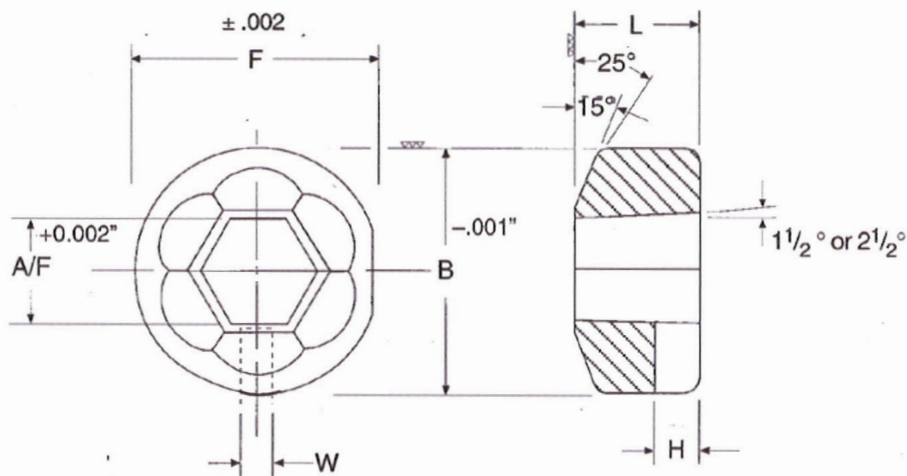




TRIM DIES
NUT FORMING DIES

Advanced Precision Tooling Solutions for the Fastener Industry.

Trimming Dies for Unified Hex Bolts without Collar

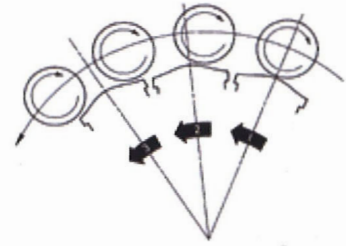


All dimensions in inches

Machine Size	Norm. Hex	A/F	B	L	F	W	H
							<i>Optional</i>
3/16" - M6	1/4"	.246					
	5/16"	.307	.752	.44	.736	.187	.218
	3/8"	.368					
1/4" - M6	3/8"	.368					
	7/16"	.430	1.063	.62	1.047	.250	.250
	1/2"	.491					
5/16" - M8	7/16"	.430					
	1/2"	.491	1.253	.62	1.236	.250	.250
	9/16"	.553					
3/8" - M10	1/2"	.491					
	9/16"	.553	1.503	.75	1.486	.312	.375
	5/8"	.614					
1/2" - M12	5/8"	.614					
	11/16"	.676	1.753	.87	1.736	.375	.375
	3/4"	.738					
5/8" - M16	3/4"	.738					
	13/16"	.800	2.003	1.12	1.986	-	-
	15/16"	.924					
	1"	.985					
3/4" - M20	15/16"	.924					
	1"	.985					
	1 1/8"	1.102	2.504	1.38	2.487	-	-
	1 1/4"	1.214					
	1 1/2"	1.471					
1" - M24	1 1/8"	1.102					
	1 1/4"	1.214	3.004	1.38	2.988	-	-
	1 1/2"	1.471					
	1 5/8"	1.577-					

Howell Penncraft - Pennform Process Intraform

Howell Penncraft has been a Leading Trim Die Manufacturer since 1945. One of the reasons behind this success is use of the Intraform, a unique machine from Cincinnati Milacron that forms profiles on the inside diameters or cylindrical workpieces quickly and accurately without the need for expensive tooling.



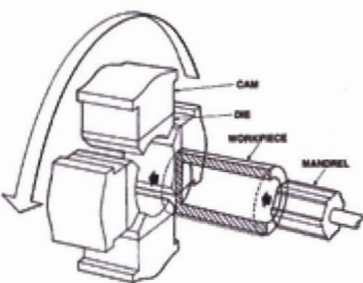
How Intraform Works

The Intraform uses a set of four forming dies which pulsate rapidly while revolving around the outside diameter of the workpiece. The dies, mounted on cams, are made to pulsate through contact with a series of free wheeling, hardened steel rollers. As they rotate, the cams never lose contact with the rollers. Because of this constant contact, the result is a smooth continuous squeezing action on the part of the dies. There is no hammering effect so noise and vibration are not a problem, even though the workpiece is being squeezed by the dies more than 1,000 times per minute.

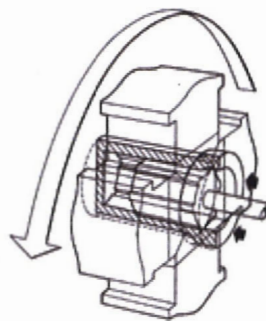
The Intraform Advantage

The Intraform offers improved surface finishes. Moving metal instead of removing it. The cold working that takes place during the operation increases the tensile strength which enhances fatigue life of the part in service.

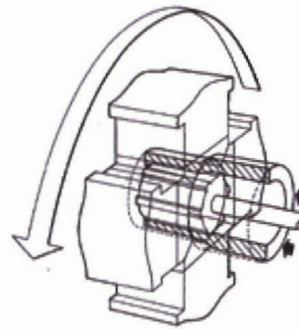
The Intraform in Action



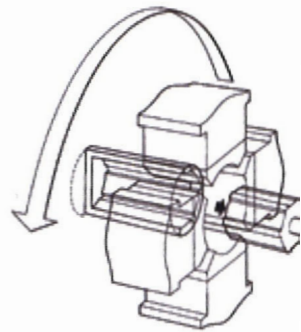
The original workpiece



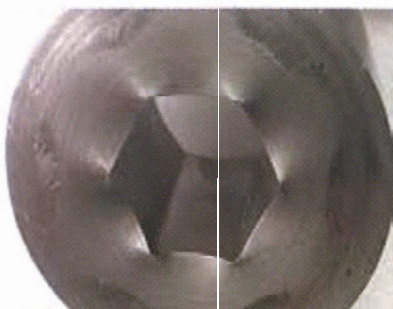
Forming is almost complete.



The workpiece has been placed over the mandrel and forming has begun.



The part is finished and the mandrel is being retracted to receive a new blank.



Material Flow, this picture illustrates how the Intraform process forces the material to flow along the Hex Mandrel. Notice how the points of the hex flow ahead of the flat.

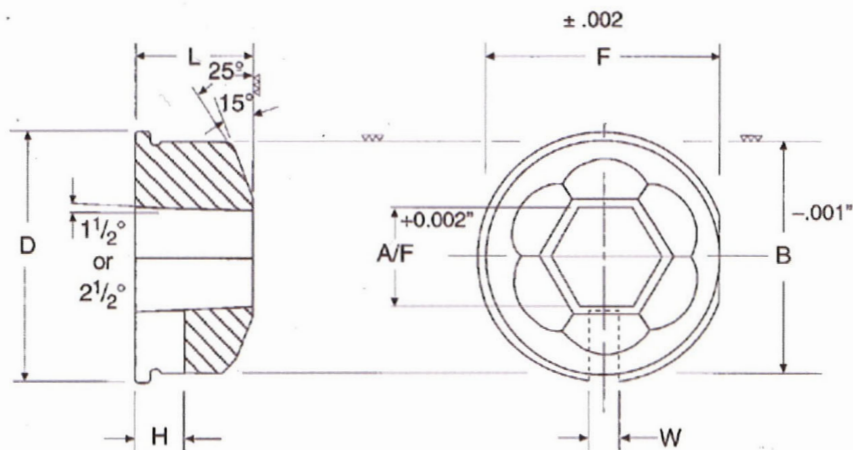


Ready for Coating.



Shown CVD Coated.

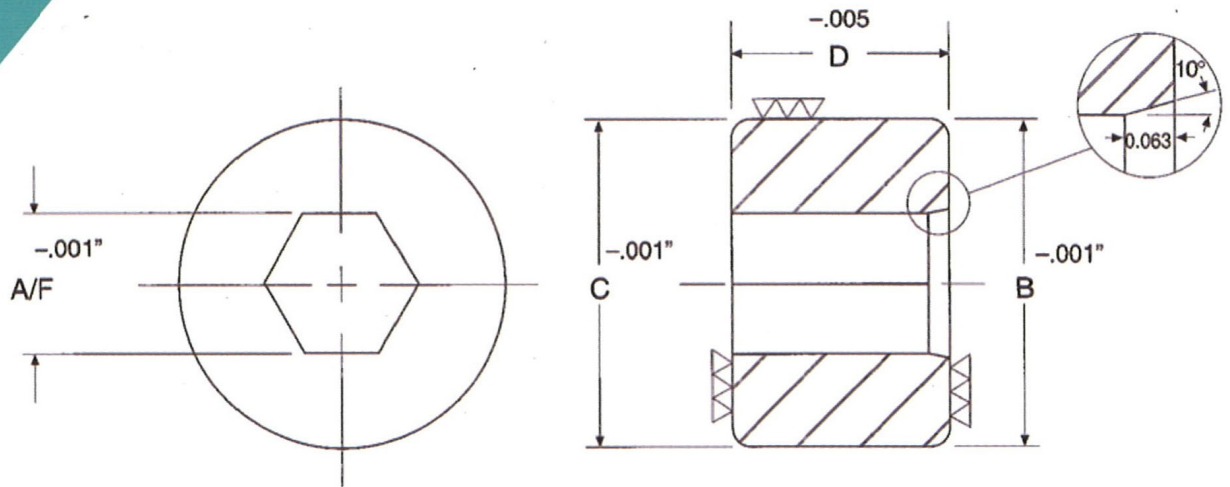
Trimming Dies for Unified Hex Bolts with Collar



All dimensions in inches

Machine Size	Norm. Hex	A/F	B	L	D	F	W	H
3/16" - M6	1/4"	.246					<i>Optional</i>	
	5/16"	.307	.752	.44	.83	.736	.187	.218
	3/8"	.368						
1/4" - M6	3/8"	.368						
	7/16"	.430	1.063	.62	1.12	1.047	.250	.250
	1/2"	.491						
5/16" - M8	7/16"	.430						
	1/2"	.491	1.253	.62	1.36	1.236	.250	.250
	9/16"	.553						
3/8" - M10	1/2"	.491						
	9/16"	.553	1.503	.75	1.61	1.486	.312	.375
	5/8"	.614						
1/2" - M12	5/8"	.614						
	11/16"	.676	1.753	.87	1.86	1.736	.375	.375
	3/4"	.738						
5/8" - M16	3/4"	.738						
	13/16"	.800	2.003	1.12	2.12	1.986	-	-
	15/16"	.924						
	1"	.985						
3/4" - M20	15/16"	.924						
	1"	.985						
	1 1/8"	1.102	2.504	1.38	2.61	2.487	-	-
	1 1/4"	1.214						
1" - M24	1 1/2"	1.471						
	1 5/8"	1.577						
	1 1/8"	1.102						
	1 1/4"	1.214	3.004	1.38	3.11	2.988	-	-
1" - M24	1 1/2"	1.471						
	1 5/8"	1.577						
	1 3/4"	1.683						

Nut Forming Dies

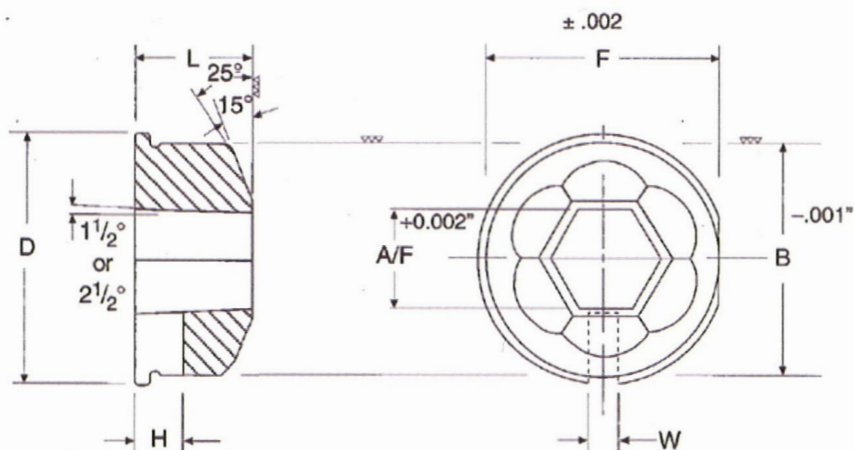


All dimensions in inches

Machine Size	Norm. Hex	A/F 2nd Pos.	AF 3rd Pos.	AF 4th Pos.	B	C	D
1/4"	7/16"	.420	.424	.428	1.007	1.003	1.000
5/16"	7/16"	.420	.424	.428	1.138	1.132	1.125
	1/2"	.481	.486	.491			
	9/16"	.540	.546	.551			
3/8"	1/2"	.481	.486	.491	1.257	1.252	1.250
	9/16"	.540	.546	.551			
	11/16"	.661	.667	.674			
1/2"	11/16"	.661	.667	.674	1.633	1.628	1.500
	3/4"	.721	.728	.735			
5/8"	7/8"	.841	.849	.858	2.009	2.004	1.750
	15/16"	.911	.917	.923			
	1 1/4"	1.090	1.000	1.107			
3/4"		Specify when ordering			2.510	2.505	2.000
1"		Specify when ordering			3.011	3.004	2.500

How to Order

When ordering or requesting a quotation for Trim Die



No Drawing?

Here's what we will need to know.

1. We need to know O.D. "B"
2. Trim Size and Shape
3. Do you need a Collar "D"?
4. Do you need a slot W x H?
5. What Material are you trimming?
Die material and coating are selected based on what material you are trimming



Europe Service Center

Bays 122-125
Shannon Industrial Estate
Shannon, County Clare
Ireland
Tel +35361239503
Fax +35361239502
Email: ESC@PTGtools.com



Asia Service Center

No.8 Nan Bang Road, Kunshan, Jiangsu Province
China 215300
Tel +86.512.57719255
+86.512.57719243
Fax +86.512.57719226
Email: ASC@PTGtools.com



North America Service Center

28 Sword Street
Auburn, MA 01501
Toll free: 800.343.6068
Tel: 508.753.6530
Fax: 800.800.1614
Email: NASC@PTGtools.com

Represented by:

