

How to Replace the Snap Chamfer Blade

Step 1:

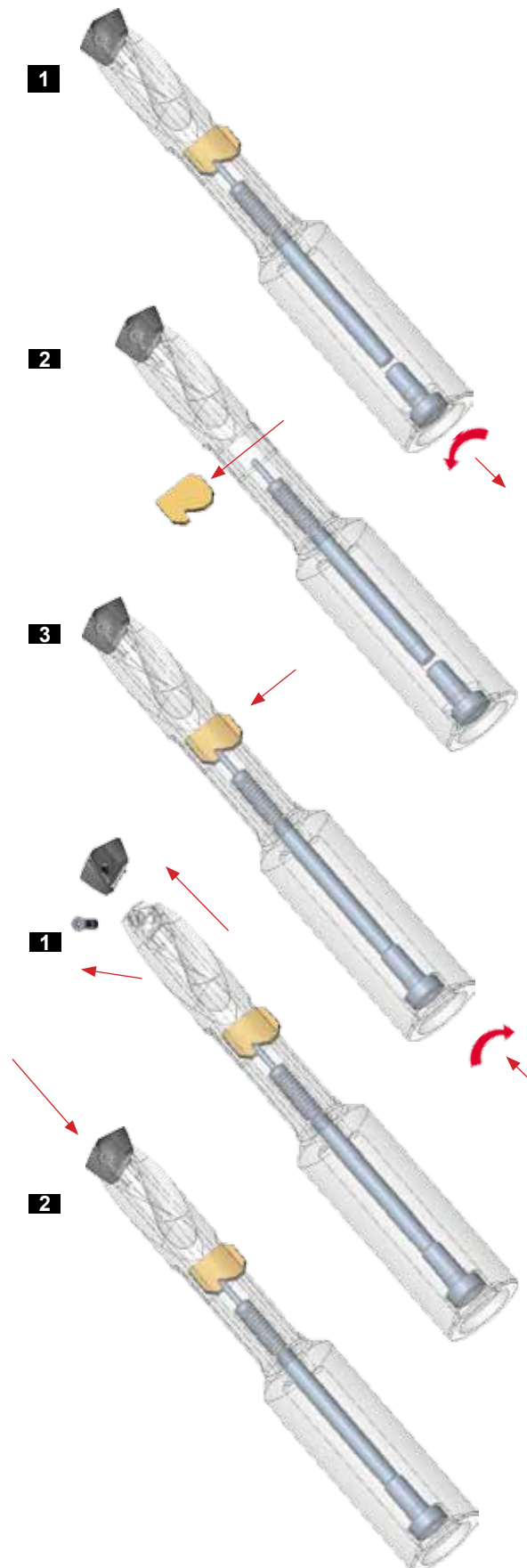
Turn cap screw counterclockwise approximately 3-5 turns.

Step 2:

Remove the blade by simply pushing it past center and out the back of the tool.

Step 3:

Install the new blade by pushing the back side of the blade through the window until it "snaps". Retighten screw clockwise. Check to make sure blade moves freely.



How to Replace the Drill Tip

Step 1:

Use Torx wrench to remove drill tip. Clean the drill connection.

Step 2:

Insert new drill tip and screw into holder. Tighten screw to recommended torque setting.

COMBI



Combination Drill with Front & Back Chamfering of Through Holes

- Save time and money by combining operations
- Ideal for automotive applications – wheels, brake discs
- Custom tooling options available for various multi-task operations
- Available in sizes 9.5-35mm

The HEULE COMBI tool is a unique innovation combining the proven throw-away style drill blades with HEULE's patented SNAP chamfering system to create a single tool. Simple tools combine drilling and chamfering, complex tools combine drilling, chamfering, countersinking, and spotfacing. This tool offers several machining operations in one machine cycle saving time, money, and space.

Combines Operations

The HEULE COMBI tool combines operations into one tool to reduce tool changes and cycle time, which saves time, money, and space. Reducing cycle time will boost production and allow a competitive advantage. With HEULE's proven SNAP chamfering system, the COMBI tool provides high quality consistent chamfers on every bore.



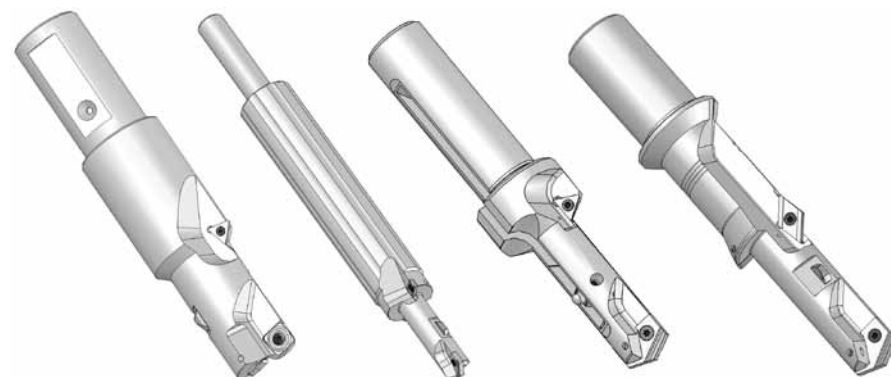
Ideal for Automotive Industry

The HEULE COMBI tool has proven very effective in the automotive industry, particularly with wheel, axle and brake disc applications. The tool design and function are well suited for high production environments and the proven drilling and SNAP chamfering systems provide consistent, high quality results.



Custom Tooling Options

The HEULE COMBI tool design provides the ability to create custom tooling for almost any application. The COMBI standard drilling range is 9.5-35mm (.374-1.378") and design options can combine drilling, spotfacing, and countersinking with chamfering or back chamfering only. Through coolant is available, as well as varied lengths to improve rigidity or meet specific application needs.



How Does It Work?

The Combi tool uses a standard spade drill and SNAP Chamfer Blade to create drilled holes that are chamfered and deburred on the front and back of the work piece in one operation.

The drill forward feeds completely through the work piece until the spade drill insert clears the part. Then rapid feed so the SNAP blade is within clearance of the top of the part. Feed the tool forward to produce the front chamfer. When the SNAP blade is retracted in the hole, only the ground sliding surface touches the hole protecting it from damage while the tool is fed through the part in rapid feed. There is no stopping or reversing the spindle.

When the blade reaches the back of the part past the burr the chamfer blade extends to the cutting position and then the tool is retracted with the same working feed and speed. When the blade is again in the hole, the tool can be rapid fed out and on to the next hole. Standard Countersink Combi tools add pocket ISO inserts to the tool body to create large front countersinks.

Typical Parts



How to Order:

1 Series

Bore Range Ød	Series
9.5 - 11.0	Y
11.1 - 12.9	Z
13.0 - 17.6	0
17.7 - 24.3	1
24.4 - 35.0	2

2 Bore Diameter Ød

Indicate the bore diameter here.
For example: Ø9.50 = 0950
Standard size as shown.

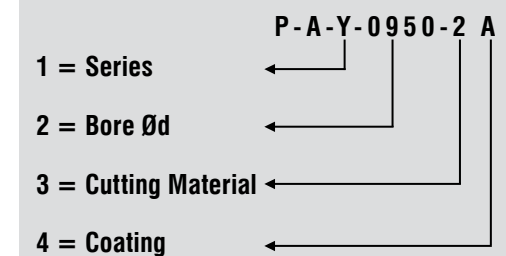
3 Cutting Material

HSS	1
C2 Carbide	2
C5 Carbide	3

4 Coating

Ucoated	U
TiN	T
TiAlN	A
DLC	D

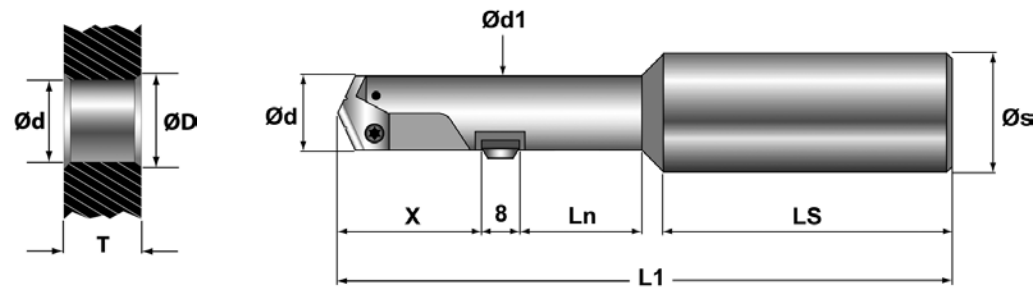
Order Number Example:



Sample:

Bore-Ød	= 9.50mm
Carbide Quality	= C2 Carbide
Coating	= TiAlN

Order Number: P-A-Y-0950-2A



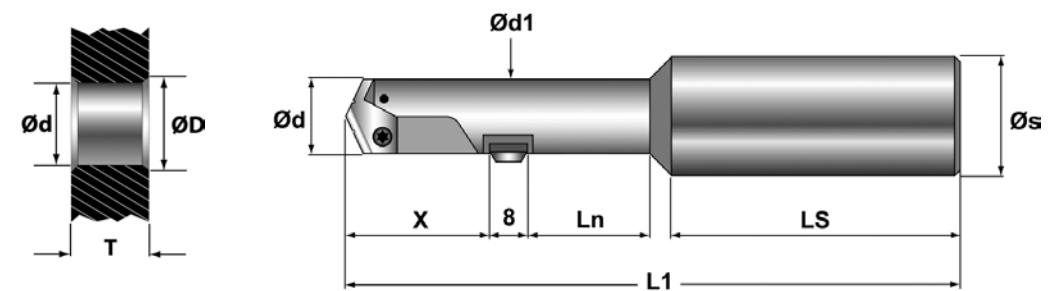
COMBI Drill Chamfer Tools Ø9.5-Ø17.99mm with coolant through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	X	L1	Ln	Ls	Øs
Y	GH-Q-O-3441	9.5 - 10.1	12 (.472")	9.4 (.370")	21.3 (.839")	102.3 (4.028")	17 (.669")	50 (1.969")	20 (.787")
	GH-Q-O-3445	10.2 - 11.0	12 (.472")	10.0 (.394")	21.3 (.839")	102.3 (4.028")	17 (.669")		
Z	GH-Q-O-3449	11.1 - 11.9	12 (.472")	10.8 (.425")	21.3 (.839")	102.3 (4.028")	17 (.669")		
	GH-Q-O-3453	12.0 - 12.9	14 (.551")	11.8 (.465")	24.3 (.957")	104.8 (4.126")	18 (.709")		

Chamfer Blade Options

Series	Ød Drill* mm inches	Tool Holder ¹ Order Number	Drill Tip Order Number	Cmf. Series	Blade, Carbide-TiN, 90°, front and back** Order Number (Chamfer ØD mm)			
					(0.25mm x 45°) GH-Q-M-	(0.5mm x 45°) GH-Q-M-	(0.75mm x 45°) GH-Q-M-	(1.0mm x 45°) GH-Q-M-
Y	9.53 .375	GH-Q-O-3441	P-A-Y-0953-2A	8	-03723 (10.0)	-03724 (10.5)	-03725 (11.0)	-
	10.0 .394	GH-Q-O-3441	P-A-Y-1000-2A		-03724 (10.5)	-03725 (11.0)	-03726 (11.5)	-
	10.32 13/32"	GH-Q-O-3445	P-A-Y-1032-2A		-03725 (11.0)	-03726 (11.5)	-03727 (12.0)	-
	10.5 .413	GH-Q-O-3445	P-A-Y-1050-2A		-03725 (11.0)	-03726 (11.5)	-03727 (12.0)	-
	11.0 .433	GH-Q-O-3445	P-A-Y-1100-2A		-03726 (11.5)	-03727 (12.0)	-03728 (12.5)	-
Z	11.1 7/16"	GH-Q-O-3449	P-A-Z-1110-2A	12	-03726 (11.5)	-03727 (12.0)	-03728 (12.5)	-
	11.5 .453	GH-Q-O-3449	P-A-Z-1150-2A		-03727 (12.0)	-03728 (12.5)	-03729 (13.0)	-
	11.91 15/32"	GH-Q-O-3449	P-A-Z-1191-2A		-03728 (12.5)	-03729 (13.0)	-03730 (13.5)	-
	12.0 .472	GH-Q-O-3453	P-A-Z-1200-2A		-03740 (12.5)	-03741 (13.0)	-03742 (13.5)	-03743 (14.0)
	12.5 .492	GH-Q-O-3453	P-A-Z-1250-2A		-03741 (13.0)	-03742 (13.5)	-03743 (14.0)	-03744 (14.5)
	12.7 1/2"	GH-Q-O-3453	P-A-Z-1270-2A		-03742 (13.5)	-03743 (14.0)	-03744 (14.5)	-03745 (15.0)

* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum.
Other drill sizes available upon request. Example: Ød = 13.75mm (.541") - P-A-O-1375-2A.
** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 1.5mm (series 8)/2.0mm (series 12).
¹ Non-stock standard item with extended delivery time.



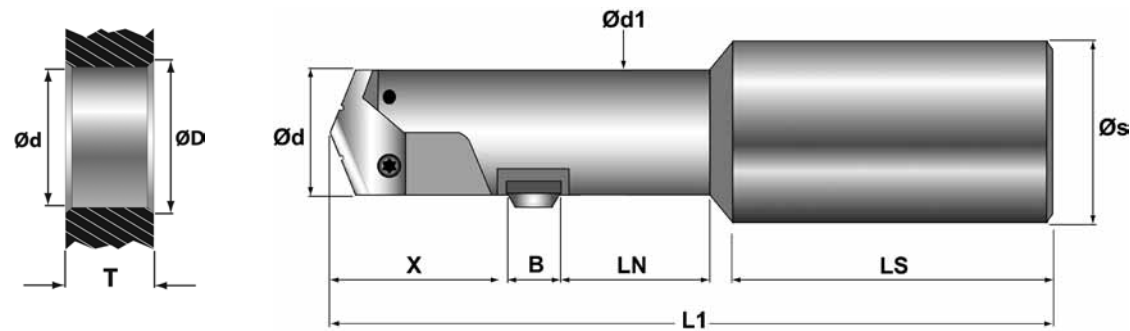
COMBI Drill Chamfer Tools Ø9.5-Ø17.99mm with coolant through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	X	L1	Ln	Ls	Øs
0	GH-Q-O-3457S	13.0 - 14.9	16 (.630")	12.8 (.504")	26.8 (1.055")	107.3 (4.224")	18 (.709")	50 (1.969")	20 (.787")
	GH-Q-O-3461S	15.0 - 17.9	18 (.709")	14.8 (.583")	29.8 (1.173")	115.8 (4.560")	24 (.945")		

Chamfer Blade Options

Series	Ød Drill* mm inches	Tool Holder ¹ Order Number	Drill Tip Order Number	Cmf. Series	Blade, Carbide-TiN, 90°, front and back** Order Number (Chamfer ØD mm)			
					(0.25mm x 45°) GH-Q-M-	(0.5mm x 45°) GH-Q-M-	(0.75mm x 45°) GH-Q-M-	(1.0mm x 45°) GH-Q-M-
0	13.0 .511	GH-Q-O-3457S	P-A-O-1300-2A	12	-03742 (13.5)	-03743 (14.0)	-03744 (14.5)	-03745 (15.0)
	13.5 .531	GH-Q-O-3457S	P-A-O-1350-2A		-03743 (14.0)	-03744 (14.5)	-03745 (15.0)	-03746 (15.5)
	14.0 .551	GH-Q-O-3457S	P-A-O-1400-2A		-03744 (14.5)	-03745 (15.0)	-03746 (15.5)	-03747 (16.0)
	14.29 9/16"	GH-Q-O-3457S	P-A-O-1429-2A		-03745 (15.0)	-03746 (15.5)	-03747 (16.0)	-03748 (16.5)
	14.5 .571	GH-Q-O-3457S	P-A-O-1450-2A		-03745 (15.0)	-03746 (15.5)	-03747 (16.0)	-03748 (16.5)
	15.0 .591	GH-Q-O-3461S	P-A-O-1500-2A		-03746 (15.5)	-03747 (16.0)	-03748 (16.5)	-03749 (17.0)
	15.5 .610	GH-Q-O-3461S	P-A-O-1550-2A		-03747 (16.0)	-03748 (16.5)	-03749 (17.0)	-03750 (17.5)
	15.88 5/8"	GH-Q-O-3461S	P-A-O-1588-2A		-03748 (16.5)	-03749 (17.0)	-03750 (17.5)	-03751 (18.0)
	16.0 .630	GH-Q-O-3461S	P-A-O-1600-2A		-03748 (16.5)	-03749 (17.0)	-03750 (17.5)	-03751 (18.0)
	16.5 .650	GH-Q-O-3461S	P-A-O-1650-2A		-03749 (17.0)	-03750 (17.5)	-03751 (18.0)	-03752 (18.5)
	17.0 .669	GH-Q-O-3461S	P-A-O-1700-2A		-03750 (17.5)	-03751 (18.0)	-03752 (18.5)	-03753 (19.0)
	17.46 11/16"	GH-Q-O-3461S	P-A-O-1746-2A		-03751 (18.0)	-03752 (18.5)	-03753 (19.0)	-03754 (19.5)

* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum.
Other drill sizes available upon request. Example: Ød = 13.75mm (.541") - P-A-O-1375-2A.
** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 1.5mm (series 8)/2.0mm (series 12).
¹ Non-stock standard item with extended delivery time.



COMBI Drill Chamfer Tools Ø18.0-Ø35.0mm with Coolant Through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	B	X	L1	Ln	LS	Øs
1	GH-Q-O-3465S	18.0 - 19.9	20 (.787")	17.5 (.689")	8 (.315")	34.6 (1.362")	125.6 (4.945")	22 (.866")	56 (2.205")	25 (.984")
	GH-Q-O-3469S	20.0 - 24.9	24 (.945")	19.8 (.780")	8 (.315")	39.6 (1.559")	136.6 (5.3787")	28 (1.102")	56 (2.205")	25 (.984")

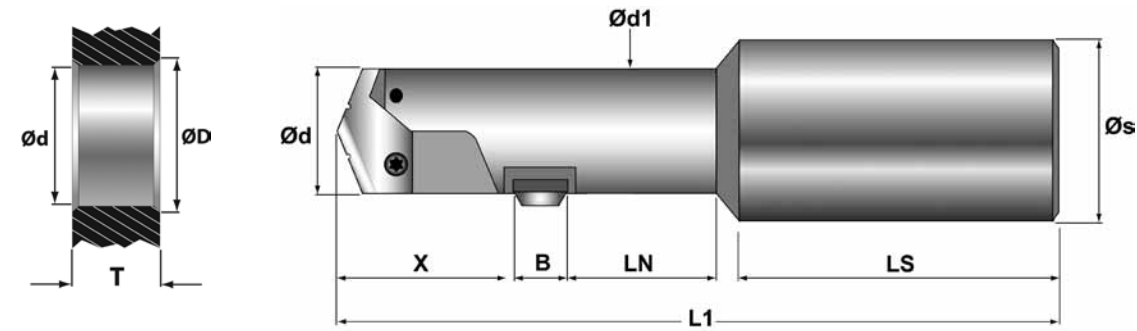
COMBI Series 1 Chamfer Drill and Chamfer Blades

Series	Ød Drill mm inches	Tool Holder ¹ (with coolant)	Drill Tip Order Number	Cmf. Series	Blade, Carbide-TiN, 90°, front and back Order Number (Chamfer ØD mm)		
					(0.5mm x 45°) GH-Q-M-	(0.75mm x 45°) GH-Q-M-	(1.0mm x 45°) GH-Q-M-
1	18.0 .709	GH-Q-O-3465S	P-A-1-1800-2A	12	-03753 (19.0)	-03754 (19.5)	-03755 (20.0)
	18.5 .728	GH-Q-O-3465S	P-A-1-1850-2A		-03754 (19.5)	-03755 (20.0)	-03756 (20.5)
	19.05 3/4"	GH-Q-O-3465S	P-A-1-1905-2A		-03755 (20.0)	-03756 (20.5)	-03757 (21.0)
	19.50 .768	GH-Q-O-3465S	P-A-1-1950-2A		-03756 (20.5)	-03757 (21.0)	-03758 (21.5)
	20.0 .787	GH-Q-O-3469S	P-A-1-2000-2A		-03770 (21.0)	-03771 (22.0)	-03772 (23.0)
	21.0 .827	GH-Q-O-3469S	P-A-1-2100-2A	20	-03771 (22.0)	-03772 (23.0)	-03773 (24.0)
	22.0 .866	GH-Q-O-3469S	P-A-1-2200-2A		-03772 (23.0)	-03773 (24.0)	-03774 (25.0)
	23.0 .906	GH-Q-O-3469S	P-A-1-2300-2A		-03773 (24.0)	-03774 (25.0)	-03775 (26.0)
	24.0 .945	GH-Q-O-3469S	P-A-1-2400-2A		-03774 (25.0)	-03775 (26.0)	-03776 (27.0)

* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum. Other drill sizes available upon request. Example: Ød = 26.5mm (1.043") - P-A-2-2650-2A.

** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 2mm.

¹ Non-stock standard item with extended delivery time.



COMBI Drill Chamfer Tools Ø18.0-Ø35.0mm with Coolant Through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	B	X	L1	Ln	LS	Øs
2	GH-Q-O-3473S	25.0 - 29.9	30 (1.181")	24.2 (.953")	10 (.394")	48.6 (1.913")	155.6 (6.126")	32 (1.260")	60 (2.362")	32 (1.260")
	GH-Q-O-3477S	30.0 - 34.9	38 (1.496")	29.8 (1.173")	10 (.394")	59.6 (2.346")	171.6 (6.756")	40 (1.575")	60 (2.362")	32 (1.260")

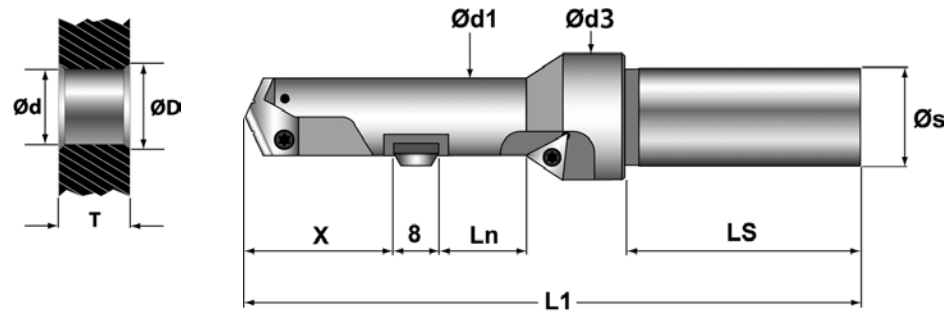
COMBI Series 2 Chamfer Drill and Chamfer Blades

Series	Ød Drill mm inches	Tool Holder ¹ (with coolant)	Drill Tip Order Number	Cmf. Series	Blade, Carbide-TiN, 90°, front and back Order Number (Chamfer ØD mm)		
					(0.5mm x 45°) GH-Q-M-	(1.0mm x 45°) GH-Q-M-	(1.5mm x 45°) GH-Q-M-
2	25.0 .984	GH-Q-O-3473S	P-A-2-2500-2A	20	-03775 (26.0)	-03776 (27.0)	-03777 (28.0)
	25.4 1.00	GH-Q-O-3473S	P-A-2-2540-2A		-03775 (26.0)	-03776 (27.0)	-03777 (28.0)
	26.0 1.023	GH-Q-O-3473S	P-A-2-2600-2A		-03776 (27.0)	-03777 (28.0)	-03778 (29.0)
	27.0 1.063	GH-Q-O-3473S	P-A-2-2700-2A		-03777 (28.0)	-03778 (29.0)	-03779 (30.0)
	28.0 1.102	GH-Q-O-3473S	P-A-2-2800-2A		-03778 (29.0)	-03779 (30.0)	-03780 (31.0)
	29.0 1.141	GH-Q-O-3473S	P-A-2-2900-2A		-03779 (30.0)	-03780 (31.0)	-03781 (32.0)
	30.0 1.181	GH-Q-O-3477S	P-A-2-3000-2A		-03780 (31.0)	-03781 (32.0)	-03782 (33.0)
	31.0 1.220	GH-Q-O-3477S	P-A-2-3100-2A		-03780 (31.0)	-03781 (32.0)	-03782 (33.0)
	31.75 1 1/4"	GH-Q-O-3477S	P-A-2-3175-2A		-03781 (32.0)	-03782 (33.0)	-03783 (34.0)
	32.0 1.260	GH-Q-O-3477S	P-A-2-3200-2A		-03782 (33.0)	-03783 (34.0)	-03784 (35.0)
	33.0 1.300	GH-Q-O-3477S	P-A-2-3300-2A		-03783 (34.0)	-03784 (35.0)	-03785 (36.0)
	34.0 1.339	GH-Q-O-3477S	P-A-2-3400-2A		-03784 (35.0)	-03785 (36.0)	-03786 (37.0)
	35.0 1.378	GH-Q-O-3477S	P-A-2-3500-2A		-03785 (36.0)	-03786 (37.0)	-03787 (38.0)

* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum. Other drill sizes available upon request. Example: Ød = 26.5mm (1.043") - P-A-2-2650-2A.

** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 2mm.

¹ Non-stock standard item with extended delivery time.



COMBI Drill Chamfer Tools Ø9.5-Ø17.99mm with Coolant Through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	Ød3	X	L1	Ln	Ls	Øs
Y	GH-Q-O-3641	9.5 - 10.0	12 (.472")	9.4 (.370")	20.0 (.787")	21.3 (.839")	112.3 (4.421")	12.2 (.480")	48 (1.890")	16 (.630")
	GH-Q-O-3645	10.3 - 11.0	12 (.472")	10.0 (.394")	20.0 (.787")	21.3 (.839")	112.3 (4.421")	12.4 (.488")	48 (1.890")	16 (.630")
Z	GH-Q-O-3649	11.1 - 11.9	12 (.472")	10.8 (.425")	20.0 (.787")	21.3 (.839")	112.3 (4.421")	13.5 (.531")	48 (1.890")	16 (.630")
	GH-Q-O-3653	12.0 - 12.7	14 (.551")	11.8 (.465")	24.0 (.945")	24.3 (.957")	119.8 (4.717")	14.2 (.559")	50 (1.969")	20 (.787")

COMBI Series Y, Z Chamfer Drill and Chamfer Blades

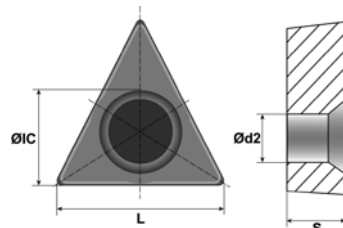
Series	Ød Drill* mm inches	Tool Holder ¹ Order #	Drill Tip Order #	Cmf. Series	Blade, Carbide-TiN, 90°, front and back** Order Number (Chamfer ØD mm)				Insert GH-H-P-
					(0.25mm x 45°) GH-Q-M-	(0.5mm x 45°) GH-Q-M-	(0.75mm x 45°) GH-Q-M-	Insert GH-H-P-	
Y	9.53 .375	GH-Q-O-3641	P-A-Y-0953-2A	8	-03723 (10.0)	-03724 (10.5)	-03725 (11.0)	-0140	
	10.0 .394	GH-Q-O-3641	P-A-Y-1000-2A		-03724 (10.5)	-03725 (11.0)	-03726 (11.5)		
	10.32 13/32"	GH-Q-O-3645	P-A-Y-1032-2A		-03725 (11.0)	-03726 (11.5)	-03727 (12.0)		
	10.5 .413	GH-Q-O-3645	P-A-Y-1050-2A		-03725 (11.0)	-03726 (11.5)	-03727 (12.0)		
Z	11.0 .433	GH-Q-O-3645	P-A-Y-1100-2A		-03726 (11.5)	-03727 (12.0)	-03728 (12.5)		-0128
	11.1 7/16"	GH-Q-O-3649	P-A-Z-1110-2A		-03726 (11.5)	-03727 (12.0)	-03728 (12.5)		
	11.5 .453	GH-Q-O-3649	P-A-Z-1150-2A		-03727 (12.0)	-03728 (12.5)	-03729 (13.0)		
	11.91 15/32"	GH-Q-O-3649	P-A-Z-1191-2A		-03728 (12.5)	-03729 (13.0)	-03730 (13.5)		
	12.0 .472	GH-Q-O-3653	P-A-Z-1200-2A	-03740 (12.5)	-03741 (13.0)	-03742 (13.5)	-0128		
	12.5 .492	GH-Q-O-3653	P-A-Z-1250-2A	-03741 (13.0)	-03742 (13.5)	-03743 (14.0)			
	12.7 1/2"	GH-Q-O-3653	P-A-Z-1270-2A	-03742 (13.5)	-03743 (14.0)	-03744 (14.5)			

* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum. Other drill sizes available upon request.

Example: Ød = 13.75mm (.541") - P-A-O-1375-2A.

** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 1.5mm.

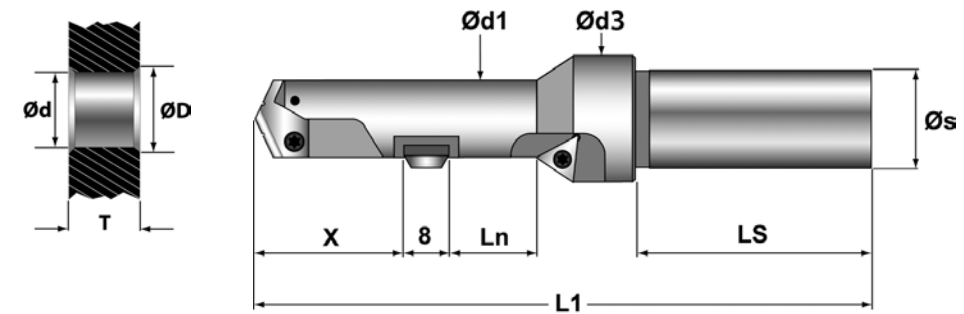
¹ Non-stock standard item with extended delivery time.



Indexable Inserts for Countersinking

Drill Ød	ØIC	L	S	Ød2	Order Number
9.5-11.9	3.97	6.8	1.59	2.2	GH-H-P-0140
12.0-14.9	5.56	9.6	2.38	2.5	GH-H-P-0128
15.0-19.9	6.35	11.0	2.38	2.8	GH-H-P-0130

SPARE PARTS PG. 127



COMBI Drill Chamfer Tools Ø9.5-Ø17.99mm with Coolant Through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	Ød3	X	L1	Ln	Ls	Øs
0	GH-Q-O-3657S	13.0 - 14.9	16 (.630")	12.8 (.504")	24.0 (.945")	26.8 (1.055")	122.3 (4.815")	15.9 (.626")	50 (1.969")	20 (.787")
	GH-Q-O-3661S	15.0 - 17.9	18 (.709")	14.8 (.583")	26.0 (1.024")	29.8 (1.173")	125.3 (4.933")	18.4 (.724")	50 (1.969")	20 (.787")

COMBI Series 0 Chamfer Drill and Chamfer Blades

Series	Ød Drill* mm inches	Tool Holder ¹ Order #	Drill Tip Order #	Cmf. Series	Blade, Carbide-TiN, 90°, front and back** Order Number (Chamfer ØD mm)				Insert GH-H-P-
					(0.25mm x 45°) GH-Q-M-	(0.5mm x 45°) GH-Q-M-	(0.75mm x 45°) GH-Q-M-	(1.0mm x 45°) GH-Q-M-	
0	13.0 .511	GH-Q-O-3657S	P-A-O-1300-2A	12	-03742 (13.5)	-03743 (14.0)	-03744 (14.5)	-03745 (15.0)	-0128
	13.5 .531	GH-Q-O-3657S	P-A-O-1350-2A		-03743 (14.0)	-03744 (14.5)	-03745 (15.0)	-03746 (15.5)	
	14.0 .551	GH-Q-O-3657S	P-A-O-1400-2A		-03744 (14.5)	-03745 (15.0)	-03746 (15.5)	-03747 (16.0)	
	14.29 9/16"	GH-Q-O-3657S	P-A-O-1429-2A		-03745 (15.0)	-03746 (15.5)	-03747 (16.0)	-03748 (16.5)	
	14.5 .571	GH-Q-O-3657S	P-A-O-1450-2A		-03745 (15.0)	-03746 (15.5)	-03747 (16.0)	-03748 (16.5)	
	15.0 .591	GH-Q-O-3661S	P-A-O-1500-2A		-03746 (15.5)	-03747 (16.0)	-03748 (16.5)	-03749 (17.0)	
	15.5 .610	GH-Q-O-3661S	P-A-O-1550-2A		-03747 (16.0)	-03748 (16.5)	-03749 (17.0)	-03750 (17.5)	
	15.88 5/8"	GH-Q-O-3661S	P-A-O-1588-2A		-03748 (16.5)	-03749 (17.0)	-03750 (17.5)	-03751 (18.0)	
	16.0 .630	GH-Q-O-3661S	P-A-O-1600-2A		-03748 (16.5)	-03749 (17.0)	-03750 (17.5)	-03751 (18.0)	
	16.5 .650	GH-Q-O-3661S	P-A-O-1650-2A		-03749 (17.0)	-03750 (17.5)	-03751 (18.0)	-03752 (18.5)	
	17.0 .669	GH-Q-O-3661S	P-A-O-1700-2A		-03750 (17.5)	-03751 (18.0)	-03752 (18.5)	-03753 (19.0)	
	17.46 11/16"	GH-Q-O-3661S	P-A-O-1746-2A		-03751 (18.0)	-03752 (18.5)	-03753 (19.0)	-03754 (19.5)	

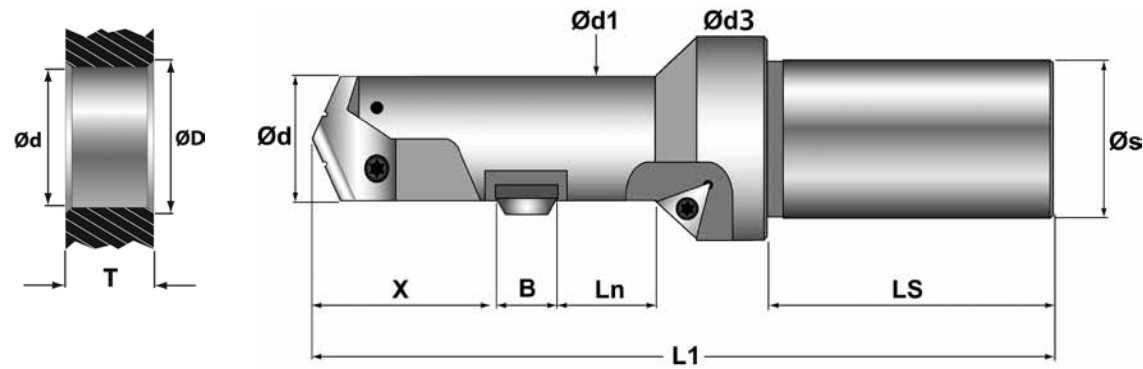
* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum. Other drill sizes available upon request.

Example: Ød = 13.75mm (.541") - P-A-O-1375-2A.

** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 2mm.

¹ Non-stock standard item with extended delivery time.

PROGRAMMING PG. 124-126



COMBI Drill Chamfer Tools Ø18.0-Ø35.0mm with Coolant Through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	B	Ød3	X	L1	Ln	Ls	Øs
1	GH-Q-O-3665S	18.0 - 19.9	20 (.787")	17.5 (.689")	8 (.315")	28.0 (1.102")	34.6 (1.362")	125.6 (4.945")	22 (.866")	56 (2.205")	25 (.984")
	GH-Q-O-3669S	20.0 - 24.9	24 (.945")	19.8 (.780")	10 (.394")	30.0 (1.181")	39.6 (1.559")	136.6 (5.378")	28 (1.102")	56 (2.205")	25 (.984")

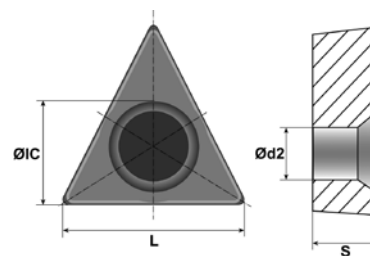
COMBI Series 1 Chamfer Drill and Chamfer Blades

Series	Ød Drill* mm inches	Tool Holder ¹ Order #	Drill Tip Order #	Cmf. Series	Blade, Carbide-TiN, 90°, front and back** Order Number (Chamfer ØD mm)				Insert GH-H-P-
					(0.25mm x 45°) GH-Q-M-	(0.5mm x 45°) GH-Q-M-	(0.75mm x 45°) GH-Q-M-	(1.0mm x 45°) GH-Q-M-	
1	18.0 .709	GH-Q-O-3665S	P-A-1-1800-2A	12	-03752 (18.5)	-03753 (19.0)	-03754 (19.5)	-03755 (20.0)	-0130
	18.5 .728	GH-Q-O-3665S	P-A-1-1850-2A		-03753 (19.0)	-03754 (19.5)	-03755 (20.0)	-03756 (20.5)	
	19.05 3/4"	GH-Q-O-3665S	P-A-1-1905-2A		-03754 (19.5)	-03755 (20.0)	-03756 (20.5)	-03757 (21.0)	
	19.50 .768	GH-Q-O-3665S	P-A-1-1950-2A		-03755 (20.0)	-03756 (20.5)	-03757 (21.0)	-03758 (21.5)	
	20.0 .787	GH-Q-O-3669S	P-A-1-2000-2A	20	-	-03770 (21.0)	-03771 (22.0)	-03772 (23.0)	
	21.0 .827	GH-Q-O-3669S	P-A-1-2100-2A		-	-03771 (22.0)	-03772 (23.0)	-03773 (24.0)	
	22.0 .866	GH-Q-O-3669S	P-A-1-2200-2A		-	-03772 (23.0)	-03773 (24.0)	-03774 (25.0)	
	23.0 .906	GH-Q-O-3669S	P-A-1-2300-2A		-	-03773 (24.0)	-03774 (25.0)	-03775 (26.0)	
	24.0 .945	GH-Q-O-3669S	P-A-1-2400-2A		-	-03774 (25.0)	-03775 (26.0)	-03776 (27.0)	

* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum. Other drill sizes available upon request.
Example: Ød = 26.5mm (1.043") - P-A-2-2650-2A.

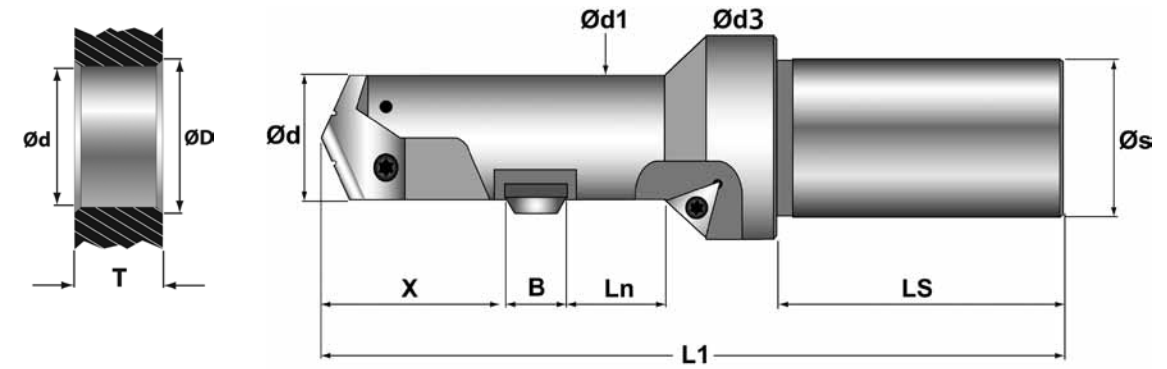
** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 2mm.

¹ Non-stock standard item with extended delivery time.



Indexable Inserts for Countersinking

Drill Ød	ØIC	L	S	Ød2	Order Number
15.0-35.0	6.35	11.0	2.38	2.8	GH-H-P-0130



COMBI Drill Chamfer Tools Ø18.0-Ø35.0mm with Coolant Through

Series	Tool Holder Order Number	Ød Range mm	T	Ød1	B	Ød3	X	L1	Ln	Ls	Øs
2	GH-Q-O-3673S	25.0 - 29.9	30 (1.181")	24.2 (.953")	8 (.315")	38.0 (1.496")	48.6 (1.913")	155.6 (6.126")	32 (1.260")	60 (2.362")	32 (1.260")
	GH-Q-O-3677S	30.0 - 35.0	38 (1.496")	29.8 (1.173")	10 (.394")	42.0 (1.654")	59.6 (2.346")	171.6 (6.757")	40 (1.575")	60 (2.362")	32 (1.260")

COMBI Series 2 Chamfer Drill and Chamfer Blades

Series	Ød Drill* mm inches	Tool Holder ¹ Order #	Drill Tip Order #	Cmf. Series	Blade, Carbide-TiN, 90°, front and back** Order Number (Chamfer ØD mm)			Insert GH-H-P-
					(0.5mm x 45°) GH-Q-M-	(0.75mm x 45°) GH-Q-M-	(1.0mm x 45°) GH-Q-M-	
2	25.0 .984	GH-Q-O-3673S	P-A-2-2500-2A	20	-03775 (26.0)	-03776 (27.0)	-03777 (28.0)	-0130
	25.4 1.00	GH-Q-O-3673S	P-A-2-2540-2A		-03775 (26.0)	-03776 (27.0)	-03777 (28.0)	
	26.0 1.023	GH-Q-O-3673S	P-A-2-2600-2A		-03776 (27.0)	-03777 (28.0)	-03778 (29.0)	
	27.0 1.063	GH-Q-O-3673S	P-A-2-2700-2A		-03777 (28.0)	-03778 (29.0)	-03779 (30.0)	
	28.0 1.102	GH-Q-O-3673S	P-A-2-2800-2A		-03778 (29.0)	-03779 (30.0)	-03780 (31.0)	
	29.0 1.141	GH-Q-O-3673S	P-A-2-2900-2A		-03779 (30.0)	-03780 (31.0)	-03781 (32.0)	
	30.0 1.181	GH-Q-O-3677S	P-A-2-3000-2A		-03780 (31.0)	-03781 (32.0)	-03782 (33.0)	
	31.0 1.220	GH-Q-O-3677S	P-A-2-3100-2A		-03780 (31.0)	-03781 (32.0)	-03782 (33.0)	
	31.75 1 1/4"	GH-Q-O-3677S	P-A-2-3175-2A		-03781 (32.0)	-03782 (33.0)	-03783 (34.0)	
	32.0 1.260	GH-Q-O-3677S	P-A-2-3200-2A		-03782 (33.0)	-03783 (34.0)	-03784 (35.0)	
	33.0 1.300	GH-Q-O-3677S	P-A-2-3300-2A		-03783 (34.0)	-03784 (35.0)	-03785 (36.0)	
	34.0 1.339	GH-Q-O-3677S	P-A-2-3400-2A		-03784 (35.0)	-03785 (36.0)	-03786 (37.0)	
	35.0 1.378	GH-Q-O-3677S	P-A-2-3500-2A		-03785 (36.0)	-03786 (37.0)	-03787 (38.0)	

* Non-stock standard item with extended delivery time. Spade drill 10 piece minimum. Other drill sizes available upon request.
Example: Ød = 26.5mm (1.043") - P-A-2-2650-2A.

** Chamfer blades are interchangeable; maximum chamfer diameter ØD = hole Ød + 2mm.

¹ Non-stock standard item with extended delivery time.

Feed and Speed Information-Carbide Drill Blade

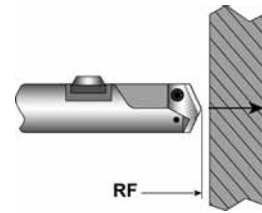
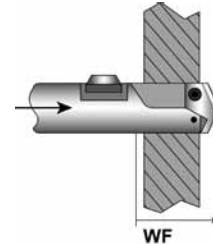
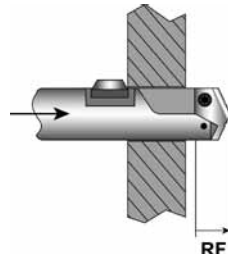
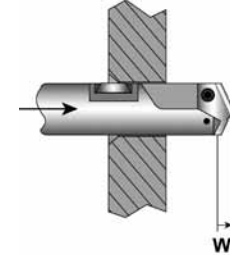
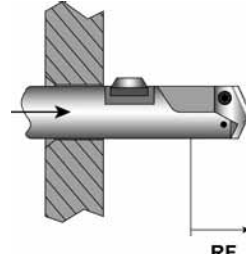
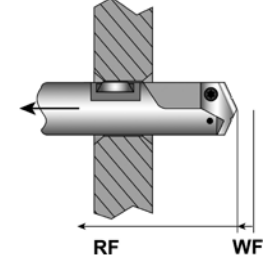
	Brinell	Carbide Grade	Ft/min	Feed (IPR) Bore Size, Ød			
				9.5-12.5	13-17	18-24	25-35
Free Machining Steel	100-150	C5	320	.006	.009	.012	.015
	150-200		280	.006	.008	.011	.013
	200-250		260	.005	.008	.010	.012
Low Carbon Steel	85-125	HSS/C5	300	.006	.008	.010	.014
	125-175		260	.005	.008	.010	.014
	175-225		240	.004	.007	.008	.012
Medium Carbon Steel	125-175	HSS/C5	260	.005	.008	.010	.014
	175-225		240	.005	.007	.008	.012
	225-275		220	.004	.007	.008	.012
Alloy Steel	125-175	C5	250	.005	.008	.010	.013
	175-225		230	.005	.007	.009	.012
	225-275		210	.004	.007	.009	.012
High Strength Alloy	225-300	C5	160	.005	.007	.008	.010
	300-350		140	.004	.006	.007	.009
Structural Steel	100-150	C5	240	.006	.010	.011	.012
	150-250		200	.005	.008	.009	.011
High Temp Alloy	140-220	C2	80	.003	.006	.007	.009
	220-310		60	.003	.005	.006	.008
Stainless Steel	135-185	C2	160	.006	.008	.009	.011
	185-275		120	.005	.007	.008	.010
Tool Steel	150-200	C5	160	.003	.005	.007	.009
	200-250		120	.003	.005	.007	.009
Aluminum	30	C2	1200	.008	.013	.016	.020
	180		800	.007	.011	.014	.018
Cast Iron	120-150	C2	320	.006	.009	.011	.015
	150-200		270	.005	.008	.010	.014
	200-220		240	.005	.007	.008	.012

SNAP Chamfer Inserts

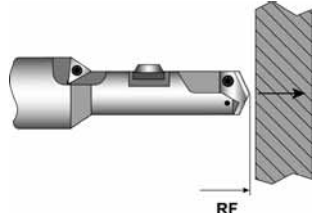
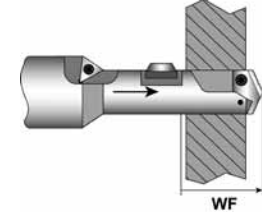
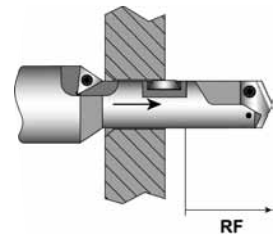
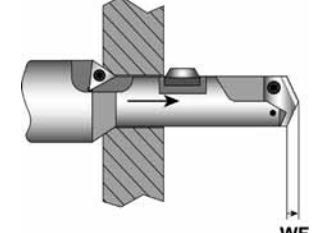
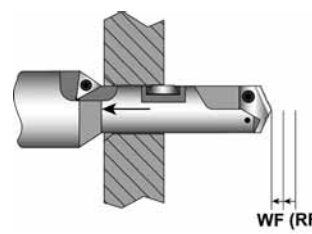
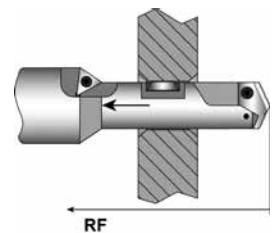
Material	IPR (SNAP - GS)	SFM
Aluminum	0.006-0.012	320-800
Brass	0.006-0.014	210-400
Low Carbon Steels	0.004-0.008	150-210
Med Carbon Steels	0.004-0.009	130-180
Free Machining Alloys	0.004-0.006	100-160
Stainless Steel	0.002-0.005	90-140
Gray Cast Iron	0.004-0.008	150-220
Nodular Cast Iron	0.003-0.007	150-220
Short Chipping Iron	0.003-0.007	100-150
Titanium	0.001-0.003	20-50

Important: Tool holder must be modified with blade locking mechanism for spindle speeds above 6,000 rpm. Please contact Heule Tool Corporation Engineering Department.

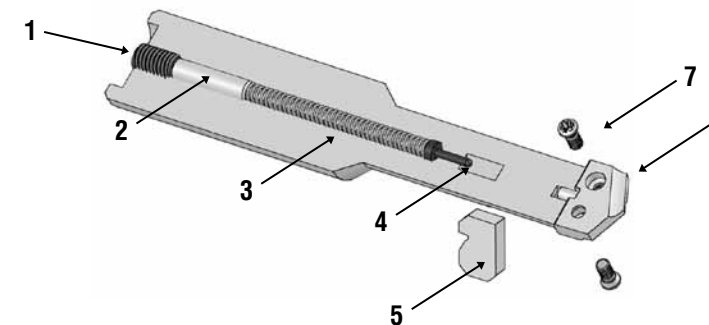
Programming Instructions - Drill Chamfer Tool

	Step 1: Rapid Feed the tool to within clearance of the workpiece.
	Step 2: With forward Working Feed (WF), feed the tool through the workpiece until the hole is drilled and the drill tip is clear of the bore.
	Step 3: Rapid feed the tool so the SNAP blade is within clearance of the workpiece top surface or burr.
	Step 4: With working feed, cut the top chamfer. Continue feeding until the SNAP blade is completely retracted into the tool body.
	Step 5: Use rapid feed to position the SNAP blade on the far side of the part. Position the tool so the SNAP blade is completely extended and clear of the part or burr.
	Step 6: With back working feed, cut the back chamfer. When the SNAP blade is completely within the tool and clear of the back surface, the tool can be extracted with rapid feed.

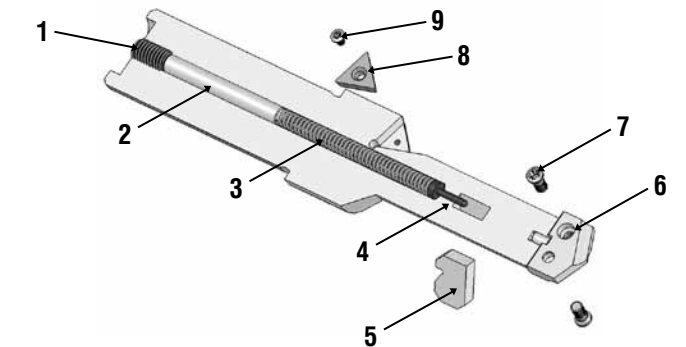
Programming Instructions - Drill Countersink Chamfer Tool

	Step 1: Rapid Feed the tool to within clearance of the workpiece.
	Step 2: With forward Working Feed (WF), feed the tool through the workpiece until the hole is drilled and the drill tip is clear of the bore.
	Step 3: Rapid feed the tool so the SNAP blade is within clearance of the workpiece top surface or burr.
	Step 4: With working feed, cut the top countersink. Continue feeding until the required countersink size is achieved.
	Step 5: If necessary, use rapid backward feed to position the SNAP insert within clearance distance of the back surface of the workpiece or burr. The back chamfer can then be cut in working backward feed.
	Step 6: When the SNAP insert is clear of the back surface and completely retracted in the tool body, the tool can be retracted from the workpiece using rapid backward feed.

COMBI Drill Chamfer Tools



COMBI Drill/Countersink/Chamfer Tools



COMBI Drill Chamfer Tools Ø9.5-Ø17.99mm-Spare Parts

Series	Tool Holder	1	2	3	4	5 and 6	7	Size
		Set Screw	Distance Pin	Spring	Control Bolt	Chamfer & Drill Blades	Torx Screw	
Y	GH-Q-0-3441	GH-H-S-0119	GH-Q-E-0021	GH-H-F-0007	GH-Q-E-0002	See Page 116	GH-H-S-0070	IP7
	GH-Q-0-3445	GH-H-S-0119	GH-Q-E-0021	GH-H-F-0007	GH-Q-E-0002	See Page 116	GH-H-S-0070	IP7
Z	GH-Q-0-3449	GH-H-S-0119	GH-Q-E-0021	GH-H-F-0007	GH-Q-E-0002	See Page 116	GH-H-S-0071	IP7
	GH-Q-0-3453	GH-H-S-0119	GH-Q-E-0021	GH-H-F-0007	GH-Q-E-0002	See Page 116	GH-H-S-0071	IP7
0	GH-Q-0-3457S	GH-H-S-0119	GH-Q-E-0021	GH-H-F-0007	GH-Q-E-0002	See Page 117	GH-H-S-0066	T8
	GH-Q-0-3461S	GH-H-S-0119	GH-Q-E-0022	GH-H-F-0007	GH-Q-E-0002	See Page 117	GH-H-S-0067	IP8

COMBI Drill Chamfer Tools Ø18.0-Ø35.0mm-Spare Parts

Series	Tool Holder	1	2	3	4	5 and 6	7	Size
		Set Screw	Distance Pin	Spring	Control Bolt	Chamfer & Drill Blades	Torx Screw	
1	GH-Q-0-3465S	GH-H-S-0119	GH-Q-E-0023	GH-H-F-0007	GH-Q-E-0002	See Page 118	GH-H-S-0068	IP9
	GH-Q-0-3469S	GH-H-S-0119	GH-Q-E-0023	GH-H-F-0011	GH-Q-E-0003	See Page 118	GH-H-S-0069	IP9
2	GH-Q-0-3473S	GH-H-S-0119	GH-Q-E-0025	GH-H-F-0011	GH-Q-E-0003	See Page 119	GH-H-S-0072	IP15
	GH-Q-0-3477S	GH-H-S-0119	GH-Q-E-0026	GH-H-F-0011	GH-Q-E-0003	See Page 119	GH-H-S-0072	IP15

COMBI Drill/Countersink/Chamfer Tools Ø9.5-Ø17.99mm-Spare Parts

Series	Tool Holder	1	2	3	4	5 and 6	7	8	9	Size
		Set Screw	Distance Pin	Spring	Control Bolt	Chamfer & Drill Blades	Torx Screw*	C'sink Insert	Torx Screw	
Y	GH-Q-0-3641	GH-H-S-0119	GH-Q-E-0023	GH-H-F-0007	GH-Q-E-0002	See Page 120	GH-H-S-0070	GH-H-P-0131	GH-H-S-0055	T6
	GH-Q-0-3645	GH-H-S-0119	GH-Q-E-0023	GH-H-F-0007	GH-Q-E-0002	See Page 120	GH-H-S-0070	GH-H-P-0131	GH-H-S-0055	T6
Z	GH-Q-0-3649	GH-H-S-0119	GH-Q-E-0023	GH-H-F-0007	GH-Q-E-0002	See Page 120	GH-H-S-0071	GH-H-P-0131	GH-H-S-0055	T6
	GH-Q-0-3653	GH-H-S-0119	GH-Q-E-0024	GH-H-F-0007	GH-Q-E-0002	See Page 120	GH-H-S-0071	GH-H-P-0128	GH-H-S-0050	T6
0	GH-Q-0-3657S	GH-H-S-0119	GH-Q-E-0024	GH-H-F-0007	GH-Q-E-0002	See Page 121	GH-H-S-0066	GH-H-P-0128	GH-H-S-0050	T6
	GH-Q-0-3661S	GH-H-S-0119	GH-Q-E-0024	GH-H-F-0007	GH-Q-E-0002	See Page 121	GH-H-S-0067	GH-H-P-0130	GH-H-S-0051	T7

COMBI Drill/Countersink/Chamfer Tools Ø18.0-Ø35.0mm-Spare Parts

Series	Tool Holder	1	2	3	4	5 and 6	7	8	9	Size
		Set Screw	Distance Pin	Spring	Control Bolt	Chamfer & Drill Blades	Torx Screw*	C'sink Insert	Torx Screw	
1	GH-Q-0-3665S	GH-H-S-0119	GH-Q-E-0026	GH-H-F-0007	GH-Q-E-0002	See Page 122	GH-H-S-0068	GH-H-P-0130	GH-H-S-0051	T7
	GH-Q-0-3669S	GH-H-S-0119	GH-Q-E-0026	GH-H-F-0011	GH-Q-E-0003	See Page 122	GH-H-S-0069	GH-H-P-0130	GH-H-S-0051	T7
2	GH-Q-0-3673S	GH-H-S-0119	GH-Q-E-0029	GH-H-F-0011	GH-Q-E-0003	See Page 123	GH-H-S-0072	GH-H-P-0130	GH-H-S-0051	T7
	GH-Q-0-3677S	GH-H-S-0119	GH-Q-E-0030	GH-H-F-0011	GH-Q-E-0003	See Page 123	GH-H-S-0072	GH-H-P-0130	GH-H-S-0051	T7

*Torx Screw	GH-H-S-	0070/0071	0066	0067	0068/0069	0072
Size		IP7	T8	IP8	IP9	IP15



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COFA, **SNAP**, **DEFA** and **BSF** product groups.

Simply enter your application information and the correct tool will
be provided complete with order number and sample drawing.

We are also available on:



DEFA



Precision Chamfering for the Front and Back of Through Holes

- Chamfers front and back in a single pass
- Adjustable chamfer range to provide precise chamfer size
- Solid carbide cutting blades with coatings to provide long tool life
- Sliding surface in blade geometry prevents damage to finished holes