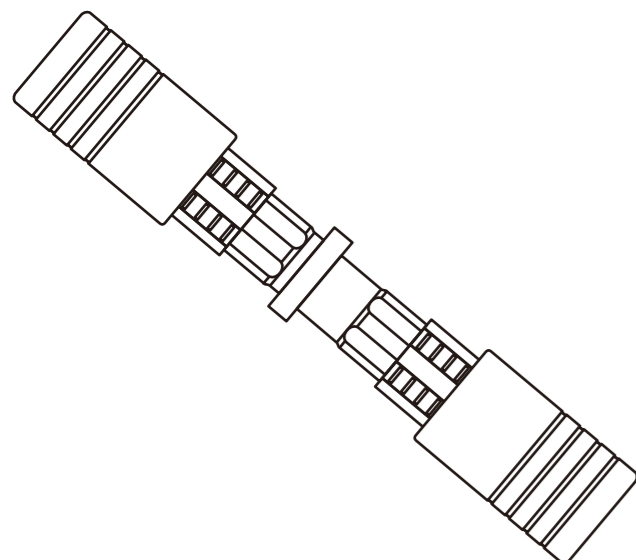


MILLION GUIDE GNS Series



ISEL CO., LTD.

1

Introduction

Thank you very much for choosing ISEL Million guide. First of all, please check the followings before installation.
 1) The part number of the delivered product is correct.
 2) There is no damage on the product during transportation.
 3) The accessories are all enclosed.

Our Million guide is a guide component for a dieset of press mold etc. Please read carefully, understand this manual and strictly observe the followings to install/ remove/ maintain the product for its enough performance and safe use. Ask us for any uncertain things on this product.

Notes

- Select the post length so that the post keeps the bush at the top dead center during the press process.
- Use it with the stroke where the needle rollers make one revolution or more if possible.
- Million guide is a pair of the bush and the post. Check the serial numbers before installation.

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- Make sure there is no rotational moment between the post and the bush at installation.
- Design so that the retainer does not come out from the bush during operation.
- Million guide cannot be used without any lubrication. Therefore regular lubrication is required.
- Use the dust proof boot on Million guide to protect the sliding area from dust etc.
- Use the Million guide at 0-80°C environment.
- Do not modify the Million guide.
(May affect the accuracy and specification)
- Volatile pressing oil vaporizes the lubrication of Million guide, and shortens the guide life. Be careful not to splash the pressing oil to the guide post or protect it with some cover.

Million guide lubrication

Million guide cannot be used without lubrication; Regular lubrication is necessary. In case Million guide is not properly lubricated, premature wear may occur, leading to the performance degradation. Lubricate the Million guide properly with reference to the followings.

- ① Recommended lube
We recommend oil lubrication under the environment where oil is usable. In case oil is unusable, lubricate with grease.

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- Oil lubrication
Isel/Million oil MOF-3 recommended
(Lubrication antirust agent (spray) with fluoro-resin mixed)
- Grease lubrication
Isel/Million grease MGS recommended
(Urea extreme-pressure grease)
※ We also provide grease for clean room and vacuum. Please contact us.
- ② Lubrication method
- Oil lubrication
Lubricate with an oiler or a spray etc. at the proper points according to the installation posture so that oil reaches every part of needle rollers.
- Grease lubrication
Apply grease directly to the needle rollers of the retainer if possible. If direct application to the needle roller is difficult, apply thinly to the sliding part of the post or the bush.
The grease application during stroke makes good lubrication.
Be careful not to apply excessively because the excessive amount of application may cause heat generation and sliding resistance increase for both cases.
- ③ Lubrication frequency
We recommend lubrication per 100,000 shots. (It depends on the operation condition or environment.)

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Safety Precautions!!

- Wear proper clothes and protector for the work.
- Start the work after confirming the power OFF and the machine is completely stopped.
- Take measures not to accidentally turn the power ON.
- Work safely by putting things tidy to prevent secondary accident.
- Use the product according to the industrial safety and health standard of each country.
- Take safety measures to keep out of danger by putting some covers where the workers might be endangered by our product(s) operation.
- Stop using our product if it loses its regular functions by the deformation or notable rust etc. Take safety measures on the machine to keep from dangers.

Prohibition!!

- No modification and no irregular use of this product are allowed.
(May affect the accuracy and specification)

[Check points of Million guide]

1. Damage on the retainer
※ The retainer could be damaged when the mold die is installed/uninstalled for regrinding or maintenance etc. Install the Million guide in the mold die after confirming the retainer is not damaged.
2. Needle roller(s) drop
※ The lowered retaining force could make the needle rollers drop during operation caused by the crack on the retainer when you drop or damage the retainer. Confirm the needle rollers are included in the retainer when you install the Million guide in the mold die.
3. Surface of the post, bush and needle roller(s)
※ Check the surface of the post, bush and needle roller(s) and if there is any harmful damage on them at the timing of mold die regrinding and maintenance.
※ The sliding surface of the guide post roller might become whitish or brownish depending on the operating condition. Such things are no problem for use.

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[Cleaning of Million guide]

1. Cleaning of the post surface and the bush inner surface
※ Clean the guide post surface and the bush inner surface with cleaning solution (our recommendation: a cleaner ALP-CL made by Sumico Lubricant Co. Ltd.) and wipe them with nonwoven fabric etc. Then lubricate our recommended lube on the guide post surface and bush inner surface.
2. Cleaning of the retainer
※ Clean the retainer with an ultrasonic cleaning equipment (pure water as cleaning fluid). Dry the retainer completely with air blow after cleaning. If the ultrasonic cleaning equipment is not available, remove dust and inclusion from the retainer with pure water and air blow. Then lubricate our recommended lube on the whole retainer.
※ Do not use organic solvent for cleaning the retainer.

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Stripper guide installation

There are 3 methods to install the stripper guide on the mold die.

- (1) Press-fit of the post
 - (2) Static press-fit of the bush – Type A
 - (3) Static press-fit of the bush – Type B
- You can choose one according to the operational conditions.

(1) Press-fit of the post

(1)-① Drilling a post and bush installation hole

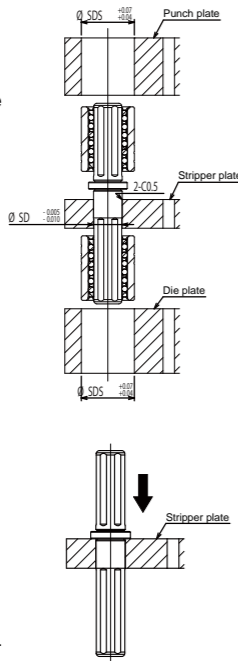
- Installation hole of the bush must be drilled at the punch and die plate in the tolerance of $\phi \text{SDS} + 0.04 \sim +0.07$.
- Installation hole of the post must be drilled at the stripper plate in the tolerance of $\phi \text{SD} - 0.005 \sim -0.010$.

Notes: Remove the plate warp (grind both top & bottom surface), then bore each installation hole. Completely remove the burrs at the mouth of the installation hole with oil stone etc.

(1)-② Guide post installation

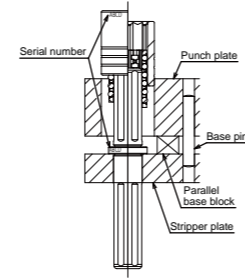
- After cleaning the installation hole and the press-fit part of the post, then press to fix the post to the hole, so that you can see the serial number on it.
 - Measure the perpendicularity of the installed post. (Standard: Less than 0.01mm per 100mm)
- For your reference) 90 degree direction change of one among the multiple guide posts prevents the mismatch of the punch/die set assembly.

Notes) Do not hit the post with a hammer etc. at the installation.



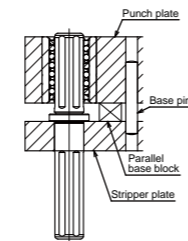
(1)-③ Preparation for bush installation at the punch plate side

- Combine the post and the bush at the punch plate side. Make sure the serial number and its position are correspondent between the post and the bush.
- Place the parallel base block on the stripper plate, put the punch plate on it, precisely fix the base pin on the punch plate and the stripper plate, then slide the bush up and down and check there is no interference in the punch plate.



(1)-④ Bush installation at the punch plate side

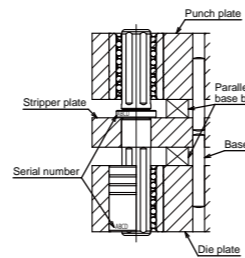
- After cleaning the bush outer diameter and the installation hole inner diameter with some solvent (alcohol etc.), apply anaerobic adhesive (Loctite638 recommended) to the adhesive flute outer diameter of the bush, insert the bush into the installation hole to the regulated position and dry adhesive (3 to 6 hours under normal temperature).



(1)-⑤ Bush installation at the die plate side

- Install the bush on the die plate side as well as the punch plate side.

Then the installation is complete.



(2) Static press-fit of the bush – Type A

Order of installation: Die plate → Stripper plate → Punch plate

(2)-① Drilling a post and bush installation hole

- Installation hole of the bush must be drilled at the punch plate in the tolerance of $\phi \text{SDS} + 0.04 \sim +0.07$.
 - Installation hole of the post must be drilled at the stripper plate in the tolerance of $\phi \text{SD} - 0.04 \sim -0.07$.
 - Actually measure the bush outer diameter at the die plate side, determine the tolerance (target: 0 preload) for the static press-fit. Installation hole of the bush must be drilled at the die plate.
- ※Never fail to make static press-fit of the bush (target: 0 preload) to keep the bush inner diameter and the retainer roller preload.

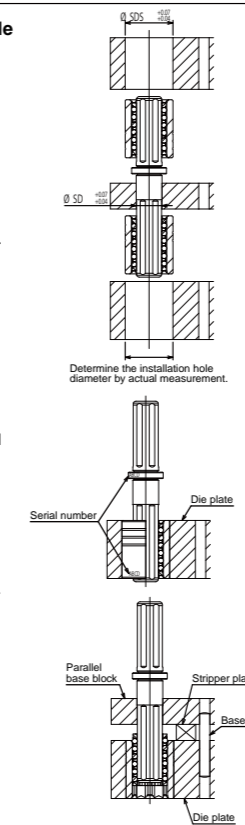
Notes: Remove the plate warp (grind both top & bottom surface), then bore each installation hole. Completely remove the burrs at the mouth of the installation hole with oil stone etc.

(2)-② Bush installation at the die plate side

- Determine the bush direction so that you can see the serial number on it.
- After cleaning the bush outer diameter and the installation hole inner diameter with some solvent (alcohol etc.), apply anaerobic adhesive (Loctite638 recommended) to the adhesive flute outer diameter of the bush, insert the bush into the installation hole to the regulated position and dry adhesive (3 to 6 hours under normal temperature).

(2)-③ Preparation for the post installation

- Place the parallel base block on the die plate, put the stripper plate on it, precisely fix the base pin on the die plate and the stripper plate.
- Combine the post and the bush. Make sure the serial number and its position are correspondent between the post and the bush, then slide the post up and down and check there is no interference in the stripper plate.



(2)-④ Post installation

- After cleaning the bush outer diameter and the installation hole inner diameter with some solvent (alcohol etc.), apply anaerobic adhesive (Loctite638 recommended) to the adhesive flute outer diameter of the post, insert the bush into the installation hole to the regulated position and dry adhesive (3 to 6 hours under normal temperature).

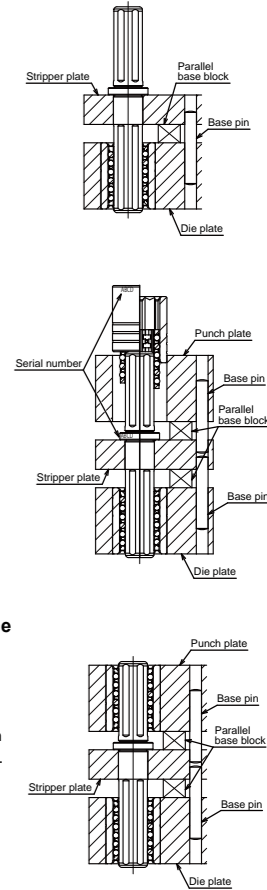
(2)-⑤ Preparation for bush installation at the punch plate side

- Place the parallel base block on the stripper plate, put the punch plate on it, precisely fix the base pin on the punch plate and the stripper plate.
- Combine the post and the bush at the punch plate side. Make sure the serial number and its position are correspondent between the post and the bush.
- Slide the bush up and down and check there is no interference in the punch plate.

(2)-⑥ Bush installation at the punch plate side

- After cleaning the bush outer diameter and the installation hole inner diameter with some solvent (alcohol etc.), apply anaerobic adhesive (Loctite638 recommended) to the adhesive flute outer diameter of the bush, insert the bush into the installation hole to the regulated position and dry adhesive (3 to 6 hours under normal temperature).

Then the installation is complete.



(3) Static press-fit of the bush – Type B

Order of installation: Die plate → Punch plate → Stripper plate

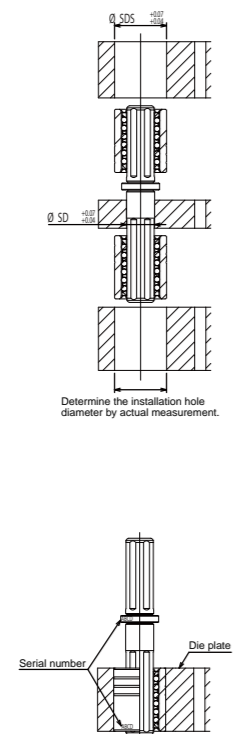
(3)-① Drilling a post and bush installation hole

- Installation hole of the bush must be drilled at the punch plate in the tolerance of $\phi \text{SDS} + 0.04 \sim +0.07$.
 - Installation hole of the post must be drilled at the stripper plate in the tolerance of $\phi \text{SD} - 0.04 \sim -0.07$.
 - Actually measure the bush outer diameter at the die plate side, determine the tolerance (target: 0 preload) for the static press-fit. Installation hole of the bush must be drilled at the die plate.
- ※Never fail to make static press-fit of the bush (target: 0 preload) to keep the bush inner diameter and the retainer roller preload.

Notes: Remove the plate warp (grind both top & bottom surface), then bore each installation hole. Completely remove the burrs at the mouth of the installation hole with oil stone etc.

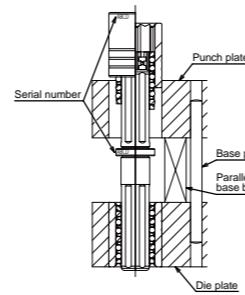
(3)-② Bush installation at the die plate side

- Determine the bush direction so that you can see the serial number on it.
- After cleaning the bush outer diameter and the installation hole inner diameter with some solvent (alcohol etc.), apply anaerobic adhesive (Loctite638 recommended) to the adhesive flute outer diameter of the bush, insert the bush into the installation hole to the regulated position and dry adhesive (3 to 6 hours under normal temperature).



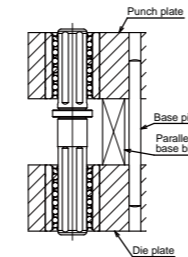
(3)-③ Preparation for bush installation at the punch plate side

- Combine the post and the bush at the die plate side. Make sure the serial number and its position are correspondent between the post and the bush.
- Place the parallel base block on the die plate, put the punch plate on it, precisely fix the base pin on the die plate and the punch plate.
- Combine the post and the bush at the punch plate side. Make sure the serial number and its position are correspondent between the post and the bush.
- Slide the bush up and down and check there is no interference with the punch plate.



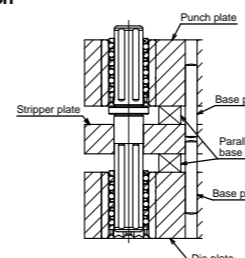
(3)-④ Bush installation at the punch plate side

- After cleaning the bush outer diameter and the installation hole inner diameter with some solvent (alcohol etc.), apply anaerobic adhesive (Loctite638 recommended) to the adhesive flute outer diameter of the bush, insert the bush into the installation hole to the regulated position and dry adhesive (3 to 6 hours under normal temperature).



(3)-⑤ Preparation for the stripper plate installation

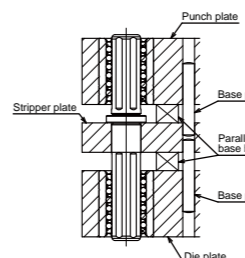
- Remove the post from the die plate, then insert the post into the stripper plate and the die plate in this order. Make sure the serial number and its position are correspondent between the post and the bush.
- Place the parallel base block on the die plate, put the stripper plate and the punch plate on it, precisely fix the base pin on the die plate, the stripper plate and the punch plate.
- Slide the post up and down and check there is no interference with the stripper plate.



(3)-⑥ Stripper plate installation

- After cleaning the post outer diameter and the installation hole inner diameter with some solvent (alcohol etc.), apply anaerobic adhesive (Loctite638 recommended) to the adhesive flute outer diameter of the post, insert the bush into the installation hole to the regulated position and dry adhesive (3 to 6 hours under normal temperature).

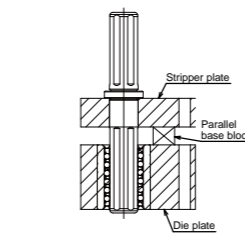
Then the installation is complete.



Re-installation of the stripper guide

① Re-installation of the post

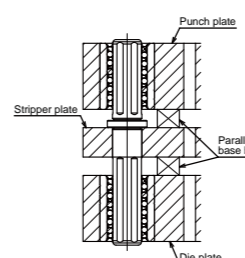
- Place the parallel base block on the die plate, put the stripper plate on it.
- Assemble the post with the bush that is glued at the die plate, with the serial number and its position fit.
- Adjust the stripper plate position by sliding the post up and down, so that the post does not interfere with the installation hole of the stripper plate.
- After cleaning the post installation part and the installation hole inner diameter, and make the static press-fit or the adhesion fix of the stripper plate and the post.



② Re-installation of the punch plate

- Assemble the punch plate where the bush is glued.
- Make sure that the punch plate slides smooth.

Then the re-installation is complete.



Accuracy standard for Million guide assembly

| Inspection matters | Measuring method | Tolerance | | | |
|---|------------------------------------|------------------|--------------|--------------|--------------|
| | | 100 and less | 200 and less | 300 and less | 600 and less |
| Parallelism of the punching holder upper plate and the die holder lower plate | Longer side length of nominal size | 0.004 | 0.008 | 0.01 | 0.015 |
| | Accuracy | | | | |
| Perpendicularity of the die holder lower plate and the guide post | Longer side length of nominal size | 0.01/100 or less | | | |
| | Accuracy | | | | |
| Parallelism of after assembling | Longer side length of nominal size | 0.006 | 0.012 | 0.02 | 0.025 |
| | Accuracy | | | | |

Example of measuring the post assembly perpendicularity of Million guide

