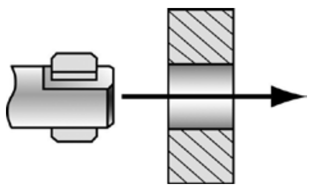
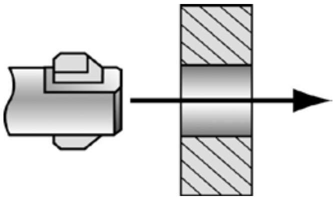
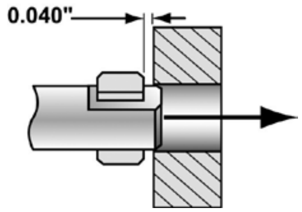
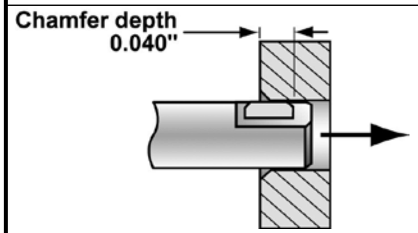
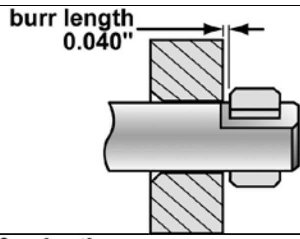
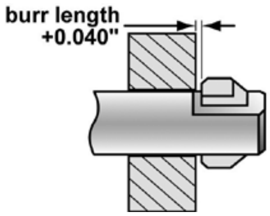
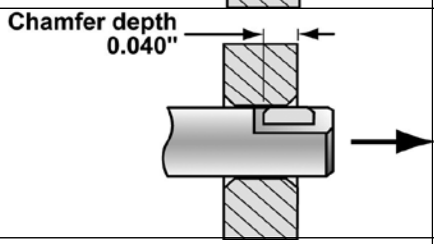
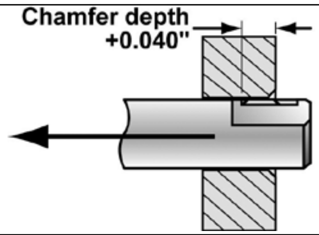
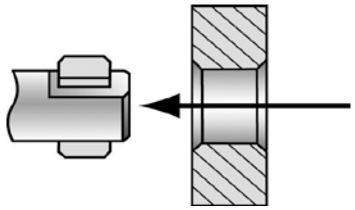
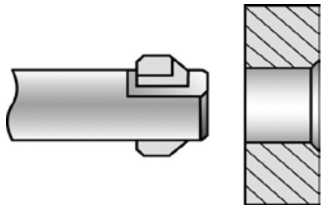
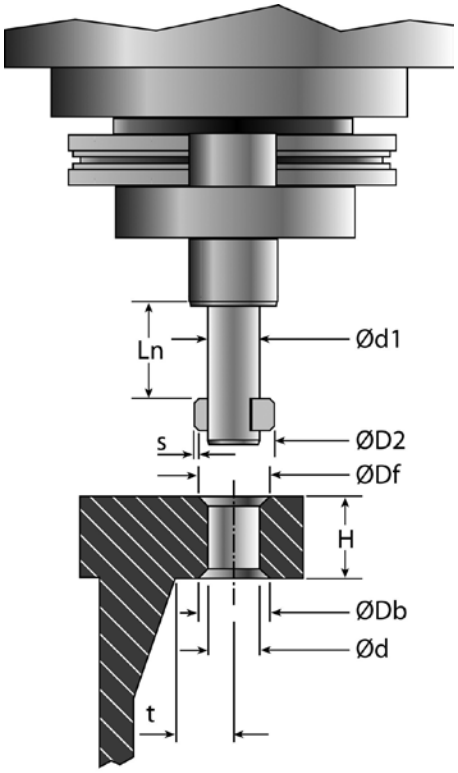
Programming Information

For Front & Back Chamfer		Back Chamfer Only
	**Step 1:** See Feed and Speed chart on next page for proper parameters.	
	**Step 2:** (Rapid into position) Move the tool with rapid feed into position with the front of the cutting blade 0.040" above the part.	N/A
	**Step 3:** (Cut front chamfer) Machine the part with cutting feed (cf) and speed (cs). Feed into the part the chamfer depth +0.040" to ensure the blade has finished cutting.	N/A
	**Step 4:** (Rapid to back) Move the tool through the part with rapid feed (rf) so the blade is 0.040" beyond the burr. The blade will not mark nor damage the through hole.	
	**Step 5:** (Cut back chamfer) Machine the part with back cutting feed (cf) and speed (cs). Feed into part the chamfer depth +0.040" to ensure the blade has finished cutting the back chamfer.	
	**Step 6:** (Remove from the part) Remove the tool from the hole with rapid feed and proceed to the next hole. The blade will not mark nor damage the through hole.	

While the DEFA tool is designed to handle almost any size of breakout burr, poor machining procedures may result in an excessively large, extruded burr which are extremely hard and difficult to machine. Timely replacement of dull drills and reamers as well as sufficient coolant supply control the burr size and extend the life of the chamfer tool and improve chamfer quality.

Programming – Feed and Speeds

Material		Feed IPR	Speed - SFM Carbide - TiN
Aluminum	150<Bn<250	.001-.003	300-400
Brass	150<Bn<250	.001-.003	240-315
Low Carbon Steel	100<Bn<225	.001-.003	200-260
Med. Carbon Steel	150<Bn<250	.001-.003	100-240
Free Machining Alloy	150<Bn<250	.001-.003	140-200
High Alloy Steel*	200<Bn<350	.001-.003	100-130
Steel Casting	90<Bn<225	.001-.003	80-160
	150<Bn<250	.001-.003	80-130
Stainless Steel	150<Bn<250	.001-.003	100-150
Malleable Cast Iron	110<Bn<145	.001-.003	100-210
	150<Bn<270	.001-.003	125-185
Gray Cast Iron	150<Bn<220	.001-.003	180-240
	200<Bn<330	.001-.003	140-210
Nodular Cast Iron	150<Bn<250	.001-.003	180-150
	200<Bn<300	.001-.003	140-210
Nickel Base Alloy*	22<Rc<32	.0008-.0015	30-80
	32<Rc<42	.0008-.0015	20-50
Titanium Alloy	14<Rc<22	.0008-.0015	60-90
	22<Rc<32	.0008-.0015	60-90



*When machining materials with a hardness greater than 28Rc, Heule recommends using a tool with the blade housing sized .006” under the hole size. Call Heule Tool Corp engineering department for more info.

Key Terms

Ød1 Blade Housing diameter

ØD2 Over-the-blade diameter setting

ØD Chamfer diameter

ØD(f) – Front chamfer diameter

ØD(b) – Back chamfer diameter

Ød Hole diameter (in process)

s Definition surface width (non-cutting portion)

Ln Working Length

H Workpiece thickness

t Clearance from interferences

Formulas and Guidelines

ØD2 = ØD + [2 x ‘s’]

ØD < Maximum chamfer diameter is shown for each tool size. DO NOT EXCEED THIS VALUE!

H < Ln (use shortest standard Ln value possible)

t > ØD2/2

Recommended (for materials above 28 Rc):

min: **Ød1 = Ød (mean) - .006”**

max: **Ød1 = Ød - .012”**