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TOOL
GROUP



TOOLS ENGINEERED TO PERFORM

ZEPHYR[®]
SCREWDRIVING TOOLS

ZEPHYR[®]
AEROSPACE HAND & PNEUMATIC TOOLS

LOK-FAST[™]
AEROSPACE FASTENER TOOLS

KWIK-LOK[™]
TEMPORARY FASTENERS

Martin[™]
AIRCRAFT TOOL

Microstop Countersink Cages, Countersink Cutters, and Accessories



ZEPHYR TOOL GROUP

201 Hindry Avenue
Inglewood, CA 90301

Tel. 310-410-4907 ■ Email: sales@zephyrtoolgroup.com ■ zephyrtoolgroup.com

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ZT680 Microstop Countersink Cages

HEAVY DUTY, HIGH SPEED

SIMPLICITY - ACCURACY - DEPENDABILITY

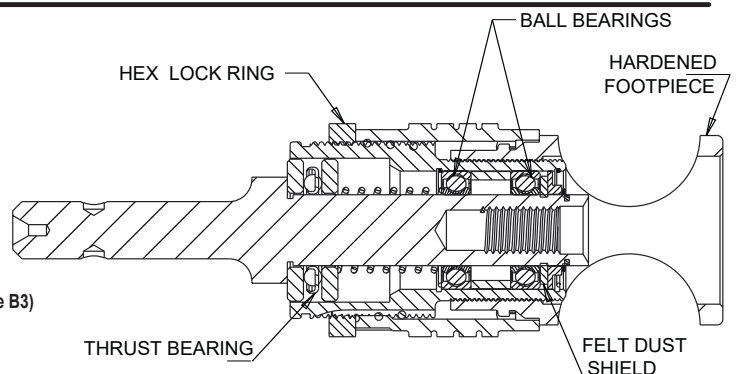
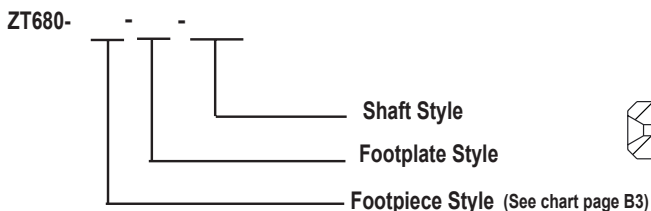
ZEPHYR's new ZT680 Series Microstop Cage has been designed for continuous operation at any speed up to 10,000 rpm in the most demanding applications. This makes them well suited for all metallic, graphite and composite materials used in the airframe industry today. Quality standards have been held to insure the highest levels of accuracy and performance.



Features Include:

- Heavy duty - Compact size.
- Full ball bearing design supports all radial and thrust loads at speeds up to 10,000 rpm.
- .0005 inch incremental depth adjustment.
- Fail safe positive stop design insures accurate repeatability and eliminates any possibility of work piece damage.
- Built-in felt dust shield eliminates composite/graphite dust contamination of the radial ball bearings, significantly extending product life.
- 1/4" shaft travel
- Improved thrust system, significantly increases the run time between adjustments and product life.
- Left hand threaded hex lock ring eliminates any possibility of inadvertent resetting of primary adjustment.
- Available with standard 1/4-28 and on request 6mm, internally threaded shafts.
- 3/4" diameter cutter capacity with standard "S" footpieces and 1" cutter capacity with wide "W" footpieces.

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Swivel Shaft Microstop Countersink Cages



ZT680 SERIES M8X1 THREAD
ZT680 SERIES M6X1 THREAD
ZT680 SERIES 1/4-28 THREAD

ZT680-SW

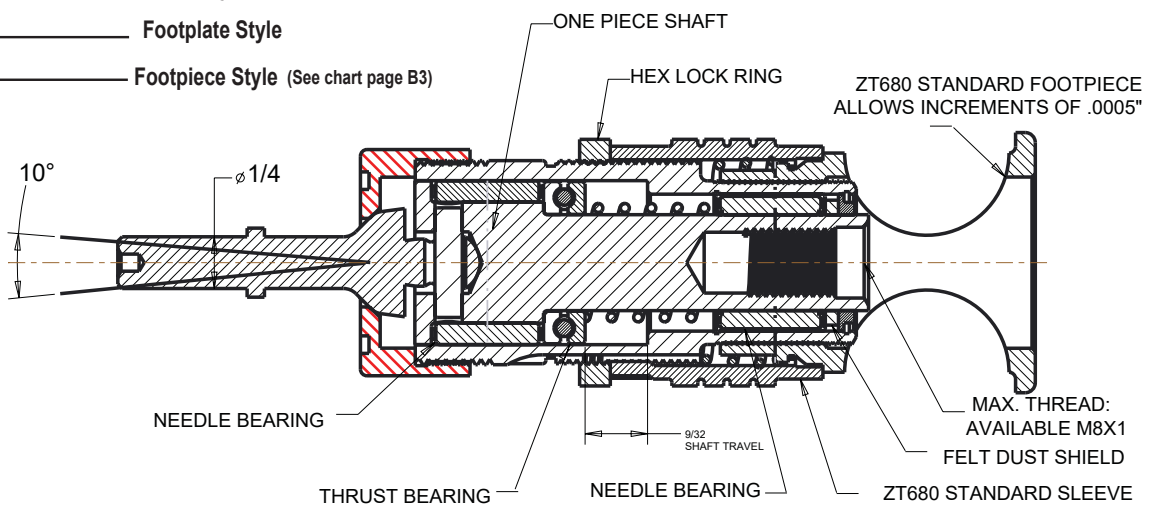
Zephyr's new Swivel Shaft- High Speed Microstops have been precision designed and machined for continuous operation at speeds of up to 6,000 RPM without over-heating. The unique Swivel Shaft enables you to countersink with up to a 5 degree off angle between the spindle and the cutter axis. The ZT680-SW series microstops utilize a ZT680 common body design making all footpieces and footplates totally interchangeable. Designed for use on all standard materials as well as the latest composite materials in the most demanding applications.

Features Include:

- 5 degree swivel shaft
- Full needle bearings and ball thrust bearings for continuous high speed use
- Compact size
- Internal serration design to eliminate chip clogging
- 0.013mm (.0005") incremental depth adjustment
- Cutter capacity:
 - 14mm (9/16") Diameter with "SP" Footpiece
 - 21mm (13/16") Diameter with "WP" Footpiece

ORDERING INFORMATION:

ZT680-SW-



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ZT680 Series Microstop Countersink Cage Product Data Sheet

ZT680 Footpiece Style Chart (To the part numbers below add the shaft syle, QC=Quick Change, TF=1/4" Round w/Three Flats, no suffix =1/4" Round)

STYLE 'S'
P/N/ J ZT680010

STYLE 'SPI'
P/N/ J ZT680011

STYLE 'SPII'
P/N/ J ZT680020

STYLE 'ZPH'
P/N/ J ZT680012

STYLE 'ZPI'
P/N/ J ZT680017

STYLE 'Y'
P/N/ J ZT680032

STYLE 'SPI' W/CHIPGUARD
P/N/ J ZT680050-272

STYLE 'SPI' W/CHIPGUARD
P/N/ J ZT680050-328

STYLE 'SPI' W/CHIPGUARD
P/N/ J ZT680050-372

STYLE 'X'
P/N/ J ZT680031

STYLE 'Z'
P/N/ J ZT680033

STYLE 'SPHR'
P/N/ J ZT680055

STYLE 'RH'
P/N/ J ZT680053

STYLE 'R'
P/N/ J ZT680018

STYLE 'SPH'
P/N/ J ZT680027

STYLE 'V'
P/N/ J ZT680015

STYLE 'WPI'
P/N/ J ZT680016

STYLE 'WP'
P/N/ J ZT680013

STYLE 'SP'
P/N/ J ZT680009

STYLE 'RD'
P/N/ J ZT680077

**VACUUM FOOTPIECE
STYLE 'SV'**
P/N/ J ZT6800114

**FOOTPLATE
STYLE 'N' (NYLON)**
P/N/ J ZT680052
USED WITH ZT68009
'SP' STYLE FTFC.

STYLE 'S' (STEEL)
P/N/ J ZT680051
USED WITH ZT68009
'SP' STYLE FTFC.

**FOOTPLATE
STYLE 'N' (NYLON)**
P/N/ J ZT680056
USED WITH ZT680013
'WP' STYLE FTFC.

STYLE 'S' (STEEL)
P/N/ J ZT680058
USED WITH ZT680013
'WP' STYLE FTFC.

ZT680 Extended Nose Footpiece Style Chart

Part No.	Style	Used with Shaft:	Thread	A	B	C
ZT680061	A	ZT680065	#10-32 Int.	2.750	.275	.375
ZT680062	B	ZT680066	1/4-28 Int.	2.750	.325	.425
ZT680063	C	ZT680069	1/4-28 Int.	2.750	.400	.500
ZT680063	C	ZT680067	1/4-28 Int.	2.750	.400	.500
ZT680064	D	ZT680064	1/4-28 Int.	2.750	.656	.750

ADAPTER
P/N/ J ZT680060
USED FOR ADAPTATION
OF EXTENDED FOOTPIECES

Note: The ZT680060 adapter and the appropriate extended shaft are included on all extended nose cage assemblies. Should you wish to convert a standard ZT680 cage to an extended nose model, you will need to order the required nose-piece, the adapter and the appropriate extended shaft separately.



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ZT680 Features and Benefits Compared to Standard Competitors

ZT680	Competition	ZT680 Benefit
Depth adjustment: 0.0005" increments	Depth adjustment: 0.001" increments	Increased accuracy of cut depth
Heavy-duty design and construction	Medium-duty design and construction	Stronger, longer lasting tool
Maximum cutter diameter: 1.0"	Maximum cutter diameter: 0.75"	More cutter versatility
Available shafts: Round, 3-Flat and Quick-Change	Available shafts: Round	Greater adaptability
Available internal cutter threads: 1/4-28 & 6mm	Available internal cutter threads: 1/4-28	Greater adaptability
Matched ball-bearing design	Brass bushing	Improved radial support, and less heat generation
Rotation speed up to 10,000 RPM	Rotation speed up to 3,000	Better match to standard 6,000 RPM tool motors, and is ideally suited for PCD cutting tools
Integral bearing composite dust shield	No barrier	Excellent for composite applications
Footpiece heat treated and polished	Footpiece polished	Scratch-resistant foot surface
Tested to 360K cycles with no depth of cut variation	Up to 20K cycles with no depth of cut variation	Excellent in high production environment where 100% perfect countersink cuts are required
Hex lock ring	Knurled lock ring	Improved mechanical tightening capability
Proprietary thrust-bearing	Standard thrust-bearing	Ensures accurate cut repeatability, reducing time consuming adjustments, and increasing tool life
Fail-safe positive stop design	Fail-safe positive stop design	Eliminates damage to workpiece

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ZT680-V VACUUM ATTACHMENT

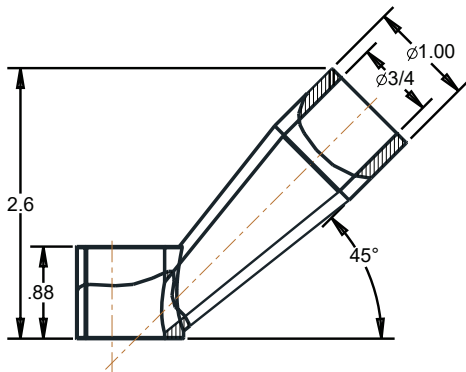
NEW



**Fits our
ZT680
Microstops
also fits "ANY" cage
of 1.00" Diameter**



ZEPHYR is pleased to offer its new ZT680-V Vacuum Attachment for use on its high speed, close tolerance, series Microstops. Specifically designed for ease of use when vacuum of composite dust or chips is required. The new ZT680-V offers durability, efficiency and lower cost when compared to other metal fabricated attachments.



Fits the following styles:

Microstops Series	Footpiece Style	Shaft Style
ZT680	- S -	- TF, QC, ()PLAIN
	- SPH -	
	- SPI -	
	- SP-S -	
	- SP-N -	
	- Y -	
	- Z -	
	- ZPH -	
	- ZPI -	

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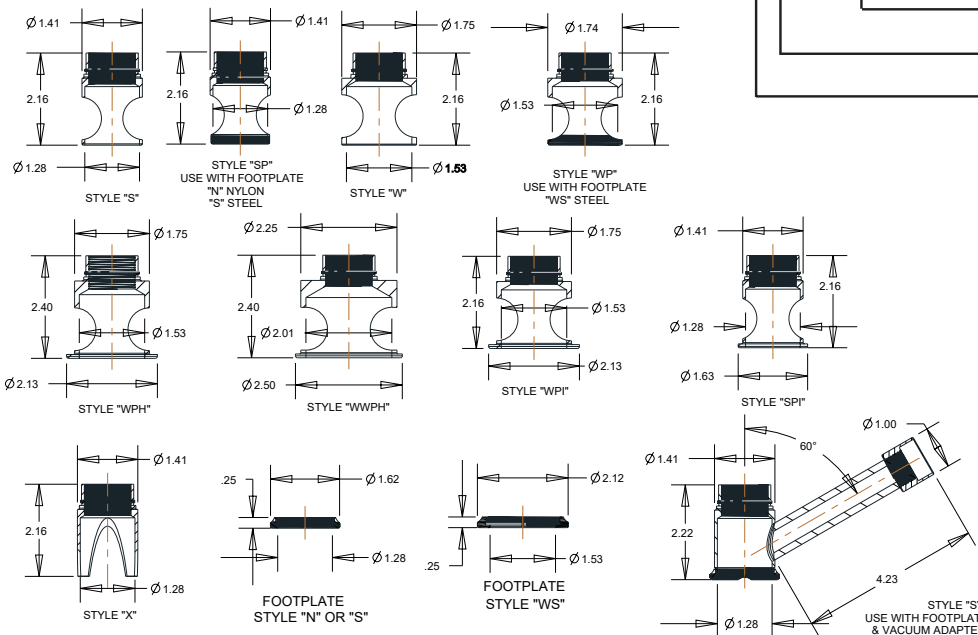


ZT691/ZT692 High Speed Precision Microstop Cage

The ZT691/ZT692 series microstop cages have been designed for continuous operation at any speed up to 6,000 rpm in the most demanding applications. This makes them well suited for metallic, graphite and composite materials used in the airframe industry today. The ZT691/ZT692 series cages offer .0005" depth adjustment and are available with a full range of footpieces. Quality standards have been held to insure the highest levels of accuracy and performance.

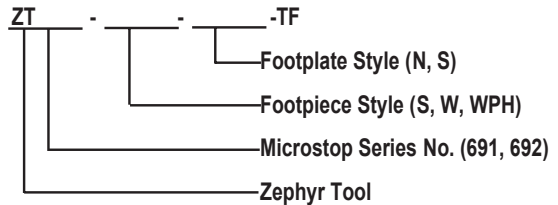
Features Include:

- Heavy duty construction.
- Full ball bearing design supports all radial and thrust loads at speeds up to 6,000 rpm.
- Improved thrust system significantly increase the run time between adjustments and product life,
- .0005" incremental depth adjustment
- Fail safe positive stop design insures accurate repeatability and eliminates any possibility of work piece damage.
- 1" to 2" cutter capacity,
- Drive shafts are available with 3/8" round (no suffix), 3/8" round with three flats (-TF) recommended.
- 7/16" shaft travel.
- The internal thread for the ZT691 series is 3/8"-24 and for the ZT692 series it is 7/16"-20.



Sample shown:
ZT692-SPI-TF

ORDERING INFORMATION:



Model Number	Shaft Thread	Cutter Capacity
ZT691-S-TF	3/8"-24	1.25
ZT691-SPI-TF	3/8"-24	1.25
ZT691-W-TF	3/8"-24	1.50
ZT691-WPI-TF	3/8"-24	1.50
ZT691-WPH-TF	3/8"-24	1.50

Model Number	Shaft Thread	Cutter Capacity
ZT692-S-TF	7/16"-20	1.25
ZT692-SPI-TF	7/16"-20	1.25
ZT692-W-TF	7/16"-20	1.50
ZT692-WPI-TF	7/16"-20	1.50
ZT692-WWP-TF	7/16"-20	2.00
ZT692-WPH-TF	7/16"-20	1.50
ZT692-WWP-TF	7/16"-20	2.00



TOOLS ENGINEERED TO PERFORM



ZT691/ZT692 Features and Benefits

Compared to Standard ZT673/ZT334

ZT691/ZT692	ZT673/673	ZT691 / ZT692 Benefits
Improved ball bearing design for greater support	Ball bearing design for better radial support	Improved run time at high spindle speeds
Integral bearing composite dust shield	No barrier	Excellent for composite applications
Proprietary thrust-bearings	Standard thrust-bearings	Ensures accurate countersink cut repeatability reducing time consuming re-adjustments, and increasing tool life
Superior repeatability minimizes variations in depth of cut	Good repeatability with no depth of cut variation	Excellent in high production environments where 100% perfect countersinks cuts are required
Footpiece heat treated and polished	Footpiece polished	Scratch-resistant foot surface
Fail-safe positive stop design	Fail-safe positive stop design	Eliminates damage to workpiece
Depth adjustment: 0.0005" increments Same	Depth adjustment: 0.0005" increments	Accuracy required for today's assemblies
1" to 2" cutter capacity	1" to 1 1/2" cutter capacity	Great cutter versatility
Same capacity and travel in a short over all length	No comparison	Easier to handle and control
Available internal cutter threads: 3/8-24 & 7/16-20	Available internal cutter threads: 3/8-24 & 7/16-20	Same versatile holding method
Available Shafts: Round with 3-Flats	Available Shafts: Round with 3-Flats	Same great holding method

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ZT355, ZT357, ZT358 Series Long Travel Microstop Countersink Cages

Zephyr specially designed long travel microstops for use with Taper Lock drill reamers.

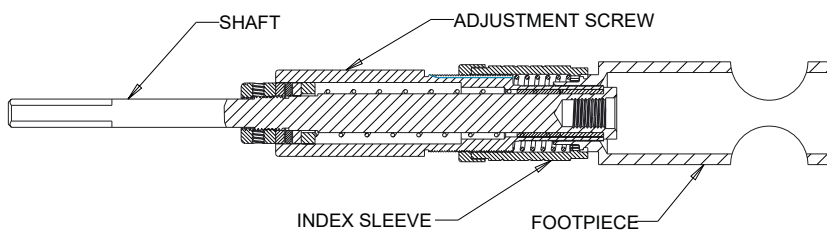
Features

- Positive non-slip lock ring adjusts without tools.
- Specific types and sizes for every purpose.
- Micrometer dial type adjustment sleeve.
- Spring loaded retractable type shaft.
- Heavy duty enclosed ball thrust bearing.
- Microstop depth adjustment .001.

ZT355 series for use with 1/8" & 5/32" diameter standard taper-
lok drill-reamers.

ZT357 series for use with 3/16" diameter standard taper-
lok drill-reamers.

ZT358 series for use with the larger diameter standard taper-
lok drill-reamers.



MICRO-STOP C'SINK	SHAFT THREAD	OVERALL LENGTH	INCHES OF TRAVEL	ADJUSTMENT	CROSS REFERENCE	
					BRILES	NSN
ZT355	1/4"-28	5-3/8"	3/4"	1/4	TLA4900-12	N/A
ZT357	1/4"-28	7-7/16"	1-1/2"	1/4	TLA4900-24	5133-00-838-2500
ZT358	7/16"-20	12-1/4"	2-3/8"	1/2	TLA4900-38	5133-00-838-2503

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ZT663 Series High Speed Microstop Countersink Cage

Zephyr's new High Speed Microstop has been precision machined and designed for continuous operation at speeds up to 10,000 rpm without overheating. For use in countersinking various metals and the latest graphite and composite materials, this new cage is available with a full range of footpieces and either standard 1/4", three-flat or quick-change shafts. Design requirements have been held to exacting standards for the most demanding requirements.

Features include:

- Full ball bearings for continuous high speed use.
- Compact size.
- Internal spline design to eliminate chip clogging.
- .0005 inch incremental depth adjustment.
- Positive stop to connect shaft to eliminate work piece damage.
- Left hand threaded knurled lock ring to eliminate any possibility of inadvertent resetting of primary adjustment.
- Available with 1/4 - 28 and 6mm threaded shaft.
- 9/32" shaft travel.
- 5/8" diameter cutter capacity with standard foot pieces. 7/8" with "W" footpiece.
- Micrometer dial type adjustment sleeve.

Ordering Information:

ZT663 - _____ - _____ - _____
 FOOTPIECE FOOTPLATE SHAFT
 STYLE (IF APPLICABLE) STYLE



ZT663



Microstop Countersinks



type for every use
SIMPLICITY
ACCURACY
DEPENDABILITY

All **Zephyr** Microstop Countersinks have the same basic design and adjustment features. All are precision machined and designed for continuous high speed, heavy duty operation without overheating.



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Microstop Countersinks



POSITIVE NON-SLIP LOCK

ADJUSTMENT WITHOUT TOOLS.....

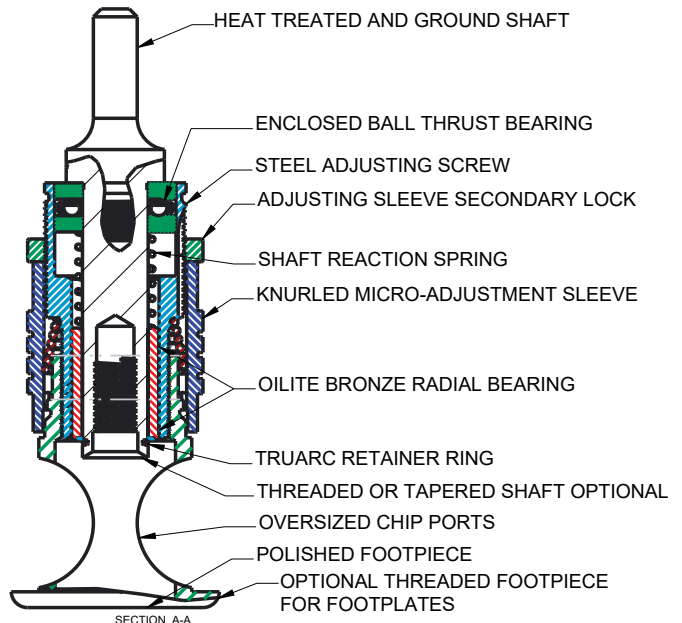
Zephyr Micrometer Countersinks are made in several models and styles - All incorporate the same basic adjustment features and positive lock design, plus a secondary lock protection - Footpieces for all conditions are readily interchangeable, thus making all models truly universal in their application - Enclosed ball thrust bearings plus bronze radial bearing permit sustained high speed heavy duty operation without overheating.

1 Knurled locking ring provides secondary locking, completely eliminating all possibility of inadvertent re-setting of primary adjustment.

2 Knurled adjusting sleeve with micrometer-type dial, calibrated in increments of .001" ... provides instant and positive setting to any cutter depth desired plus automatic locking.

DESIGN FEATURES

- Positive non-slip locking, adjusts without tools
- Specific types and sizes for every purpose
- Micrometer dial type adjustment sleeve
- Spring loaded retractable type shaft
- Polished steel footpieces or optional screw-on nylon or steel footplate
- Heavy duty enclosed ball thrust bearing
- Oversize radial bronze bearing



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Microstop Countersinks Standard Models

MODEL
ZT330-S



SHAFT TRAVEL 9/32"
ADJUSTMENT 5/16"

MODEL
ZT331-S



SHAFT TRAVEL 1/2"
ADJUSTMENT 1"

MODEL
ZT334-W



SHAFT TRAVEL 1/2"
ADJUSTMENT 1"



Style "S"

Style "W"

Style "Y"

Style "R"



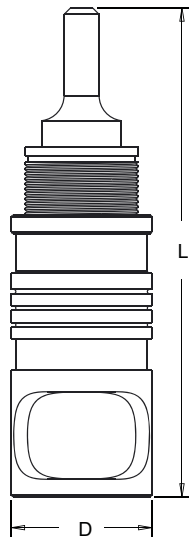
Style "SP"

Style "WP"

Style "X"

Style "Z"

The eight types of footpieces for each model will fill all needs. Footpieces styles "SP" and "WP" are available with either a hardened and polished steel footplate or a nylon screw on type protective footplate which helps to eliminate surface



MODEL NO.	D	L	MAX. CUT DIA.	SHAFT THREAD
ZT330-S	.87	3 9/16	5/8	1/4"-28
ZT330-W	1.00	3 9/16	3/4	1/4"-28
ZT330-X	.87	3 9/16	5/8	1/4"-28
ZT330-Y	.87	3 9/16	5/8	1/4"-28
ZT330-Z	.87	3 9/16	5/8	1/4"-28
ZT330-R	.45	3 9/16	5/16	1/4"-28
ZT330-SP	1.25	3 9/16	5/8	1/4"-28
ZT330-WP	1.25	3 9/16	3/4	1/4"-28
ZT331-S	1.24	5 15/16	7/8	3/8"-24
ZT331-W	1.62	5 15/16	1 3/8	3/8"-24
ZT331-X	1.24	5 15/16	7/8	3/8"-24
ZT331-Y	1.24	5 15/16	7/8	3/8"-24
ZT331-Z	1.11	5 15/16	7/8	3/8"-24
ZT331-SP	1.37	5 15/16	7/8	3/8"-24
ZT331-WP	1.62	5 15/16	1 3/8	3/8"-24
ZT334-S	1.24	5 15/16	7/8	7/16"-20
ZT334-W	1.75	5 15/16	1 1/2	7/16"-20
ZT334-X	1.24	5 15/16	7/8	7/16"-20
ZT334-Y	1.24	5 15/16	7/8	7/16"-20
ZT334-Z	1.11	5 15/16	7/8	7/16"-20
ZT334-SP	1.37	5 15/16	7/8	7/16"-20
ZT334-WP	2.00	5 15/16	1 1/2	7/16"-20

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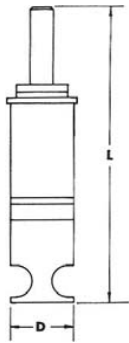
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MICROSTOP COUNTERSINKS

BASIC DESIGN

Precision manufactured for trouble-free operation.
Complete, interchangeable parts - low maintenance.
Positive nonslip locking, adjusts without tools.
Micrometer dial type adjustment sleeve.
Spring loaded, retractable type shaft.
Hardened and polished steel foot pieces.
Heavy duty enclosed ball thrust bearing.
Oversize radial bronze bearing.



MODEL ZT345-S



New Midget Model

For close quarter operations

All Zephyr Micro Stop Countersinks have the same basic design and adjustment features. All are precision machined and designed for continuous high speed, heavy duty operation without overheating.

MODEL	D	L	CUTTER THREAD	MAX CUTTER DIA.	CUTTER PART NO.
ZT345-S	.687	3-3/16"	1/4"-28	7/16"	ZT150 ZT154 ZT164 ZT170
ZT345-SP	.687	3-3/16"	1/4"-28	3/8"	ZT172 ZT184 ETC.

Also available as Model 345-SP with threaded footpiece and a hardened and polished, screw on type footplate.

SHAFT TRAVEL 7/32"

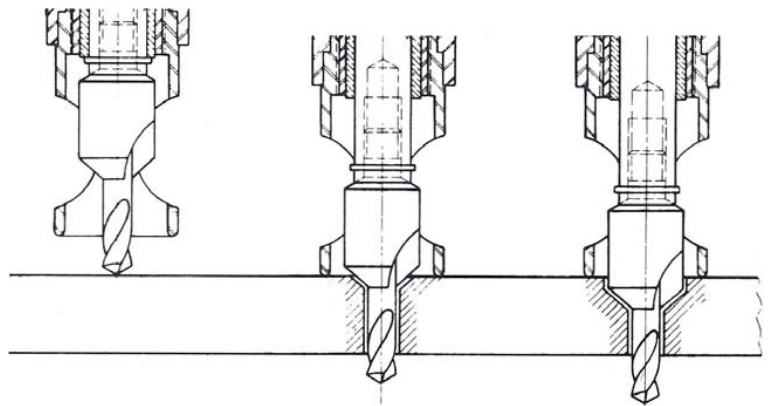
ADJUSTMENT 3/8"

MODEL ZT338



Special 9/16" Long Stroke Unit

For use with ZT184 and ZT185 Cutters
 Permits full retraction of Drill-Countersink cutter
 Also permits full extension fo Drill-Countersink cutter



Other styles of footpieces such as illustrated on page B11 are also available for the ZT338 unit.

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MICROSTOP COUNTERSINKS Special Purpose Tools

BASIC DESIGN

ALL ZEPHYR MICRO STOP COUNTERSINKS have the same basic design and adjustment features. All are precision machined and designed for continuous high speed, heavy duty operation without overheating.

Extended Footpiece Type Model ZT284

MODEL #.	CUTTER THREAD	MAX. CUTTER DIA.	B	C
ZT284-A	10-32	.250	.275	.375
ZT284-B	1/4-28	.300	.325	.425
ZT284-C	1/4-28	.375	.400	.500
ZT284-D	1/4-28	.562	.656	.750

INTEGRAL PILOT CUTTERS					
MODEL #	78°	82°	100°	110°	115°
ZT284-A	ZT285-15	ZT285-16	ZT285-17	ZT285-18	ZT285-19
ZT284-B	ZT286-15	ZT286-16	ZT286-17	ZT286-18	ZT286-19
ZT284-C	ZT154-20	ZT154-21	ZT154-22	ZT154-23	ZT154-24
ZT284-D	ZT154-25	ZT154-26	ZT154-28	ZT154-29	ZT154-29

When ordering Cutters please specify dash number and Pilot Diameter.
Example: ZT285-17-1/8

Precision manufactured
For trouble-free operation.

Completely interchangeable
parts - low maintenance.

Positive nonslip locking
adjusts without tools.

Micrometer dial type
adjustment sleeve.

Spring loaded, retractable
type shaft.

Hardened and polished steel
foot pieces.

Heavy duty enclosed ball
thrust bearing.

Oversize radial bronze bearing.





**MICRO STOP COUNTERSINKS
SPECIAL PURPOSE TOOLS**

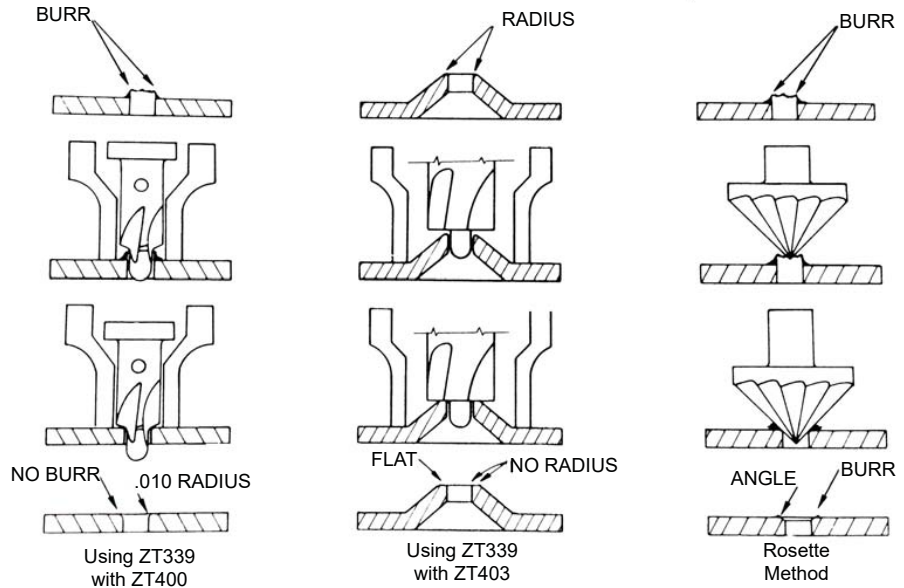
MODEL
ZT339



SHAFT TRAVEL = 3/32"
ADJUSTMENT = 5/16"

PRECISION DEBURRING OR SPOTFACING

For us with ZT400 and ZT403 Cutters.

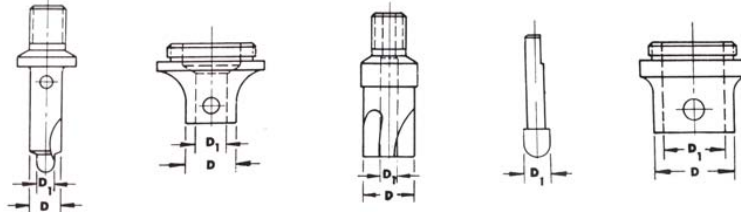


Solves the problems of sheet cracking when dimpling titanium's and other exotic materials. Accurately controls the depth of cut and radius with positive non-slip lock



ZT400

THREADS
1/4-28 RH



TOOL NO.	CUTTER		FOOTPIECE		TOOL NO.	CUTTER		PILOT	PART NUMBER		FOOTPIECE	
	D1	D	D1	D		D1	D		D1	D	D1	D
ZT400-00	.054	.167	ZT339010	.173 .296	ZT403-3	.078	.160	ZT309-3/32	.092	ZT339031	.219	.335
ZT400-0	.069	.167	ZT339010	.173 .296	ZT 403-4	.078	.210	ZT309-1/8	.123	ZT339032	.266	.390
ZT400-1	.097	.167	ZTJ39010	.173 .296	ZT403-5	.125	.315	ZT309-5/32	.154	ZT339033	.375	.500
ZT400-3	.127	.198	ZT339011	.204 .327	ZT403-5	.125	.315	ZT309 #8	.164	ZT339033	.375	.500
ZT400-5	.158	.230	ZT339012	.236 .359	ZT403-6	.125	.360	ZT309-3/16	.187	ZT339034	.422	.550
ZT400-7	.172	.240	ZT339013	.246 .369	ZT403-6	.125	.360	ZT309-1/4	.248	ZT339035	.547	.672
ZT400-9	.190	.260	ZT339014	.266 .389	ZT403-6	.125	.360	ZT309-5/16	.310	ZT339035	.547	.672
ZT400-11	.227	.295	ZT339015	.301 .424								
ZT400-13	.249	.319	ZT339016	.325 .448								
ZT400-15	.280	.348	ZTJ39017	.354 .477								
ZT400-17	.311	.382	ZTJ39018	.388 .512								
ZT400-21	.135	.205	ZT339021	.211 .336								
ZT400-23	.151	.221	ZT339023	.227 .352								
ZT400-25	.204	.274	ZT339025	.280 .405								

ZEPHYR TOOL GROUP

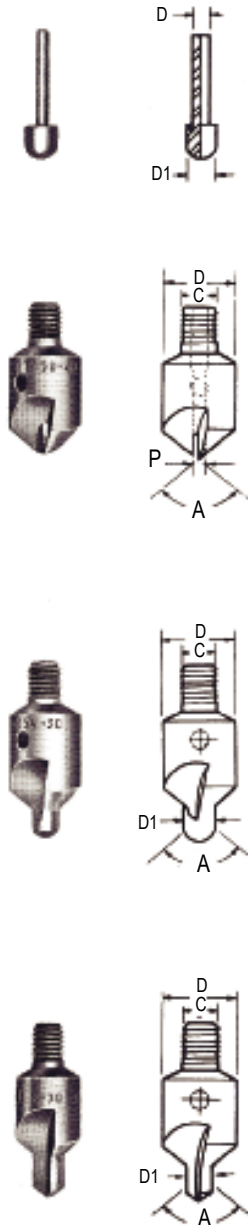
201 Hindry Avenue
Inglewood, CA 90301

Tel. 310-410-4907 ▪ Email: sales@zephyrtoolgroup.com ▪ zephyrtoolgroup.com



MICRO STOP COUNTERSINKS CUTTERS AND PILOTS

For ALUMINUM AND DURAL... These two-flute cutters are precision ground with perfect cutting edges for chatterless countersinking. Easily resharpened

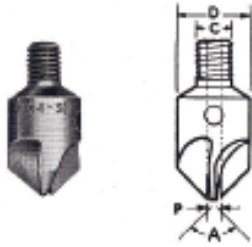


Pilot Number	Shank Diameter	Head Diameter D1 +.000 -.001	Cutter in which Used					
ZT300	5/64"	When ordering specify head diameter desired example ZT300-1/8	ZT150 with 5/64" Pilot Hole					
ZT301	1/8"		ZT150 with 1/8" Pilot Hole					
ZT302	3/16"		ZT150 with 5/64" Pilot Hole					
Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter	Cutter Thread	Cutter Number				
	D	P	C	100° A	78° A	82° A	110° A	115° A
ZT330	1/4"	5/64"	1/4"-28	ZT150-17	ZT150-15	ZT150-16	ZT150-18	ZT150-19
	3/8"	5/64"	1/4"-28	ZT150-22	ZT150-20	ZT150-21	ZT150-23	ZT150-44
	5/16"	5/64"	1/4"-28	ZT150-12	ZT150-10	ZT150-11	ZT150-13	ZT150-14
	7/16"	5/64"	1/4"-28	ZT150-26	ZT150-24	ZT150-25	ZT150-27	ZT150-45
	1/2"	5/64"	1/4"-28	ZT150-30	ZT150-28	ZT150-29	ZT150-31	ZT150-46
	1/2"	1/8"	1/4"-28	ZT150-42	ZT150-40	ZT150-41	ZT150-43	ZT150-49
	9/16"	1/8"	1/4"-28	ZT150-58	ZT150-56	ZT150-57	ZT150-59	ZT150-60
5/8"	1/8"	1/4"-28	ZT150-52	ZT150-50	ZT150-51	ZT150-53	ZT150-54	
ZT331	3/4"	3/16"	3/8"-24	ZT152-21	ZT152-19	ZT152-20	ZT152-22	ZT152-23
	7/8"	3/16"	3/8"-24	ZT152-26	ZT152-24	ZT152-25	ZT152-27	ZT152-33
	1"	3/16"	3/8"-24	ZT152-36	ZT152-34	ZT152-35	ZT152-37	ZT152-38
	1-1/8"	3/16"	3/8"-24	ZT152-41	ZT152-39	ZT152-40	ZT152-42	ZT152-43
	1-1/4"	3/16"	3/8"-24	ZT152-46	ZT152-44	ZT152-45	ZT152-47	ZT152-48
	1-3/8"	3/16"	3/8"-24	ZT152-51	ZT152-49	ZT152-50	ZT152-52	ZT152-53
ZT331	7/8"	3/16"	7/16"-20	ZT151-26	ZT151-24	ZT151-25	ZT151-27	ZT151-33
	1"	3/16"	7/16"-20	ZT151-36	ZT151-34	ZT151-35	ZT151-37	ZT151-38
	1-1/8"	3/16"	7/16"-20	ZT151-41	ZT151-39	ZT151-40	ZT151-42	ZT151-43
	1-1/4"	3/16"	7/16"-20	ZT151-46	ZT151-44	ZT151-45	ZT151-47	ZT151-48
	1-3/8"	3/16"	7/16"-20	ZT151-51	ZT151-49	ZT151-50	ZT151-52	ZT151-53
	1-1/2"	3/16"	7/16"-20	ZT151-56	ZT151-54	ZT151-55	ZT151-57	ZT151-58
ZT330	1/4"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT154-20-1/8	1/4"-28	ZT154-17	ZT154-15	ZT154-16	ZT154-18	ZT154-19
	3/8"		1/4"-28	ZT154-22	ZT154-20	ZT154-21	ZT154-23	ZT154-44
	5/16"		1/4"-28	ZT154-12	ZT154-10	ZT154-11	ZT154-13	ZT154-14
	7/16"		1/4"-28	ZT154-26	ZT154-24	ZT154-25	ZT154-27	ZT154-45
	1/2"		1/4"-28	ZT154-30	ZT150-28	ZT154-29	ZT154-31	ZT154-46
	9/16"		1/4"-28	ZT154-58	ZT154-56	ZT154-57	ZT154-59	ZT154-60
	5/8"		1/4"-28	ZT154-49	ZT154-47	ZT154-48	ZT154-50	ZT154-51
ZT331	3/4"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT154-20-1/8	3/8"-24	ZT156-21	ZT156-19	ZT156-20	ZT156-22	ZT156-23
	7/8"		3/8"-24	ZT156-26	ZT156-24	ZT156-25	ZT156-27	ZT156-33
	1"		3/8"-24	ZT156-36	ZT156-34	ZT156-35	ZT156-37	ZT156-38
	1-1/8"		3/8"-24	ZT156-41	ZT156-39	ZT156-40	ZT156-42	ZT156-43
	1-1/4"		3/8"-24	ZT156-46	ZT156-44	ZT156-45	ZT156-47	ZT156-48
1-3/8"	3/8"-24	ZT156-51	ZT156-49	ZT156-50	ZT156-52	ZT156-53		
ZT334	7/8"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT155-20-1/8	7/16"-20	ZT153-26	ZT153-24	ZT153-25	ZT153-27	ZT153-33
	1"		7/16"-20	ZT153-36	ZT153-34	ZT153-35	ZT153-37	ZT153-38
	1-1/8"		7/16"-20	ZT153-41	ZT153-39	ZT153-40	ZT153-42	ZT153-43
	1-1/4"		7/16"-20	ZT153-46	ZT153-44	ZT153-45	ZT153-47	ZT153-48
	1-3/8"		7/16"-20	ZT153-51	ZT153-49	ZT153-50	ZT153-52	ZT153-53
	1-1/2"		7/16"-20	ZT153-56	ZT153-54	ZT153-55	ZT153-57	ZT153-58
ZT330	3/8"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT155-20-1/8	1/4"-28	ZT155-22	ZT155-20	ZT155-21	ZT155-23	ZT155-44
	7/16"		1/4"-28	ZT155-26	ZT155-24	ZT155-25	ZT155-27	ZT155-45
	1/2"		1/4"-28	ZT155-30	ZT155-28	ZT155-29	ZT155-31	ZT155-46
	5/8"		1/4"-28	ZT155-49	ZT155-47	ZT155-48	ZT155-50	ZT155-51
ZT331	7/8"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT155-20-1/8	3/8"-24	ZT176-26	ZT176-24	ZT176-25	ZT176-27	ZT176-33
	1"		3/8"-24	ZT176-36	ZT176-34	ZT176-35	ZT176-37	ZT176-38
	1-1/8"		3/8"-24	ZT176-41	ZT176-39	ZT176-40	ZT176-42	ZT176-43

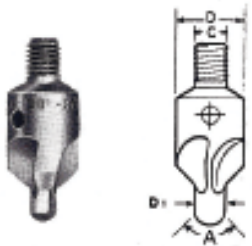


MICRO STOP COUNTERSINKS CUTTERS AND PILOTS

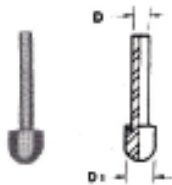
For STAINLESS STEEL AND TITANIUM... These three-flute cutters are made from special steel and are specially heat treated for efficient cutting of Stainless steel and titanium.



Removable Pilot Type
for Stainless Steel
and Titanium



Integral Pilot Type
for Stainless Steel
and Titanium



Hardened
Countersink Cutter Pilots

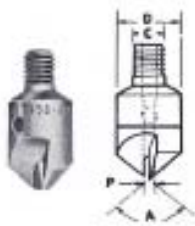
Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter	Cutter Thread	Cutter Number				
				100° A	78° A	82° A	110° A	115° A
ZT330	1/4"	5/64"	1/4"-28	ZT164-17	ZT164-15	ZT164-16	ZT164-18	ZT164-19
	3/8"	5/64"	1/4"-28	ZT164-22	ZT164-20	ZT164-21	ZT164-23	ZT164-44
	5/16"	5/64"	1/4"-28	ZT164-12	ZT164-10	ZT164-11	ZT164-13	ZT164-14
	7/16"	5/64"	1/4"-28	ZT164-26	ZT164-24	ZT164-25	ZT164-27	ZT164-45
	1/2"	5/64"	1/4"-28	ZT164-30	ZT164-28	ZT164-29	ZT164-31	ZT164-46
	1/2"	1/8"	1/4"-28	ZT164-42	ZT164-40	ZT164-41	ZT164-43	ZT164-49
	9/16"	1/8"	1/4"-28	ZT164-58	ZT164-56	ZT164-57	ZT164-59	ZT164-60
	5/8"	1/8"	1/4"-28	ZT164-52	ZT164-50	ZT164-51	ZT164-53	ZT164-54
ZT331	3/4"	3/16"	3/8"-24	ZT165-21	ZT165-19	ZT165-20	ZT165-22	ZT165-23
	7/8"	3/16"	3/8"-24	ZT165-26	ZT165-24	ZT165-25	ZT165-27	ZT165-33
	1"	3/16"	3/8"-24	ZT165-36	ZT165-34	ZT165-35	ZT165-37	ZT165-38
	1-1/8"	3/16"	3/8"-24	ZT165-41	ZT165-39	ZT165-40	ZT165-42	ZT165-43
	1-1/4"	3/16"	3/8"-24	ZT165-46	ZT165-44	ZT165-45	ZT165-47	ZT165-48
	1-3/8"	3/16"	3/8"-24	ZT165-51	ZT165-49	ZT165-50	ZT165-52	ZT165-53
ZT331	7/8"	3/16"	7/16"-20	ZT163-26	ZT163-24	ZT163-25	ZT163-27	ZT163-33
	1"	3/16"	7/16"-20	ZT163-36	ZT163-34	ZT163-35	ZT163-37	ZT163-38
	1-1/8"	3/16"	7/16"-20	ZT163-41	ZT163-39	ZT163-40	ZT163-42	ZT163-43
	1-1/4"	3/16"	7/16"-20	ZT163-46	ZT163-44	ZT163-45	ZT163-47	ZT163-48
	1-3/8"	3/16"	7/16"-20	ZT163-51	ZT163-49	ZT163-50	ZT163-52	ZT163-53
	1-1/2"	3/16"	7/16"-20	ZT163-56	ZT163-54	ZT163-55	ZT163-57	ZT163-58
ZT330	1/4"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT154-20-1/8	1/4"-28	ZT170-17	ZT170-15	ZT170-16	ZT170-18	ZT170-19
	3/8"		1/4"-28	ZT170-22	ZT170-20	ZT170-21	ZT170-23	ZT170-44
	5/16"		1/4"-28	ZT170-12	ZT170-10	ZT170-11	ZT170-13	ZT170-14
	7/16"		1/4"-28	ZT170-26	ZT170-24	ZT170-25	ZT170-27	ZT170-45
	1/2"		1/4"-28	ZT170-30	ZT170-28	ZT170-29	ZT170-31	ZT170-46
	9/16"		1/4"-28	ZT170-58	ZT170-56	ZT170-57	ZT170-59	ZT170-60
ZT331	3/4"		3/8"-24	ZT171-21	ZT171-19	ZT171-20	ZT171-22	ZT171-23
	7/8"		3/8"-24	ZT171-26	ZT171-24	ZT171-25	ZT171-27	ZT171-33
	1"		3/8"-24	ZT171-36	ZT171-34	ZT171-35	ZT171-37	ZT171-38
	1-1/8"		3/8"-24	ZT171-41	ZT171-39	ZT171-40	ZT171-42	ZT171-43
	1-1/4"		3/8"-24	ZT171-46	ZT171-44	ZT171-45	ZT171-47	ZT171-48
	1-3/8"		3/8"-24	ZT171-51	ZT171-49	ZT171-50	ZT171-52	ZT171-53
ZT334	7/8"	7/16"-20	ZT174-26	ZT174-24	ZT174-25	ZT174-27	ZT174-33	
	1"	7/16"-20	ZT174-36	ZT174-34	ZT174-35	ZT174-37	ZT174-38	
	1-1/8"	7/16"-20	ZT174-41	ZT174-39	ZT174-40	ZT174-42	ZT174-43	
	1-1/4"	7/16"-20	ZT174-46	ZT174-44	ZT174-45	ZT174-47	ZT174-48	
	1-3/8"	7/16"-20	ZT174-51	ZT174-49	ZT174-50	ZT174-52	ZT174-53	
	1-1/2"	7/16"-20	ZT174-56	ZT174-54	ZT174-55	ZT174-57	ZT174-58	

Pilot Number	Shank Diameter	Head Diameter D1 +.000 -.001	Cutter in which Used
ZT300	5/64"	When ordering specify head diameter desired example ZT300-1/8	ZT164 with 5/64" Pilot Hole
ZT301	1/8"		ZT164 with 1/8" Pilot Hole
ZT302	3/16"		ZT165 with 5/64" Pilot Hole



MICRO STOP COUNTERSINKS CUTTERS AND PILOTS

CUTTERS

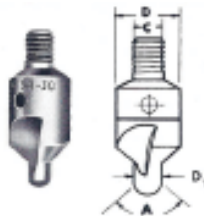


**Carbide Tipped
Removable Pilot
Countersink Cutters**

These cutters with solid carbide heads are designed for use in microstop countersink units. They have been specifically designed for use in countersinking of stainless steel, inconel and titanium alloys.

Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter	Cutter Thread	Cutter Number				
	D	P	C	100° A	78° A	82° A	110° A	115° A
ZT330	3/8"	5/64"	1/4"-28	ZT350-22	ZT350-20	ZT350-21	ZT350-23	ZT350-44
	7/16"	5/64"	1/4"-28	ZT350-26	ZT350-24	ZT350-25	ZT350-27	ZT350-45
	1/2"	5/64"	1/4"-28	ZT350-30	ZT350-28	ZT350-29	ZT350-31	ZT350-46
	1/2"	1/8"	1/4"-28	ZT350-42	ZT350-40	ZT350-41	ZT350-43	ZT350-49
	5/8"	1/8"	1/4"-28	ZT350-52	ZT350-50	ZT350-51	ZT350-53	ZT350-54
ZT331	7/8"	3/16"	3/8"-24	ZT352-26	ZT352-24	ZT352-25	ZT352-27	ZT352-33
	1"	3/16"	3/8"-24	ZT352-36	ZT352-34	ZT352-35	ZT352-37	ZT352-38
	1-1/8"	3/16"	3/8"-24	ZT352-41	ZT352-39	ZT352-40	ZT352-42	ZT352-43
	1-1/4"	3/16"	3/8"-24	ZT352-46	ZT352-44	ZT352-45	ZT352-47	ZT352-48
	1-3/8"	3/16"	3/8"-24	ZT352-51	ZT352-49	ZT352-50	ZT352-52	ZT352-53

Note: MAXIMUM NON CUTTING (DEAD CENTER) DIAMETER 1/32" LARGER THAN PILOT HOLE.
USE CUTTERS WITH PILOT HOLE A MINIMUM OF 1/32" SMALLER THAN DESIRED PILOT DIAMETER.



**Carbide Tipped
Integral Pilot
Countersink Cutters**

Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter	Cutter Thread	Cutter Number				
	D	P	C	100° A	78° A	82° A	110° A	115° A
ZT330	3/8"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT154-20-1/8	1/4"-28	ZT354-22	ZT354-20	ZT354-21	ZT354-23	ZT354-44
	7/16"		1/4"-28	ZT354-26	ZT354-24	ZT354-25	ZT354-27	ZT354-45
	1/2"		1/4"-28	ZT354-30	ZT354-28	ZT354-29	ZT354-31	ZT354-46
	5/8"		1/4"-28	ZT354-49	ZT354-47	ZT354-48	ZT354-50	ZT354-51
ZT331	7/8"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT154-20-1/8	3/8"-24	ZT356-26	ZT356-24	ZT356-25	ZT356-27	ZT356-33
	1"		3/8"-24	ZT356-36	ZT356-34	ZT356-35	ZT356-37	ZT356-38
	1-1/8"		3/8"-24	ZT356-41	ZT356-39	ZT356-40	ZT356-42	ZT356-43
	1-1/4"		3/8"-24	ZT356-46	ZT356-44	ZT356-45	ZT356-47	ZT356-48
	1-3/8"		3/8"-24	ZT356-51	ZT356-49	ZT356-50	ZT356-52	ZT356-53



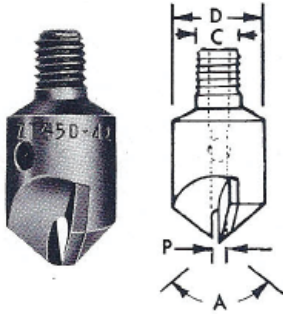
**Hardened
Countersink Cutter Pilots**

Pilot Number	Shank Diameter	Head Diameter D1 + .000 - .001	Cutter in which Used
ZT300	5/64"	When ordering specify head diameter desired example ZT300-1/8	ZT350 with 5/64" Pilot Hole
ZT301	1/8"		ZT350 with 1/8" Pilot Hole
ZT302	3/16"		ZT352 with 5/64" Pilot Hole

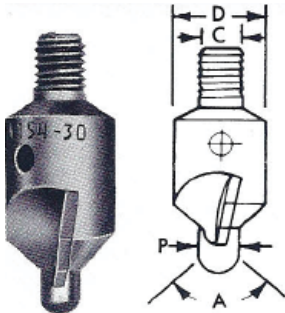


MICRO STOP COUNTERSINKS CUTTERS AND PILOTS

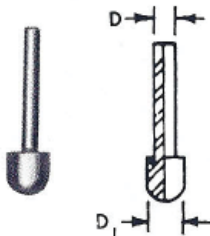
CUTTERS



**Carbide Insert
Removable Pilot
Countersink Cutters**



**Carbide Insert
Integral Pilot
Countersink Cutters**



**Hardened
Countersink Cutter Pilot:**

These carbide cutters are designed for use in microstop countersink units. They have been specifically designed for use in countersinking of stainless steel, inconel and titanium alloys.

Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter	Cutter Thread	Cutter Number				
	D	P	C	100° A	78° A	82° A	110° A	115° A
ZT330	7/16"	5/64"	1/4"-28	ZT450-26	ZT450-24	ZT450-25	ZT450-27	ZT450-45
	1/2"	5/64"	1/4"-28	ZT450-30	ZT450-28	ZT450-29	ZT450-31	ZT450-46
	1/2"	1/8"	1/4"-28	ZT450-42	ZT450-40	ZT450-41	ZT450-43	ZT450-49
	5/8"	1/8"	1/4"-28	ZT450-52	ZT450-50	ZT450-51	ZT450-53	ZT450-54
ZT331	3/4"	3/16"	3/8"-24	ZT452-21	ZT452-19	ZT452-20	ZT452-22	ZT452-23
	7/8"	3/16"	3/8"-24	ZT452-26	ZT452-24	ZT452-25	ZT452-27	ZT452-33
	1"	3/16"	3/8"-24	ZT452-36	ZT452-34	ZT452-35	ZT452-37	ZT452-38
	1-1/8"	3/16"	3/8"-24	ZT452-41	ZT452-39	ZT452-40	ZT452-42	ZT452-43
	1-1/4"	3/16"	3/8"-24	ZT452-46	ZT452-44	ZT452-45	ZT452-47	ZT452-48
	1-3/8"	3/16"	3/8"-24	ZT452-51	ZT452-49	ZT452-50	ZT452-52	ZT452-53

Note: MAXIMUM NON CUTTING (DEAD CENTER) DIAMETER 1/32" LARGER THAN PILOT HOLE.
USE CUTTERS WITH PILOT HOLE A MINIMUM OF 1/32" SMALLER THAN DESIRED PILOT DIAMETER.

ZT450 & 452 SERIES
78°, 110° & 115° MADE TO ORDER ONLY

Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter	Cutter Thread	Cutter Number				
	D	P	C	100° A	78° A	82° A	110° A	115° A
ZT330	7/16"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT154-20-1/8	1/4"-28	ZT454-26	ZT454-24	ZT454-25	ZT454-27	ZT454-45
	1/2"		1/4"-28	ZT454-30	ZT454-28	ZT454-29	ZT454-31	ZT454-46
	5/8"		1/4"-28	ZT454-49	ZT454-47	ZT454-48	ZT454-50	ZT454-51
ZT331	3/4"		3/8"-24	ZT456-21	ZT456-19	ZT456-20	ZT456-22	ZT456-23
	7/8"		3/8"-24	ZT456-26	ZT456-24	ZT456-25	ZT456-27	ZT456-33
	1"		3/8"-24	ZT456-36	ZT456-34	ZT456-35	ZT456-37	ZT456-38
	1-1/8"	3/8"-24	ZT456-41	ZT456-39	ZT456-40	ZT456-42	ZT456-43	
	1-1/4"	3/8"-24	ZT456-46	ZT456-44	ZT456-45	ZT456-47	ZT456-48	
	1-3/8"	3/8"-24	ZT456-51	ZT456-49	ZT456-50	ZT456-52	ZT456-53	

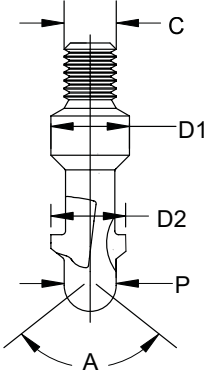
Pilot Number	Shank Diameter	Head Diameter D1 +.000 -.001	Cutter in which Used
ZT300	5/64"	When ordering specify head diameter desired example ZT300-1/8	ZT450 with 5/64" Pilot Hole
ZT301	1/8"		ZT450 with 1/8" Pilot Hole
ZT302	3/16"		ZT452 with 5/64" Pilot Hole



MICRO STOP COUNTERSINKS CUTTERS AND PILOTS

CUTTERS

ZT385 SHOWN



ZT386 SHOWN



For ALUMINUM AND DURAL...These two flute cutters are precision ground with perfect cutting edges for chatterless countersinking. The undercut body diameter provides for faster chip ejection. These cutters are designed to produce close tolerance countersinking and to eliminate sheet damage. Factory regrind service is available on all Zephyr cutters.

Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter P	Cutter Thread C	Cutter Number					Type of Grind
	D			100° A	78° A	82° A	110° A	115° A	
ZT330	3/8"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT385-20-1/8	1/4"-28	ZT385-22	ZT385-20	ZT385-21	ZT385-23	ZT385-44	Primary
	7/16"		1/4"-28	ZT385-26	ZT385-24	ZT385-25	ZT385-27	ZT385-45	
	1/2"		1/4"-28	ZT385-30	ZT385-28	ZT385-29	ZT385-31	ZT385-46	

Used on Countersink Model	Cutter Diameter	Cutter Diameter	Pilot	Cutter Thread C	Cutter Number					Type of Grind
	D1	D2	P		100° A	78° A	82° A	110° A	115° A	
ZT330-M	3/8"	.256	.0980	1/4"-28	ZT389-22	ZT389-20	ZT389-21	ZT389-23	ZT389-44	Primary
	3/8"	.256	.1270	1/4"-28	ZT385-27	ZT389-25	ZT389-26	ZT389-28	ZT389-29	
	3/8"	.317	.1575	1/4"-28	ZT385-32	ZT389-30	ZT389-31	ZT389-33	ZT389-34	
	3/8"	.375	.1860	1/4"-28	ZT385-37	ZT389-35	ZT389-36	ZT389-38	ZT389-39	
	3/8"	.385	.1895	1/4"-28	ZT385-42	ZT389-40	ZT389-41	ZT389-43	ZT389-44	
	3/8"	.382	.1562	1/4"-28	ZT385-47	ZT389-45	ZT389-46	ZT389-48	ZT389-49	

For Stainless Steel and Titanium. These three-flute cutters are made from special steel and are specially heat treated for efficient cutting of stainless steel and Titanium.

Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter P	Cutter Thread C	Cutter Number					Type of Grind
	D			100° A	78° A	82° A	110° A	115° A	
ZT330	3/8"	When ordering these integral pilot cutters, specify dash number and pilot diameter D1 required. Example: ZT386-20-1/8	1/4"-28	ZT386-22	ZT386-20	ZT386-21	ZT386-23	ZT386-44	Primary
	7/16"		1/4"-28	ZT386-26	ZT386-24	ZT386-25	ZT386-27	ZT386-45	
	1/2"		1/4"-28	ZT386-30	ZT386-28	ZT386-29	ZT386-31	ZT386-46	

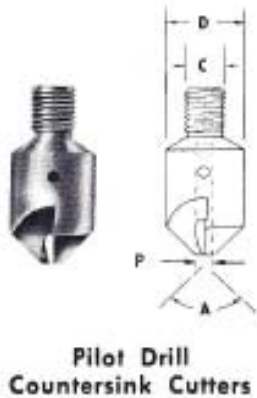


COUNTERSINKS CUTTERS MISCELLANEOUS TYPES



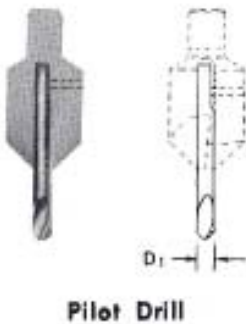
Huk and Hi-Shear Collar removal

PART NO.	D	B	SHANK	FASTENER & SIZE		
				HS47	1/8"	HI-SHEAR
ZT86-1	.365	.124	1/4"-28	HS47	1/8"	HI-SHEAR
ZT86-2	.365	.157	1/4"-28	HS47	5/32"	HI-SHEAR
ZT86-3	.438	.188	1/4"-28	HS47	3/16"	HI-SHEAR
ZT86-4	.500	.247	1/4"-28	HS47	1/4"	HI-SHEAR
ZT86-5	.562	.310	1/4"-28	HS47	5/16"	HI-SHEAR
ZT86-6	.625	.373	1/4"-28	HS47	3/8"	HI-SHEAR
ZT86-7	.750	.434	3/8"-24	HS47	7/16"	HI-SHEAR
ZT86-8	.875	.497	3/8"-24	HS47	1/2"	HI-SHEAR
ZT86-9	.937	.558	3/8"-24	HS47	9/16"	HI-SHEAR
ZT86-10	1.000	.620	3/8"-24	HS47	5/8"	HI-SHEAR
ZT87-1	.323	.188	1/4"-28	3/16"	HUCK LOCK BOLT	
ZT87-2	.413	.250	1/4"-28	1/4"	HUCK LOCK BOLT	
ZT87-3	.372	.265	1/4"-28	1/4"	BLIND RIVET	
ZT87-4	.528	.313	1/4"-28	5/16"	HUCK LOCK BOLT	
ZT87-5	.465	.339	1/4"-28	5/16"	BLIND RIVET	
ZT87-6	.622	.375	1/4"-28	3/8"	HUCK LOCK BOLT	
ZT87-7	.550	.397	1/4"-28	3/8"	BLIND RIVET	



Pilot Drill Countersink Cutters

Used on Countersink Model	Cutter Diameter	Pilot Hole Diameter	Cutter Thread	Cutter Number				
				100° A	78° A	82° A	110° A	115° A
ZT330	3/8"	Customer Specified Example: ZT184-30-3/16	1/4"-28	ZT184-22	ZT184-20	ZT184-21	ZT184-23	ZT184-44
	7/16"		1/4"-28	ZT184-26	ZT184-24	ZT184-25	ZT184-27	ZT184-45
	1/2"		1/4"-28	ZT184-30	ZT184-28	ZT184-29	ZT184-31	ZT184-46
	5/8"		1/4"-28	ZT184-49	ZT184-47	ZT184-48	ZT184-50	ZT184-51



ZT185 Drills for use with ZT184 Cutters Above

Cutter Diameter	Minimum	Maximum
D	D1	D1
3/8"	3/32"	#20- (.161)
7/16"	3/32"	#10- (.193)
1/2"	3/32"	F (.257)
5/8"	3/32"	F (.257)

When ordering specify ZT185 -(drill size) Example ZT185-3/16



COUNTERSINKS CUTTERS

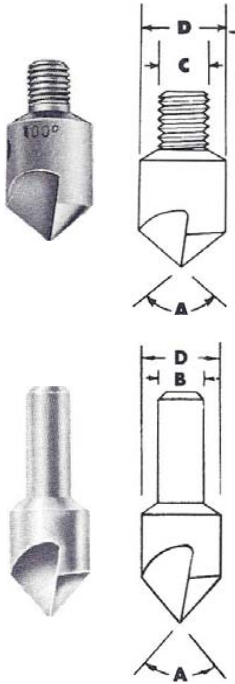
Single Flute Countersink Cutters

Threaded Shank

Used on Countersink Model	Cutter Diameter	Cutter Thread	Cutter Number			
	D	C	78° A	82° A	110° A	115° A
ZT330	3/8"	1/4"-28	ZT394-23	ZT394-36	ZT394-49	ZT394-62
	7/16"	1/4"-28	ZT394-24	ZT394-37	ZT394-50	ZT394-63
	1/2"	1/4"-28	ZT394-25	ZT394-38	ZT394-51	ZT394-64

Straight Shank

Cutter Diameter D	Straight Shank Diameter	Cutter Number			
	B	78° A	82° A	110° A	115° A
1/4"	3/16"	ZT395-21	ZT395-34	ZT395-47	ZT395-60
3/8"	1/4"	ZT395-23	ZT395-36	ZT395-49	ZT395-62
1/2"	1/4"	ZT395-25	ZT395-38	ZT395-51	ZT395-64
3/4"	3/8"	ZT395-27	ZT395-40	ZT395-53	ZT395-66
1"	1/2"	ZT395-29	ZT395-42	ZT395-55	ZT395-68



Hole Radius Cutters

Sharp edges may lead to cracking, eliminate this problem with a Precision Radius.

CUTTER NUMBER	CUTTER DIAMETER D	PILOT DIAMETER P	RADIUS R	ANGLE A	CUTTER THREAD
ZT362-.186	.375	.1865	.025	160°	1/4"-28
ZT362-.186	.375	.1865	.030		
ZT362-.187	.375	.1870	.025		
ZT362-.246	.319	.2465	.025		
ZT362-.246	.319	.2465	.030		
ZT362-.250	.319	.2500	.030		
ZT362-.248	.319	.2485	.025		
ZT362-.307	.382	.3075	.030		
ZT362-.307	.382	.3075	.035		
ZT362-.312	.382	.3125	.030		
ZT362-.370	.484	.3700	.035		
ZT362-.372	.484	.3725	.030		
ZT362-.435	.547	.4355	.030		
ZT362-.495	.609	.4950	.035		
ZT362-.497	.609	.4975	.030		

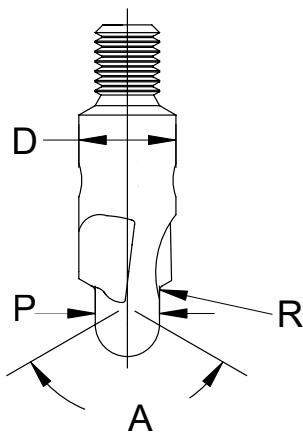
When ordering specify Radius required. Example: ZT362-186 w .025R
other sizes of cutter, Pilot and Radius dimensiones available on application.



COUNTERSINKS CUTTERS

Countersink Radius Cutters

For use on Stainless Steels or Titanium. Countersink with a Precision Radius at the intersection necessary when installing high tensile strength fasteners.



Used on Countersink Model	Cutter Diameter	Cutter Thread	Angle	Pilot Hole Diameter	RADIUS	Cutter Number
	D		A	P	R	
ZT330	1/4"	1/4"-28	100°	SPECIFY	SPECIFY	ZT437-17
	3/8"	1/4"-28				ZT437-22
	5/16"	1/4"-28				ZT437-12
	7/16"	1/4"-28				ZT437-26
	1/2"	1/4"-28				ZT437-30
	9/16"	1/4"-28				ZT437-58
ZT331	5/8"	1/4"-28	ZT437-49			
	3/4"	3/8"-24	100°	SPECIFY	SPECIFY	ZT438-21
	7/8"	3/8"-24				ZT438-26
	1"	3/8"-24				ZT438-36
	1-1/8"	3/8"-24				ZT438-41
	1-1/4"	3/8"-24				ZT438-46
1-3/8"	3/8"-24	ZT438-51				
ZT334	7/8"	7/16"-20	100°	SPECIFY	SPECIFY	ZT439-26
	1"	7/16"-20				ZT439-36
	1-1/8"	7/16"-20				ZT439-41
	1-1/4"	7/16"-20				ZT439-46
	1-3/8"	7/16"-20				ZT439-51
	1-1/2"	7/16"-20				ZT439-56

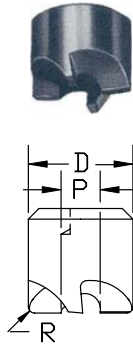
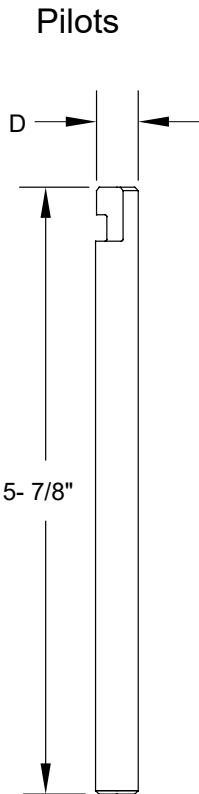
Example Ordering: ZT437-17-5/32-.030R



BACK SPOTFACERS & COUNTERSINKS

Back Spotfacers

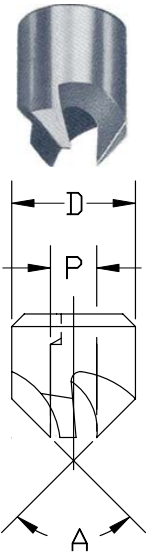
For use on Stainless Steels or Titanium.



PART NUMBER	D	P	R	NO. OF FLUTES	PART NUMBER	D	P	R	NO. OF FLUTES
ZT73-20	1/4"	3/32"	1/32"	3	ZT73-42	11/16"	1/4"	1/32"	4
ZT73-21	1/4"	1/8"	1/32"	3	ZT73-43	11/16"	5/16"	1/32"	4
ZT73-22	5/16"	1/8"	1/32"	3	ZT73-44	3/4"	1/4"	1/32"	4
ZT73-23	5/16"	5/32"	1/32"	3	ZT73-34	3/4"	5/16"	1/32"	4
ZT73-24	3/8"	5/32"	1/32"	4	ZT73-35	3/4"	3/8"	1/32"	4
ZT73-25	3/8"	3/16"	1/32"	4	ZT73-45	13/16"	5/16"	1/32"	4
ZT73-26	7/16"	5/32"	1/32"	4	ZT73-46	13/16"	3/8"	1/32"	4
ZT73-27	7/16"	3/16"	1/32"	4	ZT73-47	7/8"	5/16"	1/32"	4
ZT73-40	1/2"	3/16"	1/32"	4	ZT73-36	7/8"	3/8"	1/32"	4
ZT73-28	1/2"	1/4"	1/32"	4	ZT73-37	7/8"	1/2"	1/32"	4
ZT73-29	1/2"	5/16"	1/32"	4	ZT73-48	1"	5/16"	1/32"	4
ZT73-41	9/16"	3/16"	1/32"	4	ZT73-38	1"	3/8"	1/32"	4
ZT73-30	9/16"	1/4"	1/32"	4	ZT73-49	1-1/8"	3/8"	1/32"	4
ZT73-31	9/16"	5/16"	1/32"	4	ZT73-50	1-1/8"	1/2"	1/32"	4
ZT73-32	5/8"	1/4"	1/32"	4	ZT73-51	1-1/4"	3/8"	1/32"	4
ZT73-33	5/8"	5/16"	1/32"	4	ZT73-52	1-1/4"	1/2"	1/32"	4

Note: Other radius sizes available by special order.

Back Countersinks

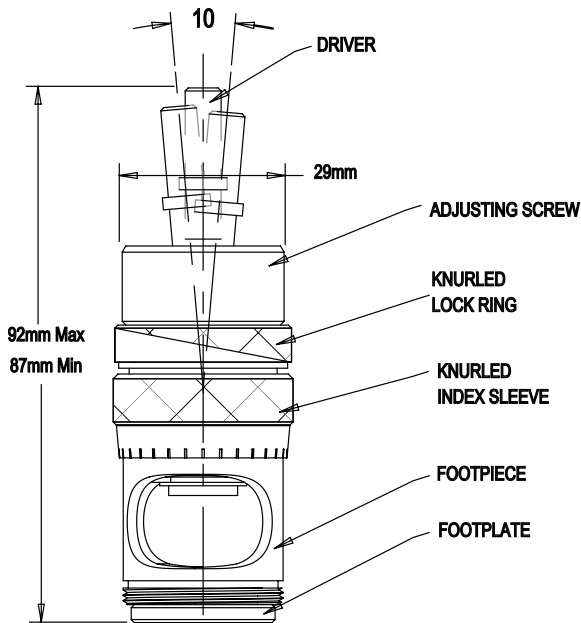


D	P	100° A	78° A	82° A	110° A	115° A	NO. OF FLUTES
1/4"	3/32"	ZT75-60	ZT75-20	ZT75-40	ZT75-80	ZT75-100	3
1/4"	1/8"	ZT75-61	ZT75-21	ZT75-41	ZT75-81	ZT75-101	3
5/16"	1/8"	ZT75-62	ZT75-22	ZT75-42	ZT75-82	ZT75-102	3
5/16"	5/32"	ZT75-63	ZT75-23	ZT75-43	ZT75-83	ZT75-103	3
3/8"	5/32"	ZT75-64	ZT75-24	ZT75-44	ZT75-84	ZT75-104	4
3/8"	3/16"	ZT75-65	ZT75-25	ZT75-45	ZT75-85	ZT75-105	4
7/16"	5/32"	ZT75-66	ZT75-26	ZT75-46	ZT75-86	ZT75-106	4
7/16"	3/16"	ZT75-67	ZT75-27	ZT75-47	ZT75-87	ZT75-107	4
1/2"	3/16"	ZT75-146	ZT75-120	ZT75-133	ZT75-159	ZT75-172	4
1/2"	1/4"	ZT75-68	ZT75-28	ZT75-48	ZT75-88	ZT75-108	4
1/2"	5/16"	ZT75-69	ZT75-29	ZT75-49	ZT75-89	ZT75-109	4
9/16"	3/16"	ZT75-147	ZT75-121	ZT75-134	ZT75-160	ZT75-173	4
9/16"	1/4"	ZT75-70	ZT75-30	ZT75-50	ZT75-90	ZT75-110	4
9/16"	5/16"	ZT75-71	ZT75-31	ZT75-51	ZT75-91	ZT75-111	4
5/8"	1/4"	ZT75-72	ZT75-32	ZT75-52	ZT75-92	ZT75-112	4
5/8"	1/4"	ZT75-73	ZT75-33	ZT75-53	ZT75-93	ZT75-113	4
11/16"	1/4"	ZT75-148	ZT75-122	ZT75-135	ZT75-161	ZT75-174	4
11/16"	5/16"	ZT75-149	ZT75-123	ZT75-136	ZT75-162	ZT75-175	4
3/4"	1/4"	ZT75-150	ZT75-124	ZT75-137	ZT75-163	ZT75-176	4
3/4"	5/16"	ZT75-74	ZT75-34	ZT75-54	ZT75-94	ZT75-114	4
3/4"	3/8"	ZT75-75	ZT75-35	ZT75-55	ZT75-95	ZT75-115	4
13/16"	5/16"	ZT75-151	ZT75-125	ZT75-138	ZT75-164	ZT75-177	4
13/16"	3/8"	ZT75-152	ZT75-126	ZT75-139	ZT75-165	ZT75-178	4
7/8"	5/16"	ZT75-153	ZT75-127	ZT75-140	ZT75-166	ZT75-179	4
7/8"	3/8"	ZT75-76	ZT75-36	ZT75-56	ZT75-96	ZT75-116	4
7/8"	1/2"	ZT75-77	ZT75-37	ZT75-57	ZT75-97	ZT75-117	4
1"	5/16"	ZT75-154	ZT75-128	ZT75-141	ZT75-167	ZT75-180	4
1"	3/8"	ZT75-78	ZT75-38	ZT75-58	ZT75-98	ZT75-118	4
1"	1/2"	ZT75-79	ZT75-39	ZT75-59	ZT75-99	ZT75-119	4
1-1/8"	3/8"	ZT75-155	ZT75-129	ZT75-142	ZT75-168	ZT75-181	4
1-1/8"	1/2"	ZT75-156	ZT75-130	ZT75-143	ZT75-169	ZT75-182	4
1-1/4"	3/8"	ZT75-157	ZT75-131	ZT75-144	ZT75-170	ZT75-183	4
1-1/4"	1/2"	ZT75-158	ZT75-132	ZT75-145	ZT75-171	ZT75-184	4

PART NUMBER	D
ZT82A-1	3/32"
ZT82A-2	1/8"
ZT82A-3	5/32"
ZT82A-4	3/16"
ZT82A-5	1/4"
ZT82A-6	5/16"
ZT82A-7	3/8"
ZT82A-8	1/2"



ZT666/ZT667/ZT668 Microstop Countersink Cage, Metric, Swivel Shaft, High Speed

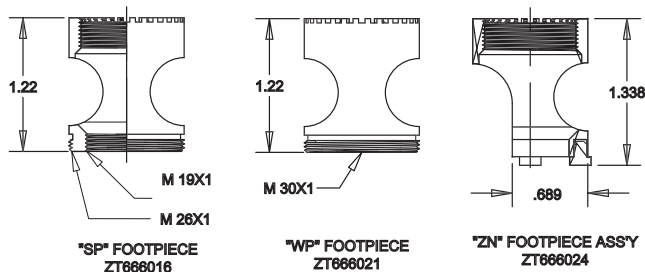
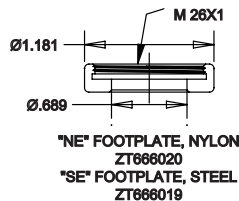
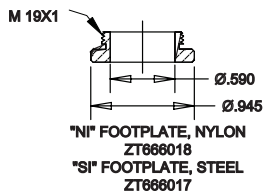


ZT666 SERIES M6X1 THREAD
ZT667 SERIES M8X1 THREAD
ZT668 SERIES 1/4-28 THREAD

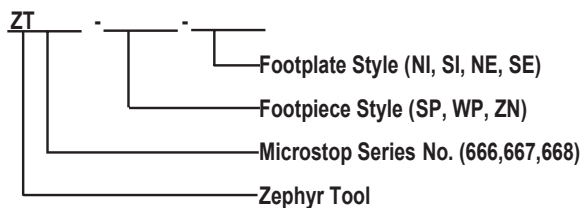
Zephyr's new Swivel Shaft- High Speed Microstops have been precision designed and machined to continuous operation at speeds up to 6,000 RPM without overheating. The unique Swivel Shaft enables you to countersink with up to a 5 degree off angle between the spindle and the cutter axis. The ZT666, ZT667 and ZT668 series microstops utilize a common body design making all footpieces, footplates and spare parts totally interchangeable. Designed for use on all standard materials as well as the latest composite materials in the most demanding applications.

Features Include:

- 5 degree swivel shaft
- Full needle bearings and ball thrust bearings for continuous high speed use
- Compact size
- Threaded Knurl Lock Ring to eliminate any possibility of inadvertent resetting of the primary adjustment
- Internal serration design to eliminate chip clogging
- 0.025mm (.001") incremental depth adjustment
- Cutter capacity:
 - 14mm (9/16") Diameter with "SP" Footpiece
 - 21mm (13/16") Diameter with "WP" Footpiece
- Available with M6X1, M8X1 and 1/4-28 Internal Threads



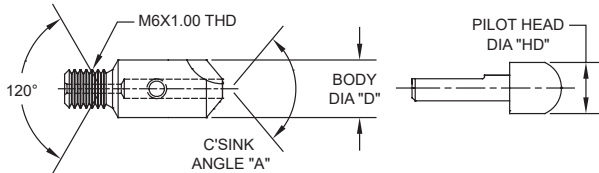
ORDERING INFORMATION:





**METRIC COUNTERSINK CUTTER
COBALT HIGH SPEED STEEL
REMOVABLE PILOT**

**ZT564 Series
2 Flute**



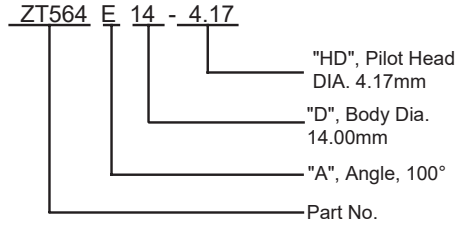
Standard 2 Flute Cutter and Removable pilot with M6 X 1.00 metric male threaded shank for use with all ZT330, ZT663 and ZT666 (-M6) series, and for use with Recoules (-M6) series Microstop Cages.

Angle Code	"A"
A	60°
B	78°
C	82°
D	90°
E	100°
F	110°
G	115°
H	120°
I	130°

Body Dia. Code	"D"
10	10MM
12	12MM
14	14MM
17	17MM

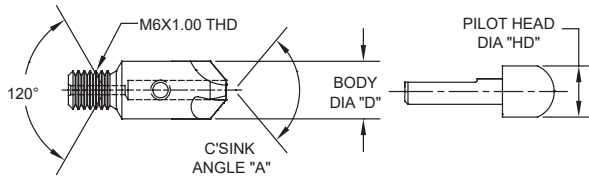
Pilot Head dia. Code	"DH"
2.00	2.00MM
2.38	2.38MM
2.50	2.50MM
2.80	2.80MM
3.00	3.00MM
3.50	3.50MM
4.00	4.00MM
4.17	4.17MM
4.76	4.76MM
4.80	4.80MM
5.00	5.00MM
5.60	5.60MM
6.00	6.00MM
6.35	6.35MM
7.92	7.92MM
8.00	8.00MM

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:



Note:
Other pilot sizes are available upon request.

**ZT566 Series
3 Flute**



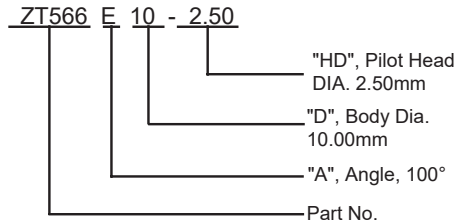
Standard 3 Flute Cutter and Removable pilot with M6 X 1.00 metric male threaded shank for use with all ZT330, ZT663 and ZT666 (-M6) series and for use with Recoules (-M6) series Microstop Cages

Angle Code	"A"
A	60°
B	78°
C	82°
D	90°
E	100°
F	110°
G	115°
H	120°
I	130°

Body Dia. Code	"D"
10	10MM
12	12MM
14	14MM
17	17MM

Pilot Head dia. Code	"DH"
2.00	2.00MM
2.38	2.38MM
2.50	2.50MM
2.80	2.80MM
3.00	3.00MM
3.50	3.50MM
4.00	4.00MM
4.17	4.17MM
4.76	4.76MM
4.80	4.80MM
5.00	5.00MM
5.60	5.60MM
6.00	6.00MM
6.35	6.35MM
7.92	7.92MM
8.00	8.00MM

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:

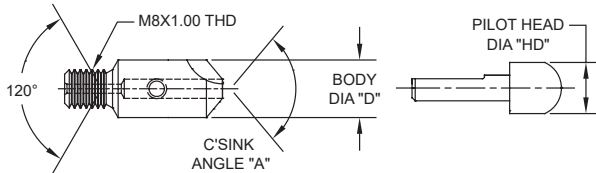


Note:
Other pilot sizes are available upon request.



**METRIC COUNTERSINK CUTTER
COBALT HIGH SPEED STEEL
REMOVABLE PILOT**

**ZT565 Series
2 Flute**



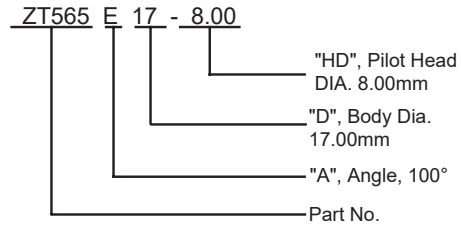
Standard 2 Flute Cutter and Removable pilot with M8 X 1.00 metric male threaded shank for use with all ZT667 (-M8) series, and for use with Recoules (-M8) series Microstop Cages.

Angle Code	"A"
A	60°
B	78°
C	82°
D	90°
E	100°
F	110°
G	115°
H	120°
I	130°

Body Dia. Code	"D"
12	12MM
14	14MM
17	17MM
21	21MM

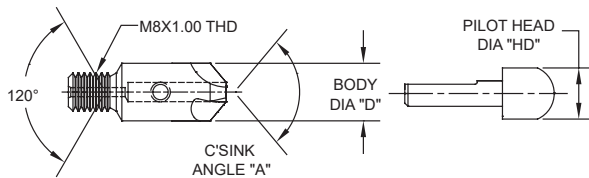
Pilot Head dia. Code	"DH"
4.00	4.00MM
4.17	4.17MM
4.76	4.76MM
4.80	4.80MM
5.00	5.00MM
5.60	5.60MM
6.00	6.00MM
6.35	6.35MM
7.92	7.92MM
8.00	8.00MM
9.52	9.52MM
10.00	10.00MM

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:



Note:
Other pilot sizes are available upon request.

**ZT567 Series
3 Flute**



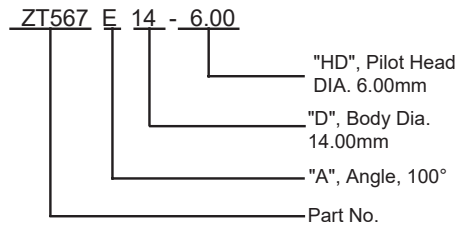
Standard 3 Flute Cutter and Removable pilot with M8 X 1.00 metric male threaded shank for use with all ZT667 (-M8) series and for use with Recoules (-M8) series Microstop Cages

Angle Code	"A"
A	60°
B	78°
C	82°
D	90°
E	100°
F	110°
G	115°
H	120°
I	130°

Body Dia. Code	"D"
12	12MM
14	14MM
17	17MM
21	21MM

Pilot Head dia. Code	"DH"
4.00	4.00MM
4.17	4.17MM
4.76	4.76MM
4.80	4.80MM
5.00	5.00MM
5.60	5.60MM
6.00	6.00MM
6.35	6.35MM
7.92	7.92MM
8.00	8.00MM
9.52	9.52MM
10.00	10.00MM

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:

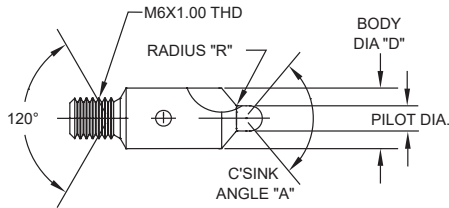


Note:
Other pilot sizes are available upon request.



**METRIC COUNTERSINK CUTTER
COBALT HIGH SPEED STEEL
INTEGRAL PILOT**

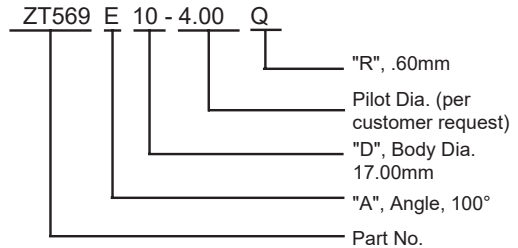
**ZT569 Series
2 Flute**



Standard 2 Flute integral pilot cutter with M6 X 1.00 metric male threaded shank for use with all ZT330, ZT663 (-M6) series Microstop Cages.

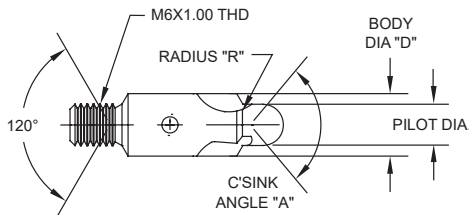
WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter
and Pilot Head Dia.
Example:

Angle Code	"A"	Body Dia. Code	"D"	Radius Code	"R"
A	60°	6	6MM	-	.40MM
B	78°	8	8MM	P	.50MM
C	82°	10	10MM	Q	.60MM
D	90°	12	12MM	R	.80MM
E	100°	14	14MM	S	.90MM
F	110°	17	17MM	T	1.00MM
G	115°			U	1.10MM
H	120°			V	1.20MM
I	130°			W	1.30MM
				X	1.40MM



Note:
Other pilot sizes are available upon request.

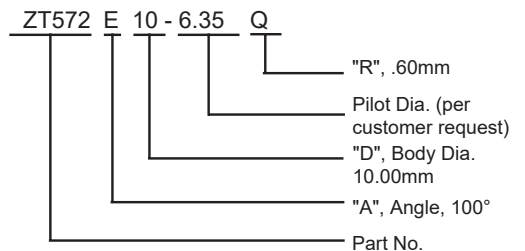
**ZT572 Series
3 Flute**



Standard 3 Flute Integral pilot cutter and Removable pilot with M6 X 1.00 metric male threaded shank for use with all ZT330, ZT663 (-M6) series Microstop Cages

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter
and Pilot Head Dia.
Example:

Angle Code	"A"	Body Dia. Code	"D"	Radius Code	"R"
A	60°	6	6MM	-	.40MM
B	78°	8	8MM	P	.50MM
C	82°	10	10MM	Q	.60MM
D	90°	12	12MM	R	.80MM
E	100°	14	14MM	S	.90MM
F	110°	17	17MM	T	1.00MM
G	115°			U	1.10MM
H	120°			V	1.20MM
I	130°			W	1.30MM
				X	1.40MM

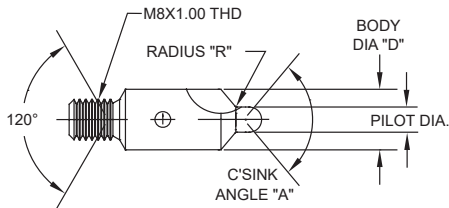


Note:
Other pilot sizes are available upon request.



**METRIC COUNTERSINK CUTTER
COBALT HIGH SPEED STEEL
INTEGRAL PILOT**

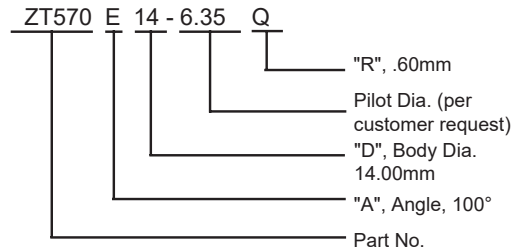
**ZT570 Series
2 Flute**



Standard 2 Flute integral pilot cutter with M8 X 1.00 metric male threaded shank for use with all ZT331(-M8) series Microstop Cages.

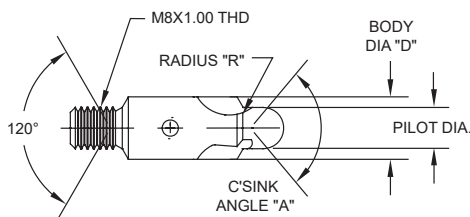
WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:

Angle Code	"A"	Body Dia. Code	"D"	Radius Code	"R"
A	60°	10	10MM	-	.40MM
B	78°	12	12MM	P	.50MM
C	82°	14	14MM	Q	.60MM
D	90°	17	17MM	R	.80MM
E	100°	21	21MM	S	.90MM
F	110°			T	1.00MM
G	115°			U	1.10MM
H	120°			V	1.20MM
I	130°			W	1.30MM
				X	1.40MM



Note:
Other pilot sizes are available upon request.

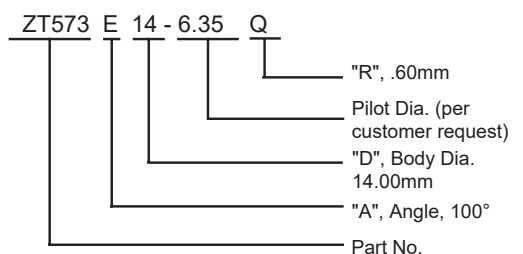
**ZT573 Series
3 Flute**



Standard 3 Flute Integral pilot cutter with M8 X 1.00 metric male threaded shank for use with all ZT331(-M8) series Microstop Cages

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:

Angle Code	"A"	Body Dia. Code	"D"	Radius Code	"R"
A	60°	10	10MM	-	.40MM
B	78°	12	12MM	P	.50MM
C	82°	14	14MM	Q	.60MM
D	90°	17	17MM	R	.80MM
E	100°	21	21MM	S	.90MM
F	110°			T	1.00MM
G	115°			U	1.10MM
H	120°			V	1.20MM
I	130°			W	1.30MM
				X	1.40MM

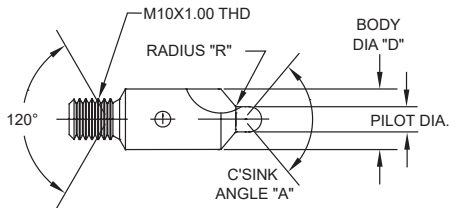


Note:
Other pilot sizes are available upon request.



**METRIC COUNTERSINK CUTTER
COBALT HIGH SPEED STEEL
INTEGRAL PILOT**

**ZT571 Series
2 Flute**



Standard 2 Flute integral pilot cutter with M10 X 1.00 metric male threaded shank for use with all ZT331(-M10) series Microstop Cages.

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.

Example:

Angle Code	"A"	Body Dia. Code	"D"	Radius Code	"R"
A	60°	17	17MM	-	.40MM
B	78°	21	21MM	P	.50MM
C	82°	22	22.20MM	Q	.60MM
D	90°	25	25.40MM	R	.80MM
E	100°	28	28.57MM	S	.90MM
F	110°			T	1.00MM
G	115°			U	1.10MM
H	120°			V	1.20MM
I	130°			W	1.30MM
				X	1.40MM

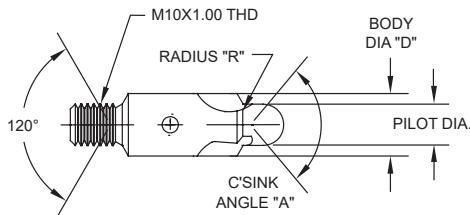
ZT571 E 22 - 11.11 Q

"R", .60mm
Pilot Dia. (per customer request)
"D", Body Dia. 22.20mm
"A", Angle, 100°
Part No.

Note:
Other pilot sizes are available upon request.

**ZT574 Series
3 Flute**

Standard 3 Flute Integral pilot cutter with M10 X 1.00 metric male threaded shank for use with all ZT331(-M10) series Microstop Cages



WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.

Example:

Angle Code	"A"	Body Dia. Code	"D"	Radius Code	"R"
A	60°	17	17MM	-	.40MM
B	78°	21	21MM	P	.50MM
C	82°	22	22.20MM	Q	.60MM
D	90°	25	25.40MM	R	.80MM
E	100°	28	28.57MM	S	.90MM
F	110°			T	1.00MM
G	115°			U	1.10MM
H	120°			V	1.20MM
I	130°			W	1.30MM
				X	1.40MM

ZT574 E 22 - 11.11 Q

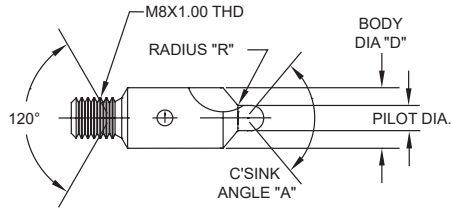
"R", .60mm
Pilot Dia. (per customer request)
"D", Body Dia. 22.22mm
"A", Angle, 100°
Part No.

Note:
Other pilot sizes are available upon request.



**METRIC COUNTERSINK CUTTER
COBALT HIGH SPEED STEEL
INTEGRAL PILOT**

**ZT575 Series
2 Flute**



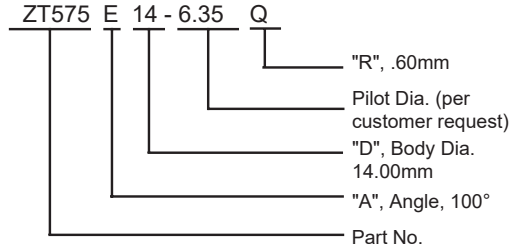
Standard 2 Flute integral pilot cutter with M8 X 1.00 metric male threaded shank for use with Recoules (-M8) series Microstop Cages.

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:

Angle Code	"A"
A	60°
B	78°
C	82°
D	90°
E	100°
F	110°
G	115°
H	120°
I	130°

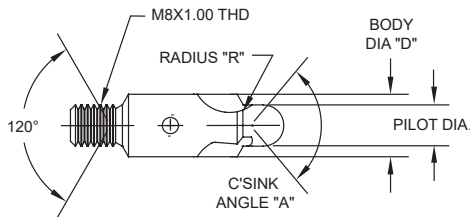
Body Dia. Code	"D"
10	10MM
12	12MM
14	14MM
17	17MM
21	21MM

Radius Code	"R"
-	.40MM
P	.50MM
Q	.60MM
R	.80MM
S	.90MM
T	1.00MM
U	1.10MM
V	1.20MM
W	1.30MM
X	1.40MM



Note:
Other pilot sizes are available upon request.

**ZT576 Series
3 Flute**



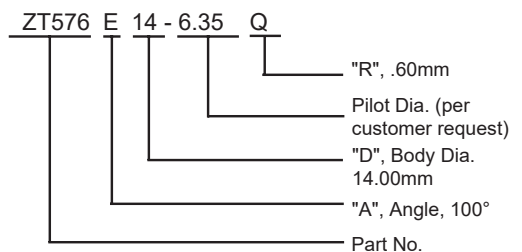
Standard 3 Flute Integral pilot cutter with M8 X 1.00 metric male threaded shank for use with Recoules (-M8) series Microstop Cages

WHEN ORDERING SPECIFY:
Part Number, Angle, Body Diameter and Pilot Head Dia.
Example:

Angle Code	"A"
A	60°
B	78°
C	82°
D	90°
E	100°
F	110°
G	115°
H	120°
I	130°

Body Dia. Code	"D"
10	10MM
12	12MM
14	14MM
17	17MM
21	21MM

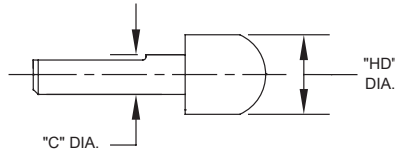
Radius Code	"R"
-	.40MM
P	.50MM
Q	.60MM
R	.80MM
S	.90MM
T	1.00MM
U	1.10MM
V	1.20MM
W	1.30MM
X	1.40MM



Note:
Other pilot sizes are available upon request.



ZT590 Series Standard Metric Pilots



"HD" DIA.	"C" DIA.	PART NUMBER	"HD" DIA.	"C" DIA.	PART NUMBER
2.00	2.00	ZT590-2.00-2.00	4.17	3.50	ZT590-3.50-4.17
2.38	2.00	ZT590-2.00-2.38	4.80	3.50	ZT590-3.50-4.80
2.40	2.00	ZT590-2.00-2.40	5.00	3.50	ZT590-3.50-5.00
2.50	2.00	ZT590-2.00-2.50	4.00	4.00	ZT590-4.00-4.00
2.80	2.00	ZT590-2.00-2.80	4.50	4.00	ZT590-4.00-4.50
3.00	2.00	ZT590-2.00-3.00	4.76	4.00	ZT590-4.00-4.76
3.17	2.00	ZT590-2.00-3.17	4.80	4.00	ZT590-4.00-4.80
3.50	2.00	ZT590-2.00-3.50	5.00	4.00	ZT590-4.00-5.00
4.00	2.00	ZT590-2.00-4.00	5.50	4.00	ZT590-4.00-5.50
2.50	2.50	ZT590-2.50-2.50	5.60	4.00	ZT590-4.00-5.60
2.80	2.50	ZT590-2.50-2.50	5.80	4.00	ZT590-4.00-5.80
3.00	2.50	ZT590-2.50-3.00	6.00	4.00	ZT590-4.00-6.00
3.17	2.50	ZT590-2.50-3.17	6.35	4.00	ZT590-4.00-6.35
3.50	2.50	ZT590-2.50-3.50	8.00	4.00	ZT590-4.00-8.00
3.80	2.50	ZT590-2.50-3.80	5.60	5.00	ZT590-5.00-5.60
4.00	2.50	ZT590-2.50-4.00	6.00	5.00	ZT590-5.00-6.00
4.17	2.50	ZT590-2.50-4.17	6.35	5.00	ZT590-5.00-5.35
4.80	2.50	ZT590-2.50-4.80	7.00	5.00	ZT590-5.00-7.00
5.00	2.50	ZT590-2.50-5.00	7.80	5.00	ZT590-5.00-7.80
3.00	3.00	ZT590-3.00-3.00	7.92	5.00	ZT590-5.00-7.92
3.17	3.00	ZT590-3.00-3.17	8.00	5.00	ZT590-5.00-8.00
3.20	3.00	ZT590-3.00-3.20	9.52	5.00	ZT590-5.00-9.52
3.50	3.00	ZT590-3.00-3.50	10.00	5.00	ZT590-5.0-10.00
3.80	3.00	ZT590-3.00-3.50	12.00	5.00	ZT590-5.0-12.00
4.00	3.00	ZT590-3.00-4.00	11.11	6.00	ZT590-6.0-11.11
5.00	3.00	ZT590-3.00-5.00	12.70	6.00	ZT590-6.0-12.70
6.00	3.00	ZT590-3.00-6.00	14.29	6.00	ZT590-6.0-14.29
3.80	3.50	ZT590-3.50-3.50	15.87	6.00	ZT590-6.0-15.87
4.00	3.50	ZT590-3.50-4.00			



TOOLS ENGINEERED TO PERFORM



ZEPHYR VS. RECOULES METRIC SWIVEL MICROSTOP CAGE

CROSS-REFERENCE

RECOULES	ZEPHYR	METRIC INTERNAL THREAD
RB257		
10015010	NOT AVAILABLE	M6 X 1.00
10015015	ZT666-SP-SI	M6 X 1.00
10015020	ZT666-SP-NI	M6 X 1.00
10015200	ZT666-ZN	M6 X 1.00
RB307		
10020010	NOT AVAILABLE	M8 X 1.00
10020015	ZT667-SP-SI	M8 X 1.00
10020020	ZT667-SP-NI	M8 X 1.00
10020105	NOT AVAILABLE	M8 X 1.00
10020110	ZT667-WP-SI	M8 X 1.00
10020115	ZT667-WP-NI	M8 X 1.00
10020200	ZT667-ZN	M8 X 1.00

ZEPHYR TOOL GROUP

201 Hindry Avenue
Inglewood, CA 90301

Tel. 310-410-4907 ■ Email: sales@zephyrtoolgroup.com ■ zephyrtoolgroup.com



TOOLS ENGINEERED TO PERFORM



ZEPHYR VS. RECOULES METRIC CUTTER

CROSS-REFERENCE

RECOULES PART NO.	ZEPHYR PART NO.	No.OF FLUTES	METRIC THREAD	CUTTER ANGLE
31205 000	ZT572D10-2.38	3	M6X1.00	90°
31205 005	ZT572D10-3.17	3	M6X1.00	90°
31205 010	ZT572D10-3.50	3	M6X1.00	90°
31205 015	ZT572D10-3.60	3	M6X1.00	90°
31205 020	ZT572D10-3.96	3	M6X1.00	90°
31205 025	ZT572D10-4.00	3	M6X1.00	90°
31205 030	ZT572D10-4.15	3	M6X1.00	90°
31205 035	ZT572D10-4.76	3	M6X1.00	90°
31205 040	ZT572D10-4.83	3	M6X1.00	90°
31205 045	ZT572D10-5.60	3	M6X1.00	90°
31206 000	ZT572E10-2.38	3	M6X1.00	100°
31206 005	ZT572E10-3.17	3	M6X1.00	100°
31206 010	ZT572E10-3.50	3	M6X1.00	100°
31206 015	ZT572E10-3.60	3	M6X1.00	100°
31206 020	ZT572E10-3.96	3	M6X1.00	100°
31206 025	ZT572E10-4.00	3	M6X1.00	100°
31206 030	ZT572E10-4.15	3	M6X1.00	100°
31206 035	ZT572E10-4.76	3	M6X1.00	100°
31206 040	ZT572E10-4.83	3	M6X1.00	100°
31206 045	ZT572E10-5.60	3	M6X1.00	100°
31207 000	ZT572H10-2.38	3	M6X1.00	120°
31207 005	ZT572H10-3.17	3	M6X1.00	120°
31207 010	ZT572H10-3.50	3	M6X1.00	120°
31207 015	ZT572H10-3.60	3	M6X1.00	120°
31207 020	ZT572H10-3.96	3	M6X1.00	120°
31207 025	ZT572H10-4.00	3	M6X1.00	120°
31207 030	ZT572H10-4.15	3	M6X1.00	120°
31207 035	ZT572H10-4.76	3	M6X1.00	120°
31207 040	ZT572H10-4.83	3	M6X1.00	120°
31207 045	ZT572H10-5.60	3	M6X1.00	120°

ZEPHYR TOOL GROUP

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TOOLS ENGINEERED TO PERFORM



ZEPHYR VS. RECOULES METRIC REMOVABLE PILOT CUTTER

CROSS-REFERENCE

RECOULES PART NO.	ZEPHYR PART NO.	No.OF FLUTES	METRIC THREAD	CUTTER ANGLE
30200 005	ZT564D10-2.00	2	M6X1.00	90°
30200 010	ZT564D10-2.38	2	M6X1.00	90°
30200 015	ZT564D10-2.50	2	M6X1.00	90°
30200 110	ZT564D10-2.80	2	M6X1.00	90°
30200 115	ZT564D10-3.00	2	M6X1.00	90°
30200 120	ZT564D10-3.17	2	M6X1.00	90°
30200 215	ZT564D10-3.50	2	M6X1.00	90°
30200 310	ZT564D10-4.00	2	M6X1.00	90°
30200 315	ZT564D10-4.17	2	M6X1.00	90°
30220 005	ZT564E10-2.00	2	M6X1.00	100°
30220 010	ZT564E10-2.38	2	M6X1.00	100°
30220 015	ZT564E10-2.50	2	M6X1.00	100°
30220 110	ZT564E10-2.80	2	M6X1.00	100°
30220 115	ZT564E10-3.00	2	M6X1.00	100°
30220 120	ZT564E10-3.17	2	M6X1.00	100°
30220 215	ZT564E10-3.50	2	M6X1.00	100°
30220 310	ZT564E10-4.00	2	M6X1.00	100°
30220 315	ZT564E10-4.17	2	M6X1.00	100°
30240 005	ZT564H10-2.00	2	M6X1.00	120°
30240 010	ZT564H10-2.38	2	M6X1.00	120°
30240 015	ZT564H10-2.50	2	M6X1.00	120°
30240 110	ZT564H10-2.80	2	M6X1.00	120°
30240 115	ZT564H10-3.00	2	M6X1.00	120°
30240 120	ZT564H10-3.17	2	M6X1.00	120°
30240 215	ZT564H10-3.50	2	M6X1.00	120°
30240 310	ZT564H10-4.00	2	M6X1.00	120°
30240 315	ZT564H10-4.17	2	M6X1.00	120°

ZEPHYR TOOL GROUP

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TOOLS ENGINEERED TO PERFORM



ZEPHYR VS. RECOULES METRIC CUTTER

CROSS-REFERENCE

RECOULES PART NO.	ZEPHYR PART NO.	No.OF FLUTES	METRIC THREAD	CUTTER ANGLE
31205 400	ZT574D22-11.11	3	M10X1.00	90°
31205 410	ZT574D25-11.11	3	M10X1.00	90°
31205 430	ZT574D28-12.70	3	M10X1.00	90°
31205 440	ZT574D31-12.70	3	M10X1.00	90°
31205 450	ZT574D30-14.00	3	M10X1.00	90°
31205 460	ZT574D34-14.92	3	M10X1.00	90°
31205 470	ZT574D38-15.87	3	M10X1.00	90°
31206 400	ZT574E22-11.11	3	M10X1.00	100°
31206 410	ZT574E25-11.11	3	M10X1.00	100°
31206 430	ZT574E28-12.70	3	M10X1.00	100°
31206 440	ZT574E31-12.70	3	M10X1.00	100°
31206 450	ZT574E30-14.00	3	M10X1.00	100°
31206 460	ZT574E34-14.92	3	M10X1.00	100°
31206 470	ZT574E38-15.87	3	M10X1.00	100°
31207 400	ZT574H22-11.11	3	M10X1.00	120°
31207 410	ZT574H25-11.11	3	M10X1.00	120°
31207 430	ZT574H28-12.70	3	M10X1.00	120°
31207 440	ZT574H31-12.70	3	M10X1.00	120°
31207 450	ZT574H30-14.00	3	M10X1.00	120°
31207 460	ZT574H34-14.92	3	M10X1.00	120°
31207 470	ZT574H38-15.87	3	M10X1.00	120°

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TOOLS ENGINEERED TO PERFORM



ZEPHYR VS. RECOULES METRIC CUTTER

CROSS-REFERENCE

RECOULES PART NO.	ZEPHYR PART NO.	No.OF FLUTES	METRIC THREAD	CUTTER ANGLE
31205 100	ZT576D14-4.76	3	M8X1.00	90°
31205 105	ZT576D14-5.00	3	M8X1.00	90°
31205 110	ZT576D14-5.60	3	M8X1.00	90°
31205 120	ZT576D14-6.00	3	M8X1.00	90°
31205 125	ZT576D14-6.35	3	M8X1.00	90°
31205 200	ZT576D17-8.00	3	M8X1.00	90°
31205 300	ZT576D21-9.50	3	M8X1.00	90°
31205 305	ZTS76D21-10.00	3	M8X1.00	90°
31206 100	ZT576E14-4.76	3	M8X1.00	100°
31206 105	ZT576E14-5.00	3	M8X1.00	100°
31206 110	ZT576E14-5.60	3	M8X1.00	100°
31206 120	ZT576E 14-6.00	3	M8X1.00	100°
31206 125	ZT576E14-6.35	3	M8X1.00	100°
31206 200	ZTS76E17-8.00	3	M8X1.00	100°
31206 300	ZTS76E21 -9.50	3	M8X1.00	100°
31206 305	ZT576E21- 10.00	3	M8X1.00	100°
31207 100	ZT576H14-4.76	3	M8X1.00	120°
31207 105	ZT576H14-5.00	3	M8X1.00	120°
31207 110	ZT576H14-5.60	3	M8X1.00	120°
31207 120	ZT576H14-6.00	3	M8X1.00	120°
31207 125	ZT576H14-6.35	3	M8X1.00	120°
31207 200	ZT576H17-8.00	3	M8X1.00	120°
31207 300	ZT576H21-9.50	3	M8X1.00	120°
31207 305	ZT576H21-10.00	3	M8X1.00	120°

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TOOLS ENGINEERED TO PERFORM



ZEPHYR VS. RECOULES METRIC REMOVABLE PILOT CUTTER

CROSS-REFERENCE

RECOULES PART NO.	ZEPHYR PART NO.	RECOULES PART NO.	ZEPHYR PART NO.
31100 000	ZT590-2.00-2.00	31100 215	ZT590-3.00-3.80
31100 005	ZT590-2.00-2.38	31100 220	ZT590-3.00-4.00
31100 006	ZT590-2.00-2.40	31100 225	ZT590-3.00-5.00
31100 010	ZT590-2.00-2.50	31100 230	ZT590-3.00-6.00
31100 015	ZT590-2.00-2.80	31100 305	ZT590-3.50-3.80
31100 020	ZT590-2.00-3.00	31100 300	ZT590-3.50-4.00
31100 025	ZT590-2.00-3.17	31100 310	ZT590-3.50-4.17
31100 030	ZT590-2.00-3.50	31100 315	ZT590-3.50-4.80
31100 035	ZT590-2.00-4.00	31100 320	ZT590-3.50-5.00
31100 100	ZT590-2.50-2.50	31100 400	ZT590-4.00-4.00
31100 10S	ZTS90-2.50-2.80	31100 405	ZT590-4.00-4.50
31100 110	ZT590-2.50-3.00	31100 410	ZT590-4.00-4.76
31100 115	ZT590-2.50-3.17	31100 415	ZT590-4.00-4.50
31100 120	ZT590-2.50-3.50	31100 420	ZT590-4.00-5.00
31100 125	ZT590-2.50-3.80	31100 425	ZT590-4.00-5.50
31100 130	ZT590-2.50-4.00	31100 430	ZT590-4.00-5.60
31100 131	ZT590-2.50-4.17	31100 435	ZT590-4.00-5.80
31100 133	ZT590-2.50-4.80	31100 440	ZT590-4.00-5.00
31100 135	ZT590-2.50-5.00	31100 445	ZT590-4.00-6.35
31100 200	ZTS90-3.00-3.00	31100 455	ZT590-4.00-5.00
31100 205	ZT590-3.00-3.17	31100 505	ZT590-5.00-5.60
31100 206	ZT590-3.00-3.20	31100 510	ZT590-5.00-6.00
31100 210	ZT590-3.00-3.50	31100 515	ZT590-5.00-6.35
31100 520	ZT590-5.00-7.00	31100 525	ZT590-5.00-7.80
31100 530	ZT590-5.00-7.92	31100 535	ZT590-5.00-8.00
31100 540	ZT590-5.00-9.52	31100 545	ZT590-5.00-10.00
31100 550	ZT590-5.00-12.00	31100 600	ZT590-5.00-11.11
31100 605	ZT590-6.00-12.70	31100 610	ZT590-5.00-14.29
31100 615	ZT590-6.00-15.87		

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