

Z-Carb™ with JetStream

Patented Coolant Technology



SGS Tool Company is proud to introduce the newest member of the Z-CARB family of products: Z-CARB End Mills with JetStream patented coolant technology. With the Channeled **Z-CARB** End Mill, coolant is delivered with targeted precision via 4 connected in-line coolant channels.

The uniquely positioned coolant channels are engineered and patented to maximize coolant flow and delivery to the shear zone. The JetStream **Z-CARB** End Mill was designed to

take maximum advantage of the benefits that a properly delivered coolant produces in a demanding machining application.

Enjoy genuine **Z-CARB** performance enhanced by the benefits of exact coolant delivery in your slotting, pocketing and hard-to-access applications.

Heat is one of the most damaging side effects of the machining process. Heat limits operating parameters, dictates tool life, affects chip control and determines workpiece quality. Coolant aids in the effort to better control these problems, but only if it is applied with accuracy and consistency. When working with carbide tools, intermittent cooling can create thermal stress and lead to premature tool failure.

This is particularly true in slotting, pocketing and hard-to-access applications where targeted coolant application with external coolant lines becomes increasingly difficult. SGS Tool Company has taken patented **Z-CARB** technology, which already permits more aggressive machining through chatter suppression, and added a new, patented coolant channel design to take advantage of the benefits of precise coolant delivery.

Designed with the strength of a solid carbide **Z-CARB**, the high performance JetStream end mill delivers coolant to the cutting zone with effective pressure, volume and accuracy.

Coolant channels in solid carbide end mills are not a new concept, but the patented design on the JetStream **Z-CARB** is. Strategically located channels interconnect at the shank end of the tool to offer unparalleled results as only the **Z-CARB** can.

Proper application of coolant allows the end user to reduce friction, machine load, material adhesion and chip congestion through proper lubrication, while simultaneously reducing heat, improving part quality, controlling chip formation and increasing operating parameters through proper cooling. By delivering the appropriate pressure and volume of coolant where it is needed, these benefits, combined with increased chip evacuation and targeted application result in improved tool life and profitability.

Patent Numbers:

U.S.: 6,648,561
Germany: 4019,428
Japan: 62246416

Maximize your tool life, profitability and part quality with the targeted lubricating, cooling and chip evacuation properties delivered by the JetStream Z-Carb End Mill.

Benefits

- More consistent machining temperatures
- Reduced damage from harmful heat created during machining
- Helps to reduce the development of built up edge (BUE)
- The ability to improve cutting speeds
- Improved tool life
- Improved chip control
- Decreased damage from recutting chips
- Reduced cutting loads and forces
- Helps to improve workpiece accuracy
- Helps to improve workpiece surface finish
- Helps to avoid coolant waste

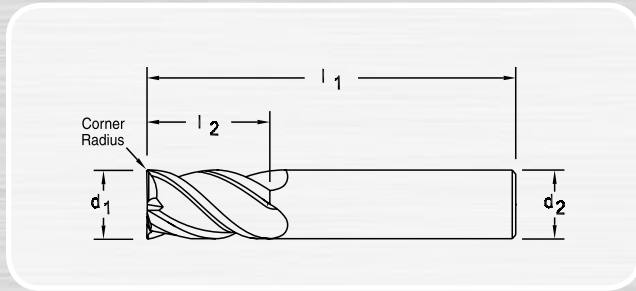


Engineered delivery channels direct the coolant to millpoint and workpiece.

The JetStream Z-Carb End Mill should be used with a minimum coolant pressure of 250 PSI.

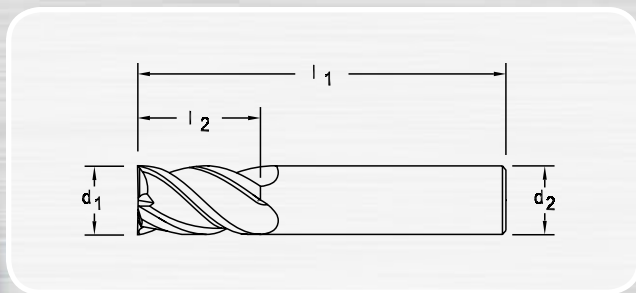


Z-CARB SERIES Z1CR
4 FLUTE - SINGLE END - CORNER RADIUS



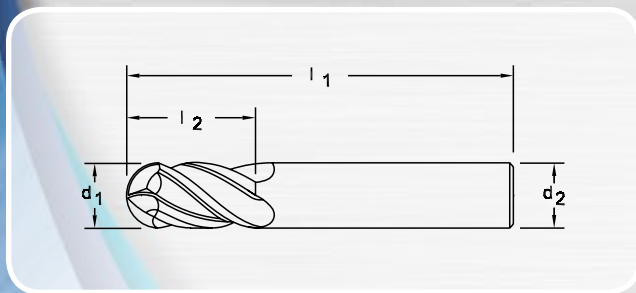
Cutting Diameter d1	Length of Cut l2	Overall Length l1	Shank Diameter d2	Corner Radius	Ti-NAMITE-A (AlTiN) EDP No.
1/2	1	3	1/2	.025-.030	36805
9/16	1-1/8	3-1/2	9/16	.025-.030	36806
5/8	1-1/4	3-1/2	5/8	.035-.040	36807
3/4	1-1/2	4	3/4	.035-.040	36808
1	1-1/2	4	1	.035-.040	36809

Z-CARB™ SERIES Z1
4 FLUTE - SINGLE END - SQUARE END



Cutting Diameter d1	Length of Cut l2	Overall Length l1	Shank Diameter d2	Ti-NAMITE-A (AlTiN) EDP No.
1/2	1	3	1/2	36826
9/16	1-1/8	3-1/2	9/16	36827
5/8	1-1/4	3-1/2	5/8	36828
3/4	1-1/2	4	3/4	36829
1	1-1/2	4	1	36830

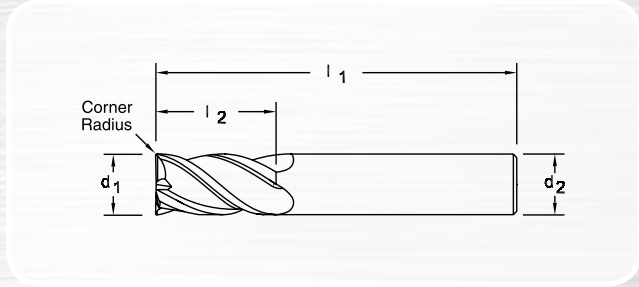
Z-CARB™ SERIES Z1B
4 FLUTE - SINGLE END - BALL END



Cutting Diameter d1	Length of Cut l2	Overall Length l1	Shank Diameter d2	Ti-NAMITE-A (AlTiN) EDP No.
1/2	1	3	1/2	36846
9/16	1-1/8	3-1/2	9/16	36847
5/8	1-1/4	3-1/2	5/8	36848
3/4	1-1/2	4	3/4	36849
1	1-1/2	4	1	36850

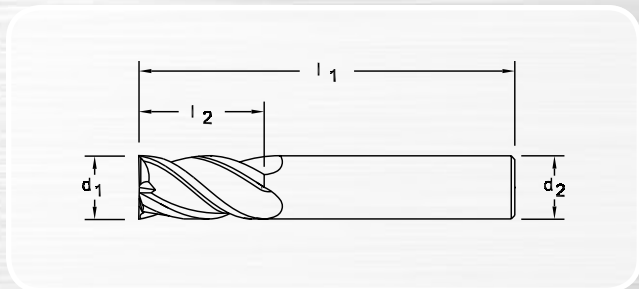
FRACTIONAL TOLERANCES

Cutting Diameter d1	Shank Diameter d2
1/8 - 1/4 = +.0000/- .0012	1/8 - 3/8 = -.0001/- .0003
>1/4 - 3/8 = +.0000/- .0016	>3/8 - 1 = -.0001/- .0004
>3/8 - 1 = +.0000/- .002	



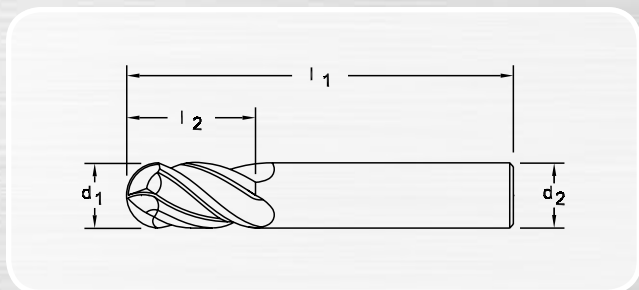
Z-CARB™ SERIES Z1MCR
4 FLUTE – SINGLE END – CORNER RADIUS

Cutting Diameter d1 mm	Length of Cut l2 mm	Overall Length l1 mm	Shank Diameter d2 mm	Corner Radius mm	Ti-NAMITE-A (AlTiN) EDP No.
14	26	83	14	0,64-0,76	46494
16	32	92	16	0,89-1,02	46495
18	32	92	18	0,89-1,02	46496
20	38	104	20	0,89-1,02	46497
25	38	104	25	0,89-1,02	46498



Z-CARB™ SERIES Z1M
4 FLUTE – SINGLE END – SQUARE END

Cutting Diameter d1 mm	Length of Cut l2 mm	Overall Length l1 mm	Shank Diameter d2 mm	Ti-NAMITE-A (AlTiN) EDP No.
14	26	83	14	46506
16	32	92	16	46507
18	32	92	18	46508
20	38	104	20	46509
25	38	104	25	46510



Z-CARB™ SERIES Z1MB
4 FLUTE – SINGLE END – BALL END

Cutting Diameter d1 mm	Length of Cut l2 mm	Overall Length l1 mm	Shank Diameter d2 mm	Ti-NAMITE-A (AlTiN) EDP No.
14	26	83	14	46518
16	32	92	16	46519
18	32	92	18	46520
20	38	104	20	46521
25	38	104	25	46522

METRIC TOLERANCES	
Cutting Diameter d1	Shank Diameter d2
3 - 6 = +0 / -0,030	6 - 10 = -0,0025 / -0,0075
6 = +0 / -0,030	6 - 10 = -0,0025 / -0,0075
> 6 - 10 = +0 / -0,040	> 10 - 20 = -0,0025 / -0,010
> 10 - 20 = +0 / -0,050	