

Custom Ejector Solutions

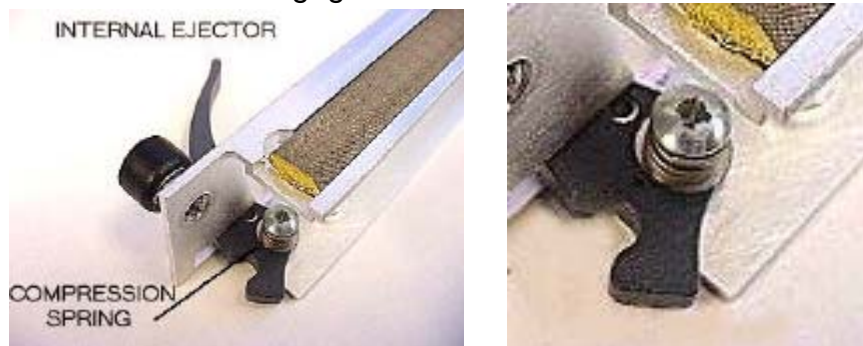
Extrusion Technology provides custom ejector solutions to tackle today's demanding applications in communications, aerospace, defense, avionics and more. From NEBS to 901D – systems engineers need robust handle solutions to address a myriad of applications. Extrusion Technologies applications engineering team can work with you to provide solutions which are:

- Rugged Design
- Aesthetic
- Ergonomic
- Cost Effective

Ejector mechanisms are a critical component in front panel design. There are a number of parameters that need to be considered when designing ejector mechanisms. Careful planning in the initial design stage will avoid changes to the front panel and chassis later. There are two basic styles of ejector assemblies.

1) Internal ejectors

Internal ejectors are those that mount behind the front panel and the handle protrudes through the face. The ejector is normally mounted on a pem on the side leg of the extrusion. This pem provides a threaded mounting post for the ejector to pivot on. In most cases a compression spring or wave washer is used to add some drag to the action of the ejector. This keeps the ejector from flopping around when not engaged.



Positives:

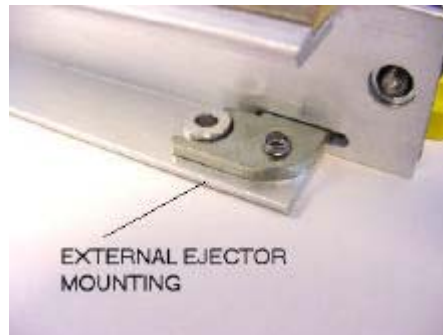
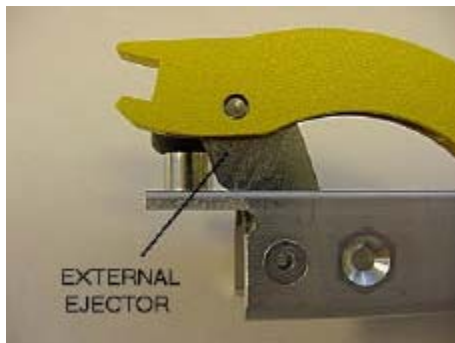
1. Easy to design (only a hole in the nut bar is required for engagement)
2. Inexpensive to produce
3. No additional components (ejector engages the nut bar of the chassis)
4. Easy to span the PCB board

Negatives:

1. Hole in the face of the extrusion required (potential for EMI leakage)
2. Cantilever mounting is weak in larger insertion force applications
3. Pem must be installed with ejector in place. Difficult to disassemble and requires custom pem tooling.

2) External ejectors

External ejectors are those that are mounted on the face of the extrusion. These assemblies use some form of sheet metal or extruded yoke.



Positives:

1. Minimal or No holes in the face of the extrusion (prevents EMI leakage)
2. Strong in high insertion force applications (ejector yokes provide a stronger pivot than pems with less cantilever effect).
3. Most designs allow for the ejector assembly to be mounted as a unit with screws or rivets. Most internal designs have the pem pressed through the ejector and require custom pem tooling.
4. Easy to disassemble if needed (if mounted with screws)

Negatives:

1. More expensive
2. Requires more components (Yoke, pin and screws or rivets)

3. Difficult add in later if not done in the initial design stage

Hot Swap / Actuator Slide



In some applications it may be necessary to insure that power to the circuit board be disabled before the card is removed from the chassis. This can be accomplished a number of different ways. Two common methods are a micro switch integral to the ejector or by the use of a slide mounted on the front panel. The slide mechanism uses an actuator (plastic, metal) to trigger a switch on the circuit board. This system has some advantages over the switch being integral to the ejector. The fastener that holds to face plate to the chassis is mounted in the slide. The slide locks the ejector in place. This prevents costly damage to the front panel or chassis in the event a Technician attempted to remove the front panel before unscrewing the fastener.

Finish for Ejectors

Ejector finish impacts several aspects – including wear, ‘feel’ , and aesthetics. These are several common types of finishes to consider for ejector assemblies.

1. Wet Paint
2. Powder Paint
3. Electroless Nickel
4. Anodizing

ELECTROLESS
NICKEL FINISH





The most common finish for the ejector handles is powder coat paint. This is a durable finish that will withstand the abuse of the field application. The powder coat can be made in almost any color and allows great freedom for an individual look. In the prototype stage of the project a wet paint is often chosen. This is an inexpensive option until the design is proven and final colors are decided upon.

Electroless Nickel is highly conductive, is very durable and has a High Tech look.

Anodizing is a durable and inexpensive finish, however there are limitations to anodizing. Anodize is nonconductive and should not be used in applications the require grounding of the ejector. Color variations occur from lot top lot, and surface defects are enhanced.

Examples of custom ejector solutions:



If you have additional questions regarding the design of ejectors, actuators or front panels, please contact us at sales@xtech-outside.com or call our Applications Engineering team at 1-888-444-1644. Or visit our web site at www.extrutech.com

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