



Magnetic Drills
Page 4



Rotabroach® Cutters
Page 12

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Electro-Hydraulic
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Page 22

PORTABLE MAGNETIC DRILLS, HOLE PUNCHERS, ACCESSORIES, AND FABRICATION TOOLS


Hougen®
Solving holemaking problems through innovation™

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SERVICE • INTEGRITY • RELIABILITY

Hougen® Portable Magnetic Drills put superior hole making capabilities in your hands whether you are working on site or in the shop. They're tough, rugged, and dependable. Designed for today's harsh fabrication environments and high production jobs. Hougen's dependability is something you just don't have to think about.

You can choose from a variety of models starting with an ultra small model that fits in tight quarters and drills up to 1-1/16" dia. or a model that has the power to produce 3-1/16" dia. holes thru 3" thick material.

Typical industry applications include:

- Steel Fabrication & Welding Shops
- Mining & Construction
- Bridge Rebuilding
- Ship Building
- Truck, RV & Special Vehicle Build
- Pipeline, Offshore & Oil Fields
- Power Utilities
- Maintenance Facilities
- Mobile Repair Shops
- Machinery Riggers
- HVAC

Hougen's products are performance driven for people who demand the best.



Made in U.S.A.



Integrated Safety Features

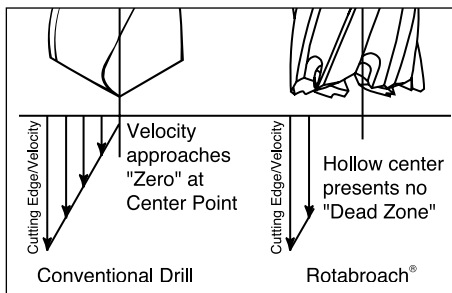
Hougen® safety features are standard equipment on all Hougen® magnetic drills:

- Each drill is packed with a safety chain or strap.
- A two-stage circuit requires the magnet to be turned on prior to starting the motor - which prevents accidental motor starts.
- And most models now feature an integrated safety LED indicator that tells the operator when a lift detector, mounted in the base of the magnet, is engaged. When the LED is green, all systems are functioning properly and the operator may proceed. When the LED is red, it is warning the operator that the lift detector is not engaged. If the drill is in a position that prevents the lift detector from engaging, the operator may still choose to proceed, because the motor switch becomes a momentary switch, requiring the operator to hold it until the operation is complete.



Rotabroach® Annular Cutters

A Rotabroach® can multiply your cutting speed by up to 3 times from traditional tooling. And you get longer tool life, a more accurate hole, a better finish, with no burrs. Rotabroach® cutters maximize feed rates because up to 10 cutting edges distribute the cutting load evenly. Rotabroach®



cutters convert a smaller area to chips, requiring less horsepower and thrust. The Hougen-Edge® feature is a patented tooth geometry that provides long tool life and extended resharpenability. The slug also offers a higher scrap value than loose chips.



Stack-Cut Geometry

Rotabroach® Annular Cutters with a Stack-Cut tooth geometry must be used whenever two or more plates are being drilled simultaneously - often in a single pass.

It should be noted that these modified cutters must be used when stack cutting. Non-modified Cutters cannot successfully cut through stacked material.

Stack-Cut* and Flat Bottom Grooving tooth Geometry is available on the following Series of Cutters:

- "12,000-Series"
- "42/43,000-Series"
- "22/23,000-Series"
- RotaLoc Plus™

Hougen's Technical Service Department should be contacted whenever special tooth geometry and applications will be necessary.

NOTE: Stack-Cut geometry is a standard feature of RotaLoc™ Cutters.

**MAGNETIC DRILL KITS
FOR HMD904 & HMD914**
(Page 5 & 6)



**SWIVEL BASE
HMD904S**
(Page 5)



CARBIDE HOLCUTTER™
(Page 20)



**CARBIDE
COUNTERSINK KIT**
(Page 8)



**ROTALOC™ & ROTALOC
PLUS™ CUTTER KITS**
(Page 16)



INDEX

Magnetic Drills		"42/43,000-Series" Cutters	17
HMD115/HMD150	4	Lubricant	17
HMD904	5	RotaCut™ Sheet Metal Cutters	18
HMD925/HMD914	6	Extend Reach Cutters	19
HMD505/HMD915	7	Holcutter™ Sheet Metal Cutters	20
Magnetic Drill Accessories	8-9	Paint Shaker/P.O.P.	21
Magnetic Drill Comparison Chart	10	Electro-Hydraulic Hole Punchers	
Cutter Comparison Chart	11	75002.5A	22
"12,000-Series" Rotabroach® Cutters	12	75003A	23
"12,000-Series" Kits/Pilots/Extended	13	75004A	23
Rotabroach® TiN Cutters	14	75005	24
Sharpening Machine	14	75006	24
Copperhead™ Carbide Cutters	15	Punches and Dies	25-29
Arbors for Machine Tools	15	Other Helpful Information	30
RotaLoc™ & RotaLoc Plus™ Cutters	16	Warranty Service Centers	31

HOUGEN® PORTABLE MAGNETIC DRILLS

HMD115



The HMD115 is an ultra-low profile, lightweight drill with a patented quill feed arbor. At only 21.3 lbs the HMD115 can be tucked behind the wheel for drilling on a truck frame or carried high up a ladder for maintenance work. It uses Hougén RotaLoc™ Annular Cutters with shanks that require no tools for mounting. The feed handles may be operated from either side of the drill, and with the handles removed, the exposed hex head on the feed gear allows for use of a socket wrench for ratcheting the feed in extremely confined spaces. The feed handles also lock, doubling as carrying handles. For safety, the motor switch must be continuously pressed during operation and the motor will not run without the magnet switch “on”.

Rear mounted controls optimize ergonomics. Equipped with positive slug ejection. Carrying case included. HMD111 is 230V model.



HMD150



For general fabrication whether high in a lift or in a confined area, the patented HMD150 is designed for fast, efficient hole making in one lightweight package. Similar to the HMD115, but with a full 1" depth of cut. A powerful motor, heavy-duty, high-torque gearing along with the use of quick change RotaLoc Plus™ Annular Cutters combine for a broad range of applications. The rigid quill feed prevents tool vibration, eliminates gibs, slide/way adjustments and maintenance while providing a constant low profile. The unit is equipped with a removable

feed handle, which exposes a hex-head for ratcheting the feed in close quarters. Equipped with positive slug ejection. Carrying case included. HMD151 is 230V model.



HMD115 Specifications

Electrical System		120V, 50/60 Hz 8A, 960W	
Motor		7.2A, 450 RPM	
Hole Capacity	Diameter Depth	1/2" - 1-1/16" (12mm - 27mm) 3/4" (19mm)	
Cutter / Mount		RotaLoc™ with push & turn style shank	
Dimensions		6-11/16" H x 8-1/2" W x 11-5/8" L	
Magnet	Base	4" W x 7" L	
	Strength 1" Plate	Dead Lift 2080 lb.	Drillpoint Breakaway 849 lb.
	3/8" Plate	1283 lb.	535 lb.
Net Weight		21.3 lb.	
Shipping Weight		27.8 lb.	

HMD150 Specifications

Electrical System		120V, 50/60 Hz 8A, 960W	
Motor		7.2A, 450 RPM	
Hole Capacity	Diameter Depth	1/2" - 1-3/8" (12mm - 35mm) 1" (25mm)	
Cutter / Mount		RotaLoc Plus™ with push & turn style shank	
Dimensions		7-13/16" H x 6-1/2" W x 11-11/16" L	
Magnet	Base	4" W x 7" L	
	Strength 1" Plate	Dead Lift 2165 lb.	Drillpoint Breakaway 735 lb.
	3/8" Plate	1200 lb.	500 lb.
Net Weight		22.7 lb.	
Shipping Weight		31.6 lb.	

HOUGEN® PORTABLE MAGNETIC DRILL

HMD904



MOST VERSATILE & POPULAR HOUGEN DRILL!

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The HMD904 is lightweight, compact, powerful, & versatile, making it the drill of choice for general fabrication. Designed for the down and dirty job of making holes. It uses Rotabroach® Annular Cutters for 1-1/2" x 2" cutting. Plus, the HMD904 uses a variety of accessories which pretty much gives you your own portable machine shop. The HMD904 & HMD904S have a positive slug ejection arbor. For safety it includes the Hougen safety switch indicator system. It tells the operator when the lift sensor is engaged, making the drill operational. New safety switch requires no adjustments. Feed handles can be easily switched to either side. Carrying case included. HMD908 is 230V model.



Largest Variety of Accessories Available

New! HMD904C

All HMD904's feature the New Hex Arbor for easy removal for using accessories & drill chucks

HMD904 Specifications			
Electrical System		120V, 50/60 Hz 8A, 960W	
Motor		7.2A, 450 RPM	
Hole Capacity	Diameter Depth	7/16" - 1-1/2" (12mm - 38mm) 2" (50mm)	
Cutter / Mount		Rotabroach "12,000-Series" 3/4" Shank	
Dimensions 16-3/8" H x 7-3/16" W x 8-1/4" L			
Magnet	Base	3-1/8" W x 6-9/16" L	
	Strength	Dead Lift	Drillpoint Breakaway
	1" Plate	1680 lb.	900 lb.
	3/8" Plate	1124 lb.	741 lb.
Net Weight		27.5 lb.	
Shipping Weight		38.1 lb.	



SWIVEL BASE HMD904S



Line up holes quicker and easier with the Swivel Base HMD904S. Precision fine tuning of your pilot with the holes center location is easy. Just get the pilot close to your hole, energize the magnet. Then use the swivel to line up your pilot. Uses a quick one stroke handle for locking and unlocking the swivel. Works great for horizontal and overhead drilling.

HMD904S Specifications			
Electrical System		120V, 50/60 Hz 8A, 960W	
Motor		7.2A, 450 RPM	
Hole Capacity	Diameter Depth	7/16" - 1-1/2" (12mm - 38mm) 2" (50mm)	
Cutter / Mount		Rotabroach "12,000-Series" 3/4" Shank	
Dimensions 16-3/8" H x 7-3/16" W x 8-1/4" L			
Magnet	Base	3-1/8" W x 6-9/16" L	
	Strength	Dead Lift	Drillpoint Breakaway
	1" Plate	1240 lb.	Back 770 lb. Forward 640 lb.
	3/8" Plate	965 lb.	Back 585 lb. Forward 485 lb.
Net Weight		30.5 lb.	
Shipping Weight		41.1 lb.	
Swivel Area		1-1/8" W x 1-3/8" L	

HMD904 DRILLS & KITS **NEW!**

Kit No. HMD904 - Standard HMD904

Includes: carrying case, wrenches, & pint of coolant.

Kit No. HMD904C - HMD904 w/ Coolant Bottle

Includes: HMD904 with a spring ejected arbor, attached coolant bottle, carrying case, wrenches, and pint of coolant.

Kit No. HMD904S - HMD904 w/ Swivel Base

Includes: HMD904 w/ swivel base, carrying case, wrenches, and pint of coolant.

Kit No. HMD904K - Fabricators Kit

Includes: HMD904C, plus 1/2" Jacobs® Chuck, adapter, & 12002 Rotabroach® Cutter Kit.

HOUGEN® PORTABLE MAGNETIC DRILLS

HMD925 POWER FEED



Take the effort out of holemaking with the power feed HMD925. With exceptional performance and reliability, it uses Rotabroach® Annular Cutters to produce holes from 7/16" to 1-1/4" diameter thru materials up to 2" thick in power feed mode. The HMD925 is compact and lightweight at only 37 lbs. The HMD925 incorporates smart technology that monitors and adjusts the self-feed action to continuously maintain optimum drilling performance throughout the cut, providing consistent productivity, long tool life and excellent hole quality. HMD928 is 230V model.



New Improved Control Panel!

HMD925 Specifications			
Electrical System		120V, 50/60 Hz 8A, 960W	
Motor		7.2A, 450 RPM	
Manual Capacity	Dia. Depth	7/16" - 1-1/2" (12mm - 38mm) 2" (50mm)	
Power Feed Capacity	Dia. Depth	7/16" - 1-1/4" (12mm - 32mm) 2" (50mm)	
Cutter / Mount		Rotabroach "12,000-Series" 3/4" Shank	
Dimensions		17-1/8" H x 10-13/16" W x 11-3/16" L	
Magnet	Base	3-1/8" W x 6-9/16" L	
	Strength	Dead Lift	Drillpoint Breakaway
	1" Plate	1680 lb.	900 lb.
	3/8" Plate	1124 lb.	741 lb.
Net Weight		37 lb.	
Shipping Weight		Approx. 47 lb.	

HMD914



The HMD914 is the long standing powerful and versatile workhorse that offers a built in 16 oz. gravity feed coolant bottle. This model powers through holes up to 2-1/16" diameter and 3" deep without bogging down. Making the drill even better is the many accessories available. Houghen® safety features include the lift detector, and the no adjustment safety switch. LED indicator is built in to the control panel. Equipped with positive slug ejection. HMD909 is 230V model.

Variety of Accessories Available



NEW!

HMD914K Fabricator's Kit
Includes HMD914 w/ Carrying Case, Jacobs® Chuck, Adapter, & 12002 Rotabroach® Cutter Kit

HMD914 Specifications			
Electrical System		120V, 50/60 Hz 11.2A, 1344W	
Motor		10.5A, 350 RPM	
Hole Capacity	Diameter Depth	7/16" - 2-1/16" (12mm - 52mm) 3" (76mm)	
Cutter / Mount		Rotabroach "12,000-Series" 3/4" Shank	
Dimensions		20-1/2" H x 8-3/16" W x 13-3/4" L	
Magnet	Base	3-1/2" W x 7" L	
	Strength	Dead Lift	Drillpoint Breakaway
	1" Plate	2500 lb.	1065 lb.
	3/8" Plate	1400 lb.	880 lb.
Net Weight		44 lb.	
Shipping Weight		53.3 lb.	

HOUGEN® PORTABLE MAGNETIC DRILLS

HMD505



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A rugged, high powered drill for fabrication and high production environments. The HMD505 features a two-speed gear box and positive slug ejection. The patented quill feed design eliminates gib adjustments and arbor support brackets for fast, smooth feed into and throughout the cut, especially in deep hole drilling. Optional pressurized coolant system aids drilling in horizontal positions and feed handles can be quickly switched to either side. Controls are positioned at the rear for accessibility and convenience. With the coolant bottle and carrying handle removed, the drill becomes only 15" high for even greater maneuverability. Carrying case included. HMD501 is 230V model.



HMD505 Specifications			
Electrical System		120V, 50/60 Hz 14A, 1680W	
Motor		13A, 250/450 RPM	
Hole Capacity	Diameter Depth	7/16" - 2-3/8" (12mm - 60mm) 3" (76mm)	
Cutter / Mount		Rotabroach "12,000-Series" 3/4" Shank	
Dimensions		20" H x 4-3/4" W x 10-3/4" L	
Magnet	Base	4" W x 8" L	
	Strength	Dead Lift	Drillpoint Breakaway
	1" Plate	2560 lb.	1080 lb.
	3/8" Plate	1550 lb.	820 lb.
Net Weight		45 lb.	
Shipping Weight		56.8 lb.	

HMD915



When you need power for large holes, The HMD915 is the drill for you. It can easily drill up to 3-1/16" diameters through 3" thick material. Features high and low speed ranges to deliver extra torque when required. Optional gearing is available for up to seven speeds. Uses Hogen "42/43,000-Series" Rotabroach® Annular Cutters. Or, with an arbor adapter (#02386) can use "12,000-Series" Cutters. Hogen® safety features built in including impactor points for improved torsional stability and chip breaker. HMD916 is 230V model.

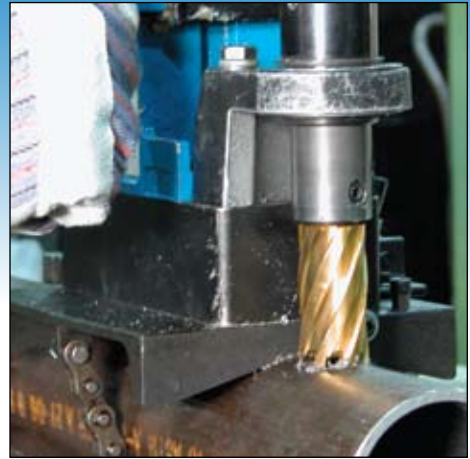
OPTIONAL GEARING AVAILABLE FOR THE FOLLOWING CUTTER RPM

- 100, 120, 142, 200,
- 279, 332, 400



HMD915 Specifications			
Electrical System		120V, 50/60 Hz 11.2A, 1344W	
Motor		10A, 120/332 RPM	
Hole Capacity	Diameter Depth	3/4" - 3-1/16" (19mm - 77mm) 3" (76mm)	
Cutter / Mount		Rotabroach "42/43,000-Series" 1-1/4" Shank	
Dimensions		26-1/4" H x 10" W x 17-3/4" L	
Magnet	Base	5" W x 7" L	
	Strength	Dead Lift	Drillpoint Breakaway
	1" Plate	2565 lb.	1390 lb.
	3/8" Plate	1080 lb.	470 lb.
Net Weight		69 lb.	
Shipping Weight		91.1 lb.	

HOUGEN® MAGNETIC DRILL ACCESSORIES



DRILL CHUCKS

Part No.	Description
10731	1/2" Low Buck Chuck with Key (HMD904 & HMD914)
NEW! 10737	5/8" Low Buck Chuck with Key (HMD914)
10732	1/2" Jacobs® Chuck with Key (HMD904 & HMD914)
10738	5/8" Jacobs® Chuck with Key (HMD914)

1/2" Chuck requires 05536 Spindle Adapter for Model HMD904 and HMD925. Model HMD914 requires Spindle Adapter 40341 for either chuck size.

82° CARBIDE-INSERT COUNTERSINK KIT

Part No.	Description
12965	(1) 82° Countersink (double fluted) with carbide inserts, (4) Pilots - 9/16", 11/16", 13/16", 15/16", plus a Torx Wrench
12960	9/16" Pilot
12961	11/16" Pilot
12962	13/16" Pilot
12963	15/16" Pilot
12966	Countersink Ass'y w/Carbide Inserts
05465	Replacement Torx Wrench
05467	Carbide Inserts (10 pieces)

PIPE ADAPTER KIT

Part No.	Description
02564*	Chain Mount for use with HMD904, HMD914 & HMD505
10726	Bracket Mount for use with HMD915 & HMD916

These kits let you drill pipe and tubing with a minimum 3" diameter and some convex surfaces. Kits quickly attach to your Hougén® Magnetic Drill and positive non-slip positioning assures centered hole location.

*Minimum 3" dia. schedule 160, maximum 12" dia. schedule 160.



VAC-PAD™

Part No.	Description
05000	Vacuum Base Attachment

Vac-Pad™ works with Models HMD904 and HMD925 on non-ferrous materials, diamond plate and materials with surface imperfections up to 3mm deep. Standard shop air provides 761 lbf surface holding power at 85 kpa. Safety switch shuts off drill motor if air pressure drops.

ROTALOC™ SPINDLE ADAPTER

Part No.	Description
17680	RotaLoc Adapter Assembly
04778	Replacement Adapter
04780	Replacement Pilot

With the RotaLoc™ Spindle Adapter you can take advantage of the fast change out of RotaLoc™ or RotaLoc Plus™ Annular Cutters in virtually all Hougén® Portable Magnetic Drills or any other drill that also accepts Rotabroach® "12,000-Series" Cutters.

ARBOR EXTENDERS

Part No.	Description
10100	1" Arbor Extender Assembly
10200	2" Arbor Extender Assembly

When extended reach is necessary, Hougén offers 1" and 2" Arbor Extenders with a 1.310" outside diameter that fit arbors using Rotabroach® "12,000-Series" Cutters. Contact Hougén's Customer Service Department for more information about how the Arbor Extenders may help in your application.

HOUGEN® MAGNETIC DRILL ACCESSORIES



TWIST DRILL ADAPTER KIT	
Part No.	Description
02608	Twist Drill Adapter
03835	1/2" Twist Drill Bit
03837	7/16" Twist Drill Bit
03839	3/8" Twist Drill Bit
03841	5/16" Twist Drill Bit
03843	1/4" Twist Drill Bit
03845	Twist Drill Adapter Kit

Adapter accepts a modified 118° twist drill with a 1/4" flatted shank that secures in adapter with a set screw.

RATCHET DRIVES	
Part No.	Description
02449	For use in Models HMD904
24154	For use in Models HMD505

With the feed handles removed the Ratchet Drive is easily installed, allowing use of a standard ratchet handle for drilling in confined areas. Ratchet Drive may be operated from either side of drill. Note: Ratchet not included.

SPINDLE ADAPTERS	
Part No.	Description
01829	HMD904 Chuck Adapter (Old Style Threaded) (not shown)
02386	HMD915 3/4" Shank Adapter
05536	HMD904 Chuck Adapter (Hex Drive)
10851	1/2" Shank Adapter (not shown)
40040	HMD915 3/4" Weldon Adapter (not shown)
40226	HMD914 Tap Adapter
40341	HMD914 Chuck Adapter



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TAPPING ATTACHMENT KITS	
Part No.	Description
05457	For use with HMD904. Order Collets separately (Hex Drive)
Collets:	02495 for #6 thru 1/4" tap 02496 for 1/4" thru 1/2" tap
10937	For use with HMD914. Order Collets separately
Collets:	10807 for #10 thru 1/2" tap 10808 for 1/2" thru 3/4" tap

Incorporates a planetary gear reverse with a 1:1 ratio. Reversing speed is equal to spindle speed so in-feed and out-feed of the unit can be employed without reversing motor direction.

CARRYING/STORAGE CASES	
Part No.	Description
10725	Optional metal case for Models HMD914/HMD925
17052	HMD115 replacement case
17481	HMD150 replacement case
04550	HMD904 replacement case
04679	HMD505 replacement case

Replace your lost or damaged carrying case to store and protect your Hougen magnetic drill. Each carrying case is ruggedly made and has extra room for tools and accessories.

ALTERNATIVE COOLANT SYSTEMS	
Part No.	Description
05087	16 oz. gravity feed bottle ass'y & kit for use with HMD904 (Spindle Drive)
05548	16 oz. gravity feed bottle ass'y & kit for use with HMD904 (Hex Drive)
24140	2 gal. pressurized bottle ass'y for use with HMD505

These coolant systems offer an optional solution to the base drill unit system. The pressurized coolant system for the HMD505 is used for drilling when gravity feed coolant is not applicable, and the gravity feed bottle is an external add-on accessory for the HMD904.

Model:		HMD115	HMD150	HMD904	HMD925	HMD914	HMD505	HMD915
		Low Profile		Fabricating			Heavy Duty Drilling	
Annular Cutters	RotaLoc™			With Adapter	With Adapter	With Adapter	With Adapter	With Adapters
	RotaLoc Plus™			With Adapter	With Adapter	With Adapter	With Adapter	With Adapters
	Rotabroach® "12,000-Series"							With Adapter
	Copperhead™ Carbide Tipped							With Adapter
	Rotabroach® "42/43,000-Series"							
Model Specifications	Diameter Min./Max.	1/2" to 1-1/16"	1/2" to 1-3/8"	7/16" to 1-1/2"	7/16" to 1-1/2" (1-1/4" Pwr. Fd.)	7/16" to 2-1/16"	7/16" to 2-3/8"	3/4" to 3-1/16"
	Depth Max.	3/4"	1"	2"	2"	3"	3"	3"
	Cutter Mounting	Bayonet Style	Bayonet Style	3/4" Double Flat	3/4" Double Flat	3/4" Double Flat	3/4" Double Flat	3/4" or 1-1/4" Weldon Shank
	No-Load R.P.M.	450	450	450	450	350	250 / 450	120 / 332
	Model Weight (lbs.)	21.3	22.7	27.5	37	44	45	69
	Thru-the-Tool Coolant							
Available Accessories	Carrying Case Included				Optional	Optional		
	Pipe Adapter				Manual Mode			
	Tap Attachment				Manual Mode			
	Vac-Pad™				Manual Mode			
	Coolant Bottle			HMD904C	Included	Included	Included	Included
	Countersink Kit				Manual Mode			With Adapter
	Twist Drill Adapter				Manual Mode			With Adapter
	Ratchet Drive							
	Arbor Extender				Manual Mode			With Adapter
	Drill Chuck				Manual Mode			
	RotaLoc™ Spindle Adapter				Manual Mode			With Adapter

HOUGEN® CUTTER COMPARISON CHART

									
Tool Series:	RotaCut™	Extended Reach	Holcutter™	Carbide Holcutter™	RotaLoc™	RotaLoc Plus™	Rotabroach®	Copperhead™	“42/43,000”
Diameter Range Min. / Max.	1/4" to 1-1/2"	3/8" to 9/16"	11/16" to 3"	11/16" to 3"	1/2" to 1-1/16" w/ stack geometry	1/2" to 1-3/8"	7/16" to 2-3/8"	9/16" to 1-1/2"	3/4" to 3-1/16"
Max. Depth of Cut	1/4" to 1/2"	1/4"	1/8"	1/8"	3/4"	1"	1", 2", or 3"	2"	2" or 3"
Mounting	3/8" or 1/2" Triple Flat Shank	3/8" Triple Flat Shank	3/8" Triple Flat Shank	3/8" or 1/2" Triple Flat Shank	Bayonet Style	Bayonet Style	3/4" Double Flat Shank	3/4" Double Flat Shank	3/4" Weldon or 1-1/4" Weldon
Cutter Material(s) Available	M2 HSS	M2 HSS	M2 HSS	Carbide Tip	M42 HSS	M2 HSS	M2 HSS, M2 TIN Coat, or M42 TIN	Carbide Tip	M2 HSS or M2 TIN Coat
Can be Resharpener		===== Disposable =====							
Available Grind Down (Within Limits)									
Max. Application Hardness Rating	275 BHN	275 BHN	275 BHN	450 BHN	350 BHN	275 BHN	275 BHN 325 BHN (TIN)	450 BHN	275 BHN 325 BHN (TIN)
Recommended Lubrication	Slick-Stik™	Slick-Stik™	Slick-Stik™	Slick-Stik™	Slick-Stik™	Slick-Stik™	RotaMagic™	RotaMagic™	RotaMagic™
Aluminum									
Mild Steel									
Harder Steel		Good			Better	Good	Standard - Good TIN - Better		Standard - Good TIN - Better
Stainless Steel	Good		Recommend Speed Reducer		Good	TIN Coat or Premium Recommended			TIN Coat Recommended

===== High RPM & Fast Feed Rates Suggested =====

ROTABROACH® "12,000-SERIES" ANNULAR CUTTERS

For use with Hougen® Portable Magnetic Drills and many competitive models on materials up to 275 BHN. They are made of hardened high speed tool steel and are precision ground for excellent performance throughout the cut and long tool life. They require less horsepower and thrust to cut, and last much longer than traditional holemaking methods. Rotabroach® cutters feature a 3/4" diameter double-flatted shank and are available in 1, 2, and 3" D.O.C. Modified end tooth geometry is also available for drilling in stacked plate applications. For extended tool life and lower cost per hole Rotabroach® Cutters are resharpenable.



Rotabroach®

Cutter Dia. (Inches)	Decimal Equivalent	Part No.		
		1" D.O.C.	2" D.O.C.	3" D.O.C.
Use with Pilot		10531	10532	
7/16	.4375	12114	12214	----
Use with Pilot		10533	10534	
1/2	.5000	12116	12216	----
9/16	.5625	12118	12218	----
5/8	.6250	12120	12220	----
11/16	.6875	12122	12222	----
Use with Pilot		10527	10528	24131
3/4	.7500	12124	12224	3-12224
13/16	.8125	12126	12226	3-12226
7/8	.8750	12128	12228	3-12228
15/16	.9375	12130	12230	3-12230
1	1.0000	12132	12232	3-12232
1-1/16	1.0625	12134	12234	3-12234
1-1/8	1.1250	12136	12236	3-12236
1-3/16	1.1875	12138	12238	3-12238
1-1/4	1.2500	12140	12240	3-12240
1-5/16	1.3125	12142	12242	3-12242
1-3/8	1.3750	12144	12244	3-12244
1-7/16	1.4375	12146	12246	3-12246
1-1/2	1.5000	12148	12248	3-12248
1-9/16	1.5625	12150	12250	3-12250
1-5/8	1.6250	12152	12252	3-12252
1-11/16	1.6875	12154	12254	3-12254
1-3/4	1.7500	12156	12256	3-12256
1-13/16	1.8125	12158	12258	3-12258
1-7/8	1.8750	12160	12260	3-12260
1-15/16	1.9375	12162	12262	3-12262
2	2.0000	12164	12264	3-12264
2-1/16	2.0625	----	12266	----
2-1/8	2.1250	----	12268	----
2-3/16	2.1875	----	12270	----
2-1/4	2.2500	----	12272	----
2-5/16	2.3125	----	12274	----
2-3/8	2.3750	----	12276	----

Cutter Dia. (Metric)	Decimal Equivalent	Part No.		
		1" D.O.C.	2" D.O.C.	3" D.O.C.
Use with Pilot		10531	10532	
12mm	.4724	12312	12412	----
Use with Pilot		10533	10534	
13mm	.5118	12313	12413	----
14mm	.5512	12314	12414	----
15mm	.5906	12315	12415	----
16mm	.6299	12316	12416	----
17mm	.6693	12317	12417	----
18mm	.7087	12318	12418	----
Use with Pilot		10527	10528	24131
19mm	.7480	12319	12419	12519
20mm	.7874	12320	12420	12520
21mm	.8268	12321	12421	12521
22mm	.8661	12322	12422	12522
23mm	.9055	12323	12423	12523
24mm	.9449	12324	12424	12524
25mm	.9843	12325	12425	12525
26mm	1.0236	12326	12426	12526
27mm	1.0630	12327	12427	12527
28mm	1.1024	12328	12428	12528
29mm	1.1417	12329	12429	12529
30mm	1.1811	12330	12430	12530
31mm	1.2205	12331	12431	12531
32mm	1.2598	12332	12432	12532
33mm	1.2992	12333	12433	12533
34mm	1.3386	12334	12434	12534
35mm	1.3779	12335	12435	12535
36mm	1.4173	12336	12436	12536
37mm	1.4567	12337	12437	12537
38mm	1.4961	12338	12438	12538
39mm	1.5354	12339	12439	12539
40mm	1.5743	12340	12440	12540
41mm	1.6142	12341	12441	12541
42mm	1.6535	12342	12442	12542
43mm	1.6929	12343	12443	12543
44mm	1.7323	12344	12444	12544
45mm	1.7717	12345	12445	12545
46mm	1.8110	12346	12446	12546
47mm	1.8504	12347	12447	12547
48mm	1.8898	12348	12448	12548
49mm	1.9291	12349	12449	12549
50mm	1.9685	12350	12450	12550
51mm	2.0079	12351	12451	12551
52mm	2.0472	12352	12452	12552

**Hougen® can help with all your special
cutter needs and applications.**

800-426-7818

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ROTABROACH® CUTTER KITS



A group of eight Rotabroach® cutter kits are conveniently packaged with the most popular diameters in protective cases for easy transporting and safe storage. Choose from fractional or metric diameters, in 1" or 2" depth of cut. Each kit includes hex wrenches and 2 pilots.

Part No.	Mat'l / Coating	D.O.C.	Diameters Included
12001	M2 HSS	1"	9/16", 11/16", 13/16", 15/16", 1-1/16"
12002	M2 HSS	2"	9/16", 11/16", 13/16", 15/16", 1-1/16"
12003	M2 HSS	25mm	14mm, 16mm, 18mm, 20mm, 22mm
12004	M2 HSS	50mm	14mm, 16mm, 18mm, 20mm, 22mm
12005	M2 HSS	1"	5/8", 3/4", 7/8", 1", 1-1/8"
12006	M2 HSS	2"	5/8", 3/4", 7/8", 1", 1-1/8"
12601	M2 / TiN	1"	9/16", 11/16", 13/16", 15/16", 1-1/16"
12702	M2 / TiN	2"	9/16", 11/16", 13/16", 15/16", 1-1/16"

NEW!

EXTENDED REACH CUTTERS



Choose this select series of cutters to give you extra reach in deep hole drilling applications. Each cutter features the same cutting geometry and action as the standard depth Rotabroach® cutters, but in the extended 4" and 6" depth of cut.

Cutter Dia. (Inches)	Decimal Equivalent	Part No.	
		4" D.O.C.	6" D.O.C.
13/16	.8125	4-12226	6-12226
15/16	.9375	4-12230	6-12230
1-1/16	1.0625	4-12234	6-12234
1-3/16	1.1875	4-12238	-----

"12,000-SERIES" TAP DRILL SIZES

A clean, accurate hole helps to make tapping an easier task. You can achieve that task easily with these tap drill size Rotabroach® cutters. Use them on the job site in a portable magnetic drill, a drill press, or in stationary machine tools.



Cutter Dia. (Inches)	Decimal Equivalent	Thread	Part No.	
			1" D.O.C.	2" D.O.C.
Use with Pilot			10531	10532
7/16	.4375	1/2-13	12114	12214
29/64	.4531	1/2-20	----	12010
31/64	.4844	9/16-12	----	12011
Use with Pilot			10533	10534
33/64	.5156	9/16-18	----	12012
17/32	.5313	5/8-11	12117	12217
37/64	.5781	5/8-18	----	12014
19/32	.5938	11/16-11	----	12219
21/32	.6563	3/4-10	12121	12221
23/32	.7188	1/2-14 NPT	----	12223
Use with Pilot			10527	10528
49/64	.7656	7/8-9	----	12020
25/32	.7812	7/8-9	12125	12225
59/64	.9219	1-12	----	12025

PILOTS - "12,000-SERIES"



The pilot serves three functions when used with Rotabroach® cutters in a portable magnetic drill; 1) Locate the hole center point, 2) Initiate coolant flow to the center of the tool, 3) Eject the slug at the end of the cut. Always use a sharp pilot for best results.

Part No.	Description
10527	1" D.O.C. Pilot (3/4" - 2-3/8" & 19mm - 52mm)
10528	2" D.O.C. Pilot (3/4" - 2-3/8" & 19mm - 52mm)
10531	1" D.O.C. Pilot (7/16" & 12mm)
10532	2" D.O.C. Pilot (7/16" & 12mm)
10533	1" D.O.C. Pilot (1/2" - 11/16" & 13mm - 18mm)
10534	2" D.O.C. Pilot (1/2" - 11/16" & 13mm - 18mm)
24131	3" D.O.C. Pilot (3/4" - 2-3/8" & 19mm - 52mm)
4-10528	4" Reach Pilot for Extended Reach "12,000-Series"
6-10528	6" Reach Pilot for Extended Reach "12,000-Series"

ROTABROACH® M2 CUTTERS TIN COATED

Rotabroach® cutters with TiN Coating increase tool life, reduce friction, and operate at cooler temperatures. For materials up to 325 BHN or gummy materials.



Cutter Dia. (Inches)	Decimal Equiv.	Part No.	
		1" D.O.C.	2" D.O.C.
Use with Pilot		10531	10532
7/16	.4375	12614	12714
Use with Pilot		10533	10534
1/2	.5000	12616	12716
9/16	.5625	12618	12718
5/8	.6250	12620	12720
11/16	.6875	12622	12722
Use with Pilot		10527	10528
3/4	.7500	12624	12724
13/16	.8125	12626	12726
7/8	.8750	12628	12728
15/16	.9375	12630	12730
1	1.0000	12632	12732

Cutter Dia. (Inches)	Decimal Equiv.	Part No.	
		1" D.O.C.	2" D.O.C.
Use with Pilot		10527	10528
1-1/16	1.0625	12634	12734
1-1/8	1.1250	12636	12736
1-3/16	1.1875	12638	12738
1-1/4	1.2500	12640	12740
1-5/16	1.3125	12642	12742
1-3/8	1.3750	12644	12744
1-7/16	1.4375	12646	12746
1-1/2	1.5000	12648	12748
1-9/16	1.5625	12650	12750
1-5/8	1.6250	12652	12752
1-11/16	1.6875	12654	12754
1-3/4	1.7500	12656	12756
1-13/16	1.8125	12658	12758
1-7/8	1.8750	12660	12760
1-15/16	1.9375	12662	12762
2	2.0000	12664	12764
2-1/16	2.0625	----	12766
2-1/8	2.1250	----	12768
2-3/16	2.1875	----	12770
2-1/4	2.2500	----	12772
2-5/16	2.3125	----	12774
2-3/8	2.3750	----	12776

Find your nearest Hougen dealer at www.hougen.com

ROTABROACH® M42 PREMIUM CUTTERS



Rotabroach® Premium Steel Cutters with TiN Coating extend tool life, reduce friction, and operate at cooler temperatures. They're made from M42 high speed steel for cutting materials up to 350 BHN or gummy materials. These tools are specifically designed to stay cool throughout the cut. For materials up to 2" thick.

Cutter Dia. (Inches)	Decimal Equiv.	Part No.
Use with Pilot 10528		
7/8	.8750	01354
15/16	.9375	01355
1	1.0000	01356
1-1/16	1.0625	01357
1-1/8	1.1250	01358
1-3/16	1.1875	01359
1-1/4	1.2500	01360
1-5/16	1.3125	01361
1-3/8	1.3750	01362
1-7/16	1.4375	01363
1-1/2	1.5000	01364

SHARPENING MACHINE



The Model 10950 Sharpening Machine has been specifically designed for resharpener Rotabroach®, RotaLoc™, and RotaLoc Plus™ Annular Cutters. It provides ease of operation while restoring factory specified tooth geometry.

- 110-120V, 2.5 Amps, max. 26,000 RPM, double insulated motor with spindle lock.
- Improved holders and fasteners allow easier changes and tool sharpening.
- Holder bushing is more accurate for precise tooth height.

Part No.	Description
10950	Sharpening Machine
03983	Borazon® Cup Wheel
04049	Tool holder - "12,000-Series"
04072	Borazon® Gullet Wheel
10747	Dressing Stick
10779	7/32" Hex Wrench for #04049
Optional Accessories	
04147	Tool Holder - RotaLoc™ Cutters
04118	Work Stand

COPPERHEAD™ CARBIDE TIP CUTTERS

For Hard, Rough Materials.



Copperhead™ Carbide Tip Cutters feature a brazed-in durable grade carbide insert for extended tool life when used with Hougen® Mag Drills on abrasive and tough-to-cut materials and applications. The unique Hougen design also includes a special tool geometry that helps maintain better chip flow than other brands. All diameters in 2" D.O.C.

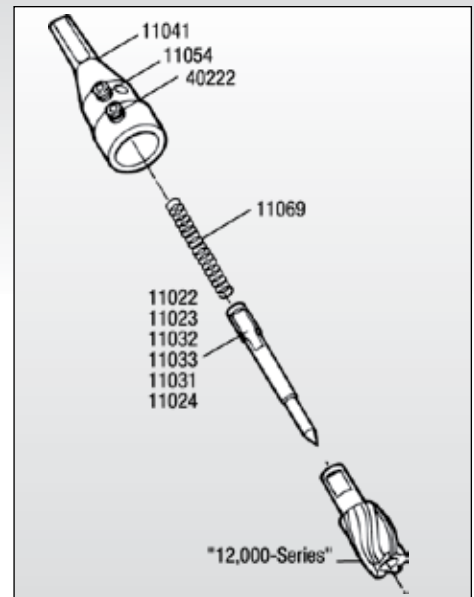
Cutter Dia. (Inches)	Decimal Equiv.	Part No.
Use with Pilot 10530		
9/16	.5625	18218
11/16	.6875	18222
13/16	.8125	18226
7/8	.8750	18228
15/16	.9375	18230
1	1.0000	18232
1-1/16	1.0625	18234
1-1/8	1.1250	18236
1-3/16	1.1875	18238
1-1/4	1.2500	18240
1-5/16	1.3125	18242
1-3/8	1.3750	18244
1-1/2	1.5000	18248

Kit No.	Description
18002	Fractional Kit contains (5) cutters, 9/16", 11/16", 13/16", 15/16" 1-1/16", 2 Pilots & Hex Wrenches
18004	Metric Kit contains (5) cutters, 14, 16, 18, 20, & 22mm, 2 Pilots & Hex Wrenches

NEW!

Cutter Dia. (Metric)	Decimal Equiv.	Part No.
Use with Pilot 10530		
14mm	.5512	18414
15mm	.5906	18415
16mm	.6299	18416
18mm	.7087	18418
20mm	.7874	18420
22mm	.8661	18422
24mm	.9449	18424
25mm	.9843	18425
26mm	1.0236	18426
28mm	1.1024	18428
30mm	1.1811	18430
32mm	1.2598	18432
34mm	1.3386	18434
36mm	1.4173	18436
38mm	1.4961	18438
40mm	1.5743	18440

ARBORS FOR STATIONARY TOOLS

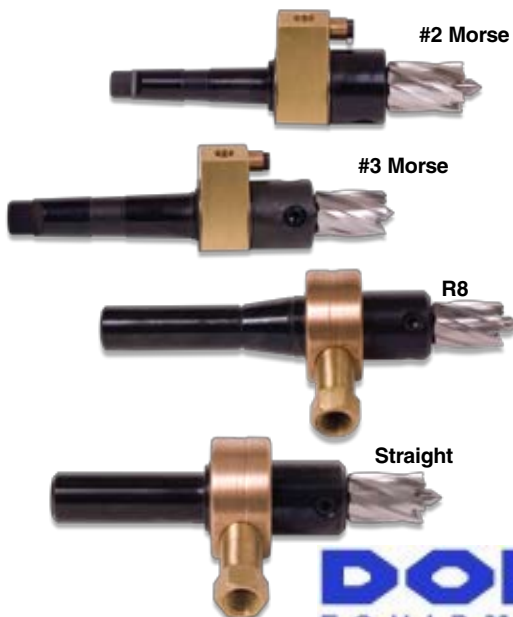


You can also use Rotabroach® Cutters with stationary tools and drill presses. Triple flatted shank fits 1/2" drill chucks. Uses 1" depth of cut "12,000-Series" Cutters for materials up to 1/2" thick maximum.

Part No.	Description
11016	Arbor Assembly (with set screws and spring) for 3/4" Shank Cutters up to 1/2" D.O.C.
Optional & Replacement Arbor Parts	
11041	Arbor Body
11054	1/4-28 Soc. Hd. Cap Screw
11069	Ejector Spring
40222	7/16-14 Soc. Hd. Cap Screw
Pilots	
11022	Starter Pilot for 7/16" & 12mm Dia. Cutters
11023	Piercer Pilot for 7/16" & 12mm Dia. Cutters
11024	Piercer Pilot for 3/4"- 2-1/16" & 19mm-52mm Dia. Cutters
11031	Starter Pilot for 3/4"- 2-1/16" & 19mm-52mm Dia. Cutters
11032	Starter Pilot for 1/2"-11/16" & 13mm-18mm Dia. Cutters
11033	Piercer Pilot for 1/2"-11/16" & 13mm-18mm Dia. Cutters

ARBORS FOR MACHINE TOOLS

Arbors with Coolant Inducers Pictured



Part No.	Shank Size	Hole Capacity	
		Diameter	Depth
Arbor Assembly with Oil Inducer			
10804	#2 Morse	1"	1-1/2"
10806	#3 Morse	2-3/8"	1-1/2"
49849	R8	2-3/8"	2"
49850	1" Straight	2-3/8"	2"
Arbor Assembly without Oil Inducer			
10814	#2 Morse	1"	1-1/2"
10816	#3 Morse	2-3/8"	1-1/2"
49853	R8	2-3/8"	2"
49851	1" Straight	2-3/8"	2"

Convert CNC machines such as drill presses or mills into fast hole makers. 3 styles of holders, R-8, Straight, and Morse taper accommodate "12,000-Series" Cutters.

Hougen's Customer Service is always ready to answer your questions.
800-426-7818

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ROTALOC™ & ROTALOC PLUS™ ANNULAR CUTTERS AND KITS

RotaLoc™ Plus



RotaLoc™ Annular Cutters are designed for use with the Hougen® HMD115 Ultra-Low Profile Truck Frame Drill. They're made of M42 high speed steel and feature Stack Cut geometry for penetrating multiple plates in a single pass, up to 3/4" depth of cut.

RotaLoc Plus™ Annular Cutters are designed for the Hougen® HMD150 Low Profile Drill.

They're made of M2 high speed steel and are designed for a full 1" D.O.C.

Both series feature a bayonet-style shank mounting for fast change out, with no other tools required to install in the drill spindle, and can be as easily removed. For optimum cutter tool life and cutter efficiency use Hougen® Slick-Stik™ Lubricant.

ROTALOC™ ANNULAR CUTTERS M42 HSS - 3/4" D.O.C. - STACK CUT

Cutter Dia. (Inches)	Decimal Equiv.	Part No.
Use with Pilot 17100 or 17101		
1/2	.5000	17116
9/16	.5625	17118
5/8	.6250	17120
11/16	.6875	17122
3/4	.7500	17124
13/16	.8125	17126
7/8	.8750	17128
15/16	.9375	17130
1	1.0000	17132
1-1/16	1.0625	17134
Cutter Dia. (Metric)	Decimal Equiv.	Part No.
Use with Pilot 17100 or 17101		
12mm	.4724	17300
13mm	.5118	17302
14mm	.5512	17304
15mm	.5906	17306
16mm	.6299	17308
17mm	.6693	17310
18mm	.7087	17312
19mm	.7480	17314
20mm	.7874	17316
21mm	.8268	17318
22mm	.8661	17320
23mm	.9055	17322
24mm	.9449	17324
24.5mm	.9645	17325
25mm	.9843	17326
26mm	1.0236	17328
27mm	1.0630	17330

ROTALOC PLUS™ ANNULAR CUTTERS M2 HSS - 1" D.O.C.

Cutter Dia. (Inches)	Decimal Equiv.	Part No.
Use with Pilot 17470		
1/2	.5000	17216
9/16	.5625	17218
5/8	.6250	17220
11/16	.6875	17222
3/4	.7500	17224
13/16	.8125	17226
7/8	.8750	17228
15/16	.9375	17230
1	1.0000	17232
1-1/16	1.0625	17234
1-1/8	1.1250	17236
1-3/16	1.1875	17238
1-1/4	1.2500	17240
1-5/16	1.3125	17242
1-3/8	1.3750	17244
Cutter Dia. (Metric)	Decimal Equiv.	Part No.
Use with Pilot 17470		
12mm	.4724	17400
13mm	.5118	17402
14mm	.5512	17404
15mm	.5906	17406
16mm	.6299	17408
17mm	.6693	17410
18mm	.7087	17412
19mm	.7480	17414
20mm	.7874	17416
21mm	.8268	17418
22mm	.8661	17420
23mm	.9055	17422
24mm	.9449	17424
24.5mm	.9645	17425
25mm	.9843	17426
26mm	1.0236	17428
27mm	1.0630	17430
28mm	1.1024	17432
29mm	1.1417	17434
30mm	1.1811	17436
31mm	1.2205	17438
32mm	1.2598	17440
33mm	1.2992	17442
34mm	1.3386	17444
35mm	1.3779	17446



ROTALOC™ & ROTALOC PLUS™ CUTTER KITS

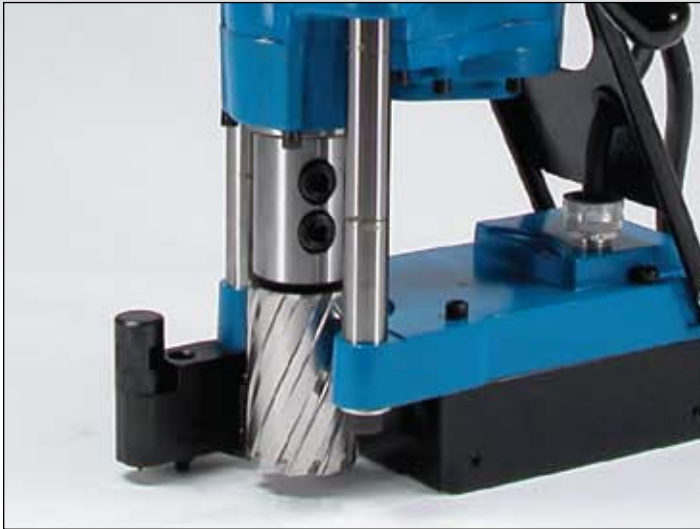
Kit No.	Description
For HMD115 and HMD150	
17001	Kit contains (10) cutters, 3/4" D.O.C. - 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1 & 1-1/16" dia, plus (2) Pilots in a sturdy plastic case.
17700	Kit contains (3) cutters, 3/4" D.O.C. - 1/2, 5/8, 3/4" dia, plus (3) Pilots in a sturdy plastic case.
17701	Kit contains (3) cutters, 3/4" D.O.C. - 9/16, 11/16, 13/16" dia, plus (3) Pilots in a sturdy plastic case.
17704	Kit contains (3) cutters, 3/4" D.O.C. - 13mm, 15mm, 18mm dia, plus (3) Pilots in a sturdy plastic case.
For HMD150	
17800	Kit contains (3) cutters, 1" D.O.C. - 1/2, 5/8, 3/4" dia, plus (3) Pilots in a sturdy plastic case.
17801	Kit contains (3) cutters, 1" D.O.C. - 9/16, 11/16, 13/16" dia, plus (3) Pilots in a sturdy plastic case.
17804	Kit contains (3) cutters, 1" D.O.C. - 14mm, 16mm, 18mm dia, plus (3) Pilots in a sturdy plastic case.



ROTALOC™ & ROTALOC PLUS™ PILOTS

Part No.	Description
17100	Standard Pilot for HMD115
17700	Spring Ejection Pilot for HMD115
17470	For use with HMD150

ROTABROACH® "42/43,000-SERIES" ANNULAR CUTTERS



You can produce holes up to 3-1/16" diameter thru 3" material with the Hougen® HMD915 portable magnetic drill using Rotabroach® "42/43,000-Series" Annular Cutters. The heavy duty "42/43,000-Series" Annular Cutters handle the most demanding hole production jobs requiring portability for drilling large, deep holes. "42,000-Series" Cutters feature a 3/4" or 1-1/4" Weldon Shank mounting (depending on cutter diameter) which also provides for convenient use in stationary machine tools.



For added wear resistance, Hougen® also offers the TiN coated "22/23,000-Series" Annular Cutters, with the same features as the "42/43,000-Series" Cutters but for use on materials up to 325 BHN. Modified end tooth geometry for drilling stacked plate is available upon request.

Intermediate sizes can be made available as "grind downs" from the next larger size. Maximum grind down varies from 0.010" to 0.020" off the initial diameter. Consult Hougen Technical Service for details.

"42/43,000-SERIES" - M2 HSS "22/23,000-SERIES" - M2 HSS TIN COATED

Cutter Dia. (Inches)	Decimal Equiv.	Part No.	
		M2	M2 TiN Coated
3/4" Weldon Shank - 2" D.O.C.			
3/4	.7500	42024	22024
13/16	.8125	42026	22026
7/8	.8750	42028	22028
15/16	.9375	42030	22030
1	1.0000	42032	22032
1-1/16	1.0625	42034	22034
1-1/8	1.1250	42036	22036
1-3/16	1.1875	42038	22038
1-1/4	1.2500	42040	22040
1-5/16	1.3125	42042	22042
1-3/8	1.3750	42044	22044
1-7/16	1.4375	42046	22046
1-1/4" Weldon Shank - 2" D.O.C.			
1-1/2	1.5000	42048	22048
1-9/16	1.5625	42050	22050
1-5/8	1.6250	42052	22052
1-11/16	1.6875	42054	22054
1-3/4	1.7500	42056	22056
1-13/16	1.8125	42058	22058
1-7/8	1.8750	42060	22060
1-15/16	1.9375	42062	22062
2	2.0000	42064	22064
1-1/4" Weldon Shank - 3" D.O.C.			
2-1/16	2.0625	43066	23066
2-1/8	2.1250	43068	23068
2-3/16	2.1875	43070	23070
2-1/4	2.2500	43072	23072
2-5/16	2.3125	43074	23074
2-3/8	2.3750	43076	23076
2-7/16	2.4375	43078	23078
2-1/2	2.5000	43080	23080
2-9/16	2.5625	43082	23082
2-5/8	2.6250	43084	23084
2-11/16	2.6875	43086	23086
2-3/4	2.7500	43088	23088
2-13/16	2.8125	43090	23090
2-7/8	2.8750	43092	23092
2-15/16	2.9375	43094	23094
3	3.0000	43096	23096
3-1/16	3.0625	43098	23098

SLICK-STIK™ LUBRICANT & ROTAMAGIC™ CUTTING FLUID

Part No.	Description
11741-12	(12) 1 Pint Bottles - makes 1 pint each, 12 pints total
11742-4	(4) 1 Gallon Bottles - makes 11 gallons each, 44 gallons total
11743	(1) 5 Gallon Pail - makes 55 gallons total
11745-6	(6) 16 oz. Slick-Stik™ Lubricant
11746-12	(12) 1.68 oz. Slick-Stik™ Lubricant
11746-24	(24) 1.68 oz. Slick-Stik™ Lubricant in display box



Slick-Stik™ is softer than other stick lubricants for easy application, superior adhesion to the tool, assuring thorough coverage. Use with ferrous or non-ferrous materials. RotaMagic™ Concentrated Cutting Fluid is water soluble and yields a 10:1 ratio when mixed with water. (Biodegradable)



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ROTACUT™ SHEET METAL HOLE CUTTERS



Holemaking – faster and easier than with conventional twist drills and hole saws – in sheet metal, plate materials, and plastics up to 1/2" thick. RotaCut™ Cutters are precision-ground and produce clean, burr-free, round holes without deforming the surrounding material. For use in hand held drills with either 3/8" or 1/2" diameter chucks, and in air feed drill spindles for production work. Lasts 10x longer and cuts 3x faster than twist drills or hole saws.



Cutter Dia. (Inches)	Decimal Equiv.	Part No.
3/8"-24 Thread Mount & 1/4" D.O.C.		
Use with Arbor 11088 or 11006		
1/4	.2500	11100
9/32	.2812	11102
5/16	.3125	11104
11/32	.3438	11106
Use with Arbor 11088, 11089, or 11006		
3/8	.3750	11108
13/32	.4062	11110
27/64	.4219	11111
7/16	.4375	11112
15/32	.4688	11114
1/2	.5000	11116
17/32	.5312	11118
9/16	.5625	11120
5/8	.6250	11124
11/16	.6875	11128
23/32	.7188	11130
3/4	.7500	11132
1/2"-20 Thread Mount & 1/2" D.O.C.		
Use with Arbor 11005 or 11012		
13/16	.8125	11136
7/8	.8750	11140
15/16	.9375	11144
1	1.0000	11148
1-1/16	1.0625	11152
1-1/8	1.1250	11156
1-3/16	1.1875	11160
1-1/4	1.2500	11164
1-5/16	1.3125	11165
1-3/8	1.3750	11166
1-7/16	1.4375	11167
1-1/2	1.5000	11168

Cutter Dia. (Metric)	Decimal Equiv.	Part No.
3/8"-24 Thread Mount & 1/4" D.O.C.		
Use with Arbor 11088 or 11006		
6mm	.2362	11206
7mm	.2756	11207
8mm	.3150	11208
9mm	.3543	11209
Use with Arbor 11088, 11089, or 11006		
10mm	.3937	11210
11mm	.4331	11211
12mm	.4724	11212
13mm	.5118	11213
14mm	.5512	11214
15mm	.5906	11215
16mm	.6299	11216
17mm	.6693	11217
18mm	.7087	11218
19mm	.7480	11219
20mm	.7874	11220
1/2"-20 Thread Mount & 1/2" D.O.C.		
Use with Arbor 11005 or 11012		
21mm	.8268	11221
22mm	.8661	11222
23mm	.9055	11223
24mm	.9449	11224
25mm	.9843	11225

ROTACUT™ SPOTWELD CUTTER

Remove spotwelds in auto body and restoration work quickly with the RotaCut™ Premium Spotweld Cutter. Heavy cutter wall and fast cutting action that can last for hundreds or thousands of spotwelds.

Part No.	Description
11200C	Package includes 3/8" RotaCut p/n 11108, Arbor p/n 11088, and instructions.

ROTACUT™ KITS



Hougen® offers kits packaged in sturdy cases for keeping handy the most often used sizes of RotaCut™ Annular Cutters. They help keep cutters easy to find and protect the cutting edges from damage.

Part No.	Description
11075C	Kit contains an 11088 Arbor Assembly, Center Punch, extra Pilot, and (7) Cutters: 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, & 3/4"
11075-12	Contains (12) 11075 Kits in a pop up display box
11077	Kit contains an 11088 Arbor Assembly, Center Punch, extra Pilot, and (7) Metric Cutters: 8, 10, 12, 14, 16, 18, & 20mm
11078	Kit contains an 11005 Arbor Assembly, Center Punch, extra Pilot, and (6) Cutters: 7/8, 1, 1-1/8, 1-1/4, 1-3/8, & 1-1/2"

Compare the Quality

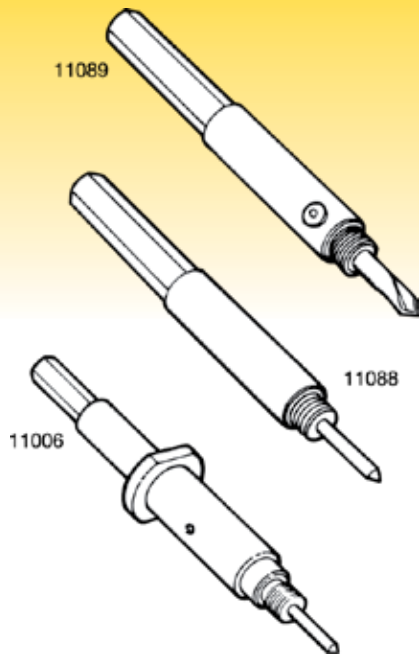


RotaCut™ • Hole Saw • Twist Drill

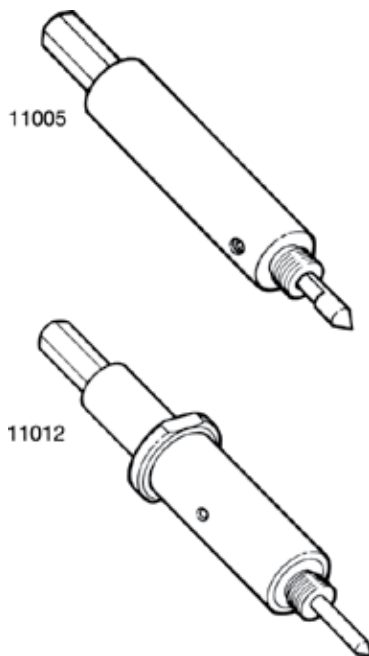
Special sizes of RotaCut™ Cutters are available on request. Contact the Hougen Customer Service Department for more information
800-426-7818



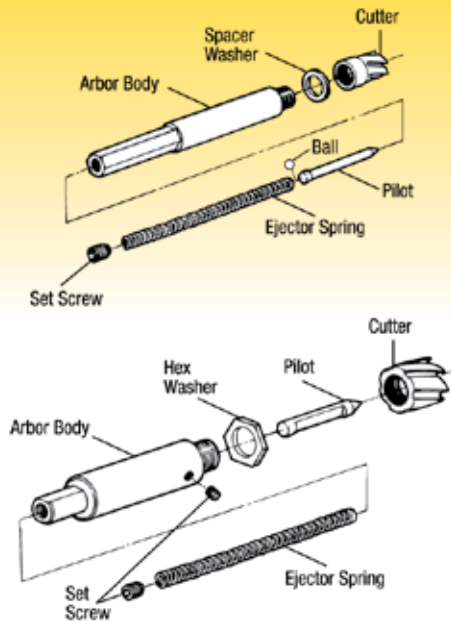
ROTACUT™ SHEET METAL ARBORS AND PARTS



ARBORS FOR 3/8" CHUCKS	
Part No.	Description
With 3/8"-24 Mounting Thread	
11088	Arbor with Pilot Pin
11089	Arbor with Pilot Drill (For use with 3/8" thru 3/4" dia.)
11006	Arbor with Pilot Pin for use in 5/8" Drill Bushing



ARBORS FOR 1/2" CHUCKS	
Part No.	Description
With 1/2"-20 Mounting Thread	
11005	Arbor with Pilot Pin
11012	Arbor with Pilot Pin (For use with 13/16" thru 1-1/2" dia.)



Hougen Manufacturing maintains a complete stock of replacement parts for the Sheet Metal Arbors listed below. Our computerized order entry system means your required parts are often processed and shipped the same day that the order is received.

Part Desc.	Arbor Assembly / Component Part No.				
	11088	11089	11005	11006	11012
Arbor Body	90224	90225	11074	11035	11038
Pilot	11083	03913C	11027	11083	11084
Ejector Spring	11034	11049	11047	11045	11048
Set Screw	11050	11051	11052	11050	11052
Hex Washer	----	----	03996	----	03996
Spacer Washer	11056	11056	----	11056	----
Stop Washer	11055	11055	----	----	----
Button Screw	----	11053	----	----	----
Stop Rod	----	11064	----	----	----
Ejector Collar	----	----	----	11059	11061
Roll Pin	----	----	----	11062	11063
Plunger	----	----	----	11058	----
Misc.	11260 Ball	----	11050 Screw	----	----

EXTENDED REACH CUTTERS



Cutter Dia. (Inches)	Decimal Equiv.	Part No.
Triple Flat Arbor with .80" flute & 1/4" D.O.C.		
3/8	.3750	16112
7/16	.4375	16114
1/2	.5000	16116
9/16	.5625	16118

Hougen® Extended Reach Cutters are designed for applications where additional reach and a shallow depth of cut is required. They're ideally suited for trailer hitch installations, or single pass through holes in square and rectangular pipe and tubing. The cutter and arbor are a single-piece construction and include a spring loaded ejector for "popping out" the slug at the end of the cut. For use in 3/8" or larger drill chucks.



Part No.	Description
16005	Kit contains (4) Cutters: 3/8, 7/16, 1/2, & 9/16", (2) extra Pilots, and a Hex Wrench



CARBIDE HOLCUTTER™ FOR SHEET METAL AND THIN MATERIALS

NEW!

day out use. Features a shoulder stop to prevent over penetration of the work piece. Ejector Spring helps with slug ejection. Tungsten carbide provides long tool life and smooth cutting action. Dramatically outlasts bi-metal hole saws and step drills. For materials up to 1/8" thick. (All cutters include arbor, pilot and spring.)

Contractor's Choice

New Carbide Holcutters cut smooth, fast, burr-free holes in all types of materials, from soft aluminum to tough-to-cut stainless and cast iron. Rugged construction for day in and

Cutter Dia. (Inches)	Decimal Equiv.	Part No.
1-3/8	1.3750	14344
1-1/2	1.5000	14348
1-5/8	1.6250	14352
1-3/4	1.7500	14356
2	2.0000	14362
2-1/8	2.1250	14366
2-1/4	2.2500	14368
2-3/8	2.3750	14372
Replacement Pilot 14302 & Spring 14304 (1/2" Chuck)		
2-1/2	2.5000	14374
2-5/8	2.6250	14378
2-3/4	2.7500	14380
3	3.0000	14384

Cutter Dia. (Inches)	Decimal Equiv.	Part No.
Replacement Pilot 14301 & Spring 14303 (3/8" Chuck)		
11/16	.6875	14322
3/4	.7500	14324
13/16	.8125	14326
7/8	.8750	14328
15/16	.9375	14330
1	1.0000	14332
1-1/16	1.0625	14334
1-1/8	1.1250	14336
1-3/16	1.1875	14338
1-1/4	1.2500	14340
1-5/16	1.3125	14342

Part No.	Description
14301	Pilot for cutters up to 2-3/8" (3 Pk)
14302	Pilot for cutters 2-1/2" to 3" (3 Pk)
14303	Spring for cutters up to 2-3/8" (3 Pk)
14304	Spring for cutters 2-1/2" to 3" (3 Pk)

HOLCUTTER™ FOR SHEET METAL AND THIN MATERIALS



Our standard HSS Holcutters. Lasts 3x longer and cuts 10x faster than bi-metal hole saws or twist drills. All cutters use a single arbor, with a Patented Quad-Lead thread mounting system. For materials up to 1/8" thick.

Cutter Dia. (Inches)	Decimal Equiv.	Part No.
Quad-Lead thread mount - Use Arbor 14009		
11/16	.6875	14222
3/4	.7500	14224
13/16	.8125	14226
7/8	.8750	14228
15/16	.9375	14230
1	1.0000	14232
1-1/16	1.0625	14234
1-1/8	1.1250	14236

1-3/16	1.1875	14238
1-1/4	1.2500	14240
1-5/16	1.3125	14242
1-3/8	1.3750	14244
1-7/16	1.4375	14246
1-1/2	1.5000	14248
1-9/16	1.5625	14250
1-5/8	1.6250	14252
1-11/16	1.6875	14254
1-3/4	1.7500	14256
1-7/8	1.8750	14260
2	2.0000	14262
2-1/16	2.0625	14264
2-1/8	2.1250	14266
2-1/4	2.2500	14268
2-3/8	2.3750	14272
2-1/2	2.5000	14274
2-9/16	2.5625	14276
2-5/8	2.6250	14278
2-3/4	2.7500	14280
2-7/8	2.8750	14282
3	3.0000	14284



Part No.	Description
13007C	Pilot for 14009 Arbor (3 Pk)
14009	Arbor (3/8" Chuck) for Quad-Lead Threaded Cutters
ARBORS FOR DISCONTINUED HOLCUTTERS	
14001	Arbor for 3/8" Threaded Cutters
14002	Arbor for older style Double "D" Holcutters
14004	Arbor for Double "D" Cutters

HOLCUTTER™ KIT



Part No.	Description
14005C	Sturdy plastic case contains Arbor, Pilots, Hex Washer, instructions, and Holcutters: 7/8, 1-1/8, 1-3/8, 1-3/4, 2 & 2-1/2"
14005-12	Case of (12) 14005 Kits

HOLCUTTER™ SPEED REDUCER



Featuring a 4:1 gear ratio, the Holcutter™ Speed Reducer mounts directly to your 1/2" drill and maintains torque while reducing RPMs for large hole diameters. Cutters mount to Speed Reducer with no arbor required.

Part No.	Description
14008	Speed Reducer for 1/2" Drills
*04938	Clamp Handle
*04939	3/16" Pilot
04942	Thread Adapter for 3/8" Drills
04943	Triple-flatted Shank Adapter (for use in 1/2" drill chuck)
04812	Hex Washer (for easy cutter removal)

* Details marked are required to operate Speed Reducer

TORNADO II™ PAINT SHAKER



The 24 pound Hougen® Tornado II™ Portable Paint Shaker can be used on benches or the floor without bolting it down. Blending cycles can be set to numerous time intervals via the convenient up-front control panel. Three-axis orbital action assures complete mixing of gallons, pints, quarts or aerosols. Easy to use four-point clamping securely holds containers while minimal moving parts provide quiet operation. 115V. 15-1/2"H x 15-3/8"W x 11-1/2"D

**Mixes Pints, Quarts, Gallons,
& Aerosols**

Multi-Motion Blending



Orbital



Side-to-Side



Up & Down

TORNADO II PAINT SHAKER

Part No.	Description
51200	Tornado II™ Paint Shaker

POP DISPLAYS



These counter top displays help to make the point-of-purchase sale for you. They're easy to setup and are a good way to get the product in front of your customer.

Part No.	Description
11075-12	Case of (12) RotaCut™ Kits
11746-24	Case of (24) Mini Slick-Stik™
12900	Case of (28) Rotabroach® "12,000-Series" Cutters in 1" and 2" D.O.C. in sizes from 7/16" up to 1-3/8" diameter



The RotaCut™ Hole Making Center is designed to get the RotaCut™ Cutters and Kits in front of customers. You'll display open kits, replacement cutters, arbors and pilots. Your customers have the option of buying any single component or a mix of their choosing.

ROTACUT™ HOLE MAKING CENTER

Part No.	Description
11000C	RotaCut™ Hole Making Center includes Kits and replacement components in clamshell packages for easy display.



The Holcutter™ display is designed to work along side of the RotaCut™ Hole Making Center, or as a stand alone.

HOLCUTTER™ HOLE MAKING CENTER

Part No.	Description
14000C	Holcutter™ Hole Making Center includes Kits and replacement components in clamshell packages for easy display.



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EQUIPMENT LTD

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PUNCH-PRO™

PUNCH MORE HOLES, MORE OFTEN, IN MORE PLACES, IN LESS TIME



You'll punch more holes, more often in more places all in less time using a Hougen®-Ogura™ Punch-Pro™ Electro-hydraulic Hole Puncher because of its lightweight and single body construction. Unlike hole punchers with separate hydraulics that require hydraulic hoses, the Punch-Pro™ series has unique single-body construction meaning there is only a 115v power cord to deal with.

Punch-Pro™ models require less punching tonnage than traditional hole punchers because of an exclusive punch and die design. Five Punch-Pro™ models offer punching diameters from 1/4" up to 15/16" thru material thicknesses from 5/64" up to 1/2". Punching beats drilling.

A Punch-Pro™ dramatically reduces your hole-making costs over conventional drilling methods.

Time Savings — Punch-Pro™ users have documented increases in productivity over other holemaking methods. One user stated that he had achieved a 75% time savings over the old method of using twist drills.

Fast Cycle Times — Punch clean and accurate holes in as little as 1.2 seconds. A single trigger actuates the punch while an exclusive auto-return mechanism returns to the punch starting position.

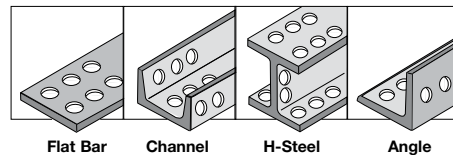
Ease Of Handling — Single body lightweight construction starting at 26 lbs. make these units easy to handle and move with only a single 115v power cord and no separate hydraulics. And operator fatigue is reduced since the Punch-Pro™ does all the work.

Accuracy — Eliminates the need to pre-drill or pre-punch. To confirm the punch position, simply jog the punch down to the center mark for the hole location. A convenient release valve allows ease of repositioning if required.



Punches are designed to punch mild or structural steel. For other materials contact Hougen Technical Service 800-426-7818.

75002.5A



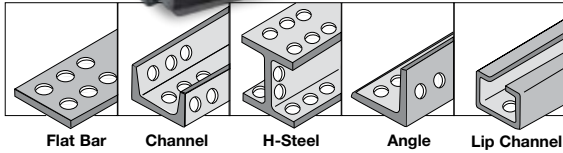
Designed for applications typically done with hand held twist drills. At just 26 pounds, our lightest weight model is easily handled in all types of punching applications, onsite or in the shop. Punch round, oblong and square holes in materials from 5/64" up to 1/4" thick. Its 2-3/8" throat depth provides excellent reach and versatility. Easily confirm the hole position with the jog down feature. Punch automatically returns to the starting position after the punching cycle is complete. Work stand, foot switch, 9/16" punch & (2) dies, tool kit and carrying case are included.

75002.5A Specifications

Pressure (Tons)	Approximate Punching Speed
13.2	1.2 seconds
Maximum Hole Size - Round	Maximum Thickness - Round
25/32"	19/64"
Maximum Hole Size - Oblong	Maximum Thickness - Oblong
9/16" x 13/16"	1/4"
Maximum Hole Size - Square	Maximum Thickness - Square
7/16"	1/4"
Maximum Punch Throat Depth	Single Phase 120V/50-60Hz AC
2-3/8"	9.5 Amps / 1050 Watts
Weight (less work stand)	Shipping Weight (approx)
26 lbs	49.7 lbs

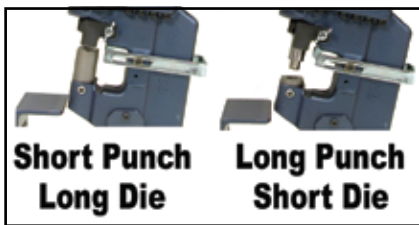
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75003A



Flat Bar Channel H-Steel Angle Lip Channel

Provides extra versatility with a unique throat design and the ability to adapt to two punch and die styles. The standard punch/long die combination allows flanged sections to be "swallowed" while the long punch/standard die combination allows the tooling to reach through narrow lip channel to punch the web section. It has the jog down and automatic punch return features like all models. Work stand, foot switch, 9/16" punch & (2) dies, tool kit and carrying case are included.

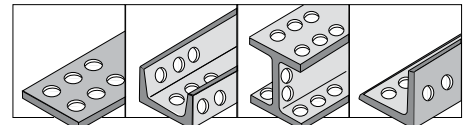


Short Punch Long Die **Long Punch Short Die**

75003A Specifications

Pressure (Tons)	Approximate Punching Speed
14.85	1.5 seconds
Maximum Hole Size - Round	Maximum Thickness - Round
25/32"	19/64"
Maximum Hole Size - Oblong	Maximum Thickness - Oblong
9/16" x 13/16"	1/4"
Maximum Punch Throat Depth	Single Phase 120V/50-60Hz AC
2-5/32"	9.5 Amps / 1050 Watts
Weight (less work stand)	Shipping Weight (approx)
35.8 lbs	60.7 lbs

75004A



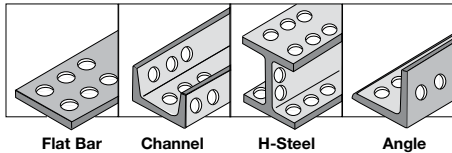
Flat Bar Channel H-Steel Angle

Still portable yet its 22 ton punching pressure and double insulated motor move it up to punching 3/8" materials. Its added capacities and weight make it more suitable to using the work stand and foot switch for best performance. Easily confirm the hole position with the jog down feature. Punch automatically returns to the starting position after the punching cycle is complete. Work stand, foot switch, 11/16" punch & die, tool kit and carrying case are included.

75004A Specifications

Pressure (Tons)	Approximate Punching Speed
22	2 seconds
Maximum Hole Size - Round	Maximum Thickness - Round
13/16"	3/8"
Maximum Hole Size - Oblong	Maximum Thickness - Oblong
9/16" x 13/16"	3/8"
Maximum Punch Throat Depth	Single Phase 120V/50-60Hz AC
1-9/16"	9.5 Amps / 1050 Watts
Weight (less work stand)	Shipping Weight (approx)
39.7 lbs	63.6 lbs

75005

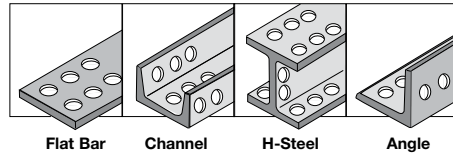


Flat Bar Channel H-Steel Angle

This heavy-duty model is built for punching up to 7/8" diameter holes in materials up to 3/8" thick. The addition of eyebolts on both sides of the unit allows for easy attachment of a lift assist or a counter-balancer for improved ergonomics. Its 3-15/16" throat depth adds to its versatility covering a wide range of work pieces. Easily confirm the hole position with the jog down feature. Punch automatically returns to the starting position after the punching cycle is complete. Work stand, foot switch, 13/16" punch & (2) dies and tool kit are included.

75005 Specifications	
Pressure (Tons)	Approximate Punching Speed
27.5	3 seconds
Maximum Hole Size - Round	Maximum Thickness - Round
7/8"	3/8"
Maximum Hole Size - Oblong	Maximum Thickness - Oblong
11/16" x 13/16"	3/8"
Maximum Punch Throat Depth	Single Phase 115V/50-60Hz AC
3-15/16"	12.2 Amps
Weight (less work stand)	Shipping Weight (approx)
79.3 lbs	110 lbs

75006



Flat Bar Channel H-Steel Angle

Our heaviest duty model, the 75006, develops 34.1 tons pressure and will produce round holes up to a maximum of 15/16" diameter and punch through a maximum thickness of 1/2" material in approximately 4 seconds. It has eyebolts on both sides for easy attachment of a lift assist or a counter-balancer for improved ergonomics. Like all Punch-Pro models, its single body design makes it easy to use anywhere. Easily confirm the hole position with the jog down feature. Punch automatically returns to the starting position after the punching cycle is complete. Work stand, foot switch, 13/16" punch & (2) dies and tool kit are included.

75006 Specifications	
Pressure (Tons)	Approximate Punching Speed
34.1	4 seconds
Maximum Hole Size - Round	Maximum Thickness - Round
15/16"	1/2"
Maximum Hole Size - Oblong	Maximum Thickness - Oblong
11/16" x 13/16"	1/2"
Maximum Punch Throat Depth	Single Phase 115V/50-60Hz AC
1-31/32"	12.2 Amps
Weight (less work stand)	Shipping Weight (approx)
65 lbs	88.3 lbs

PUNCH-PRO™ — MODEL 75002.5A

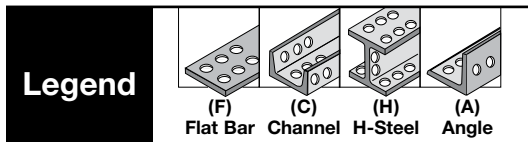
ROUND PUNCH				MATERIAL		DIE	
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
1/4"	.256	6.5mm	75421	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/4 A	75432
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/4 B	75433
5/16"	.315	8mm	75422	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 5/16 A	75434
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/16 B	75435
11/32"	.335	8.5mm	75423	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/32 A	75436
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/32 B	75437
3/8"	.394	10mm	75424	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 3/8 A	75438
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 3/8 B	75439
				19/64 (.297) max.	C	Die 3/8 C	75450
7/16"	.433	11mm	75425	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 A	75440
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 B	75441
				19/64 (.297) max.	C	Die 7/16 C	75451
1/2"	.512	13mm	75426	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 A	75442
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 B	75443
				19/64 (.297) max.	C	Die 1/2 C	75452
9/16"	.551	14mm	75427	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 A	75444
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 B	75445
				19/64 (.297) max.	C	Die 9/16 C	75453
5/8"	.625	15.9mm	75428	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 5/8 A	75446
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/8 B	75447
11/16"	.688	17.5mm	75429	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/16 A	75448
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 B	75449
3/4"	.748	19mm	75430	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 3/4 A	75729
				>1/8 (.125) to 3/16 (.188) 10 to 7 GA.	F, A, H	Die 3/4 B	75730
25/32"	.787	20mm	75431	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 25/32 A	75731
				>1/8 (.125) to 3/16 (.188) 10 to 7 GA.	F, A, H	Die 25/32 B	75732

OBLONG PUNCH				MATERIAL		DIE	
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
1/4" X 1/2"	.256 X .512	6.5mm X 13mm	75638	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/4 x 1/2 A	75643
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/4 x 1/2 B	75644
				19/64 (.297) max.	C	Die 1/4 x 1/2 C	75653
11/32" x 1/2"	.335 x .512	8.5mm x 13mm	75639	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/32 x 1/2 A	75645
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/32 x 1/2 B	75646
				19/64 (.297) max.	C	Die 11/32 x 1/2 C	75654
7/16" x 5/8"	.433 x .650	11mm x 16.5mm	75640	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 x 5/8 A	75647
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 x 5/8 B	75648
				19/64 (.297) max.	C	Die 7/16 x 5/8 C	75655
1/2" x 3/4"	.512 x .768	13mm x 19.5mm	75641	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 x 3/4 A	75649
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 x 3/4 B	75650
9/16" x 13/16"	.551 x .827	14mm x 21mm	75642	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 x 13/16 A	75651
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 x 13/16 B	75652

SQUARE PUNCH				MATERIAL		DIE	
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
1/4"	.256	6.5mm	75800	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/4 B	75804
5/16"	.315	8mm	75801	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/16 B	75805
3/8"	.394	10mm	75802	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 3/8 B	75806
7/16"	.433	11mm	75803	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 B	75807



Punching capacity data is based on mild steel of 65,000 psi tensile strength.



PUNCH-PRO™ — MODEL 75003A

ROUND PUNCH			MATERIAL		DIE		
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
1/4"	.256	6.5mm	75421	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 1/4 A	75454
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 1/4 B	75455
5/16"	.315	8mm	75422	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 5/16 A	75456
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 5/16 B	75457
11/32"	.335	8.5mm	75423	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 11/32 A	75458
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 11/32 B	75459
3/8"	.394	10mm	75424	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 3/8 A	75460
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 3/8 B	75461
			75476 (LP)	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H, L	Die 3/8 A	75438
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H, L	Die 3/8 B	75439
				19/64 (.297) max.	C	Die 3/8 C	75450
7/16"	.433	11mm	75425	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 7/16 A	75462
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 7/16 B	75463
			75477 (LP)	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H, L	Die 7/16 A	75440
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H, L	Die 7/16 B	75441
				19/64 (.297) max.	C	Die 7/16 C	75451
1/2"	.512	13mm	75426	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 1/2 A	75464
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 1/2 B	75465
			75478 (LP)	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H, L	Die 1/2 A	75442
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H, L	Die 1/2 B	75443
				19/64 (.297) max.	C	Die 1/2 C	75452
9/16"	.551	14mm	75427	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 9/16 A	75466
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 9/16 B	75467
			75479 (LP)	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H, L	Die 9/16 A	75444
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H, L	Die 9/16 B	75445
				19/64 (.297) max.	C	Die 9/16 C	75453
5/8"	.625	15.9mm	75428	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 5/8 A	75468
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 5/8 B	75469
11/16"	.688	17.5mm	75429	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 11/16 A	75470
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 11/16 B	75471
3/4"	.748	19mm	75430	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 3/4 A	75472
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 3/4 B	75473
25/32"	.787	20mm	75431	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 25/32 A	75474
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 25/32 B	75475

OBLONG PUNCH			MATERIAL		DIE		
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
1/4" x 1/2"	.256 x .512	6.5mm x 13mm	75638	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 1/4 x 1/2 A	75656
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 1/4 x 1/2 B	75657
	75666 (LP)	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H, L	Die 1/4 x 1/2 A	75643		
		>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H, L	Die 1/4 x 1/2 B	75644		
		19/64 (.297) max.	C	Die 1/4 x 1/2 C	75653		
11/32" x 1/2"	.335 x .512	8.5mm x 13mm	75639	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 11/32 x 1/2 A	75658
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 11/32 x 1/2 B	75659
	75667 (LP)	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H, L	Die 11/32 x 1/2 A	75645		
		>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H, L	Die 11/32 x 1/2 B	75646		
		19/64 (.297) max.	C	Die 11/32 x 1/2 C	75654		
7/16" x 5/8"	.433 x .650	11mm x 16.5mm	75640	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 7/16 x 5/8 A	75660
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 7/16 x 5/8 B	75661
	75668 (LP)	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H, L	Die 7/16 x 5/8 A	75647		
		>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H, L	Die 7/16 x 5/8 B	75648		
		19/64 (.297) max.	C	Die 7/16 x 5/8 C	75655		
1/2" x 3/4"	.512 x .768	13mm x 19.5mm	75641	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 1/2 x 3/4 A	75662
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 1/2 x 3/4 B	75663
9/16" x 13/16"	.551 x .827	14mm x 21mm	75642	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die LD 9/16 x 13/16 A	75664
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die LD 9/16 x 13/16 B	75665



Punching capacity data is based on mild steel of 65,000 psi tensile strength.

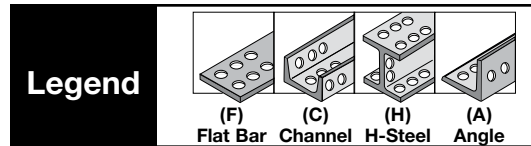
Legend						LP=Long Punch LD=Long Die
	(F) Flat Bar	(C) Channel H-Steel	(H) H-Steel	(A) Angle	(L) Lip Channel	

PUNCH-PRO™ — MODEL 75004A

ROUND PUNCH			MATERIAL		DIE		
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
1/4"	.256	6.5mm	75484	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/4 R	75495
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/4 S	75496
5/16"	.315	8mm	75485	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 5/16 R	75497
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/16 S	75498
11/32"	.335	8.5mm	75486	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/32 R	75499
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/32 S	75500
3/8"	.394	10mm	75487	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 3/8 R	75501
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 3/8 S	75502
				5/16 (.312) max.	C	Die 3/8 C	75524
7/16"	.433	11mm	75488	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 R	75503
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 S	75504
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/16 T	75505
				5/16 (.312) max.	C	Die 7/16 C	75525
1/2"	.512	13mm	75489	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 R	75506
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 S	75507
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 T	75508
				5/16 (.312) max.	C	Die 1/2 C	75526
9/16"	.551	14mm	75490	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 R	75509
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 S	75510
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 T	75511
				5/16 (.312) max.	C	Die 9/16 C	75527
5/8"	.625	15.9mm	75491	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 5/8 R	75512
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/8 S	75513
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 5/8 T	75514
				5/16 (.312) max.	C	Die 5/8 C	75528
11/16"	.688	17.5mm	75492	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/16 R	75515
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 S	75516
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 11/16 T	75517
				5/16 (.312) max.	C	Die 11/16 C	75529
3/4"	.750	19mm	75493	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 3/4 R	75518
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 3/4 S	75519
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 3/4 T	75520
				5/16 (.312) max.	C	Die 3/4 C	75530
25/32"	.787	20mm	75494	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 25/32 R	75521
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 25/32 S	75522
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 25/32 T	75523
				5/16 (.312) max.	C	Die 25/32 C	75531
13/16"	.812	20.6mm	75733	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 13/16 R	75734
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 13/16 S	75787
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 13/16 T	75785
				5/16 (.312) max.	C	Die 13/16 C	75786

OBLONG PUNCH			MATERIAL		DIE		
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
1/4" x 1/2"	.256 x .512	6.5mm x 13mm	75669	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/4 x 1/2 R	75674
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/4 x 1/2 S	75675
11/32" x 1/2"	.335 x .512	8.5mm x 13mm	75670	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/32 x 1/2 R	75676
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/32 x 1/2 S	75677
7/16" x 5/8"	.433 x .650	11mm x 16.5mm	75671	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 x 5/8 R	75678
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 x 5/8 S	75679
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/16 x 5/8 T	75680
				5/16 (.312) max.	C	Die 7/16 x 5/8 C	75687
1/2" x 3/4"	.512 x .768	13mm x 19.5mm	75672	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 x 3/4 R	75681
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 x 3/4 S	75682
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 x 3/4 T	75683
				5/16 (.312) max.	C	Die 1/2 x 3/4 C	75688
9/16" x 13/16"	.551 x .827	14mm x 21mm	75673	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 x 13/16 R	75684
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 x 13/16 S	75685
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 x 13/16 T	75686
				5/16 (.312) max.	C	Die 9/16 x 13/16 C	75689

Punching capacity data is based on mild steel of 65,000 psi tensile strength.



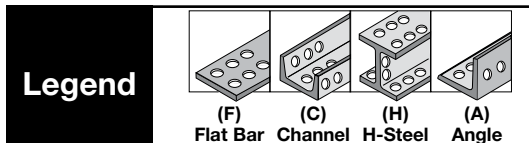
PUNCH-PRO™ — MODEL 75005

ROUND PUNCH				MATERIAL		DIE	
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
7/16"	.433	11mm	75532	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 A	75541
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/16 B	75542
				5/16 (.312) max.	C	Die 7/16 C	75559
1/2"	.512	13mm	75533	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 A	75543
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 B	75544
				5/16 (.312) max.	C	Die 1/2 C	75560
9/16"	.551	14mm	75534	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 A	75545
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 B	75546
				5/16 (.312) max.	C	Die 9/16 C	75561
5/8"	.625	15.9mm	75535	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/8 A	75547
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 5/8 B	75548
				5/16 (.312) max.	C	Die 5/8 C	75562
11/16"	.688	17.5mm	75536	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 A	75549
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 11/16 B	75550
				5/16 (.312) max.	C	Die 11/16 C	75563
3/4"	.750	19mm	75537	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 3/4 A	75551
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 3/4 B	75552
				5/16 (.312) max.	C	Die 3/4 C	75564
25/32"	.787	20mm	75538	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 25/32 A	75553
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 25/32 B	75554
				5/16 (.312) max.	C	Die 25/32 C	75565
13/16"	.812	20.6mm	75539	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 13/16 A	75555
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 13/16 B	75556
				5/16 (.312) max.	C	Die 13/16 C	75566
7/8"	.875	22.2mm	75540	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/8 A	75557
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/8 B	75558
				5/16 (.312) max.	C	Die 7/8 C	75567

OBLONG PUNCH				MATERIAL		DIE	
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
7/16" x 5/8"	.433 x .650	11mm x 16.5mm	75690	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 x 5/8 A	75694
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/16 x 5/8 B	75695
				5/16 (.312) max.	C	Die 7/16 x 5/8 C	75702
1/2" x 3/4"	.512 x .768	13mm x 19.5mm	75691	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 x 3/4 A	75696
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 x 3/4 B	75697
				5/16 (.312) max.	C	Die 1/2 x 3/4 C	75703
9/16" x 13/16"	.551 x .827	14mm x 21mm	75692	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 x 13/16 A	75698
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 x 13/16 B	75699
				5/16 (.312) max.	C	Die 9/16 x 13/16 C	75704
11/16" x 13/16"	.709 x .827	18mm x 21mm	75693	>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 x 13/16 A	75700
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 11/16 x 13/16 B	75701



Punching capacity data is based on mild steel of 65,000 psi tensile strength.



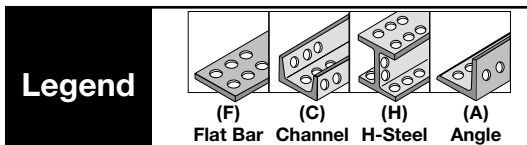
PUNCH-PRO™ — MODEL 75006

ROUND PUNCH			Part No.	MATERIAL		DIE	
Size				Thickness	Style	Size	Part No.
Nominal	Actual	Metric					
7/16"	.433	11mm	75568	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 A	75578
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 B	75579
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/16 C	75580
				5/16 (.312) max.	C	Die 7/16 CC	75616
1/2"	.512	13MM	75569	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 A	75581
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 B	75582
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 C	75583
				5/16 (.312) max.	C	Die 1/2 CC	75617
9/16"	.552	14mm	75570	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 A	75584
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 B	75585
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 C	75586
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 9/16 D	75587
				5/16 (.312) max.	C	Die 9/16 CC	75618
				>5/16 (.312) to 1/2 (.500)	C	Die 9/16 CD	75619
5/8"	.625	15.9mm	75571	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 5/8 A	75588
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/8 B	75589
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 5/8 C	75590
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 5/8 D	75591
				5/16 (.312) max.	C	Die 5/8 CC	75620
				>5/16 (.312) to 1/2 (.500)	C	Die 5/8 CD	75621
11/16"	.688	17.5mm	75572	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/16 A	75592
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 B	75593
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 11/16 C	75594
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 11/16 D	75595
				5/16 (.312) max.	C	Die 11/16 CC	75622
				>5/16 (.312) to 1/2 (.500)	C	Die 11/16 CD	75623
3/4"	.750	19mm	75573	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 3/4 A	75596
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 3/4 B	75597
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 3/4 C	75598
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 3/4 D	75599
				5/16 (.312) max.	C	Die 3/4 CC	75624
				>5/16 (.312) to 1/2 (.500)	C	Die 3/4 CD	75625
25/32"	.787	20mm	75574	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 25/32 A	75600
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 25/32 B	75601
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 25/32 C	75602
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 25/32 D	75603
				5/16 (.312) max.	C	Die 25/32 CC	75626
				>5/16 (.312) to 1/2 (.500)	C	Die 25/32 CD	75627

ROUND PUNCH			Part No.	MATERIAL		DIE	
Size				Thickness	Style	Size	Part No.
Nominal	Actual	Metric					
13/16"	.812	20.6mm	75575	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 13/16 A	75604
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 13/16 B	75605
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 13/16 C	75606
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 13/16 D	75607
				5/16 (.312) max.	C	Die 13/16 CC	75628
				>5/16 (.312) to 1/2 (.500)	C	Die 13/16 CD	75629
7/8"	.875	22.2mm	75576	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/8 A	75608
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/8 B	75609
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/8 C	75610
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 7/8 D	75611
				5/16 (.312) max.	C	Die 7/8 CC	75630
				>5/16 (.312) to 1/2 (.500)	C	Die 7/8 CD	75631
15/16"	.938	23.8mm	75577	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 15/16 A	75612
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 15/16 B	75613
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 15/16 C	75614
				>3/8 (.375) to 15/32 (.469)	F, A, H	Die 15/16 D	75615

OBLONG PUNCH			Part No.	MATERIAL		DIE	
Size				Thickness	Style	Size	Part No.
Nominal	Actual	Metric					
7/16" x 5/8"	.433 x .650	11mm x 16.5mm	75705	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 x 5/8 A	75709
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 x 5/8 B	75710
	>1/4 (.250) to 3/8 (.375)	F, A, H		Die 7/16 x 5/8 C	75711		
	5/16 (.312) max.	C		Die 7/16 x 5/8 CC	75723		
1/2" x 3/4"	.512 x .768	13mm x 19.5mm	75706	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 x 3/4 A	75712
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 x 3/4 B	75713
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 x 3/4 C	75714
9/16" x 13/16"	.551 x .827	14mm x 21mm	75707	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 x 13/16 A	75715
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 x 13/16 B	75716
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 x 13/16 C	75717
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 9/16 x 13/16 D	75718
				5/16 (.312) max.	C	Die 9/16 x 13/16 CC	75725
				>5/16 (.312) to 1/2 (.500)	C	Die 9/16 x 13/16 CD	75726
11/16" x 13/16"	.709 x .827	18mm x 21mm	75708	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/16 x 13/16 A	75719
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 x 13/16 B	75720
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 11/16 x 13/16 C	75721
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 11/16 x 13/16 D	75722
				5/16 (.312) max.	C	Die 11/16 x 13/16 CC	75727
				>5/16 (.312) to 1/2 (.500)	C	Die 11/16 x 13/16 CD	75728

Punching capacity data is based on mild steel of 65,000 psi tensile strength.



OTHER HELPFUL INFORMATION

Material Cutting Speed: Surface Feet per Minute (SFM)

Type of Material	Brinell Hardness	Cutting Speed (sfm)	Tool Material
Aluminum <ul style="list-style-type: none"> Wrought & Cast Die cast 360.0, 380.0, 383.0, 413.0, 390.0, 392.0 	* 30-150	500-1000	M2
	* 40-125	450-600	M2
	* 40-125	450-600	M2
	* 40-125	75-100	M2
Brass & Bronze	----	300-600	M2
Cast Iron <ul style="list-style-type: none"> Soft Medium Chilled 	120-150	75-125	M2
	160-220	50-100	M2/Premium
	230-300	30-50	Premium
Malleable Iron <ul style="list-style-type: none"> Ferritic Pearlitic Tempered Matensite 	110-160	100-130	M2
	160-220	75-100	M2
	200-320	30-60	Premium
Magnesium	* 50-90	400-800	M2
Nickel Alloys <ul style="list-style-type: none"> 200-230 Monel 400-404 Monel K500, 502 	80-170	60-80	M2
	115-240	35-50	M2
	150-330	20-40	Premium
Steel Free Machining <ul style="list-style-type: none"> Resulphurized/Leaded 	----	105-130	M2
Carbon Steel	125-160	90-110	M2
Steel Alloys Soft	170-210	65-90	M2
Steel Alloys Medium	220-250	55-75	M2
Steel Alloys Hard	260-300	35-50	M2/Premium
	325-400	30-40	Premium/Super
Tool Steel <ul style="list-style-type: none"> T15, M42, D2 M2, A2 S6, H13 	210-250	35-60	M2/Premium
Forgings	----	40-50	M2
Armor Plate	200-250	40-55	M2/Premium
	250-300	30-45	Premium/Super
Stainless Steel Ferritic <ul style="list-style-type: none"> 430/405 430F 	135-185	90-125	M2
Stainless Steel Austenitic <ul style="list-style-type: none"> Lower BHN Higher BHN <ul style="list-style-type: none"> 309/316 301/304 303/203EZ 	135-185	55-75	M2
	225-275	40-70	M2
Stainless Steel Nitronic (Low Alloy)	275-325	25-35	Premium
Stainless Steel Martensitic <ul style="list-style-type: none"> By Hardness Range <ul style="list-style-type: none"> 501 416/440F 	135-185	70-125	M2
	185-240	45-110	M2
	275-325	35-55	Premium
	375-425	30-55	Super Premium
Stainless Steel Precipitation Hardening <ul style="list-style-type: none"> By Hardness Range <ul style="list-style-type: none"> 17-4 PH 	150-200	45-55	M2
	275-325	40-50	Premium
	325-375	35-45	Super Premium

Carbide Cutting Speed: Surface Feet per Minute (SFM)

Mild Steel	Stainless	Cast Iron
164	115	131

Hardness Conversion Chart

Rockwell Hardness "C" Scale	Brinell Hardness
20	226
25	253
28	271
30	286
32	301
34	319
36	336
38	353
40	371
43	400

Material Tensile Strength (Kc)

Material Type	BHN Hardness	Tensile Strength (Kc)
Free Machining & Low Carbon Steel	----	239,200
Carbon Steel	----	254,000
	125-160	283,000
Alloy Steel (soft)	----	297,000
	170-210	312,300
Alloy Steel (med. hard)	----	326,000
	220-250	341,000
Tool Steel (hot & cold worked)	210-250	355,000
Alloy Steel (hard)	260-300	370,000
Stainless Steel	----	370,000
Cast Iron	180 max.	167,000
	180-250	196,000
	250-300	255,000
Aluminum	----	106,000

Grind Down Limits

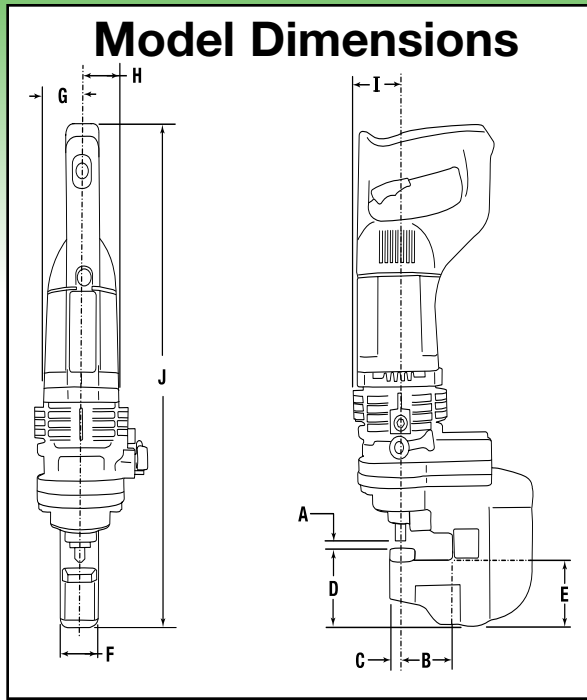
Dia. Range	Minimum (Inches)	Maximum (Inches)
RotaCut™		
1/4", 9/32", 6mm, 7mm	No Grind Down	
5/16" - 17/32"	.0015	.0070
8mm - 14mm	.0015	.0070
9/16" - 1-1/2"	.0020	.0100
15mm - 25mm	.0020	.0100
"12,000-Series"		
7/16", 1/2", 12mm, 13mm	.0020	.0100
9/16" - 1-5/16"	.0020	.0150
14mm - 34mm	.0020	.0150
1-3/8" - 2-3/8"	.0020	.0200
35mm - 51mm	.0020	.0200
"42,000-Series"		
7/16" - 11/16"	.0020	.0100
3/4" - 13/16"	.0020	.0150
7/8" - 2"	.0020	.0200
"43,000-Series"		
2-1/16" - 3-1/16"	.0020	.0200

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Speed & Feed Calculator



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Model Dimensions



Special Notice Regarding Punches and Dies

The exclusive Hougen-Ogura punch geometry and die clearances reduces press tonnage requirements and increases portability. Premium heat treated materials help achieve tool life increases of two to two and a half times that of other manufacturers and generic copies. The use of incorrect punches or dies could result in unacceptable performance or damage to the machine and may void the warranty. Hougen Manufacturing Inc. recommends the use of only genuine Hougen-Ogura punches and dies.

Hougen-Ogura Repair Center
Hougen Manufacturing, Inc.
 3001 Hougen Drive
 Swartz Creek, Michigan 48473
 Phone: (810) 635-7111
 Fax: (810) 635-8277

Part No.	A	B	C	D	E	F	G	H	I	J	
75002.5A	.31	2.36	.59	2.99	—	2.21	2.47	3.03	2.12	20.16	
75003A	.31	2.16	.59	L.D. 4.29	STD. 2.91	—	2.59	2.47	3.06	1.94	21.42
75004A	.43	1.57	.67	3.03	—	3.05	2.47	3.16	2.56	21.26	
75005	.43	3.94	.75	2.76	4.38	2.73	2.88	3.56	3.19	21.00	
75006	.59	1.97	.94	3.62	—	2.78	3.16	3.47	3.16	19.72	

OUR COMMITMENT TO PROVIDE YOU WITH HOLEMAKING INNOVATIONS

At Hougen®, we want you to make more holes, more often, in more places all in less time... profitably. To that end, Hougen engineers are constantly striving to bring you the right tools.

Hougen® Portable Magnetic Drills are just one of a family of Hole making products that can be found on the production floor or the job-site.

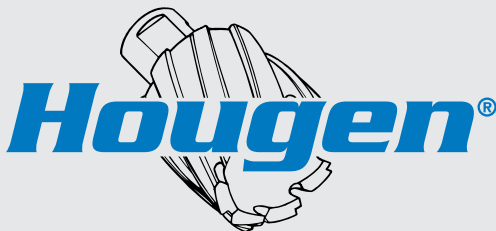
Ask your distributor about how Hougen's fine products can improve your Hole making productivity.

COMMERCIAL/INDUSTRIAL LIMITED WARRANTY

Hougen Manufacturing, Inc. warrants its Portable Magnetic Drills, Electro-hydraulic Hole Punchers, Trak-Star Rail Drills, and Tornado II Paint Shakers for one (1) year, and it's Partner Saw and other products for ninety (90) days from date of purchase against defects due to faulty material or workmanship and will repair or replace (at its option) without charge any items returned. This warranty is void if the item has been damaged by accident or unreasonable use, neglect, improper service, or other causes not arising out of defects in material or workmanship. No other expressed warranty is given or authorized. Hougen Manufacturing, Inc. disclaims any implied warranty of Merchant-ability or fitness for any period beyond the expressed warranty and shall not be liable for incidental or consequential damages. Some states do not allow exclusion of incidental or consequential damages or limitation on how long an implied warranty lasts and, if the law of such a state governs your purchase, the above exclusion and limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

To obtain warranty service, return the item(s), transportation prepaid to your nearest Factory Authorized Warranty Service Center, or to Hougen Manufacturing, Inc., 3001 Hougen Drive, Swartz Creek, MI 48473.

This warranty is in lieu of any other warranty, expressed or implied, including any warranty of merchantability or fitness for a particular purpose.

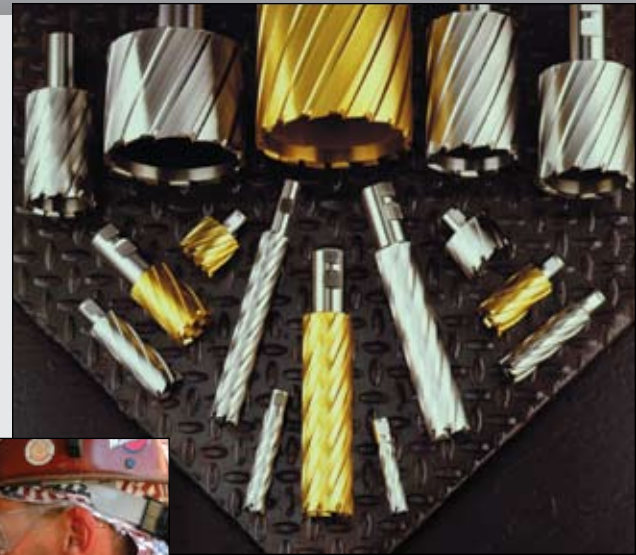


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