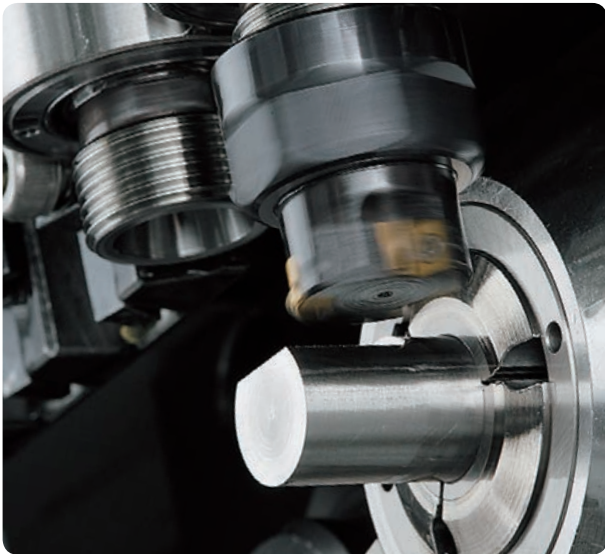
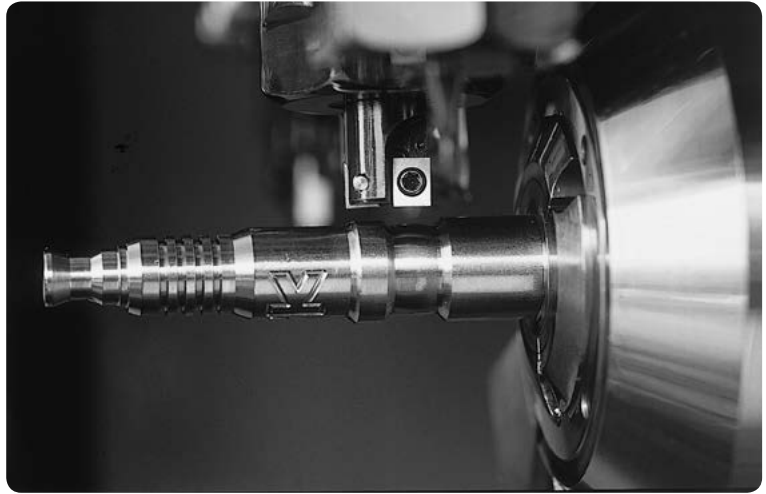


Small Diameter Indexable Endmills



Features

- Attach .787"(20mm) end mills in ER16 collet
- Just change inserts to index. No need to make any adjustments
- High quality surface finish, as low as 1um (Rz) when wiper inserts are used
- Corner radius as small as .002"
- In addition to D cut, ramp machining can be performed*

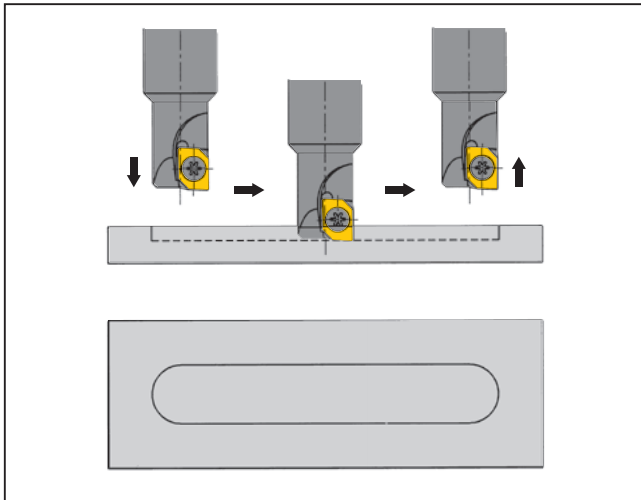
*A combination of single-blade type endmills and inserts with center blade is required

[Recommended Cutting Conditions]

Work Material	Speed SFM	Axial feed IPR	Traverse feed IPR	Depth of cut Inch	Width of cut
Steel	260 - 400	~.001	~.002	~.118	~50% of cutter diameter
Stainless Steel	130 - 200	~.0008	~.0015	~.079	~50% of cutter diameter

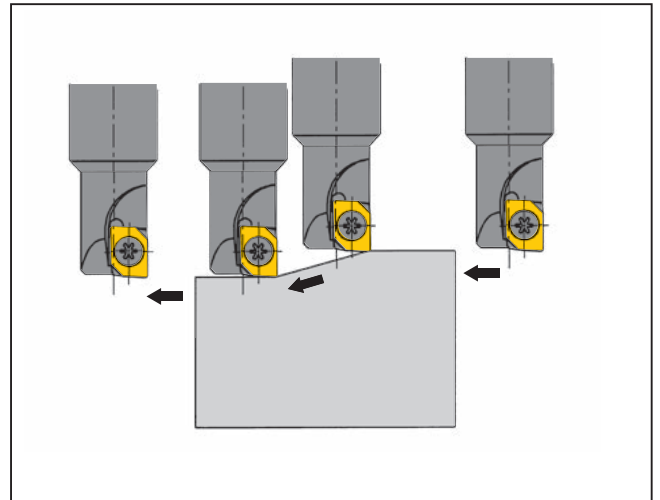
Application Example

Application Example-1



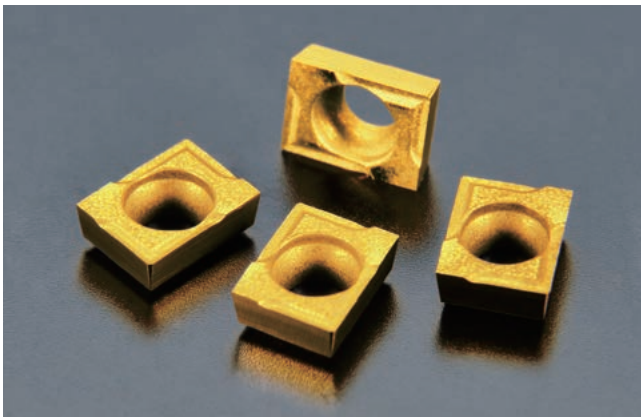
- A single tooth endmill equipped with a center cutting edge insert can be used for both plunge and side cut operations.

Application Example-2



- A single tooth endmill equipped with a center cutting edge insert can be used for slope milling operations.

Insert



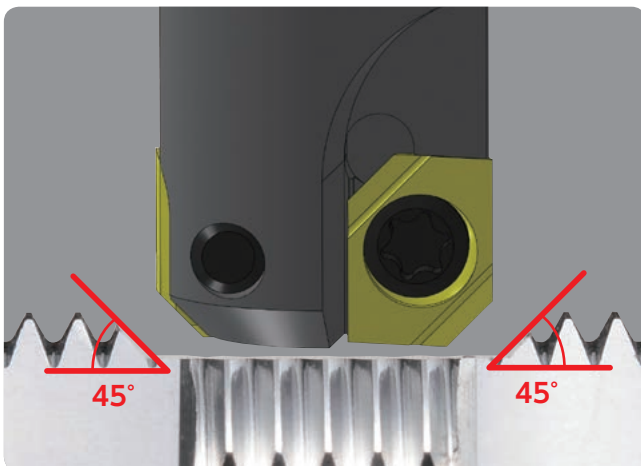
Wiper

- Excellent surface finish obtained with new wiper insert

Chipbreaker

- Less tool pressure with chipbreaker

45°



Chamfered surface finish insert	
S45C	
310 SFM	
.0056 IPR	
.039 DOC	
WET	
NTK : QM3 C45 type	700 pcs
Competitor's solid endmill	500 pcs

REZ Series

REZ

<D cutting = lead angle 90 type end milling tool>

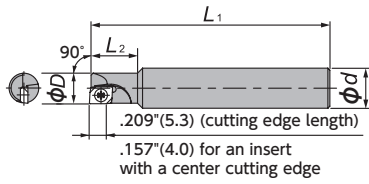


Figure-1

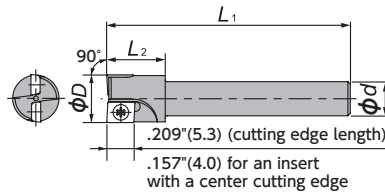


Figure-2

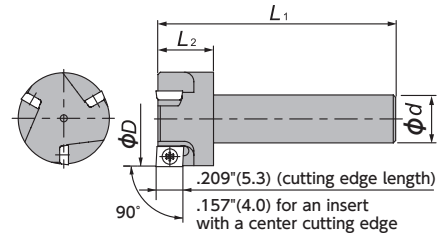


Figure-3

<D cutting = lead angle 45 type end milling tool>

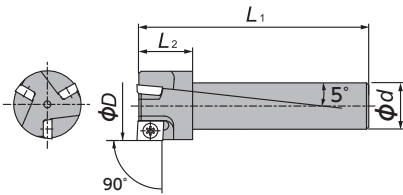


Figure-4 Right-Hand style shown

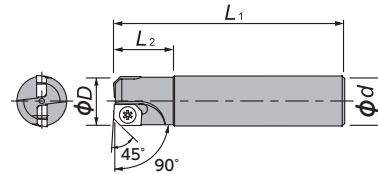


Figure-5

REZ Series - Toolholders



REZ

Gage Insert	Item Number	Figure	Stock		No. of teeth	ϕD		ϕd		L_1		L_2		Clamp Screw	Wrench
			R	L		(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)		
CZH04..CFR...	REZ080C1R212	1	○		1	.315	8	.394	10	2.362	60	.472	12	FS102-2.2 × 4.0	T-07
CZH05..CFR...	REZ100C1R218	1	○		1	.394	10	.394	10	2.953	75	.472	12	FS102-2.2 × 4.3	T-07
CZH04..CFR...	REZ100B2R329	2	○		2	.394	10	.197	5	1.575	40	.394	10	FS102-2.2 × 4.3	T-07
	REZ100C2R133	2	○		2	.394	10	.236	6	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ100C2R132	2	○		2	.394	10	.276	7	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ100C2R141	2	●		2	.394	10	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ120C2R141	2	○		2	.472	12	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ140C2R141	2	○		2	.551	14	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ150B3R330	3	○		3	.591	15	.197	5	1.575	40	.394	10	FS102-2.2 × 4.3	T-07
	REZ200M3R319	3	○		3	.787	20	.276	7	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ200M3R320	3	●		3	.787	20	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ200C3R403	4	●		3	.787	20	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
CZH0400CFR-C45	REZ100C2R466	5	○		2	.394	10	.276	7	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
CZH04..CFR...	REZ100C2R461	5	●		2	.394	10	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07

CZH Series - Inserts

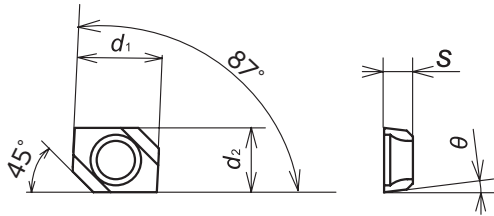


Figure-1 Chipbreaker with wiper

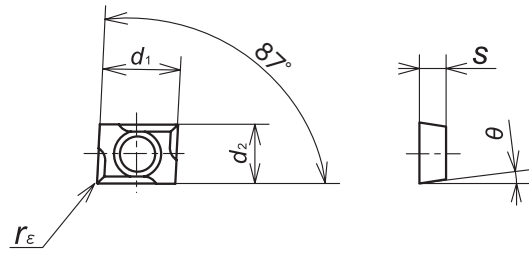


Figure-2 Chipbreaker

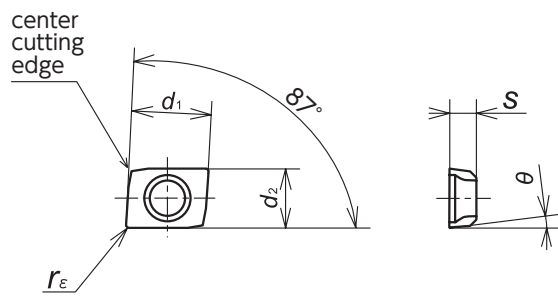


Figure-3 Center cutting edge without wiper

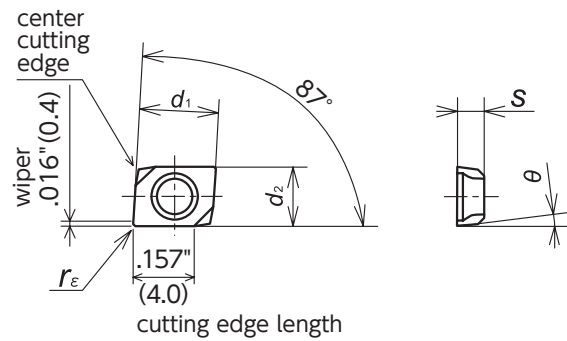


Figure-4 Center cutting edge with wiper

CZH

Item Number	Figure	Chip-breaker	Center Blade	Wiper	d_1		d_2		s		θ	C or r_e		Coated Carbide				
					(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)		(Inch)	(mm)	DM4	DT4	QM3	TM4	ZM3
CZH0400CFR-C45*	1	Yes	No	Yes	.219	5.56	.165	4.20	.074	1.88	7°	C.053	C1.35		●	○		
CZH04005CFR-BL	2	Yes	No	No	.219	5.56	.165	4.20	.074	1.88	7°	.002	0.05	●				○
CZH0402CFR-BL	2	Yes	No	No	.219	5.56	.165	4.20	.074	1.88	7°	.008	0.2	●				○
CZH04005CFR-070	3	No	Yes	No	.219	5.56	.165	4.20	.074	1.88	7°	.002	0.05		●			●
CZH0402CFR-070	3	No	Yes	No	.219	5.56	.165	4.20	.074	1.88	7°	.008	0.2		●			○
CZH04005CFR-140	4	No	Yes	Yes	.219	5.56	.165	4.20	.074	1.88	7°	.002	0.05		●			●
CZH0402CFR-140	4	No	Yes	Yes	.219	5.56	.165	4.20	.074	1.88	7°	.008	0.2		●			●
CZH05005CFR-141	4	No	Yes	Yes	.208	5.28	.219	5.56	.086	2.18	10°	.002	0.05					○
CZH0502CFR-141	4	No	Yes	Yes	.208	5.28	.219	5.56	.086	2.18	10°	.008	0.2					○

*Must be used with REZ100C2R461/466 Cutters

Cutting condition → X2

● : Stock
● : Stock (Newly added)
■ □ □ □ : While stocks last

R L : Stock (Right / Left-hand only)
R L : Stock (Right / Left-hand only, Newly added)
Ⓜ : Mirror finish

○ : 1-2 week delivery
○ : 1-2 week delivery (Newly added)
⦿ : Coolant through

Ⓜ : 1-2 week delivery (Right / Left-hand only)
Ⓜ : 1-2 week delivery (Right / Left-hand only, Newly added)