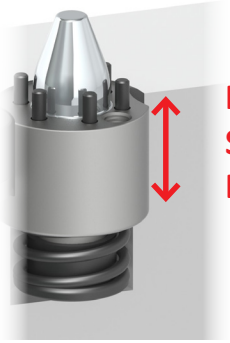
Usage Guidelines & Recommendations

Choose the Best Ejection Style based on the Application

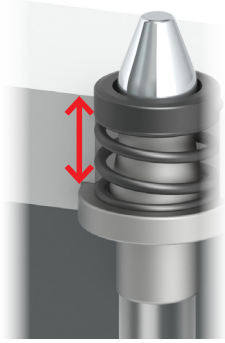
Style: Ejector Pins

The Ejector Pin style should be the preferred option whenever possible. It is more robust because the Pilot body is fully supported in the Pad/Window.



Style: Round Stripper

The Round Stripper Style Pilot Assembly is for use with Thin / Soft Stock only. The Round Stripper style will provide a better stripping condition by providing more contact surface between the stripper and the stock.

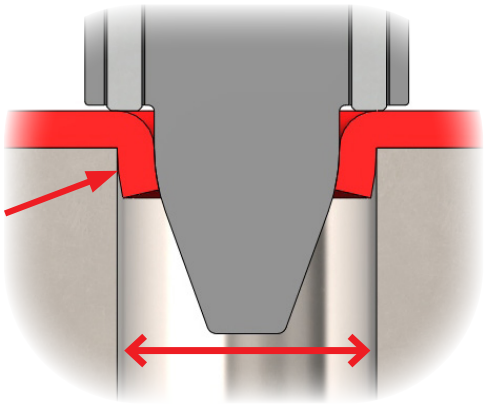


Due to its Body not being supported adjacent to the Pilot "Tip", it is less robust than the fully supported Ejector Pin Style Pilot Assembly.

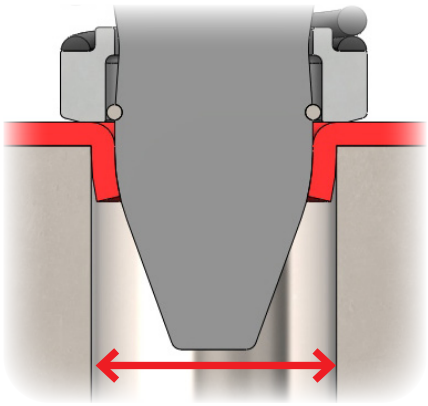
A properly sized "Receiving Hole" is Important

Clearance minimizes the forces subjected on the Pilot and tooling during a miss-hit situation. The hole below the pilot allows the material to extrude, rather than creating a "pinch trim" situation. See Receiving Hole Guidelines for detailed information on proper sizing.

Style: Ejector Pins

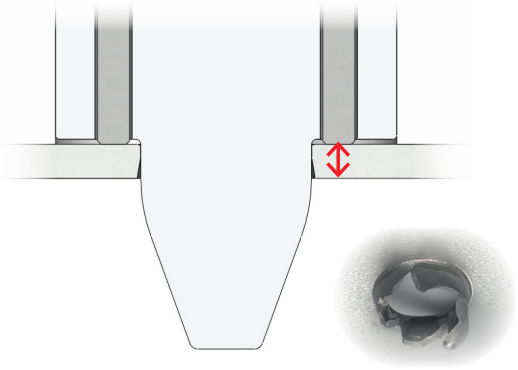


Style: Round Stripper



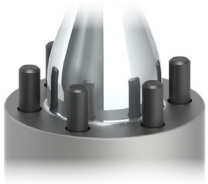
Usage Guidelines & Recommendations

Choose a proper Pilot Diameter based on the Stock Thickness

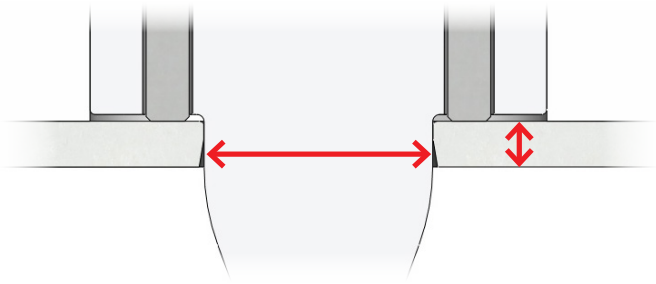


Stock Thickness in relationship to the Pilot Diameter is important for (2) main reasons.

1. To provide enough locating surface area, based on land length and diameter, between the pilot and the stock to effectively locate the stock.
2. To provide a robust assembly that reduces the potential of the Pilot assembly being damaged during "common" mis-hits / mis-feeds where the pilot is required to pierce and/or form the stock.



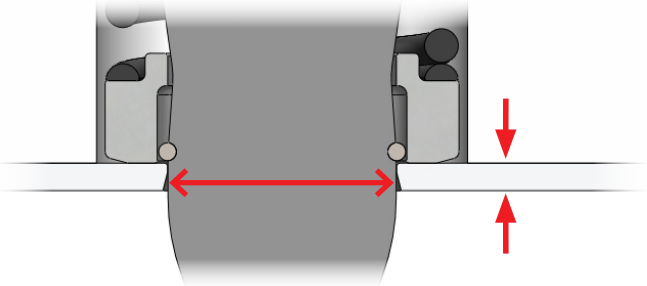
Max Stock Thickness - Ejector Pin Style



Pilot Dia.	Max Stock Thickness
.3125"	.050"
.375"	.075"
.500"	.100"
.625"	.125"
.750"	.150"

Pilot Dia.	Max Stock Thickness
8mm	1.27mm
10mm	1.9mm
13mm	2.5mm
16mm	3.2mm
20mm	3.8mm

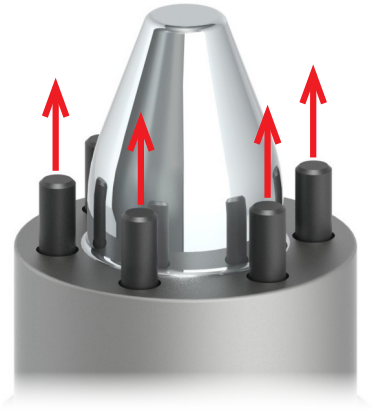
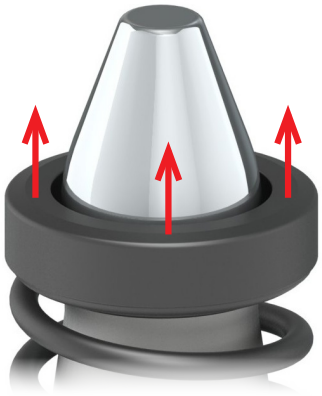
Max Stock Thickness - Round Stripper Style



Pilot Dia.	Max Stock Thickness
.375"	.040"
.500"	.060"
.625"	.080"

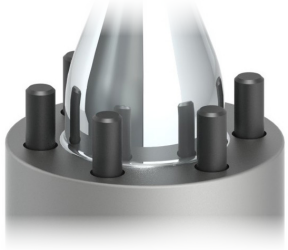
Pilot Dia.	Max Stock Thickness
10mm	1.0mm
13mm	1.5mm
16mm	2.0mm

Pilots - Ejection/Spring Force

	Ejector Pins		Round Stripper	
				
Pilot Diameter	**Standard Spring***	**Light Spring***	**Standard Spring**	**Light Spring**
.3125” / 8mm	10 lbs. on Contact 15 lbs. at Max Travel	5 lbs. on Contact 10 lbs. at Max Travel	N/A	
.375” / 10mm	12 lbs. on Contact 20 lbs. at Max Travel	5 lbs. on Contact 10 lbs. at Max Travel	6 lbs. on Contact 16 lbs. at Max Travel	N/A
.500” / 13mm	14 lbs. on Contact 23 lbs. at Max Travel	5 lbs. on Contact 10 lbs. at Max Travel	11 lbs. on Contact 19 lbs. at Max Travel	N/A
.625” / 16mm	14 lbs. on Contact 20 lbs. at Max Travel	5 lbs. on Contact 10 lbs. at Max Travel	15 lbs. on Contact 21 lbs. at Max Travel	N/A
.750” / 20mm	14 lbs. on Contact 20 lbs. at Max Travel	5 lbs. on Contact 10 lbs. at Max Travel	N/A	

*Single Spring drives all Ejectors so Forces listed are for the Spring

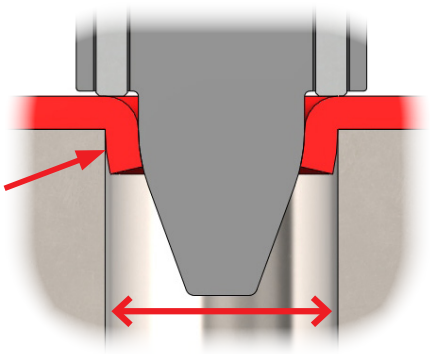
“Receiving Hole” Clearance Requirement

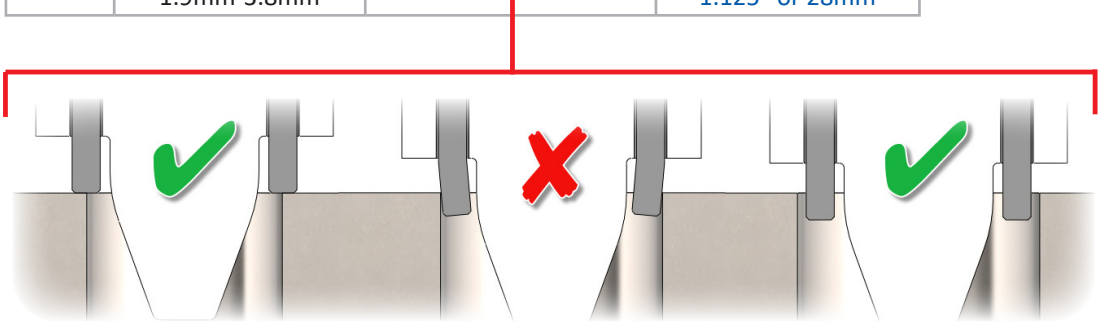


Ejector Pin Style for Heavy Duty Stock

Clearance minimizes the forces subjected on the Pilot and tooling during a miss-hit situation. The hole below the pilot allows the material to extrude, rather than creating a “pinch trim” situation.

Pilot Dia.	Stock Thickness Range	Diameter Range that will interfere with Ejectors when stock is not present	Standard Receiving Hole Diameter
.3125”	.020” - .031”	.469” - .625”	.378” or 9.5m
	.031”-.050”		.469” or 12mm
.375”	.020” - .031”	.531” - .688”	.438” or 11mm
	.031”-.075”		.531” or 13.5mm
.500”	.020”-.050”	.656” - .813”	.625” or 16mm
	.050”-.100”		.844” or 21.5mm
.625”	.020”-.063”	.781” - .938”	.750” or 19mm
	.063”-.125”		.938” or 24mm
.750”	.020”-.075”	.906” - 1.063”	.906” or 23mm
	.075”-.150”		1.125” or 28.5mm
8mm	0.5mm-0.8mm	12mm - 16mm	.378” or 9.5mm
	0.8mm-1.27mm		.469” or 12mm
10mm	0.5mm-0.8mm	13.5mm - 17.5mm	.469” or 12mm
	0.8mm-1.9mm		.531” or 13.5mm
13mm	0.5mm-1.3mm	16.5mm - 20.5mm	.625” or 16mm
	1.3mm-2.5mm		.807” or 20.5mm
16mm	0.5mm-1.6mm	20mm - 24mm	.781” or 20mm
	1.6mm-3.2mm		.938” or 24mm
20mm	0.5mm-1.9mm	24mm - 28mm	.938” or 24mm
	1.9mm-3.8mm		1.125” or 28mm

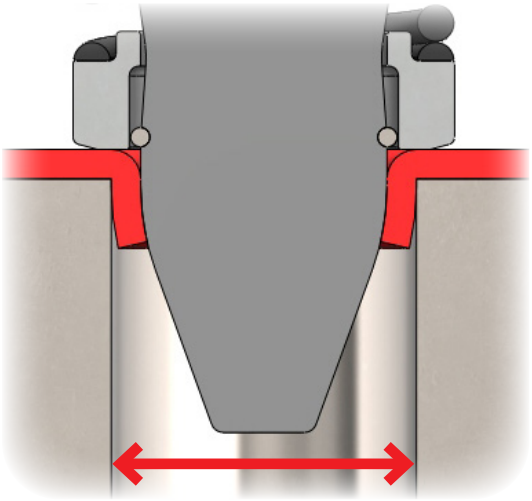




“Receiving Hole” Clearance Requirement

Round Stripper Style for Thin/Soft Stock

Clearance minimizes the forces subjected on the Pilot and tooling during a Mis-hit situation. The hole below the pilot allows the material to extrude, rather than creating a “pinch trim” situation.
Due to thin stock, we recommend that the clearance per side is equal to the stock thickness. This allows for adequate clearance during a mis-hit while still supporting the stock during normal running conditions.



Clearance Hole Diameter Formula:
Pilot Diameter + (Stock Thickness x 2)

Testing was done to ensure each pilot diameter could handle the worst case scenario that was still within our recommendations. This was done using high strength stock at the max thickness with a mis-hit of a half of a hole, thus subjecting all of the forces against the pilot in one direction.