

**HIGH SPEED STEEL  
NC SPOTTING DRILLS  
90° AND 120° POINT ANGLES / RIGHT HAND CUT  
SERIES 45:**



Body Dia.	Overall Lgth	Flute Lgth	90°	120°	Price
1/4	2-1/2	3/4	1650912	1651212	
	4		1650914	1651214	
	6		1650916	1651216	
3/8	3-1/8	1-1/8	1650933	1651233	
	5		1650935	1651235	
	7		1650937	1651237	
1/2	3-3/4	1-3/8	1650943	1651243	
	6		1650946	1651246	
	8		1650948	1651248	
5/8	4-3/8	1-5/8	1650954	1651254	
	7		1650957	1651257	
	9		1650959	1651259	
3/4	5	1-7/8	1650965	1651265	
	8		1650968	1651268	
	10		1650969	1651269	
1	6	2-1/4	1650996	1651296	
	8		1650998	1651298	
	10		1650999	1651299	

**HIGH SPEED STEEL  
NC SPOTTING DRILLS  
SERIES 836:**



KEO NC Spotting drills are designed with a narrow chisel edge for quick starting and a constant web to allow for resharpening without the need for web thinning.

Body Dia.	Flute Length	Overall Length	Order No. 90°	Order No. 120°	Price
1/4	3/4	2-1/2	932140	33140	
1/4	3/4	4	932142	33142	
1/4	3/4	6	932144	33144	
3/8	1-1/8	3-1/8	32380	33380	
3/8	1-1/8	5	32382	33382	
3/8	1-1/8	7	32384	33384	
1/2	1-3/8	3-3/4	932120	933120	
1/2	1-3/8	6	932122	933122	
1/2	1-3/8	8	932124	933124	
5/8	1-5/8	4-3/8	32580	33580	
5/8	1-5/8	7	32582	33582	
5/8	1-5/8	9	32584	33584	
3/4	1-7/8	5	32340	33340	
3/4	1-7/8	8	32342	33342	
3/4	1-7/8	10	32344	33344	
1	2-1/4	6	932100	933100	
1	2-1/4	8	932102	933102	
1	2-1/4	10	932104	933104	

**STEP DRILLS AND  
CARBIDE HOLE CUTTERS  
SERIES 962:**



- **Easy-to-Sharpen Non Skid Tip** -Eliminates skidding and the need for center punching; the tip gives sure starts even on curved surfaces.
- **Single-Fluted Cutting Edge** -Helps assure true round holes and allows greater control
- **Multiple Steps** - As many as 13 different hole sizes in a single bit eliminates the need to maintain a toolbox full of specific size drill bits
- **Hardened Steel For Long Life** - Constructed of industrial grade high speed molybdenum steel and heat treated to assure maximum durability
- **3 Flatted Shank** - Prevents slipping in drill chuck

Model No.	No. of Holes	Hole Sizes	Steps	Shank Size	Max. Mat. Thick.	Order No	Price	
<b>Fractional, Self - Starting - Multiple Hole Sizes</b>								
1	13	1/8" - 1/2"	1/32"	1/4"	1/8"	6210231		
2	6	3/16" - 1/2"	1/16"	1/4"	3/8"	6210232		
3	9	1/4" - 3/4"	1/16"	3/8"	1/8"	6210233		
4	12	3/16" - 7/8"	1/16"	3/8"	1/8"	6210234		
5	10	1/4" - 1-3/8"	1/8"	1/2"	1/8"	6210235		
9	2	7/8" - 1-1/8"	-	1/2"	1/8"	6210239		
<b>Fract., Self - Starting - Gold (TIN) Coated - Multiple hole sizes</b>								
1T	13	1/8" - 1/2"	1/32"	1/4"	1/8"	6215101		
2T	6	3/16" - 1/2"	1/16"	1/4"	3/8"	6215102		
3T	9	1/4" - 3/4"	1/16"	3/8"	1/8"	6215103		
4T	12	3/16" - 7/8"	1/16"	3/8"	1/8"	6215104		
<b>Fractional, Hole Enlarging - Multiple Hole Sizes</b>								
20	8	9/16" - 1"	1/16"	1/2"	1/8"	6210220		
21	10	13/16" - 1-3/8"	1/16"	1/2"	1/8"	6210221		
<b>Metric, Self-Starting - Multiple hole Sizes</b>								
1M	9	4mm - 12mm	1mm	6.5mm	5mm	6211101		
2M	5	4mm - 12mm	2mm	6.5mm	11mm	6211102		
3M	7	6mm - 18mm	2mm	10mm	5mm	6211103		
4M	10	4mm - 22mm	2mm	10mm	5mm	6211104		
5M	13	5mm - 35mm	2-3mm	13mm	3.5mm	6211105		
<b>Metric, Self-Starting - Gold (TIN) Coated Multiple Hole Sizes</b>								
1MT	9	4mm - 12mm	1mm	6.5mm	5mm	6216101		
2MT	5	4mm - 12mm	2mm	6.5mm	11mm	6216102		
3MT	7	6mm - 18mm	2mm	10mm	5mm	6216103		
4MT	10	4mm - 22mm	2mm	10mm	5mm	6216104		
5MT	13	5mm - 35mm	2-3mm	13mm	3.5mm	6216105		
<b>Metric, Hole - Enlarging</b>								
20mm	6	14mm - 24mm	2mm	13mm	5mm	6211580		
21mm	8	20mm - 34mm	2mm	13mm	5mm	6211581		

**FRACTIONAL, SELF - STARTING  
MULTIPLE HOLE SIZES - SETS**



#10225

Style No.	Description	Contents	Order No.	Price
502	3 Pc HSS Set	1, 2 and 3	6210502	
502T	3 Pc TIN Set with Pouch	1T, 2T and 3T	6215502	
225	4 Pc General Purpose Set	1, 2, 4, and 21	6210225	

# CHAM-BIT

**SERIES 189:**

**VARIABLE POSITIONING CHAMFER TOOL**

**Drills, deburrs and chamfers *in one operation!***



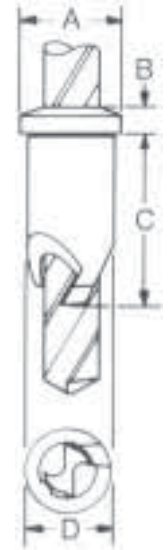
Drills not included.

Many other sizes available; please inquire.

- Converts any twist drill to a step drill and chamfering tool for countersinking and burr removal.
- Stocked for all standard drill sizes. Economical alternative to custom multi-diameter drills.
- Unlike a multi-diameter drill, the Cham-Bit can be disassembled from the drill and resharpened over and over on a radial-relief grinding fixture.
- Rugged collar and cutter lock to the drill shank with three set-screws and interlock for even greater strength.
- Optional Stop-Bit back-up spacers provide positive metal-to-metal contact for precise positioning and strength.
- Added stiffness of the combination tool reduces chatter and assures concentricity.
- Stocked with standard 90° included angle. 82°, 100° and 120° also available on special order.
- All standard fractional, wire gauge, letter series, and standard metric sizes available; please inquire.

## CHAM-BIT - INCH

Size	Dim A (In)	Dim B (In)	Dim C (In)	Dim D (In)
.1250-.1800	7/16	1/4	5/8	5/16
.1820-.2280	1/2	1/4	3/4	3/8
.2350-.3020	5/8	1/4	1	1/2
.3120-.4370	3/4	5/16	1-1/4	5/8
.4531-.6090	15/16	5/16	1-1/2	13/16
.6250-.7340	1-1/8	3/8	1-5/8	1
.7500-.8590	1-5/16	7/16	1-3/4	1-3/16
.7850-1.000	1-7/16	1/2	2	1-5/16



## CHAM-BIT - METRIC

Size	Dim A (In)	Dim B (In)	Dim C (In)	Dim D (In)
M3-M4.5	7/16	1/4	5/8	5/16
M4.6-M5.9	1/2	1/4	3/4	3/8
M6-M7.6	5/8	1/4	1	1/2
M7.7-M11	3/4	5/16	1-1/4	5/8
M11.2-M15.0	15/16	5/16	1-1/2	13/16
M15.25-M18.75	1-1/8	3/8	1-5/8	1
M19.0-M22.0	1-5/16	7/16	1-3/4	1-3/16
M22.5-M25.5	1-7/16	1/2	2	1-5/16

## CHAM-BIT - METRIC

Size	Order No.	Price	Size	Order No.	Price
3.0	1890300		8.0	1890800	
3.5	1890350		8.5	1890850	
4.0	1890400		9.0	1890900	
4.5	1890450		9.5	1890950	
5.0	1890500		10.0	1891000	
5.5	1890550		10.5	1891050	
6.0	1890600		11.0	1891100	
6.5	1890650		11.5	1891150	
7.0	1890700		12.0	1891200	
7.5	1890750		12.5	1891255	
			13.0	1891300	

## CHAM-BIT - INCH

Size	Order No.	Price	Size	Order No.	Price
1/8	1891250		21/64	1893280	
9/64	1891406		11/32	1893430	
5/32	1891560		23/64	1893590	
11/64	1891710		3/8	1893750	
3/16	1891870		25/64	1893900	
13/64	1892030		13/32	1894060	
7/32	1892180		27/64	1894210	
15/64	1892350		7/16	1894370	
1/4	1892490		29/64	1894530	
17/64	1892650		15/32	1894680	
9/32	1892812		31/64	1894840	
19/64	1892960		1/2	1895020	
5/16	1893120				

# COUNTER-BIT

**SERIES 189:**

**UNIQUE CONICAL-PILOT COUNTERSINK**



- Conical pilot seeks and finds the center of the previously-drilled hole.
- Live rubber spring prevents cutting until the pilot is seated and pressure is applied to the workpiece.
- Cutter extends under pressure for chatter-free chamfering and absolutely concentric cuts.
- Particularly recommended for use on drill presses and turret lathes, where one tool will handle most chamfering jobs.
- Replaceable high speed steel blades.
- Also available:  
Models for holes up to 4-1/2"  
Taper shank models  
120° included angle  
Model blades  
Tungsten carbide



## COUNTER-BIT DIMENSIONS (IN)

Model	L	L-1	L-2	L-3	D	D-1	S	B
100S	4-15/16	1-3/8	3-1/8	1-23/32	1-1/8	1/4	1/2	1/8
150S	4-7/8	1-7/16	3-1/4	1-5/8	1-1/2	5/16	1/2	3/16
200S	6-7/8	2	4-3/8	2-1/2	2-1/2	3/4	3/4	1/4



COUNTER-BIT

Model	Shank Size	Capacity	Degree	Order No.	Price
100S	1/2	1/4-1-1/8	60	1891060	
	1/2	1/4-1-1/8	82	1891082	
	1/2	1/4-1-1/8	90	1891090	
150S	1/2	5/16-1-1/2	60	1891561	
	1/2	5/16-1-1/2	82	1891582	
	1/2	5/16-1-1/2	90	1891590	
200S	3/4	3/4-2-1/2	60	1892060	
	3/4	3/4-2-1/2	82	1892082	
	3/4	3/4-2-1/2	90	1892090	

Wire gage, letter and many other metric sizes available; please inquire.

**HIGH SPEED STEEL  
ANNULAR CUTTERS**

**SERIES 859:**



CUTTING TOOLS - DRILLS

Inch Sizes	1" Depth		2" Depth		3" Depth	
	Order No.	Price	Order No.	Price	Order No.	Price
7/16	5530110		5530210		-	
1/2	5530111		5530211		-	
9/16	5530113		5530213		-	
5/8	5530116		5530216		-	
11/16	5530119		5530219		-	
3/4	5530121		5530221		-	
13/16	5530124		5530224		5530324	
7/8	5530127		5530227		5530327	
15/16	5530130		5530230		5530330	
1	5530133		5530233		5530333	
1-1/16	5530136		5530236		5530336	
1-1/8	5530139		5530239		5530339	
1-3/16	5530142		5530242		5530342	
1-1/4	5530145		5530245		5530345	
1-5/16	5530148		5530248		5530348	
1-3/8	5530151		5530251		5530351	
1-7/16	5530154		5530254		5530354	
1-1/2	5530157		5530257		5530357	
1-9/16	5530160		5530260		5530360	
1-5/8	5530163		5530263		5530363	
1-11/16	5530166		5530266		5530366	
1-3/4	5530169		5530269		5530369	
1-13/16	5530172		5530272		5530372	
1-7/8	5530175		5530275		5530375	
1-15/16	5530178		5530278		5530378	
2	5530181		5530281		5530381	
2-1/16	5530183		5530283		-	
Set of 5 pcs. includes: 9/16, 11/16, 13/16, 15/16, 1-1/16	5530501		5530502			

- Eliminate multi-step drilling.
- Lower cost per hole.
- Better finishing.
- More accurate, cleaner holes.
- Longer tool life.
- 3/4" shank diameter with two flats for both inch and metric cutters.
- Cutters are interchangeable with other standard hole cutting systems.



Metric Sizes	1" Depth		2" Depth	
	Order No.	Price	2" Depth	Price
14mm	5531114		5531214	
16mm	5531116		5531216	
18mm	5531118		5531218	
20mm	5531120		5531220	
22mm	5531122		5531222	
24mm	5531124		5531224	
25mm	5531125		5531225	
26mm	5531126		5531226	
28mm	5531128		5531228	
30mm	5531130		5531230	
32mm	5531132		5531232	

Accessories	Order No.	Price
Ejector - Pilot, Short 1/4 x 3	5530905	
Ejector - Pilot, Long 1/4 x 4	5530915	
Ejector - Pilot, X- Long 1/4 x 5	5530925	

**HIGH SPEED STEEL  
ANNULAR CUTTERS - ARMOR-PLATED**

• EUROPEAN MADE •

**SERIES 717:**

Inch Sizes	1" Depth		2" Depth	
	Order No.	Price	Order No.	Price
7/16	7170281		7170282	
1/2	7170321		7170322	
9/16	7170361		7170362	
5/8	7170401		7170402	
11/16	7170441		7170442	
3/4	7170481		7170482	
13/16	7170521		7170522	
7/8	7170561		7170562	
15/16	7170601		7170602	
1	7170641		7170642	
1-1/16	7170681		7170682	
1-1/8	7170721		7170722	
1-3/16	7170761		7170762	
1-1/4	7170801		7170802	
1-5/16	7170841		7170842	
1-3/8	7170881		7170882	
1-7/16	7170921		7170922	
1-1/2	7170961		7170962	
1-9/16	7171361		7171362	
1-5/8	7171401		7171402	
1-11/16	7171441		7171442	
1-3/4	7171481		7171482	
1-13/16	7171521		7171522	
1-7/8	7171561		7171562	
1-15/16	7171601		7171602	
2	7172001		7172002	
2-1/16	7172041		7172042	

**Advantage:**

- 3 to 4 times longer tool life before resharpening
- Drill with less friction and more power
- Withstands higher working temperatures - up to 1480°F (800°C)
- Dry drilling or lubricating with water simplifies working conditions and cleanup
- Prevents cold weld - metal chips do not adhere to the cutter
- Ideal for structural steel and hard metal
- 3/4" dia. shank (1-1/4" dia. shank available)



Inch Sizes	1" Depth		2" Depth	
	Order No.	Price	Order No.	Price
Set of 5 pcs. Includes: 9/16, 11/16, 13/16, 15/16, 1-1/16	9170015		9170025	

**Sets Include:**

(1) each 9/16, 11/16 13/16, 15/16, 1-1/16 cutters, pilot pin and carrying case.

Accessories	Order No.	Price
Ejector - Pilot, For 1" Cutters	1773102	
Ejector - Pilot, For 2" Cutters	1773202	

**Also available:**  
Tungsten carbide tipped cutters-  
Cost effective for drilling steel with rust and special applications.

**HIGH SPEED STEEL  
ANNULAR CUTTER HOLDERS  
SERIES 859:  
WITH STRAIGHT, R8 OR MT SHANK**



**Cost efficient by design**  
Holder shanks allow different machines to drive cutters.

Easily reaches out of the way places.

Selected adapter lengths reduce the number of machine set ups.

	Type	Shank Size	Cutter Shank Size	Gage Lgth	Order No.	Price
Straight Shank - 3 Flats	HEN-1	1/2"	3/4"	2-1/8"	<b>7980100</b>	
	HEN-2	3/4"	3/4"	2"	<b>7980200</b>	
	HEN-2-6	3/4"	3/4"	6"	<b>7980206</b>	
	HEN-2-12	3/4"	3/4"	12"	<b>7980212</b>	
	HEN-6	3/4"	1-1/4"	3-1/8"	<b>7980600</b>	
	HEN-6-6	3/4"	1-1/4"	6"	<b>7980606</b>	
Straight Shank - 2 Flats	HEN-6-12	3/4"	1-1/4"	12"	<b>7980612</b>	
	HEN-9-6	3/4"	3/4"	6"	<b>7983906</b>	
	HEN-9-12	3/4"	3/4"	12"	<b>7983912</b>	
Morse Taper Shank	HEN-3	MT2	3/4"	2"	<b>7981300</b>	
	HEN-3-6	MT2	3/4"	6"	<b>7981306</b>	
	HEN-3-12	MT2	3/4"	12"	<b>7981312</b>	
	HEN-4	MT3	3/4"	2"	<b>7981400</b>	
	HEN-4-6	MT3	3/4"	6"	<b>7981406</b>	
	HEN-4-12	MT3	3/4"	12"	<b>7981412</b>	
	HEN-8	MT3	1-1/4"	2-3/4"	<b>7981800</b>	
	HEN-8-6	MT3	1-1/4"	6"	<b>7981806</b>	
	HEN-8-12	MT3	1-1/4"	12"	<b>7981812</b>	
R8 Shank	HEN-5	R8	3/4"	1-3/4"	<b>7982500</b>	
	HEN-5-6	R8	3/4"	6"	<b>7982506</b>	
	HEN-5-12	R8	3/4"	12"	<b>7982512</b>	
	HEN-7	R8	1-1/4"	2-3/4"	<b>7982700</b>	
	HEN-7-6	R8	1-1/4"	6"	<b>7982706</b>	
	HEN-7-12	R8	1-1/4"	12"	<b>7982712</b>	

**PORTABLE MAGNETIC DRILLS**

**SERIES 508:**

**FAST, COMPACT, DRILLING AND TAPPING.**



**MODEL ECO-32 OR ECO-32T (WITH REVERSE FOR TAPPING)**

- A compact height of 14-1/4" allows drilling in tight spaces.
- The lightest mag. drills in their class, weighing only 24 lbs.
- Stronger motors: 8.2 Amp (Model ECO.32) or 9.5 Amp (Model ECO .32T).
- New dual coil magnet has a holding strength of 2,640 lbs.



ECO.32 and ECO.32-T combine the smallest height in a magnetic drill with the greatest power. For tapping applications use ECO.32-T with a reversible motor. Drill up to 1-1/4" diameter holes with annular cutters or easily convert to a standard drill press with a 1/2" chuck for conventional twist drills.

**Standard Equipment**

- Carrying Case
- Hex Keys
- Safety chain & hook

**Model No. ECO-32**

**Order No.: 5080320**

**Price:**

**Model No. ECO-32T**

**Order No.: 5080325**

**Price:**

**MODEL ECO-80AK  
HIGH TORQUE MOTOR WITH CUTTER CAPACITY TO 3-3/16" DIA.**

- Powerful, high torque 15 Amp motor.
- 4-speed gearbox (100/175/245/385 RPM)
- Mechanical slip clutch disconnects the transmission in case of overload.
- Cutting capacity up to 3-3/16" dia.
- Solid Twist drill capacity up to 1-1/4" dia.
- Automatic cooling/lubrication system.
- New dual coil magnet has a pulling power of 7,040 lbs.
- High quality safety relay circuit.
- Reset safety in case of power failure.



The ideal machine for a wide range of hole sizes. Multiple speeds allow the operator to match the cutter diameter to the correct RPM. This increases tool life and helps to prevent cutter breakage. Drills up to 3-3/16" diameter holes with annular cutters or easily converts to a standard drill press with a 5/8" chuck or MT for twist drills.

**Standard Equipment**

- Internal Oiler & Oil Bottle Assembly
- Carrying Case
- Hex Keys
- Safety Chain & Hook

**Order No.: 5080800** **Price:**



**ECO-32**

Technical Specifications	ECO.32	ECO.32-T	ECO-80AK
<b>HEIGHT:</b>	14-1/4"	14-1/4"	19-1/2"
<b>WIDTH:</b>	4-3/8"	4-3/8"	7-3/8"
<b>LENGTH:</b>	9-1/2"	9-1/2"	13-3/8"
<b>MAGNET BASE:</b>	6-5/16" X 3-1/4"	6-5/16" X 3-1/4"	9-1/4" X 4-1/2"
<b>MOTOR (110V):</b>	8.2 AMP	9.5 AMP	15 AMP /110V (available in 220V)
<b>ARBOR SIZE:</b>	3/4"	3/4"	3/4"
<b>HOLE CAPACITY:</b>	1-1/4" DIAMETER	1-1/4" DIAMETER	3-3/16" DIAMETER
<b>TWIST DRILL CAPACITY:</b>	1/2" DIAMETER	1/2" DIAMETER	1-1/4" DIAMETER (MT3)
<b>TAPPING CAPACITY:</b>	-----	1/4" - 3/4"	-----
<b>NO LOAD SPEED:</b>	600RPM	100 - 450RPM	100/175/245/385 RPM
<b>MAGNET FORCE (1" PLATE):</b>	2,640 LBS	2,640 LBS	7,040 LBS
<b>WEIGHT:</b>	24 LBS	24 LBS	57 LBS



**ECO-80AK**