



Power. Precision. Performance.



**SHEAR IT.
CLEAR IT.**

**STREAKERS[®]
END MILLS
M2 SERIES**
FRACTIONAL CATALOG

Put aluminum in its place.



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Shear through aluminum at higher feeds with the STREAKERS® M2 Series from IMCO.

Because of the STREAKERS' unique design, you can take more aggressive chip loads without gumming up the works. Rough it out and finish it with one tool, even at low horsepower.



Power. Precision. Performance.

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M2 SERIES

Shear it and clear it.

The STREAKERS M2 Series makes chips move aside so you can get the job done. IMCO's unique design makes the entire STREAKERS M2 Series first-rate roughers as well as excellent finishers:

- High-volume metal removal without maxing out horsepower; sheds chips as fast as you can make them.
- Reduced chatter over a broad range of speeds. Powerful performance at speeds as low as 3,000 RPM; excels in performance at speeds well above 10,000 RPM.
- Less spindle drag draws less power while removing more metal.

Excellent performance in aluminum and non-ferrous metals.

The one-tool choice for roughing and finishing in these materials:

- Aluminum alloys
- Magnesium and copper alloys
- High silicon, die cast and extruded aluminum parts
- Composites

STREAKERS M2 Series Features

Unique cutting-edge geometry carves out more metal per minute. STREAKERS are designed especially for really aggressive chip loads.

Special flute design helps curl and evacuate even large chips and keeps STREAKERS running clog free.

Cylindrical land for superior finishes.

High-end substrate of ultra fine-grain carbide stays cooler at very high spindle speeds – 10,000 RPM and higher. Tough core runs at higher speeds without tool distortion.

The **45° helix** creates a high shear plane in the cutting zone, resulting in more efficient chip formation and evacuation.



M203
Square

M202B
Ball

M202
Square

M203N
Radius w/
neck relief

Options

Neck relief

Better clearance in deep cavities and easier machining tight against walls.

End designs

Range of corner radii – Ideal for aerospace and other industrial uses. Helps prevent cutting-end chipping.

Square end – Routine machining and finishing.

Ball end – Minimizes tool deflection and increases productivity when contouring in deep cavities.

Shank designs

H6 tolerance shanks – Fit all collets and conform to shrink-fit requirements.

Flats – Available on many sizes for end mill holders.

Choose the length for the job.

Extra rigidity – Choose stub length.

Medium-to-deep cuts – Order standard, long or extra-long flute length and reach.

Extra rigidity in deep pockets, cavities – Choose short flute length.

Finishing passes – Order extra-long flute length.

Deep cavity work – Use stub-length flutes.

Improved Productivity and Surface Finish.

Cycle time was a critical problem for a customer machining aluminum using a competitor's 3-flute end mill at 1,300 SFM and 60 IPM with an axial and radial cut of .125". Switching to a STREAKERS end mill allowed running at 90 IPM and increasing the axial and radial depths of cut to .265". That cut cycle time by 15 minutes – a 50% feed rate increase.



TOOL TIP

3-FLUTE STREAKERS:

3's a Charm.

There are several reasons to use the 3-flute version of STREAKERS end mills: more stability in the cut, less power draw through the spindle and a great finish. The center cutting design allows the 3-flute STREAKERS to ramp and plunge into parts, and it works great in many non-ferrous materials.



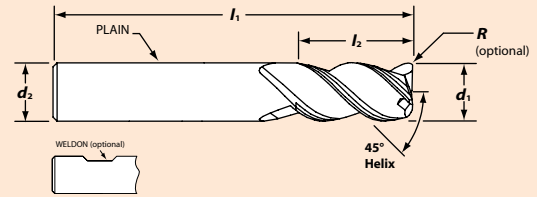
M203

Square End



3-FLUTE

For high-performance milling in all types of aluminum and non-ferrous metals. Superior roughing tool and finisher, even on lower horsepower machinery.



Optional coatings for aluminum machining (ZrN, TiCN, TiB2, DLC) are available by special order

in $d_1 +0.000 / -0.002$ d_2 h6

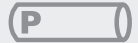
Coatings:
None (MG)

Model Code: M203 w/Square End and Weldon Shank



Cutter Dia d1	Shank Dia d2	Length of Cut L2	Overall Length L1	Order Code	EZ-ID Number M203-xxxx-xxxx-SQ-Lxx-W d1 L2 L1
1/4	1/4	3/4	2-1/2	32634	M203-0250-0750-SQ-W
		1-1/4	3	33011	M203-0250-1250-SQ-W
5/16	5/16	13/16	2-1/2	32736	M203-0312-0812-SQ-W
		1-3/8	3	34455	M203-0312-1375-SQ-L3-W
3/8	3/8	7/8	2-1/2	32635	M203-0375-0875-SQ-W
		1-1/2	3-1/4	32702	M203-0375-1500-SQ-W
		2	4	32716	M203-0375-2000-SQ-W
1/2	1/2	1-1/4	3-1/4	32637	M203-0500-1250-SQ-W
		2	4	32703	M203-0500-2000-SQ-W
		2-1/2	5	32718	M203-0500-2500-SQ-W
		3-1/8	6	32830	M203-0500-3125-SQ-W
5/8	5/8	1-1/4	3-1/2	32638	M203-0625-1250-SQ-W
		2-1/2	5	32720	M203-0625-2500-SQ-W
		3-3/4	6	32835	M203-0625-3750-SQ-L6-W
3/4	3/4	1-5/8	4	32639	M203-0750-1625-SQ-W
		2-1/2	5	32704	M203-0750-2500-SQ-W
		3-1/4	6	32724	M203-0750-3250-SQ-W
		4	6-1/2	32728	M203-0750-4000-SQ-W
1	1	2	4-1/2	32701	M203-1000-2000-SQ-W
		2-5/8	5	32714	M203-1000-2625-SQ-W
		3-1/4	6	32726	M203-1000-3250-SQ-W
		4-1/8	7	32735	M203-1000-4125-SQ-W

Model Code: M203 w/Square End and Plain Shank



Cutter Dia d1	Shank Dia d2	Length of Cut L2	Overall Length L1	Order Code	EZ-ID Number M203-xxxx-xxxx-SQ-Lxx d1 L2 L1
1/8	1/8	1/4	1-1/2	32520	M203-0125-0250-SQ
		3/8	1-1/2	33246	M203-0125-0375-SQ
3/16	3/16	5/16	2	32521	M203-0187-0312-SQ
		9/16	2	33248	M203-0187-0562-SQ
1/4	1/4	3/8	2-1/2	32986	M203-0250-0375-SQ-L25
		3/4	2-1/2	32992	M203-0250-0750-SQ
		1-1/4	3	33009	M203-0250-1250-SQ
5/16	5/16	7/16	2-1/2	32987	M203-0312-0437-SQ-L25
		13/16	2-1/2	33250	M203-0312-0812-SQ
		1-3/8	3	34454	M203-0312-1375-SQ-L3
3/8	3/8	1/2	2-1/2	32988	M203-0375-0500-SQ-L25
		1	2-1/2	32993	M203-0375-1000-SQ
		1-1/2	3-1/4	32998	M203-0375-1500-SQ
		2	4	33003	M203-0375-2000-SQ
1/2	1/2	5/8	3	32989	M203-0500-0625-SQ-L3
		1-1/4	3	32994	M203-0500-1250-SQ
		2	4	32999	M203-0500-2000-SQ
		2-1/2	5	33004	M203-0500-2500-SQ
		3-1/8	6	33013	M203-0500-3125-SQ
5/8	5/8	3/4	3-1/2	32990	M203-0625-0750-SQ-L35
		1-5/8	3-1/2	32995	M203-0625-1625-SQ
		2-1/2	5	33006	M203-0625-2500-SQ
		3-3/4	6	33015	M203-0625-3750-SQ-L6
		1	4	32991	M203-0750-1000-SQ-L4
3/4	3/4	1-5/8	4	32996	M203-0750-1625-SQ
		2-1/2	5	33001	M203-0750-2500-SQ
		3-1/4	6	33007	M203-0750-3250-SQ
		4	6-1/2	33010	M203-0750-4000-SQ
1	1	1-1/4	4	33137	M203-1000-1250-SQ
		2	4	32997	M203-1000-2000-SQ
		2-5/8	5	33002	M203-1000-2625-SQ
		3-1/4	6	33008	M203-1000-3250-SQ
		4-1/8	7	33012	M203-1000-4125-SQ

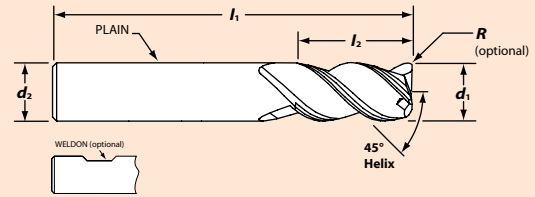
M203

Corner Radius



3-FLUTE

For high-performance milling in all types of aluminum and non-ferrous metals. Superior roughing tool and finisher, even on lower horsepower machinery.



Optional coatings for aluminum machining (ZrN, TiCN, TiB2, DLC) are available by special order

in $d_1 +0.000 / -0.002$ $d_2 h_6$

Coatings:
None (MG)

Model Code: M203 w/Corner Radius and Plain Shank P

Cutter Dia d1	Shank Dia d2	Length of Cut L2	Overall Length L1	Order Code by Corner Radius (R)								EZ-ID Number	
				(Replace -xxx in EZ-ID number with decimal size below)									
				.015	.030	.060	.090	.125	.156	.190	.250	M203-xxxx-xxxx-xxx-Lxx d1 L2 R L1	
1/8	1/8	3/8	1-1/2	34384								M203-0125-0375-xxx	
3/16	3/16	9/16	2	34385								M203-0187-0562-xxx	
1/4	1/4	3/8	2-1/2	33601	33602							M203-0250-0375-xxx-L25	
		3/4	2-1/2	34386	34388							M203-0250-0750-xxx	
5/16	5/16	1-1/4	3	34435	34438							M203-0250-1250-xxx	
		13/16	2-1/2	34450	34452	38258						M203-0312-0812-xxx	
3/8	3/8	1-3/8	3			38031	38260					M203-0312-1375-xxx-L3	
		1/2	2-1/2	33603	33604	33605						M203-0375-0500-xxx-L25	
		1	2-1/2	34458	34460	38261						M203-0375-1000-xxx	
		1-1/2	3-1/4	34462	34480	38262						M203-0375-1500-xxx	
1/2	1/2	2	4	34484	34488	38263						M203-0375-2000-xxx	
		5/8	3	33606	33607	33608	33609	33610				M203-0500-0625-xxx-L3	
		1-1/4	3	34492	34522	34526	38022	38025				M203-0500-1250-xxx	
		2	4	34531	34534	34537	38032	38033				M203-0500-2000-xxx	
5/8	5/8	2-1/2	5			34539	38038	38039	38040			M203-0500-2500-xxx	
		3-1/8	6			34543	38045	38046	38047			M203-0500-3125-xxx	
		1-5/8	3-1/2			34545	38264	38265	38266			M203-0625-1625-xxx	
		2-1/2	5			34549	38267	38268	38269			M203-0625-2500-xxx	
3/4	3/4	3-3/4	6			34551	38270	38271	38272			M203-0625-3750-xxx-L6	
		1	4			33611	33612	33613	33614	33615	33616	M203-0750-1000-xxx-L4	
		1-5/8	4			34553	34555	38027	38028	38273	38274	M203-0750-1625-xxx	
		2-1/2	5			34558	38034	38035	38036	38275	38276	M203-0750-2500-xxx	
1	1	3-1/4	6			34560	38041	38042	38043	38277	38278	M203-0750-3250-xxx	
		2	4			34562	34563	38029	38030	38279	38280	38281	M203-1000-2000-xxx
		2-5/8	5			34568	38037	38282	38283	38284	38285	38286	M203-1000-2625-xxx
		3-1/4	6			34584	38044	38287	38288	38289	38290	38291	M203-1000-3250-xxx
		4-1/8	7			38048	38049	38292	38293	38294	38295	38296	M203-1000-4125-xxx

Model Code: M203 w/Corner Radius and Weldon Shank



Cutter Dia d1	Shank Dia d2	Length of Cut l2	Overall Length l1	Order Code by Corner Radius (R) (Replace -xxx in EZ-ID number with decimal size below)								EZ-ID Number M203-xxxx-xxxx-xxx-Lxx-W			
				.015	.030	.060	.090	.125	.156	.190	.250	d1	l2	R	l1
1/4	1/4	3/4	2-1/2	34387	34389										M203-0250-0750-xxx-W
		1-1/4	3	34437	34447										M203-0250-1250-xxx-W
5/16	5/16	13/16	2-1/2	34451	34453	38318									M203-0312-0812-xxx-W
		1-3/8	3		38319	38056									M203-0312-1375-xxx-L3-W
3/8	3/8	7/8	2-1/2	34459	34461	38320									M203-0375-0875-xxx-W
		1-1/2	3-1/4	34463	34482	38321									M203-0375-1500-xxx-W
		2	4	34486	34490	38322									M203-0375-2000-xxx-W
1/2	1/2	1-1/4	3-1/4	34494	34523	34527	38050	38051							M203-0500-1250-xxx-W
		2	4	34533	34535	34538	38057	38058							M203-0500-2000-xxx-W
		2-1/2	5		34541	38063	38064	38065							M203-0500-2500-xxx-W
		3-1/8	6		34544	38070	38071	38072							M203-0500-3125-xxx-W
5/8	5/8	1-1/4	3-1/2		34546	38323	38324	38325							M203-0625-1250-xxx-W
		2-1/2	5		34550	38328	38329	38330							M203-0625-2500-xxx-W
		3-3/4	6		34552	38332	38333	38335							M203-0625-3750-xxx-L6-W
3/4	3/4	1-5/8	4		34554	34557	38052	38053	38336	38337					M203-0750-1625-xxx-W
		2-1/2	5		34559	38059	38060	38061	38338	38340					M203-0750-2500-xxx-W
		3-1/4	6		34561	38066	38067	38068	38341	38345					M203-0750-3250-xxx-W
1	1	2	4-1/2		38054	38055	38376	38377	38378	38379	38380				M203-1000-2000-xxx-W
		2-5/8	5		34569	38062	38346	38347	38348	38349	38350				M203-1000-2625-xxx-W
		3-1/4	6		34586	38069	38351	38352	38353	38354	38355				M203-1000-3250-xxx-W
		4-1/8	7		38073	38074	38356	38357	38358	38359	38360				M203-1000-4125-xxx-W

TOOL TIP

Request a FREE Tool Test.

Getting maximum productivity and speed with your current tool? There's one way to find out.

Let us test our tool against the tool you're using now – on your shop floor or at a testing facility – and compare results. Just contact your IMCO representative to arrange for your Free Tool Test today.



PROFILE:

Hardrocker Racing Team

Every year, the South Dakota School of Mines & Technology Hardrocker Racing Team designs and builds a Formula SAE racecar from scratch. Making over 2,000 parts – at least 500 of them major components – in just three months, they needed cutting tools they could count on. IMCO stepped up with everything they needed.

Team leader Jordan Krell said it was “awesome. It was like Christmas.” IMCO sent STREAKERS® M2, POW•R•FEED® M904 and enDURO® M525 end mills, IMCO FR10 routers and prototype tools for cutting carbon fiber.

“They all worked great,” said Evan Hogland, the only team member with machining experience. Aside from body panels, the parts are mostly aluminum; each wheel is hogged from a 22 lb. work piece to just 1.2 lbs. finished. “We’re still using that first STREAKERS tool. It’s still in great shape.”

“Power. Precision. Performance. That’s what we do. This project is an excellent example of the application of all three.”

– Matt Osburn, IMCO Vice President/Technical Director



Most components, like this wheel, are aluminum, all cut with one STREAKERS® M2 end mill.



The results

The Hardrocker Racing Team’s work was impressive. Their student-built car took 11th place in design, 5th in autocross and 4th in skidpad, out of 120 teams.

IMCO’s Matt Osburn (second from right), Application Support Team Leader Steve Avers (back, second from left) and the Hardrocker Racing Team surround the 2012 Formula SAE racecar built using IMCO tools.

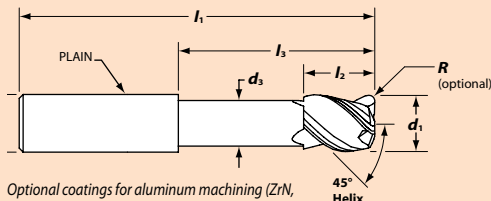
M203

Square End and Corner Radius w/Neck Relief



3-FLUTE

M203N permits clearance in deeper cavities and easier machining against tight walls. Neck relief and short flute length mean increased stability of the end mill in the cut for more precise tolerances.



Optional coatings for aluminum machining (ZnN, TiCN, TiB2, DLC) are available by special order

in $d_1 +0.000 / -0.002$ $d_2 h_6$

Coatings:
None (MG)

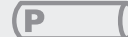
Model Code: M203N

w/Square End and Neck Relief



Cutter Dia d1	Shank Dia d2	Length of Cut l2	Reach LBS l3	Overall Length l1	Order Code	EZ-ID Number				
						M203-xxx-xxx-Nxxx-SQ-Lxx	d1	l2	l3	l1
1/4	1/4	3/8	1-1/8	2-1/2	33034	M203-0250-0375-N1125-SQ				
		3/8	1-5/8	3	33121	M203-0250-0375-N1625-SQ				
		3/8	2-1/4	4	33110	M203-0250-0375-N2250-SQ				
3/8	3/8	1/2	1-1/8	2-1/2	33035	M203-0375-0500-N1125-SQ-L25				
		1/2	1-3/4	3	33122	M203-0375-0500-N1750-SQ-L3				
		1/2	2-1/4	4	33112	M203-0375-0500-N2250-SQ				
1/2	1/2	5/8	1-3/8	3	33036	M203-0500-0625-N1375-SQ-L3				
		5/8	2-1/4	4	33123	M203-0500-0625-N2250-SQ-L4				
		5/8	2-3/8	5	33114	M203-0500-0625-N2375-SQ				
		5/8	3-3/8	6	33048	M203-0500-0625-N3375-SQ				
5/8	5/8	3/4	1-1/2	3-1/2	33038	M203-0625-0750-N1500-SQ				
		3/4	2-1/4	5	33124	M203-0625-0750-N2250-SQ				
		3/4	3-3/8	6	33116	M203-0625-0750-N3375-SQ				
3/4	3/4	1	1-3/4	4	33039	M203-0750-1000-N1750-SQ				
		1	2-1/4	5	33125	M203-0750-1000-N2250-SQ				
		1	3-3/8	6	33118	M203-0750-1000-N3375-SQ				
1	1	1-1/8	1-7/8	4	33040	M203-1000-1125-N1875-SQ-L4				
		1-1/4	2-1/4	5	33126	M203-1000-1250-N2250-SQ				
		1-1/4	3-3/8	6	33120	M203-1000-1250-N3375-SQ				
		1-1/4	4-3/8	7	33049	M203-1000-1250-N4375-SQ				

Model Code: M203N w/Corner Radius and Neck Relief



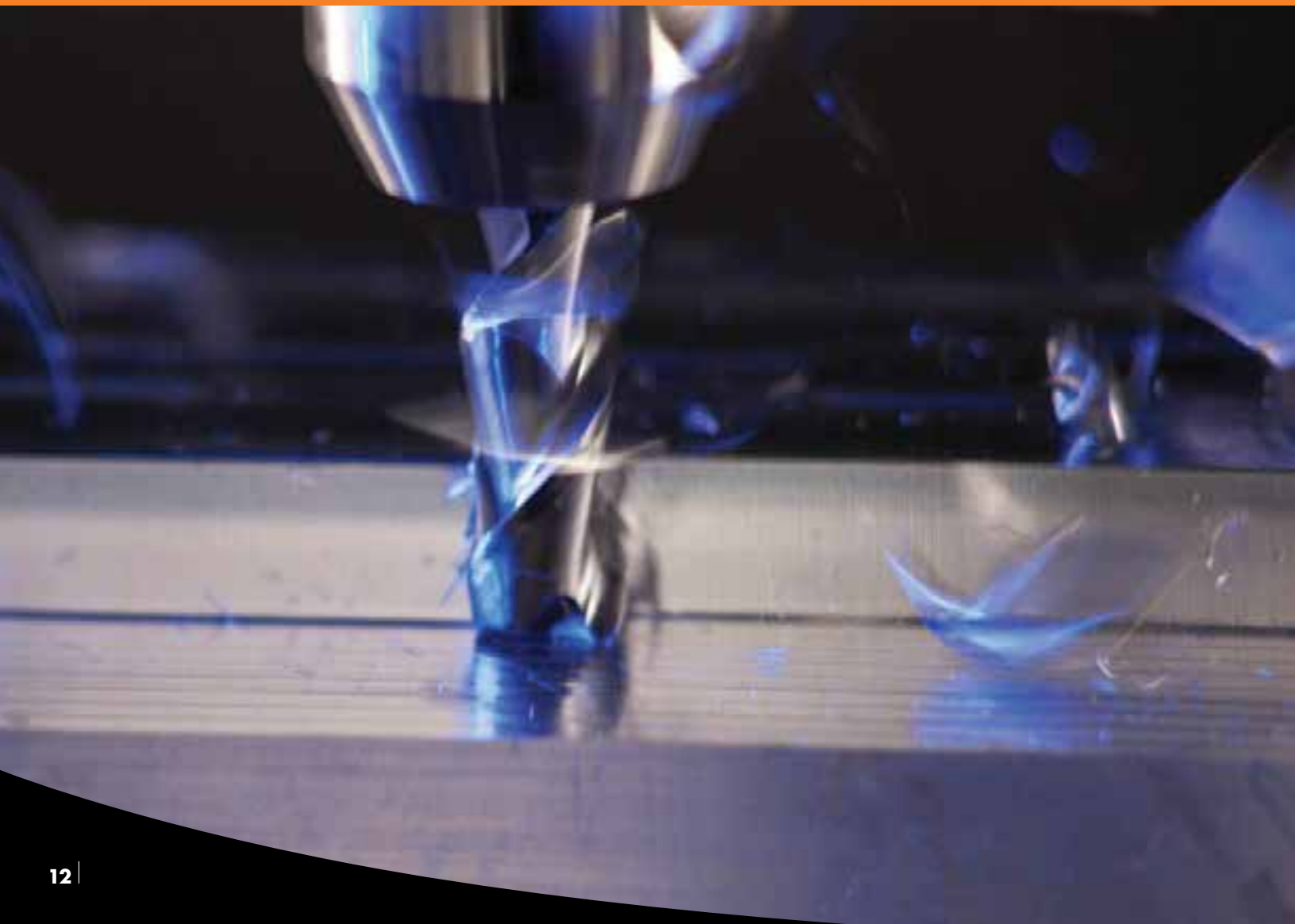
Cutter Dia d1	Shank Dia d2	Length of Cut l2	Reach LBS l3	Overall Length l1	Order Code Corner Radius (R)								EZ-ID Number	
					(Replace -xxx in EZ-ID number with decimal size below)									
					.015	.030	.060	.090	.125	.156	.190	.250	M203-xxxx-xxxx-Nxxxx-xxx-Lxx	
					d1	l2	l3	R	l1					d1 l2 l3 R l1
1/4	1/4	3/8	1-1/8	2-1/2	34782	34784							M203-0250-0375-N1125-xxx	
		3/8	1-5/8	3	34786	34788							M203-0250-0375-N1625-xxx	
		3/8	2-1/4	4	34790	34792							M203-0250-0375-N2250-xxx	
3/8	3/8	1/2	1-1/8	2-1/2	34794	34796	38111						M203-0375-0500-N1125-xxx-L25	
		1/2	1-3/4	3	34797	34798	38112						M203-0375-0500-N1750-xxx-L3	
		1/2	2-1/4	4	34799	34800	38113						M203-0375-0500-N2250-xxx	
1/2	1/2	5/8	1-3/8	3	34801	34802	38114	38115	38116				M203-0500-0625-N1375-xxx-L3	
		5/8	2-1/4	4	34803	34804	38117	38118	38119				M203-0500-0625-N2250-xxx-L4	
		5/8	2-3/8	5	34805	34806	38120	38121	38122				M203-0500-0625-N2375-xxx	
		5/8	3-3/8	6	34826	34827	38123	38124	38125				M203-0500-0625-N3375-xxx	
5/8	5/8	3/4	1-1/2	3-1/2	34828	34828	38126	38127	38128				M203-0625-0750-N1500-xxx	
		3/4	2-1/4	5	34829	34829	38129	38130	38131				M203-0625-0750-N2250-xxx	
		3/4	3-3/8	6	34830	34830	38132	38133	38134				M203-0625-0750-N3375-xxx	
3/4	3/4	1	1-3/4	4	34837	34837	38135	38136	38137	38138	38139		M203-0750-1000-N1750-xxx	
		1	2-1/4	5	34838	34838	38140	38141	38142	38143	38144		M203-0750-1000-N2250-xxx	
		1	3-3/8	6	34839	34839	38145	38146	38147	38148	38149		M203-0750-1000-N3375-xxx	
1	1	1-1/8	1-7/8	4	34840	34840	38150	38151	38152	38153	38154	38155	M203-1000-1125-N1875-xxx-L4	
		1-1/4	2-1/4	5	34847	34847	38156	38157	38158	38159	38160	38161	M203-1000-1250-N2250-xxx	
		1-1/4	3-3/8	6	34848	34848	38162	38163	38164	38165	38166	38167	M203-1000-1250-N3375-xxx	
		1-1/4	4-3/8	7	34849	34849	38168	38169	38170	38171	38172	38173	M203-1000-1250-N4375-xxx	

2-FLUTE STREAKERS: Streaking Through Aluminum.

The unique design of STREAKERS® end mills permits taking heavy chip loads without packing up the flutes. The result? High output can be achieved on smaller machines as well as machines equipped with high-speed spindles. Keep the chip load within the horsepower limits of the machine and watch the aluminum chips fly.

Factor: CURL

The goal is create chips with consistent size and shape, easily evacuated, with a smooth curl like a 6 or 9. Choosing the right tool with the right number of flutes, the right flute shape and the right hot hardness is critical.



M202

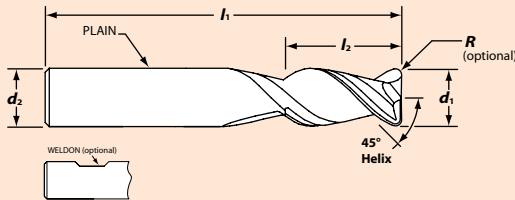
Square End



2 - FLUTE

Ideal for high-performance milling in all types of aluminum including high silicon, die case and extruded aluminum parts.

The 2-flute design allows maximum flute-to-flute spacing for greater stock removal and effective chip evacuation – ideal when you're going deep into the metal to remove material incrementally.



Optional coatings for aluminum machining (ZrN, TiCN, TiB2, DLC) are available by special order

in $d_1 +0.000 / -0.002$ d_2 h6

Coatings:
None (MG)

Model Code: M202 w/Square End and Plain Shank



Cutter Dia d1	Shank Dia d2	Length of Cut l2	Overall Length l1	Order Code	EZ-ID Number		
					M202-xxxx-xxxx-SQ-Lxx	d1	l2
1/8	1/8	1/4	1-1/2	32941	M202-0125-0250-SQ		
		3/8	1-1/2	32949	M202-0125-0375-SQ		
3/16	3/16	5/16	2	32942	M202-0187-0312-SQ		
		9/16	2	32950	M202-0187-0562-SQ		
1/4	1/4	3/8	2-1/2	32943	M202-0250-0375-SQ-L25		
		3/4	2-1/2	32951	M202-0250-0750-SQ		
		1-1/4	3	32957	M202-0250-1250-SQ		
5/16	5/16	7/16	2-1/2	32944	M202-0312-0437-SQ-L25		
		13/16	2-1/2	32952	M202-0312-0812-SQ		
		1-3/8	3	32958	M202-0312-1375-SQ-L3		
3/8	3/8	1/2	2-1/2	32945	M202-0375-0500-SQ-L25		
		1	2-1/2	32953	M202-0375-1000-SQ		
		1-1/2	3-1/4	32959	M202-0375-1500-SQ		
		2	4	32964	M202-0375-2000-SQ		
1/2	1/2	5/8	3	32946	M202-0500-0625-SQ-L3		
		1-1/4	3	90358	M202-0500-1250-SQ		
		2	4	32960	M202-0500-2000-SQ		
		2-1/2	5	32965	M202-0500-2500-SQ		
		3-1/8	6	38390	M202-0500-3125-SQ		
5/8	5/8	3/4	3-1/2	32947	M202-0625-0750-SQ-L35		
		1-5/8	3-1/2	32954	M202-0625-1625-SQ		
		2-1/2	5	32966	M202-0625-2500-SQ		
		3-3/4	6	38504	M202-0625-3750-SQ-L6		
3/4	3/4	1	4	32948	M202-0750-1000-SQ-L4		
		1-5/8	4	32955	M202-0750-1625-SQ		
		2-1/2	5	32962	M202-0750-2500-SQ		
		3-1/4	6	32968	M202-0750-3250-SQ		
1	1	1-1/4	4	33143	M202-1000-1250-SQ		
		2	4	32956	M202-1000-2000-SQ		
		2-5/8	5	32963	M202-1000-2625-SQ		
		3-1/4	6	32969	M202-1000-3250-SQ		

Model Code: M202 w/Square End and Weldon Shank



Cutter Dia d1	Shank Dia d2	Length of Cut l2	Overall Length l1	Order Code	EZ-ID Number		
					M202-xxxx-xxxx-SQ-Lxx-W	d1	l2
1/4	1/4	3/4	2-1/2	32430	M202-0250-0750-SQ-W		
1/4	1/4	1-1/4	3	32444	M202-0250-1250-SQ-W		
5/16	5/16	13/16	2-1/2	32431	M202-0312-0812-SQ-W		
5/16	5/16	1-3/8	3	32445	M202-0312-1375-SQ-L3-W		
3/8	3/8	7/8	2-1/2	32432	M202-0375-0875-SQ-W		
3/8	3/8	1-1/2	3-1/4	32446	M202-0375-1500-SQ-W		
3/8	3/8	2	4	32510	M202-0375-2000-SQ-W		
1/2	1/2	1	3	32434	M202-0500-1000-SQ-W		
1/2	1/2	1-1/4	3-1/4	32606	M202-0500-1250-SQ-W		
1/2	1/2	2	4	32447	M202-0500-2000-SQ-W		
1/2	1/2	2-1/2	5	32512	M202-0500-2500-SQ-W		
1/2	1/2	3-1/8	6	38391	M202-0500-3125-SQ-W		
5/8	5/8	1-1/4	3-1/2	32436	M202-0625-1250-SQ-W		
5/8	5/8	2-1/2	5	32514	M202-0625-2500-SQ-W		
5/8	5/8	3-3/4	6	38505	M202-0625-3750-SQ-L6-W		
3/4	3/4	1-5/8	4	32504	M202-0750-1625-SQ-W		
3/4	3/4	2-1/2	5	32506	M202-0750-2500-SQ-W		
3/4	3/4	3-1/4	6	32516	M202-0750-3250-SQ-W		
1	1	2	4-1/2	32450	M202-1000-2000-SQ-W		
1	1	2-5/8	5	32508	M202-1000-2625-SQ-W		
1	1	3-1/4	6	32518	M202-1000-3250-SQ-W		

Use a Mill to Make Holes.

In most materials, helical plunging moves can save money when machining holes. Helical plunging moves eliminate the need for a tool change and the expense of buying many drills for a variety of hole diameters. All STREAKERS M2 Series end mills are center cutting and can run straight plunge (Z-axis) moves or helical interpolation tool paths.

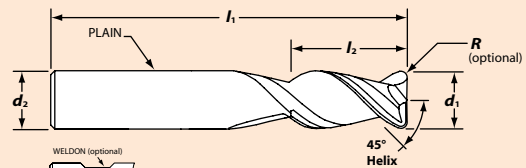


Corner Radius



2-FLUTE

The 2-flute design allows maximum flute-to-flute spacing for greater stock removal and effective chip evacuation – ideal when you’re going deep into the metal to remove material incrementally.

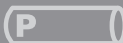


Optional coatings for aluminum machining (ZrN, TiCN, TiB2, DLC) are available by special order

in $d_1 +0.000 / -0.002$ $d_2 h6$

Coatings:
None (MG)

Model Code: M202 w/Corner Radius and Plain Shank



Cutter Dia	Shank Dia	Length of Cut	Overall Length	Order Code by Corner Radius (R)									EZ-ID Number			
				(Replace -xxx in EZ-ID number with decimal size below)									M202-xxxx-xxxx-xxx-Lxx			
d1	d2	l2	l1	.015	.030	.060	.090	.125	.156	.190	.250	d1	l2	R	l1	
1/8	1/8	3/8	1-1/2	33526												M202-0125-0375-xxx
3/16	3/16	9/16	2	33542												M202-0187-0562-xxx
1/4	1/4	3/4	2-1/2	33544	33548											M202-0250-0750-xxx
		1-1/4	3	33552	34382											M202-0250-1250-xxx
5/16	5/16	13/16	2-1/2	33629	34362	38381										M202-0312-0812-xxx
		1-3/8	3		38079	38383										M202-1312-1375-xxx-L3
3/8	3/8	1	2-1/2	33648	33689	38385										M202-0375-1000-xxx
		1-1/2	3-1/4	33693	33886	38386										M202-0375-1500-xxx
		2	4	34100	34144	38388										M202-0375-2000-xxx
1/2	1/2	1-1/4	3	34146	34161	34196	38075	38076								M202-0500-1250-xxx
		2	4	34198	34204	34206	38080	38081								M202-0500-2000-xxx
		2-1/2	5		34235	38085	38086	38087								M202-0500-2500-xxx
		3-1/8	6		38392	38394	38397	38399								M202-0500-3125-xxx
5/8	5/8	1-5/8	3-1/2		34237	38490	38492	38494								M202-0625-1625-xxx
		2-1/2	5		34243	38496	38500	38502								M202-0625-2500-xxx
		3-3/4	6		38506	38508	38510	38512								M202-0625-3750-xxx-L6
3/4	3/4	1-5/8	4		34245	34262	38077	38078	38514	38516						M202-0750-1625-xxx
		2-1/2	5		34343	38082	38083	38084	38518	38520						M202-0750-2500-xxx
		3-1/4	6		34345	38088	38089	38090	38522	38524						M202-0750-3250-xxx
1	1	2	4		34351	34353	38526	38528	38530	38532	38534					M202-1000-2000-xxx
		2-5/8	5		34352	34355	38536	38538	38540	38542	38544					M202-1000-2625-xxx
		3-1/4	6		34357	38091	38546	38548	38550	38552	38554					M202-1000-3250-xxx

Model Code: M202 w/Corner Radius and Weldon Shank



Cutter Dia	Shank Dia	Length of Cut	Overall Length	Order Code by Corner Radius (R)									EZ-ID Number			
				(Replace -xxx in EZ-ID number with decimal size below)									M202-xxx-xxx-xxx-Lxx-W			
d1	d2	l2	l1	.015	.030	.060	.090	.125	.156	.190	.250	d1	l2	R	l1	
1/4	1/4	3/4	2-1/2	33546	33550											M202-0250-0750-xxx-W
		1-1/4	3	33566	34383											M202-0250-1250-xxx-W
5/16	5/16	13/16	2-1/2	33630	34363	38382										M202-0312-0812-xxx-W
		1-3/8	3		38098	38384										M202-0312-1375-xxx-L3-W
3/8	3/8	7/8	2-1/2	33649	33691	33692										M202-0375-0875-xxx-W
		1-1/2	3-1/4	33694	33887	38387										M202-0375-1500-xxx-W
		2	4	34101	34145	38389										M202-0375-2000-xxx-W
1/2	1/2	1	3		34359											M202-0500-1000-xxx-W
		1-1/4	3-1/4	34147	34162	34197	38092									M202-0500-1250-xxx-W
		2	4	34199	34205	34207	38099	38100								M202-0500-2000-xxx-W
		2-1/2	5		34236	38104	38105	38106								M202-0500-2500-xxx-W
5/8	5/8	3-1/8	6		38393	38395	38398	38400								M202-0500-3125-xxx-W
		1-1/4	3-1/2		34238	38485	38487	38489								M202-0625-1250-xxx-W
		2-1/2	5		34244	38498	38501	38503								M202-0625-2500-xxx-W
3/4	3/4	3-3/4	6		38507	38509	38511	38513								M202-0625-3750-xxx-L6-W
		1-5/8	4		34246	34263	38094	38095	38515	38517						M202-0750-1625-xxx-W
		2-1/2	5		34344	38101	38102	38103	38519	38521						M202-0750-2500-xxx-W
1	1	3-1/4	6		34346	38107	38108	38109	38523	38525						M202-0750-3250-xxx-W
		2	4-1/2		38096	38097	38527	38529	38531	38533	38535					M202-1000-2000-xxx-W
		2-5/8	5		34354	34356	38537	38539	38541	38543	38545					M202-1000-2625-xxx-W
		3-1/4	6		34358	38110	38547	38549	38551	38553	38555					M202-1000-3250-xxx-W

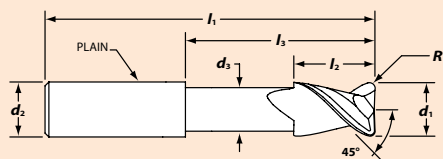
M202

Square End and Corner Radius w/ Neck Relief



2 - FLUTE

M202N permits clearance in deeper cavities and easier machining against tight walls. Neck relief and short flute length mean increased stability of the end mill in the cut for more precise tolerances.

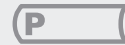


Optional coatings for aluminum machining (ZrN, TiCN, TiB2, DLC) are available by special order

in $d_1 +0.000 / -0.002$ d_2 h6

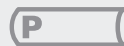
Coatings:
None (MG)

Model Code: M202N w/Square End and Neck Relief



Cutter Dia d1	Shank Dia d2	Length of Cut l2	Reach LBS l3	Overall Length l1	Order Code	EZ-ID Number				
						M202-xxx-xxx-Nxxxx-SQ-Lxx	d1	l2	l3	l1
1/4	1/4	3/8	1-1/8	2-1/2	32935	M202-0250-0375-N1125-SQ				
		3/8	1-5/8	3	33016	M202-0250-0375-N1625-SQ				
		3/8	2-1/4	4	33023	M202-0250-0375-N2250-SQ				
3/8	3/8	1/2	1-1/8	2-1/2	32936	M202-0375-0500-N1125-SQ-L25				
		1/2	1-3/4	3	33018	M202-0375-0500-N1750-SQ-L3				
		1/2	2-1/4	4	33024	M202-0375-0500-N2250-SQ				
1/2	1/2	5/8	1-3/8	3	32937	M202-0500-0625-N1375-SQ-L3				
		5/8	2-1/4	4	33019	M202-0500-0625-N2250-SQ-L4				
		5/8	2-3/8	5	33025	M202-0500-0625-N2375-SQ				
		5/8	3-3/8	6	33032	M202-0500-0625-N3375-SQ				
5/8	5/8	3/4	1-1/2	3-1/2	32938	M202-0625-0750-N1500-SQ				
		3/4	2-1/4	5	33020	M202-0625-0750-N2250-SQ				
		3/4	3-3/8	6	33026	M202-0625-0750-N3375-SQ				
3/4	3/4	1	1-3/4	4	32939	M202-0750-1000-N1750-SQ				
		1	2-1/4	5	33021	M202-0750-1000-N2250-SQ				
		1	3-3/8	6	33027	M202-0750-1000-N3375-SQ				
1	1	1-1/8	1-7/8	4	32940	M202-1000-1125-N1875-SQ-L4				
		1-1/4	2-1/4	5	33022	M202-1000-1250-N2250-SQ				
		1-1/4	3-3/8	6	33028	M202-1000-1250-N3375-SQ				
		1-1/4	4-3/8	7	33033	M202-1000-1250-N4375-SQ				

Model Code: M202N w/Corner Radius and Neck Relief



Cutter Dia d1	Shank Dia d2	Length of Cut l2	Overall Length l1	Reach LBS l3	Length Dia	Order Code Corner Radius (R)							EZ-ID Number								
						(Replace -xxx in EZ-ID number with decimal size below)	.015	.030	.060	.090	.125	.156	.190	.250	M202-xxxx-xxxx-Nxxxx-xxx-Lxx	d1	l2	l3	R	l1	
1/4	1/4	3/8	2-1/2	1-1/8	.235	34622	34623									M202-0250-0375-N1125-xxx					
		3/8	3	1-5/8	.235	34626	34627									M202-0250-0375-N1625-xxx					
		3/8	4	2-1/4	.235	34631	34633									M202-0250-0375-N2250-xxx					
3/8	3/8	1/2	2-1/2	1-1/8	.355	34634	34635	38194								M202-0375-0500-N1125-xxx-L25					
		1/2	3	1-3/4	.355	34637	34638	38195								M202-0375-0500-N1750-xxx-L3					
		1/2	4	2-1/4	.355	34639	34643	38196								M202-0375-0500-N2250-xxx					
1/2	1/2	5/8	3	1-3/8	.475	34644	34645	38197	38198	38199						M202-0500-0625-N1375-xxx-L3					
		5/8	4	2-1/4	.475	34646	34647	38200	38201	38202						M202-0500-0625-N2250-xxx-L4					
		5/8	5	2-3/8	.475	34649	34650	38203	38204	38205						M202-0500-0625-N2375-xxx					
		5/8	6	3-3/8	.475	34651	34652	38206	38207	38208						M202-0500-0625-N3375-xxx					
5/8	5/8	3/4	3-1/2	1-1/2	.590		34653	38209	38210	38211						M202-0625-0750-N1500-xxx					
		3/4	5	2-1/4	.590		34654	38212	38213	38214						M202-0625-0750-N2250-xxx					
		3/4	6	3-3/8	.590		34655	38215	38216	38217						M202-0625-0750-N3375-xxx					
3/4	3/4	1	4	1-3/4	.715		34657	38218	38219	38220	38221	38222				M202-0750-1000-N1750-xxx					
		1	5	2-1/4	.715		34658	38223	38224	38225	38226	38227				M202-0750-1000-N2250-xxx					
		1	6	3-3/8	.715		34659	38228	38229	38230	38231	38232				M202-0750-1000-N3375-xxx					
1	1	1-1/8	4	1-7/8	.960		34660	38233	38234	38235	38236	38237	38238				M202-1000-1125-N1875-xxx-L4				
		1-1/4	5	2-1/4	.960		34661	38239	38240	38241	38242	38243	38245				M202-1000-1250-N2250-xxx				
		1-1/4	6	3-3/8	.960		34662	38246	38247	38248	38249	38250	38251				M202-1000-1250-N3375-xxx				
		1-1/4	7	4-3/8	.960		34663	38252	38253	38254	38255	38256	38257				M202-1000-1250-N4375-xxx				

M202

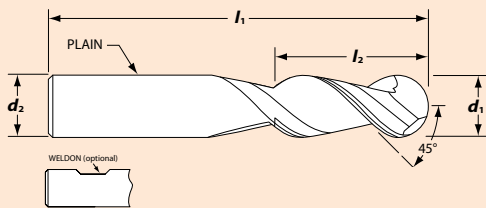
Ball End



2-FLUTE

The M202B ball end is excellent for contouring applications in a variety of materials. Based on the same high-performance design as the M202 series, but with a full end radius.

As a general rule, when using the M202B ball-end mill, reduce feed rates by 25% when the axial DOC exceeds 75% of the mill diameter. Refer to speed and feed information for more detail.

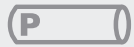


Optional coatings for aluminum machining (ZrN, TiCN, TiB2, DLC) are available by special order

in $d_1 +0.000 / -0.002$ d_2 h6

Coatings:
None (MG)

Model Code: M202B w/Ball End and Plain Shank



Cutter Dia d1	Shank Dia d2	Length of Cut l2	Overall Length l1	Order Code	EZ-ID Number M202-xxxx-xxxx-BN d1 l2
1/8	1/8	3/8	1-1/2	33446	M202-0125-0375-BN
3/16	3/16	9/16	2	33448	M202-0187-0562-BN
1/4	1/4	3/4	2-1/2	32980	M202-0250-0750-BN
5/16	5/16	13/16	2-1/2	32981	M202-0312-0812-BN
3/8	3/8	1	2-1/2	32982	M202-0375-1000-BN
1/2	1/2	1-1/4	3	32983	M202-0500-1250-BN
5/8	5/8	1-5/8	3-1/2	32984	M202-0625-1625-BN
3/4	3/4	1-5/8	4	32985	M202-0750-1625-BN

Model Code: M202B w/Ball End and Weldon Shank

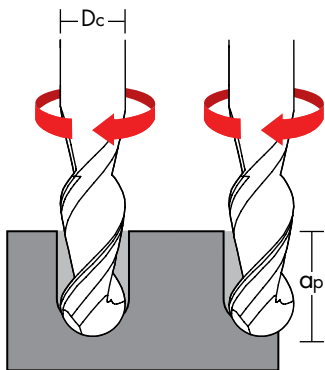


Cutter Dia d1	Shank Dia d2	Length of Cut l2	Overall Length l1	Order Code	EZ-ID Number M202-xxxx-xxxx-BN-W d1 l2
1/4	1/4	3/4	2-1/2	32595	M202-0250-0750-BN-W
5/16	5/16	13/16	2-1/2	32596	M202-0312-0812-BN-W
3/8	3/8	7/8	2-1/2	32597	M202-0375-0875-BN-W
1/2	1/2	1-1/4	3-1/4	32598	M202-0500-1250-BN-W
5/8	5/8	1-1/4	3-1/2	32599	M202-0625-1250-BN-W
3/4	3/4	1-5/8	4	32608	M202-0750-1625-BN-W

STREAKERS Application Guide • Speed & Feed

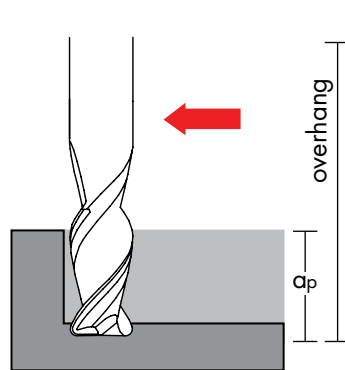
ISO Classification	Work Material	Type of Cut	Axial DOC	Radial DOC	Number of Flutes	Speed (SFM)	Feed (Inch per Tooth)						
							1/8	1/4	3/8	1/2	5/8	3/4	1
N	Aluminum Alloys 2024, 6061, 7075	Slotting	1 x D	1 x D	2	1000	.0015	.0030	.0045	.0060	.0075	.0090	.0120
			.75 x D	1 x D	3	1000	.0013	.0026	.0039	.0052	.0065	.0078	.0104
		Peripheral - Rough	1 x D	.75 x D	2	1200	.0019	.0038	.0056	.0075	.0094	.0113	.0150
					3	1200	.0016	.0033	.0049	.0065	.0081	.0098	.0130
		Peripheral - Finish	1.5 x D	.01 x D	2	1400	.0024	.0047	.0071	.0094	.0118	.0141	.0188
					3	1400	.0020	.0041	.0061	.0082	.0102	.0122	.0163
	High Silicon-Aluminum A380, A390	Slotting	.75 x D	1 x D	2	800	.0013	.0026	.0039	.0052	.0065	.0078	.0104
			.5 x D	1 x D	3	800	.0011	.0022	.0033	.0044	.0055	.0066	.0088
		Peripheral - Rough	1 x D	.5 x D	2	1000	.0016	.0033	.0049	.0065	.0081	.0098	.0130
					3	1000	.0014	.0028	.0041	.0055	.0069	.0083	.0110
		Peripheral - Finish	1.5 x D	.01 x D	2	1200	.0020	.0041	.0061	.0082	.0102	.0122	.0163
					3	1200	.0017	.0035	.0052	.0069	.0086	.0104	.0138
	Magnesium Alloys	Slotting	1 x D	1 x D	2	1000	.0015	.0030	.0045	.0060	.0075	.0090	.0120
			.75 x D	1 x D	3	1000	.0013	.0026	.0039	.0052	.0065	.0078	.0104
		Peripheral - Rough	1 x D	.75 x D	2	1200	.0019	.0038	.0056	.0075	.0094	.0113	.0150
					3	1200	.0016	.0033	.0049	.0065	.0081	.0098	.0130
		Peripheral - Finish	1.5 x D	.01 x D	2	1400	.0024	.0047	.0071	.0094	.0118	.0141	.0188
					3	1400	.0020	.0041	.0061	.0082	.0102	.0122	.0163
	Copper Alloys, Brass, Bronze	Slotting	.75 x D	1 x D	2	800	.0013	.0026	.0039	.0052	.0065	.0078	.0104
			.75 x D	1 x D	3	800	.0011	.0022	.0033	.0044	.0055	.0066	.0088
		Peripheral - Rough	1 x D	.75 x D	2	1000	.0016	.0033	.0049	.0065	.0081	.0098	.0130
					3	1000	.0014	.0028	.0041	.0055	.0069	.0083	.0110
		Peripheral - Finish	1.5 x D	.01 x D	2	1200	.0020	.0041	.0061	.0082	.0102	.0122	.0163
					3	1200	.0017	.0035	.0052	.0069	.0086	.0104	.0138
Composites, Plastics, Fiberglass	Slotting	1 x D	1 x D	2	800	.0013	.0026	.0039	.0052	.0065	.0078	.0104	
		1 x D	1 x D	3	800	.0011	.0022	.0033	.0044	.0055	.0066	.0088	
	Peripheral - Rough	1 x D	.75 x D	2	1000	.0016	.0033	.0049	.0065	.0081	.0098	.0130	
				3	1000	.0014	.0028	.0041	.0055	.0069	.0083	.0110	
	Peripheral - Finish	1.5 x D	.01 x D	2	1200	.0020	.0041	.0061	.0082	.0102	.0122	.0163	
				3	1200	.0017	.0035	.0052	.0069	.0086	.0104	.0138	

Adjustments – Apply these adjustments when programming the following applications.



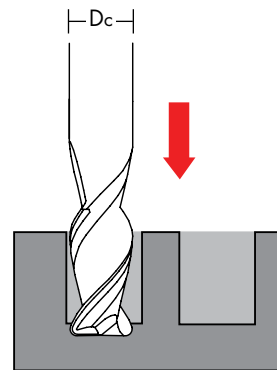
1. Ball-nose end mills

- Reduce chip load by 25% from roughing/slotting recommendation when axial DOC (a_p) exceeds 75% of D_c



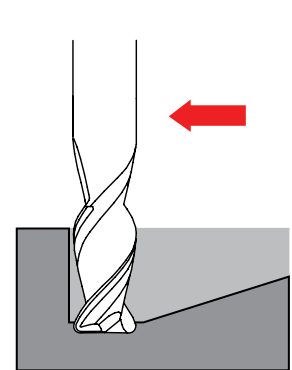
2. Long reach mills with large overhang

- Reduce speed rate and chip load by 10%



3. Plunge entry into work piece

- Reduce chip load by 80% of recommended slotting rate
- Peck mill if axial DOC (a_p) exceeds 50% of D_c



4. Ramp entry into work piece

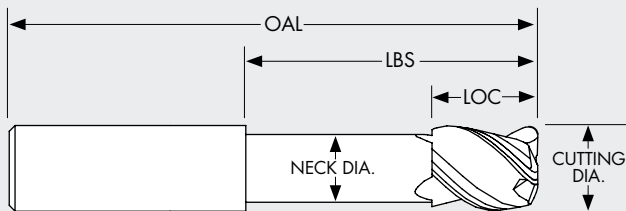
- Ramp at 1.5°–2.5° angle
- Reduce chip load by 20% of recommended slotting rate



IMCO's new "smart" coding system saves you time locating part numbers. Just use the specifics of the tool you need, "plug" them into the coding system, and you're there!

How EZ-ID works.

Each EZ-ID part number actually describes the tool itself. It starts with general information (type of tool and tool "family") and gets more specific as you go.



Building the EZ-ID code, step by step.

Insert the numbers in the segments as indicated here. If a certain segment doesn't apply (neck dimension, nonstandard length or special shank), just skip it. Separate the segments with hyphens.

- 1** Enter the **model number**.
For example, the model number for a STREAKERS M2 Series 3-flute would be M203.
- 2** Enter the **tool diameter** (always to one decimal place). Include the leading zero for diameters less than 1".
- 3** Enter the **length of cut (LOC)**. Include the leading zero for a LOC less than 1".
- 4** Enter the **length below shank (LBS) or reach**. Include the leading zero for a LBS less than 1". Indicate that this is a neck dimension by placing an N before the number. (If the tool has no neck, you can skip this segment altogether.)
- 5** Enter the **end/corner** type or size. Include the leading zero for corner radii less than 1". For any other end/corner type, just indicate the type: SQ = square end, BN = ball nose, CC = corner chamfer.
- 6** If the **overall length** you need is not the standard length for the combination of tool diameter, LOC and LBS, then enter the overall length (**OAL**) here. Indicate that this is an overall length by placing an L before the number. If you do not specify an overall length, we will assume it is standard length.
- 7** Enter the code for the **type of shank** you need (W = Weldon flat, WN = whistle notch, P = plain). If you do not specify a shank style, we will assume it is a plain shank.

1	2	3	4	5	6	7
MODEL	TOOL DIAMETER	LENGTH OF CUT (LOC)	LENGTH BELOW SHANK (LBS)	END	OVERALL LENGTH	SHANK
M203	0375	0500	N1125	SQ	L25	W

Segments highlighted in white may be omitted.

Put aluminum in its place.

See a video of STREAKERS M2 Series end mills in action at:

www.imcousa.com/tools/streakers

Test STREAKERS M2 Series tools for yourself. To order, or for more information:

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