

ELIMINATOR™ PUNCH TIP LUBRICATION PADS HELP ELIMINATE GALLING

THE PROBLEM:

Many fabricators have a problem with galling, the result of when the metal being punched adheres to the punch tip. Galling is caused by pressure and heat, and often occurs when punching aluminum or other ductile materials. When you combine the plasticity (softness) of the highly ductile materials with the heat caused by the punching process (friction), galling occurs.

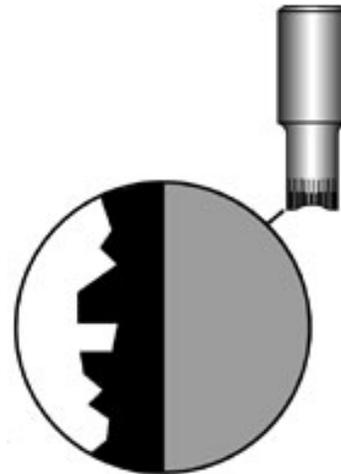
Within a relatively short period, a galled punch starts producing inferior parts. You need to stop the press, remove the punch to clean it with a fine stone before you can resume punching. This costs time (maintenance) and materials (poorly made parts).

There are a few things you can do to minimize galling, such as ordering punches with 2° total back taper to facilitate stripping; the material is much less likely to adhere to the punch. You can also order a combination of 2° total back taper (1° per side) on the punch and 20% to 30% clearance for the die. Mate's Maxima® coating is another option. Probably the best way to prevent galling is to consistently apply lubrication to the punch tip.

THE MATE SOLUTION:

Mate's Eliminator™ (patents pending) punch tip lubrication pads assist in keeping the punch tip lubricated during the punching process. Not only will they help eliminate unwanted galling during the punching process, they can also help extend tool life and keep the punch from overheating.

Made from polyether foam, Mate Eliminator lubrication pads are easy to install. In many cases you can simply "punch" the hole into the foam using the punch and stripper. After saturating the pad with 46-68 ISO viscosity hydraulic oil, place the punch into the holder and you're ready for gall-free punching. In fact, during Mate's extensive product testing, not one sign of galling was found after thousands of hits.



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SOLUTION BULLETIN

ONE CUSTOMER'S STORY:

One customer was punching a group of 0.070" X 0.500" ovals in 0.105" stainless steel to form a speaker grill configuration. The customer was using a Mate Ultra® TEC A Station punch with a fitted (but not fully guided) stripper. After fitting the punch tip with a lubrication pad and applying oil the customer set the tool up in the machine. They also sprayed the punching area with oil. The operator did not think it was going to work.

They ran the machine at 100% on the control with a very short stroke to limit the friction. Stainless breaks away at approximately 1/3 of the punch's penetration into the material; the customer punched just beyond the breaking point to increase punching speed and reduce punch tip contact with the material. The lubricated punch tip worked amazingly well. The customer punched all 200 parts without doing anything to the punch. When examining the punch after all the parts were completed, the punch still looked like new! That small punch tip, which punched 11,600 holes without a trace of galling, continued to produce parts for additional orders.

AVAILABLE TOOLING STYLES AND STATION SIZES:

PART NUMBER	PAD SIZE	THICK TURRET	MARATHON	TRUMPF STYLE	THIN TURRET	MTG MULTI TOOLS	XMT MULTI TOOLS
MATE02028	0.750"(19,05)	A Station	N/A	See below	½" & 5/8" Station	8 Station	12,7 mm
MATE02029	1.375"(34,93)	B Station	B Station		1.25" Station	3 Station	24,0 mm
MATE02030	2.205"(56,00)	C Station	C & D Station		2" Station		
MATE02031	3.740"(94,08)	D Station	E & F Station		3 1/2" Station		
MATE02032	4.528"(115,01)	E Station	G & H Station				

- **Trumpf Style:** Eliminator pads will work with Size 0, 1, 2 and 3, QuickLock™ and NEXT™ but are based on the size of the punch point. Eliminator pads will not work with Trumpf Style multi tools. See chart below for the maximum recommended diagonal per pad size.
- **Will not work in** 112/114 Style Murata Wiedemann or Nova tooling due to clearance and accessibility.

MAXIMUM RECOMMENDED DIAGONALS:

PART NUMBER	PAD SIZE	ROUNDS – 80% SHAPES – 95%	SHAPES - 95%
MATE02028	0.750"(19,05)	0.600" (15,24)	0.713" (18,10)
MATE02029	1.375"(34,93)	1.100" (27,94)	1.306" (33,18)
MATE02030	2.205"(56,00)	1.764" (44,80)	2.095" (53,20)
MATE02031	3.740"(94,08)	2.992" (75,26)	3.553" (89,38)
MATE02032	4.528"(115,01)	3.622" (92,01)	4.302" (109,26)

TIPS FOR SUCCESS:

- Rounds and shapes near maximum station size may not work very well due to the thin wall in the pad.
- Lubricate daily.
- Inspect the pad for wear every 2 weeks and replace as necessary.
- At least 75% of the radial area should have a wall thickness greater than 5,00mm.

OTHER MATE PRODUCTS TO CONSIDER:

- Maxima® coating for punches for improved lubricity and stripping
- Nitride treatment for abrasive and adhesive wear environments when punching thin materials
- Soft stone (ST029911) for removing galling from punches