8	1-1/2	Standard	422-002-4										
	1/4	1/8	3	Long	421-074-4										
	5/16	1/8	1-1/2	Stub	422-004-4										
	3/8	1/8	1-1/2	Stub	422-006-4										
	1/2	1/8	1-1/2	Standard	420-002-4	423-002-4	420-401-4	420-402-4	420-403-4	420-404-4				420-202-4	
	1/2	1/8	2	Long	421-070-4										
	5/8	1/8	2	Long	421-002-4		421-401-4	421-402-4	421-403-4	421-404-4				421-202-4	
	3/4	1/8	2	Long	421-004-4		421-411-4	421-412-4	421-413-4	421-414-4				421-204-4	
	1	1/8	2-1/2	Long	421-072-4										
5/32	1	1/8	3	Long	421-006-4		421-421-4	421-422-4	421-423-4	421-424-4				421-206-4	
	5/16	3/16	2	Stub	422-008-4										
	9/16	5/32	2	Standard	420-004-4	423-004-4	420-411-4	420-412-4	420-413-4	420-414-4				420-204-4	
3/16	9/16	3/16	2	Standard	420-038-4										
	5/16	3/16	2	Stub	422-010-4										
	5/16	3/16	3	Long	421-080-4										
	3/8	3/16	2	Stub	422-012-4										
	5/8	3/16	2-1/2	Long	421-076-4										
	3/4	3/16	2	Standard	420-006-4	423-006-4	420-421-4	420-422-4	420-423-4	420-424-4				420-206-4	
	3/4	3/16	2-1/2	Long	421-008-4		421-431-4	421-432-4	421-433-4	421-434-4				421-208-4	
	1	3/16	2-1/2	Long	421-078-4										
7/32	1	3/16	4	Long	421-012-4		421-451-4	421-452-4	421-453-4	421-454-4				421-212-4	
	1-1/8	3/16	3	Long	421-010-4		421-441-4	421-442-4	421-443-4	421-444-4				421-210-4	
	3/8	1/4	2-1/2	Stub	422-014-4										
	3/4	1/4	2-1/2	Standard	420-040-4										
	1/4	3/8	1/4	2-1/2	Stub	422-016-4		422-401-4	422-402-4	422-403-4					422-216-4
		3/8	1/4	4	Long	421-088-4									421-288-4
		1/2	1/4	2-1/2	Stub	422-018-4									
		5/8	1/4	2-1/2	Standard	420-042-4									
1/4	3/4	1/4	2-1/2	Standard	420-008-4	423-008-4	420-431-4	420-432-4	420-433-4	420-434-4	420-425-4			420-208-4	
	3/4	1/4	4	Long	421-090-4										
	1	1/4	2-1/2	Standard	420-010-4	423-010-4	420-441-4	420-442-4	420-443-4	420-444-4	420-445-4			420-210-4	
	1	1/4	4	Long	421-016-4		421-471-4	421-472-4	421-473-4	421-474-4	421-475-4			421-216-4	
	1-1/8	1/4	2-1/2	Standard	421-082-4										
	1-1/8	1/4	3	Long	421-014-4		421-461-4	421-462-4	421-463-4	421-464-4	421-465-4			421-214-4	
	1-1/4	1/4	3	Long	421-084-4									421-284-4	
	1-1/2	1/4	3	Long	421-086-4										
	1-1/2	1/4	4	Long	421-018-4		421-481-4	421-482-4	421-483-4	421-484-4	421-485-4			421-218-4	
	1-1/2	1/4	6	Long	421-020-4		421-491-4	421-492-4	421-493-4	421-494-4	421-495-4			421-220-4	
9/32	2	1/4	4	Long	421-092-4										
	7/16	5/16	2-1/2	Stub	422-020-4										
5/16	13/16	5/16	2-1/2	Standard	420-044-4										
	7/16	5/16	2-1/2	Stub	422-022-4									422-222-4	
	7/16	5/16	4	Long	421-100-4									421-300-4	
	1/2	5/16	2-1/2	Stub	422-024-4										
	3/4	5/16	2-1/2	Standard	420-012-4	423-012-4	420-451-4	420-452-4	420-453-4	420-454-4	420-455-4			420-212-4	
	13/16	5/16	2-1/2	Standard	420-046-4									420-246-4	
5/16	13/16	5/16	4	Long	421-102-4										
	1	5/16	3	Standard	420-014-4	423-014-4	420-461-4	420-462-4	420-463-4	420-464-4	420-465-4			420-214-4	

Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

3 Flute design provides higher feed rates, superior finishes and extended tool life.





PowerZ has shown to provide significant SFM gains versus an uncoated AxMill, resulting in impressive gains in both throughput and tool life.



# 3 Flute PowerZ AxMill, continued

Square, Square Chipbreaker, Corner Radius, and Ball

■ Standard Length   
 ■ Stub Length   
 ■ Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length											
					Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR	Ball
D1	L1	D2	L2		Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR	Ball
5/16	1	5/16	4		421-024-4		421-511-4	421-512-4	421-513-4	421-514-4	421-515-4			421-224-4
	1-1/8	5/16	2-1/2		421-094-4									
	1-1/8	5/16	3		421-022-4		421-501-4	421-502-4	421-503-4	421-504-4	421-505-4			421-222-4
	1-1/4	5/16	3-1/2		421-096-4									421-296-4
	1-1/2	5/16	3-1/2		421-098-4									
	1-1/2	5/16	6		421-028-4		421-531-4	421-532-4	421-533-4	421-534-4	421-535-4			421-228-4
	1-5/8	5/16	4		421-026-4		421-521-4	421-522-4	421-523-4	421-524-4	421-525-4			421-226-4
	2-1/8	5/16	4		421-104-4									
11/32	1/2	3/8	2-1/2		422-026-4									
	1	3/8	2-1/2		420-048-4									
3/8	1/2	3/8	2-1/2		422-028-4			422-412-4	422-413-4	422-414-4				422-228-4
	1/2	3/8	4		421-108-4									421-308-4
	5/8	3/8	2-1/2		422-030-4									
	3/4	3/8	2-1/2		420-050-4									
	7/8	3/8	2-1/2		420-016-4	423-016-4		420-472-4	420-473-4	420-474-4	420-475-4			420-216-4
	1	3/8	2-1/2		420-018-4	423-018-4	420-481-4	420-482-4	420-483-4	420-484-4	420-485-4			420-218-4
	1	3/8	4		421-110-4									
	1-1/8	3/8	3		421-030-4		421-541-4	421-542-4	421-543-4	421-544-4	421-545-4			421-230-4
	1-1/4	3/8	3		421-106-4									
	1-1/2	3/8	4		421-112-4									421-312-4
	1-1/2	3/8	6		421-036-4		421-571-4	421-572-4	421-573-4	421-574-4	421-575-4			421-236-4
	1-3/4	3/8	4		421-032-4		421-551-4	421-552-4	421-553-4	421-554-4	421-555-4			421-232-4
	2	3/8	4		421-034-4		421-561-4	421-562-4	421-563-4	421-564-4	421-565-4			421-234-4
	2-1/2	3/8	6		421-114-4									
3	3/8	6		421-038-4		421-581-4	421-582-4	421-583-4	421-584-4	421-585-4			421-238-4	
13/32	9/16	7/16	2-3/4		422-032-4									
	1	7/16	2-3/4		420-052-4									
7/16	9/16	7/16	2-3/4		422-034-4									422-234-4
	1	7/16	2-1/2		420-020-4	423-020-4	420-491-4	420-492-4	420-493-4	420-494-4	420-495-4			420-220-4
	1	7/16	2-3/4		420-054-4									420-254-4
	1	7/16	4		421-040-4		421-591-4	421-592-4	421-593-4	421-594-4	421-595-4			421-240-4
	1-1/2	7/16	6		421-044-4		421-611-4	421-612-4	421-613-4	421-614-4	421-615-4			421-244-4
	2	7/16	4		421-042-4		421-601-4	421-602-4	421-603-4	421-604-4	421-605-4			421-242-4
	3	7/16	6		421-046-4		421-621-4	421-622-4	421-623-4	421-624-4	421-625-4			421-246-4
15/32	5/8	1/2	3		422-036-4									
	1-1/4	1/2	3		420-056-4									
1/2	5/8	1/2	3		422-038-4			422-422-4	422-423-4		422-425-4	422-426-4		422-238-4
	5/8	1/2	4		421-116-4									421-316-4
	5/8	1/2	6		421-120-4									
	5/8	1/2	6											421-320-4
	3/4	1/2	3		420-058-4									
	1	1/2	3		420-022-4	423-022-4	420-501-4	420-502-4	420-503-4	420-504-4	420-505-4	420-506-4	420-507-4	420-222-4
	1	1/2	4		421-048-4		421-631-4	421-632-4	421-633-4	421-634-4	421-635-4	421-636-4	421-637-4	421-248-4
	1-1/4	1/2	3		420-024-4	423-024-4	420-511-4	420-512-4	420-513-4	420-514-4	420-515-4	420-516-4	420-517-4	420-224-4
	1-1/4	1/2	6		421-122-4									
	1-1/2	1/2	4		421-118-4									
	1-1/2	1/2	6		421-050-4		421-641-4	421-642-4	421-643-4	421-644-4	421-645-4	421-646-4	421-647-4	421-250-4
	2	1/2	4		421-052-4		421-651-4	421-652-4	421-653-4	421-654-4	421-655-4	421-656-4	421-657-4	421-252-4
	2-1/4	1/2	6		421-124-4									
	2-1/2	1/2	6		421-126-4									

Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

3 Flute design provides higher feed rates, superior finishes and extended tool life.

PowerZ has shown to provide significant SFM gains versus an uncoated AxMill, resulting in impressive gains in both throughput and tool life.

# 3 Flute PowerZ AxMill, continued

Square, Square Chipbreaker, Corner Radius, and Ball

■ Standard Length   
 ■ Stub Length   
 ■ Long Length

Cut Dia.	Length of Cut	Shank Dia.	Overall Length											Ball
				Square End	Square End	Corner Radius								
D1	L1	D2	L2	Standard	Chipbreaker	.015 CR	.020 CR	.030 CR	.040 CR	.060 CR	.090 CR	.120 CR		
1/2	3	1/2	6	■	421-054-4		421-661-4	421-662-4	421-663-4	421-664-4	421-665-4	421-666-4	421-667-4	421-254-4
	3-1/4	1/2	6	■	421-128-4									
	4	1/2	8	■	421-130-4									
9/16	1-1/4	9/16	3	■	420-026-4	423-026-4	420-521-4	420-522-4	420-523-4	420-524-4	420-525-4	420-526-4	420-527-4	420-226-4
5/8	3/4	5/8	3-1/2	■	422-040-4									422-240-4
	3/4	5/8	5	■	422-042-4									422-242-4
	3/4	5/8	6	■	421-138-4									421-338-4
	1-1/4	5/8	3-1/2	■	420-028-4	423-028-4	420-531-4	420-532-4	420-533-4	420-534-4	420-535-4	420-536-4	420-537-4	420-228-4
	1-5/8	5/8	3-1/2	■	420-030-4	423-030-4	420-541-4	420-542-4	420-543-4	420-544-4	420-545-4	420-546-4	420-547-4	420-230-4
	1-5/8	5/8	6	■	421-140-4									
	2	5/8	5	■	421-132-4									
	2-1/4	5/8	5	■	421-056-4		421-671-4	421-672-4	421-673-4	421-674-4	421-675-4	421-676-4	421-677-4	421-256-4
	2-1/2	5/8	5	■	421-134-4									421-334-4
	2-3/4	5/8	5	■	421-136-4									
	3	5/8	6	■	421-058-4		421-681-4	421-682-4	421-683-4	421-684-4	421-685-4	421-686-4	421-687-4	421-258-4
	3-1/4	5/8	6	■	421-142-4									
4	5/8	8	■	421-144-4										
3/4	1	3/4	4	■	420-060-4		420-551-4	420-552-4	420-553-4	420-554-4	420-555-4	420-556-4	420-557-4	420-260-4
	1	3/4	5	■	421-146-4									421-346-4
	1	3/4	6	■	421-152-4									421-352-4
	1-1/2	3/4	4	■	420-032-4	423-032-4	420-561-4	420-562-4	420-563-4	420-564-4	420-565-4	420-566-4	420-567-4	420-232-4
	1-5/8	3/4	4	■	420-062-4		420-571-4	420-572-4	420-573-4	420-574-4	420-575-4	420-576-4	420-577-4	420-262-4
	1-5/8	3/4	6	■	421-154-4									
	1-3/4	3/4	4	■	420-034-4	423-034-4	420-581-4	420-582-4	420-583-4	420-584-4	420-585-4	420-586-4	420-587-4	420-234-4
	2	3/4	5	■	421-148-4									
	2-1/4	3/4	5	■	421-060-4		421-691-4	421-692-4	421-693-4	421-694-4	421-695-4	421-696-4	421-697-4	421-260-4
	2-1/2	3/4	5	■	421-150-4									
	3	3/4	6	■	421-062-4		421-701-4		421-703-4	421-704-4	421-705-4	421-706-4	421-707-4	421-262-4
	3-1/4	3/4	6	■	421-156-4									421-356-4
3-1/2	3/4	6	■	421-158-4										
4	3/4	7	■	421-160-4										
5	3/4	8	■	421-162-4										
1	1-1/4	1	5	■	421-164-4									421-364-4
	1-1/4	1	6	■	421-172-4									421-372-4
	1-1/4	1	7	■	421-176-4									421-376-4
	1-1/2	1	4	■	420-036-4	423-036-4	420-591-4	420-592-4	420-593-4	420-594-4	420-595-4	420-596-4	420-597-4	420-236-4
	1-1/2	1	5	■	421-166-4									
	2	1	5	■	421-168-4									421-368-4
	2	1	6	■	421-064-4		421-711-4	421-712-4	421-713-4	421-714-4	421-715-4	421-716-4	421-717-4	421-264-4
	2	1	7	■	421-178-4									
	2-1/2	1	5	■	421-170-4									
	3	1	6	■	421-068-4		421-731-4	421-732-4	421-733-4	421-734-4	421-735-4	421-736-4	421-737-4	421-268-4
	3-1/2	1	6	■	421-174-4									421-374-4
	4	1	6	■	421-066-4		421-721-4	421-722-4	421-723-4	421-724-4	421-725-4	421-726-4	421-727-4	421-266-4
4-1/8	1	7	■	421-180-4										
5-1/2	1	8	■	421-182-4										
1-1/4	1-1/4	1-1/4	4-1/2	■	420-064-4									
	2	1-1/4	4-1/2	■	421-184-4									
	3-1/4	1-1/4	6	■	421-186-4									
	5	1-1/4	7-1/2	■	421-188-4									

Chipbreakers reduce both chip size and tool stress, allowing possible increases in feed rate.

3 Flute design provides higher feed rates, superior finishes and extended tool life.

PowerZ has shown to provide significant SFM gains versus an uncoated AxMill, resulting in impressive gains in both throughput and tool life.



# 3 Flute Necked AxMill

D1 - Cutting Diameter  
 L1 - Cutting Length  
 D2 - Shank Diameter  
 L2 - Overall Length

## Uncoated

Cutting Edge Tolerance +.0001/-.0004  
 Shank Tolerance +.0001/-.0004 (ISO h6)

Gives Clearance in Tight Spaces

Square, Square Chipbreaker, Corner Radius, and Ball

Standard Length

Stub Length

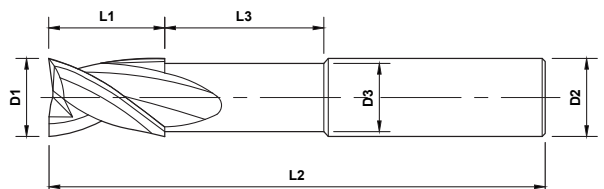
Long Length

Cutting Diameter	Length of Cut	Shank Diameter	Overall Length	Neck Diameter	Neck Length	Square			Corner Radius			Ball
									.015 CR	.020 CR	.030 CR	
D1	L1	D2	L2	D3	L3							
1/8	1/4	1/8	1-1/2	.115	1/4	Standard	426-002	426-401				426-202
	1/4	1/8	3	.115	1-1/8	Long	427-002	427-401				427-202
3/16	5/16	3/16	2	.175	3-16	Standard	426-004		426-412			426-204
	5/16	3/16	3	.175	1-1/16	Long	427-004		427-412			427-204
1/4	3/8	1/4	2-1/2	.235	3/4	Standard	426-006		426-422			426-206
	3/8	1/4	4	.235	1-3/4	Long	427-006		427-422			427-206
	3/4	1/4	4	.235	1-3/8	Long	427-008		427-432			427-208
5/16	7/16	5/16	2-1/2	.291	11/16	Standard	426-008					426-208
	7/16	5/16	4	.291	1-11/16	Long	427-010					427-210
	13/16	5/16	4	.291	1-5/16	Long	427-012					
3/8	1/2	3/8	2-1/2	.355	5/8	Standard	426-010				426-433	426-210
	1/2	3/8	4	.355	1-5/8	Long	427-014				427-443	427-214
	1	3/8	4	.355	1-1/8	Long	427-016					427-216
1/2	5/8	1/2	3	.475	3/4	Standard	426-012				426-443	426-212
	5/8	1/2	4	.475	1-3/4	Long	427-018				427-453	427-218
	5/8	1/2	6	.475	2-3/4	Long	427-020				427-463	427-220
	1-1/4	1/2	6	.475	2-1/8	Long	427-022				427-473	427-222
5/8	3/4	5/8	3-1/2	.519	7/8	Standard	426-014				426-453	426-214
	3/4	5/8	5	.519	1-5/8	Long	427-024				427-483	427-224
	3/4	5/8	6	.519	2-5/8	Long	427-026				427-493	427-226
	1-5/8	5/8	6	.519	1-3/4	Long	427-028				427-503	427-228
3/4	1	3/4	4	.715	5/8	Standard	426-016				426-463	426-216
	1	3/4	5	.715	1-1/2	Long	427-030				427-513	427-230
	1	3/4	6	.715	1-3/4	Long	427-034				427-523	427-234
	1-5/8	3/4	6	.715	2-3/8	Long	427-032				427-533	427-232
1	1-1/4	1	5	.960	7/8	Standard	426-018				426-473	426-218
	1-1/4	1	6	.960	1/8	Long	427-040				427-543	427-240
	1-1/4	1	7	.960	2-1/8	Long	427-036				427-553	427-236
	2	1	5	.960	3-1/8	Long	427-038				427-563	427-238

# Necked AxMill

It gives clearance in tight spaces allowing for aggressive high speed milling in challenging environments!

3 Flute design provides higher feed rates, superior finishes and extended tool life.



# 3 Flute Necked AxMill

## PowerZ Coated (ZrN)

Gives Clearance in Tight Spaces  
Square, Square Chipbreaker, Corner Radius, and Ball

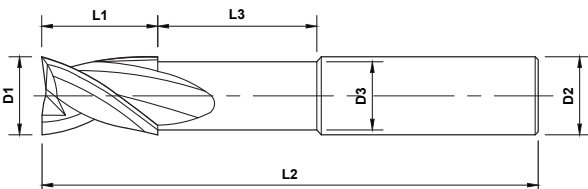
D1 - Cutting Diameter  
L1 - Cutting Length  
D2 - Shank Diameter  
L2 - Overall Length



Cutting Edge Tolerance +.0001/- .0004  
Shank Tolerance + .0001/- .0004 (ISO h6)

Standard Length    Stub Length    Long Length

Cutting Diameter	Length of Cut	Shank Diameter	Overall Length	Neck Diameter	Neck Length	Corner Radius			Ball	
						Square	.015 CR	.020 CR	.030 CR	
D1	L1	D2	L2	D3	L3					
1/8	1/4	1/8	1-1/2	.115	1/4	Standard	426-002-4	426-401-4		426-202-4
	1/4	1/8	3	.115	1-1/8	Long	427-002-4	427-401-4		427-202-4
3/16	5/16	3/16	2	.175	3-16	Standard	426-004-4		426-412-4	426-204-4
	5/16	3/16	3	.175	1-1/16	Long	427-004-4		427-412-4	427-204-4
1/4	3/8	1/4	2-1/2	.235	3/4	Standard	426-006-4		426-422-4	426-206-4
	3/8	1/4	4	.235	1-3/4	Long	427-006-4		427-422-4	427-206-4
	3/4	1/4	4	.235	1-3/8	Long	427-008-4		427-432-4	427-208-4
5/16	7/16	5/16	2-1/2	.291	11/16	Standard	426-008-4			426-208-4
	7/16	5/16	4	.291	1-11/16	Long	427-010-4			427-210-4
	13/16	5/16	4	.291	1-5/16	Long	427-012-4			
3/8	1/2	3/8	2-1/2	.355	5/8	Standard	426-010-4			426-433-4
	1/2	3/8	4	.355	1-5/8	Long	427-014-4			427-443-4
	1	3/8	4	.355	1-1/8	Long	427-016-4			427-216-4
1/2	5/8	1/2	3	.475	3/4	Standard	426-012-4			426-443-4
	5/8	1/2	4	.475	1-3/4	Long	427-018-4			427-453-4
	5/8	1/2	6	.475	2-3/4	Long	427-020-4			427-463-4
	1-1/4	1/2	6	.475	2-1/8	Long	427-022-4			427-473-4
5/8	3/4	5/8	3-1/2	.519	7/8	Standard	426-014-4			426-453-4
	3/4	5/8	5	.519	1-5/8	Long	427-024-4			427-483-4
	3/4	5/8	6	.519	2-5/8	Long	427-026-4			427-493-4
	1-5/8	5/8	6	.519	1-3/4	Long	427-028-4			427-503-4
3/4	1	3/4	4	.715	5/8	Standard	426-016-4			426-463-4
	1	3/4	5	.715	1-1/2	Long	427-030-4			427-513-4
	1	3/4	6	.715	1-3/4	Long	427-034-4			427-523-4
	1-5/8	3/4	6	.715	2-3/8	Long	427-032-4			427-533-4
1	1-1/4	1	5	.960	7/8	Standard	426-018-4			426-473-4
	1-1/4	1	6	.960	1/8	Long	427-040-4			427-543-4
	1-1/4	1	7	.960	2-1/8	Long	427-036-4			427-553-4
	2	1	5	.960	3-1/8	Long	427-038-4			427-563-4



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PowerZ has shown to provide significant SFM gains versus an uncoated AxMill, resulting in impressive gains in both throughput and tool life.





# AxMill Speed and Feed Recommendations

MATERIAL TO BE CUT									
Aluminum Alloys 6061-T6, 7075-T6, 440, 356, 380, C61300									
350 Aluminum Series, Roughing & Finishing E/M									
TYPE OF CUT		Rc Range	SFM Range	0.2500 (RPM)	0.2500 (IPM)	0.3750 (RPM)	0.3750 (IPM)	0.5000 (RPM)	0.5000 (IPM)
Shallow Slotting	< 1/2 x	< 32	1200 Plus	18336	247.5	12224	261.3	9168	275.0
	Dia.	> 32	600 Plus	9168	99.0	6112	104.5	4584	110.0
Deep Slotting	3/4-1 x	< 32	1200 Plus	18336	198.0	12224	209.0	9168	220.0
	Dia.	> 32	600 Plus	9168	74.3	6112	78.4	4584	82.5
Medium Radial	30% x	< 32	1200 Plus	18336	247.5	12224	261.3	9168	275.0
1.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	9168	99.0	6112	104.5	4584	110.0
Heavy Radial	50% x	< 32	1200 Plus	18336	198.0	12224	209.0	9168	220.0
1.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	9168	74.3	6112	78.4	4584	82.5
Medium Radial	30% x	< 32	1200 Plus	18336	247.5	12224	261.5	9168	275.0
2.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	9168	99.0	6112	104.5	4584	110.0
Heavy Radial	50% x	< 32	1200 Plus	18336	198.0	12224	209.0	9184	220.0
2.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	9168	74.3	6112	78.4	4584	82.5
Finishing MEDIUM	< 25%	< 32	1200 Plus	18336	330.0	12224	261.3	9168	275.0
Radial	OF Dia.	> 32	600 Plus	9168	132.0	6112	104.5	4584	110.0
Finishing Light	< 10%	< 32	1200 Plus	18336	330.0	12224	261.3	9168	275.0
Radial	OF Dia.	> 32	600 Plus	9168	132.0	6112	104.5	4584	110.0
Finishing	< .010	< 32	1200 Plus	18336	396.1	12224	313.5	9168	330.0
	Radial Depth	> 32	600 Plus	9168	165.0	6112	130.6	4584	137.5

MATERIAL TO BE CUT									
Aluminum Alloys 6061-T6, 7075-T6, 440, 356, 380, C61300									
350 Aluminum Series, Roughing & Finishing E/M									
TYPE OF CUT		Rc Range	SFM Range	06260 (RPM)	06260 (IPM)	0.7500 (RPM)	0.7500 (IPM)	1.0000 (RPM)	1.0000 (IPM)
Shallow Slotting	< 1/2 x	< 32	1200 Plus	7323	269.1	6112	272.3	4584	275.0
	Dia.	> 32	600 Plus	3661	107.6	3056	108.9	2292	110.0
Deep Slotting	3/4-1 x	< 32	1200 Plus	7323	215.3	6112	217.8	4584	220.1
	Dia.	> 32	600 Plus	3661	80.7	3056	81.7	2292	82.5
Medium Radial	30% x	< 32	1200 Plus	7323	269.1	6112	272.3	4584	275.0
1.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	3661	107.6	3056	108.9	2292	110.0
Heavy Radial	50% x	< 32	1200 Plus	7323	215.3	6112	217.8	4584	220.0
1.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	3661	80.7	3056	81.7	2292	82.5
Medium Radial	30% x	< 32	1200 Plus	7223	269.1	6112	272.3	4584	275.0
2.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	3661	107.6	3056	108.9	2292	110.0
Heavy Radial	50% x	< 32	1200 Plus	7323	215.3	6112	217.8	4584	220.0
2.0 X DIA DEPTH	Dia. Radial	> 32	600 Plus	3661	80.7	3056	81.7	2292	82.5
Finishing MEDIUM	< 25%	< 32	1200 Plus	7323	269.1	6112	272.3	4584	275.0
Radial	OF Dia.	> 32	600 Plus	3661	107.6	3056	108.9	2292	110.0
Finishing Light	< 10%	< 32	1200 Plus	7323	269.1	6112	272.3	4584	275.0
Radial	OF Dia.	> 32	600 Plus	3661	107.6	3056	108.9	2292	110.0
Finishing	< .010	< 32	1200 Plus	7323	322.9	6112	326.7	4584	330.0
	Radial Depth	> 32	600 Plus	3661	134.6	3056	136.1	2292	137.5

## MATERIAL TO BE CUT

Aluminum Alloys 6061-T6, 7075-T6, 440, 356, 380, C61300

350 Aluminum Series, Roughing & Finishing E/M

TYPE OF CUT		Range	SFM Range	0.2500	.3750	0.5000	.6250	0.7500	1.000
Shallow Slotting	< 1/2 x	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
	Dia.	2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
Deep Slotting	3/4-1 x	1	1200 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
	Dia.	2	600 Plus	0.0027	0.0043	0.0060	0.0074	0.0089	0.0120
Medium Radial	30% x	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
1.0 X DIA DEPTH	Dia. Radial	2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
Heavy Radial	50% x	1	1200 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
1.0 X DIA DEPTH	Dia. Radial	2	600 Plus	0.0027	0.0043	0.0060	0.0074	0.0089	0.0120
Medium Radial	30% x	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
2.0 X DIA DEPTH	Dia. Radial	2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
Heavy Radial	50% x	1	1200 Plus	0.0036	0.0057	0.0060	0.0098	0.0119	0.0160
2.0 X DIA DEPTH	Dia. Radial	2	600 Plus	0.0027	0.0043	0.0060	0.0074	0.0089	0.0120
Finishing MEDIUM	< 25%	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
Radial	OF Dia.	2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
Finishing Light	< 10%	1	1200 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200
Radial	OF Dia.	2	600 Plus	0.0036	0.0057	0.0080	0.0098	0.0119	0.0160
Finishing	< .010	1	1200 Plus	0.0054	0.0086	0.0120	0.0147	0.0178	0.0240
	Radial Depth	2	600 Plus	0.0045	0.0071	0.0100	0.0123	0.0149	0.0200

## Formulas

$$\text{RPM} = (\text{SFM} \times 3.82) / \text{Tool Diameter}$$

$$\text{IPM} = \text{number of flutes} \times \text{RPM} \times \text{chip load per tooth}$$

Disclaimer: The speed and feed rates are suggested as a general guideline only. Machine type, horsepower, spindle speed limitations, tool holding and workholding devices all may impact a cutting tool's ability to perform properly. Consequently, Mastercut Tool Corp. is not responsible for tool failure, part damage or injury that may be caused as a result of data supplied in these tables.

## Terms and Conditions

### To Order

Faxed or e-mailed orders are required. Please specify quantity and EDP/Part numbers.

### Minimum Orders

\$50 for standard items, \$200 for special orders. Orders below \$50 are subject to a \$7.50 handling fee.

### Standard Payment Terms

Overseas customers: Prepaid. US customers: Net 30 Days, pending credit approval, past due after 30 days from billing date.

### Freight

Freight is F.O.B. Origin. Mastercut Tool Corp. offers daily service with FedEx and UPS. Shipments made Pre-Pay & Add on Mastercut's FedEx or UPS accounts are subject to a \$2.50 handling fee for domestic shipments and a \$25.00 handling fee for international shipments. We are also happy to utilize any freight carrier when shipping on a collect or third-party account with no additional handling fee.

### Special Tooling for your Requirements

When you need a non-standard tool for a specific job, give us a call. Requirements for special tooling or modifications of existing standard items will be given prompt, expert attention.

### Resharpener

Mastercut Tool Corp. employs skilled craftsmen and advanced equipment to provide excellent resharpener services. We can sharpen dull cutters regardless of the manufacturer. This is an excellent and efficient way to get new tool performance at a fraction of the cost.

### Return Policy

Standard items that Mastercut maintains in stock may be returned with a 25% restocking fee. All items must be received within 2 months of original ship date. We are unable to accept returns on non-stock items or specials.



**Unique Geometry  
Highest Possible Feed Rates  
Highest Possible Finish in the  
Milling of Non-Ferrous and  
Aluminum Materials**



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