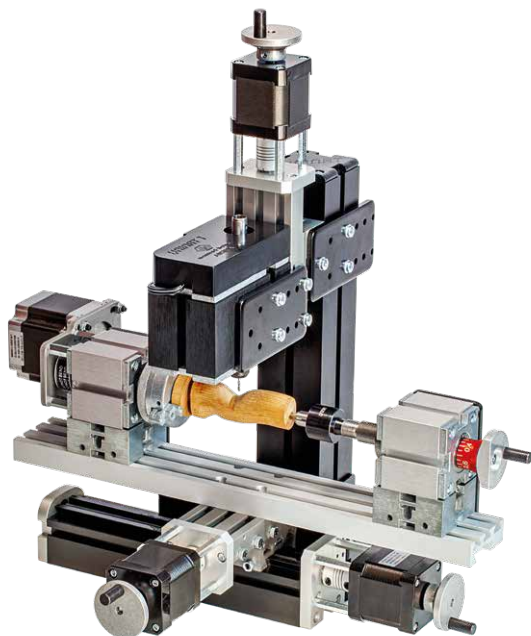
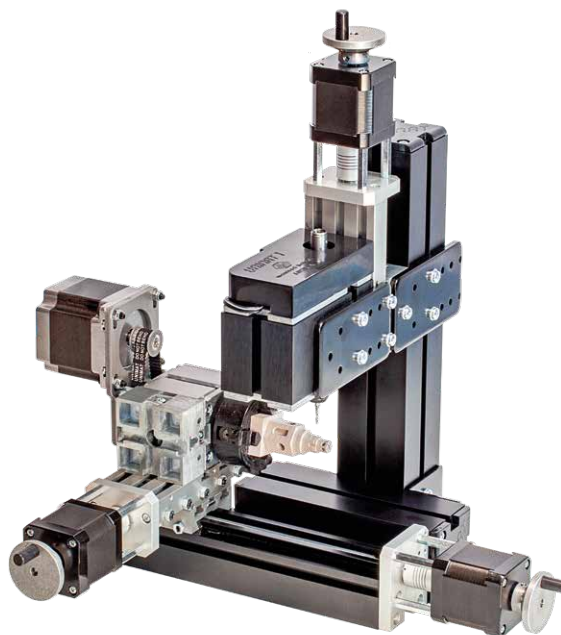
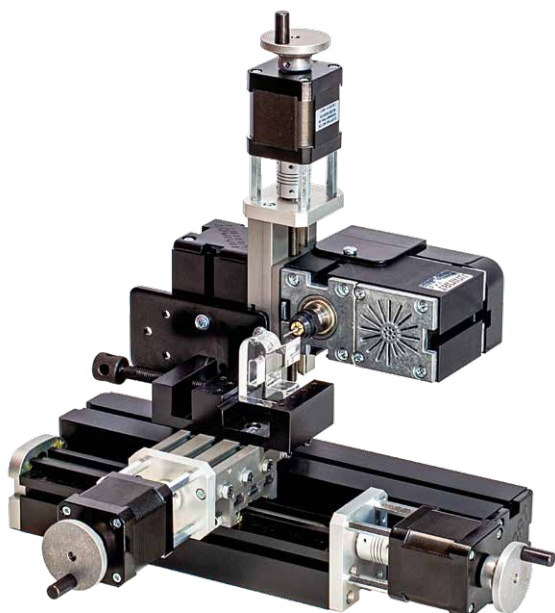
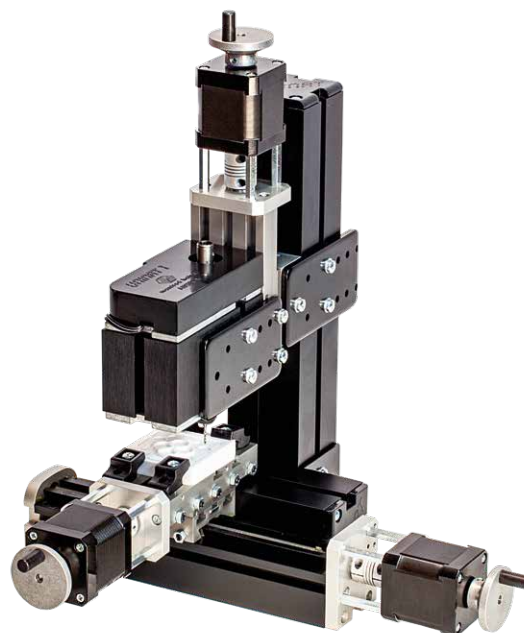
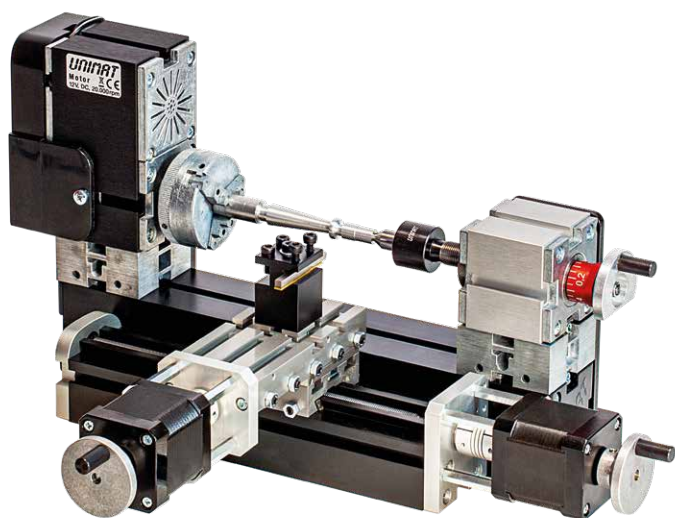




**[TVET-CNC-2]**

VSTVETCNC2-17.04.2025\_1



# UNIMAT CNC

Inhaltsverzeichnis

Table of contents

Table des matières

Tabla de contenido

目录

Оглавление

|             | DE                              | EN                                      | FR                                 | ES                                | 中国<br>(ZH)      | RU                                           |    |
|-------------|---------------------------------|-----------------------------------------|------------------------------------|-----------------------------------|-----------------|----------------------------------------------|----|
|             | Warnungen                       | Warning                                 | Avertissements                     | Aviso                             | 警告              | Предупреждение                               | 4  |
|             | Spezifikationen                 | Specifications                          | Caractéristiques                   | Especificaciones                  | 规格              | Характеристики                               | 5  |
| UNI-DREH    | Drehbank                        | Metal lathe                             | Tour                               | Torno<br>de metal                 | 车床              | Токарный станок                              | 6  |
| UNI-FRAES3  | 3 Achsen<br>Vertikalfräse       | 3 axis<br>Vertical milling<br>machine   | 3 axes<br>Fraiseuse<br>verticale   | 3 ejes<br>Fresadora<br>vertical   | 3 轴<br>立式<br>铣床 | 3 轴<br>Вертикальный<br>фрезерный<br>станок   | 22 |
|             | 3 Achsen<br>Horizontalfräse     | 3 axis<br>horizontal milling<br>machine | 3 axes<br>Fraiseuse<br>horizontale | 3 ejes<br>Fresadora<br>horizontal | 3 轴<br>卧式<br>铣床 | 3 轴<br>Горизонтальный<br>фрезерный<br>станок | 39 |
| UNI-FRAES4  | 4 Achsen<br>Fräse<br>Variante 1 | 4 axis<br>milling machine<br>variant 1  | 4 axes<br>Fraiseuse<br>variante 1  | 4 ejes<br>Fresadora<br>variante 1 | 4 轴<br>铣床       | 4 轴<br>фрезерный<br>станок                   | 52 |
| UNI-CNC-SET | 4 Achsen<br>Fräse<br>Variant 2  | 4 axis<br>milling machine<br>variant 2  | 4 axes<br>Fraiseuse<br>variante 2  | 4 ejes<br>Fresadora<br>variante 2 | 4 轴<br>铣床       | 4 轴<br>фрезерный<br>станок                   | 68 |
|             | Tipps<br>und<br>Tricks          | Tips<br>and<br>Hints                    | Trucs<br>et<br>astuces             | Consejos<br>y<br>trucos           | 技巧<br>和<br>窍门   | секреты<br>и<br>уловки                       | 86 |
|             | Set<br>Stücklisten              | Set<br>part lists                       | Set<br>listes de pièces            | Set<br>listas de piezas           | Set<br>零件<br>清单 | Set<br>списки деталей                        | 94 |

# UNIMAT CNC

## Warnungen

## Warning

## Avertissements

## Aviso

## 警告

## Предупреждение



### WARNUNGEN

Mit Unimat ML können verschiedene Maschinen zusammengestellt werden: Mit jeder dieser Maschinen kann man sich bei unsachgemäßer Handhabung ernsthaft verletzen.

Die Maschinen sind mit scharfem Werkzeug ausgerüstet und können zum Teil schwere Schnittwunden verursachen.

Eingespanntes Werkstück kann beim Arbeiten aus der Maschine fliegen.

Immer wieder überprüfen, ob Werkzeug bzw. Werkstück fest eingespannt ist!

Schutzbrille verwenden!

Niemals in rotierendes Werkzeug greifen.

Niemals in rotierendes Werkstück (Drehselhölzer etc.) greifen! Aufpassen, dass weder offene Kleidung (Ärmel etc.), noch Haare in die Nähe von rotierendem Werkzeug oder Werkstück kommen.

Der Antrieb erfolgt über einen 12 V Gleichstrom Motor!

Nur unter direkter Aufsicht

Erwachsener benutzen. Wie bei einem Arbeitsplatz, ist auf ein sauberes Umfeld zu achten. Erst nach abgeschlossener Montage, insbesondere der Motor-Getriebe-Abdeckung ist die Maschine mit der Stromversorgung zu verbinden.

Sollte ein Teil in dieser Packung fehlen oder defekt sein, so fordern Sie es bitte bei [info@thecooltool.com](mailto:info@thecooltool.com) kostenlos an. Bitte nicht die Packung einsenden. Nur Absender und Teile-Nr. (siehe Stückliste der Bauanleitung) angeben bzw. das Teil beschreiben oder skizzieren. Bei technischen Teilen, wie beispielsweise Motoren, bitten wir Sie, uns diese zur Reparatur bzw. aus Gründen der Qualitätssicherung einzusenden. Der Inhalt kann je nach Vertriebsland variieren.

Konformitätserklärung: <http://www.thecooltool.com/rechtliches/>



### AVERTISSEMENTS

Unimat ML permet de réaliser machines différentes: en cas d'utilisation non conforme, chacune de ces machines peut causer de graves blessures.

Les machines sont équipées d'outils tranchants et peuvent dans certains cas provoquer des coupures graves. L'outil en place peut être projeté hors de la machine en cours de travail.

Vérifiez toujours si l'outil et la pièce à usiner sont solidement serrés!

Utilisez les lunettes protectrices!

Ne touchez jamais l'outil en rotation!

Ne touchez jamais une pièce en

rotation (bois de tournage...)! Veillez à tenir éloignés de l'outil ou de la pièce en rotation les vêtements lâches (manches ...) et les cheveux.

Entraînement par un moteur 12 V courant continu.

Ne laissez jamais travailler les enfants sans surveillance!

La place d'utilisation doit rester propre!

N'utilisez le transformateur qu'après l'assemblage complet, surtout des couvertures du moteur et de la broche de réduction!

S'il manquait une pièce dans cette boîte ou si un accessoire était défectueux, veuillez nous demander son remplacement ([info@thecooltool.com](mailto:info@thecooltool.com)). Ne retournez pas la boîte, mais indiquez le numéro de la pièce (voir liste des pièces détachées du mode d'emploi) ou décrivez ou dessinez-nous la pièce. En ce qui concerne les pièces techniques, par exemple moteurs, nous vous demandons, pour des raisons de garantie de qualité, de nous les envoyer pour réparation.

Le contenu peut varier en différent pays.

Déclaration de conformité: <http://www.thecooltool.com/en/legal/>



### 警告

优耐美 Unimat ML 可组成不同形式的机器,

每一种机器如使用不当或操作失误时, 可能引起严重伤害。

锋利的刀具随同各机器供应, 小心使用操作, 避免受伤。

机器加工时工件有可能从夹头上脱落,

因此务必确定工具及工件已牢靠地锁紧固定。

操作时应戴安全护目镜!

绝不用身体任何部位碰触旋转中的工件!

勿使头发和衣服靠近运动中的零件!

动力由一个12V的直流马达提供。

儿童使用机器时, 必须有负责的成年人在旁严格监督指导使用。

保持工作场所整齐清洁, 在插上变压器前要确认优耐美机器的各零件组装正确 (尤其是马达和主轴包含的范围)。

如果盒内零件有损坏或丢失, 请发送您的要求到下列地址索取免费备件 ([info@thecooltool.com](mailto:info@thecooltool.com))。不需要寄包装盒, 只需要你的名字和地址, 以及零件编号 (见组装手册中的备用零件表) 或画一个小的零件图。为了维修以及品质保证的原因, 请将技术零件, 如马达寄给我们。盒内内容物有可能依不同国家有所不同。

EC符合性声明: <http://www.thecooltool.com/en/legal/>



### WARNING

With Unimat ML it is possible to assemble different types of machines. Each machine can cause severe injuries if handled improperly.

The machines are supplied with sharp tools. Handle these with caution to avoid injury.

The workpiece can fly out of the chuck when being machined.

Always make sure that the tool and workpiece are each properly secured.

Use protection goggles.

Never touch the revolving workpiece with any part of your body.

Keep hair and clothing well away

from moving parts. Propulsion is furnished by a 12 V direct-current motor. Children should only use the machines under very strict supervision by responsible adult. Keep workplace clean and tidy. Make sure the assembly of Unimat machine parts is done correctly (especially the coverage of motor and countershaft) before plugging in the transformer.

Should any part in this box be defective or missing, please send your request to [info@thecooltool.com](mailto:info@thecooltool.com) for a free replacement. Do not send the box. Just your name and address, the part number (see spare parts list of the assembly manual) or a small drawing. Please send us any technical parts such as motors, for repair and quality assurance reasons.

The content may vary in different countries.

Declaration of conformity: <http://www.thecooltool.com/en/legal/>



### AVISO

Con Unimat ML se pueden construir diferentes máquinas: con cada una de estas máquinas corre peligro herirse al servirse de ellas inadecuadamente.

Las máquinas están provistas de herramienta afilada que pueden a veces causar cortes graves.

La herramienta fijada puede desprenderse de la máquina durante el trabajo.

¡Siempre conviene controlar si la herramienta y el material están fijados adecuadamente!

¡Utilizar las gafas protectoras!

¡Nunca tocar la herramienta rot-

atoria! ¡Nunca tocar el material que está rotando (madera para torner, ...)! ¡Prestar cuidado a que indumentaria (mangas, ...) o cabello suelto no se hallen demasiado cerca de la herramienta y del material! Propulsion mediante un motor 12 V corriente continua!

¡Niños no deben nunca trabajar con las máquinas sin guardia! Como todas las máquinas también Unimat debe ser limpiada y lubricada regularmente. ¡Primeramente ensamblar la máquina y al final conectar a la corriente!

En caso de faltar alguna pieza o de resultar defectuosa, rogamos efectuar el reclamo correspondiente a la dirección indicada sin costo alguno ([info@thecooltool.com](mailto:info@thecooltool.com)). Por favor no mande el paquete. Solamente describa o diagrama la parte e indique su dirección y el número de la misma (vease la lista de piezas y las instrucciones de armado). Si fuese necesario efectuar una reparación, y por motivos del control de calidad, sírvale remitir al fabricante las piezas técnicas tales como los motores.

El contenido puede variar dependiendo del país.

Declaración de conformidad CE: <http://www.thecooltool.com/en/legal/>



### ПРЕДУПРЕЖДЕНИЕ

Комплект Unimat ML позволяет собрать различные варианты станков. Любой станок может причинить серьезные травмы, если используется ненадлежащим образом.

СТАНКИ снабжены острыми инструментами. Обращайтесь с ними осторожно, чтобы избежать травм.

Во время обработки заготовка может вылететь из станка. Всегда надежно закрепляйте инструмент и заготовку.

Используйте защитные очки.

Никогда не касайтесь вращающейся заготовки какой-либо частью тела. Держите волосы и одежду вдалеке

от движущихся частей. Станки приводятся в движение двигателем постоянного тока 12 В. Дети должны использовать станки только под очень строгим наблюдением ответственного взрослого.

Содержите рабочее место в чистоте и порядке. Перед включением убедитесь, что станок собран правильно (особенно кожух приводного ремня).

Если какая-нибудь деталь в этой коробке имеет дефект или отсутствует, пожалуйста, отправьте свой запрос [info@thecooltool.com](mailto:info@thecooltool.com) для бесплатной замены. Не посылайте весь комплект. Только Ваши имя, адрес и номер детали или фото. Пожалуйста, пришлите нам сложные узлы, как, например, двигатели, для изучения причин отказа и повышения качества в дальнейшем.

Комплектация может отличаться для разных стран.

Сертификат соответствия EC: <http://www.thecooltool.com/en/legal/>



# UNIMAT CNC

## Technische Daten

## Technical data

## Caractéristiques techniques

## Informaciones técnicas

## 技术参数

## Технические данные

### Technische Daten

#### EINZELTEILE

##### Antriebseinheit ML

12 V Gleichstrom  
Leistungsaufnahme bis 2 A  
Leerlaufdrehzahl: 3.880 U/min  
Spindelnase: M12x1  
Bohrung: 8 mm  
2 gedichtete u. gefettete Kugellager

##### Querschlitten U3CNC

Verstellweg: 50 mm  
Spindelsteigung: 1 (M6x1)

##### Längsschlitten U9CNC

Verstellweg: 145 mm  
Spindel M8x2 P1 links

##### Drehtisch CNC

Spindelnase: M12x1  
Bohrung: 8 mm

##### Reitstock U6ML

M 12x1  
Pinolenhub: 30 mm

#### Netzteil

prim. 110 - 240 V, 50 - 60 Hz,  
sek. 14,4 V Gleichstrom, 2 A

#### EINZELMASCHINEN

##### Drehbank CNC

Spitzenhöhe 50 mm  
Spitzenweite 80 mm

##### 3-Achsen Horizontalfräse CNC

Arbeitsbereich:  
x=145, y=50, z=50 mm

##### 3-Achsen Vertikalfräse CNC

Arbeitsbereich:  
x=145, y=50, z=50 mm

##### 4-Achsen Vertikalfräse CNC

Arbeitsbereich:  
x=145, y=50, z=50 mm



#### INDIVIDUAL PARTS

##### Drive unit ML

12 V direct current  
Power input up to 2 A  
Nom. rpm.: 3,880 rpm  
Spindlenose: M12x1  
Hole through spindle: 8 mm  
2 ballbearings

##### Cross slide U3CNC

Travel: 50 mm  
screw pitch: 1 (M6x1)

##### Longitudinal slide U9CNC

Travel: 145 mm  
Screw: M8x2 P1 LH

##### Rotary table CNC

Spindlenose: M12x1  
Hole through spindle: 8 mm

##### Tailstock U6ML

M12x1  
Travel of tailstock sleeve: 30 mm

#### Adaptor

prim. 110 - 240 V, 50 - 60 Hz,  
sek. 14.4 V direct current, 2A,

#### MACHINES

##### Lathe CNC

Centre height 50 mm  
Distance between centres 80 mm

##### 3-axis Horizontal milling machine CNC

work area:  
x=145, y=50, z=50 mm

##### 3-axis vertical milling machine CNC

work area:  
x=145, y=50, z=50 mm

##### 4-axis vertical milling machine CNC

work area:  
x=145, y=50, z=50 mm

### Caractéristiques techniques

#### PIÈCES INDIVIDUELLES

##### Broche de réduction U2ML

12 V courant continu  
Puissance absorbée jusqu'à 2 A  
Vitesse à vide: 3.880 t/mn  
Nez de la broche: M12x1  
Alésage: 8 mm  
2 roulements à billes étanches et lubrifiés

##### Transversal U3CNC

Course de réglage: 50 mm  
filet: 1 (M6x1)

##### Longitudinal U9CNC

Course de réglage: 145 mm  
filet: M8x2 P1 LH

##### Drehtisch CNC

Nez de la broche: M12x1  
Alésage: 8 mm

##### Poupée mobile U6ML

M12x1

Course de fourreau: 30 mm

#### Transformateur

prim. 110 - 240 V, 50 - 60 Hz,  
sec. 14,4 V, 2A

#### MACHINES INDIVIDUELLES

##### Tour CNC

Hauteur de pointes 50 mm  
Entre-pointes 80 mm

##### Fraisuse horizontale CNC

de travail:  
x=145, y=50, z=50 mm

##### Fraisuse verticale CNC

de travail:  
x=145, y=50, z=50 mm

### informaciones técnicas

#### PIEZAS SUeltas

##### Cabezal U2ML

12 V Corriente continua  
Energía absorbida hasta 2 A  
Revoluciones: 3.880 rpm  
Saliente: M12x1  
Paso de la barra: 8 mm  
dientes, 2 baleros sellados y engrasados

##### Carro transversal U3CNC

Recorrido de desplazamiento: 50 mm  
screw: 1 (M6x1)

##### Carro longitudinal U9CNC

Recorrido de desplazamiento: 145 mm  
screw: M8x2 P1 LH

##### Drehtisch CNC

Saliente: M12x1  
Paso de la barra: 8 mm

##### Contrapunta U6ML

M12x1

Carrera de pinol: 30 mm

#### Transformador

prim. 110 - 240 V, 50 - 60 Hz,  
seg. 14,4 V corriente continua, 2 A

#### MAQUINAS SUeltas

##### Banco del torno

Altura de puntos 50 mm  
Distancia entre puntos 80 mm

##### fresadora horizontal

Distancia: x=145, y=50, z=50 mm

##### fresadora vertical

Distancia: x=145, y=50, z=50 mm



#### 个别零件

##### 全金属主轴 U2 ML

12V 直流电  
输入电流最大 2A  
额定转速: 3,880 转/分钟  
主轴螺纹: M12x1  
主轴孔径: 8 mm  
2 个滚珠轴承

##### 全金属小滑块 U3 CNC

行程: 50 mm  
螺距: 1 (M6x1)

##### 全金属大滑块 U9 CNC

行程: 145 mm  
螺距: M8x2 P1 LH

##### Drehtisch CNC

主轴螺纹: M12x1  
主轴孔径: 8 mm

##### 尾座 U6 ML

尾座螺纹: M12x1  
尾座行程: 30 mm

#### 变压器

输入电压 110-240V AC, 50-60Hz  
输出电压 14,4V 直流电, 输出电流 2A

#### 机器

##### 车床:

中心高 50 mm  
中心距 80 mm

##### 卧式铣床:

工作范围: x=145, y=50, z=50 mm

##### 立式铣床:

工作范围: x=145, y=50, z=50 mm



#### ОТДЕЛЬНЫЕ УЗЛЫ

##### Шпиндель (передняя бабка) U2ML

12 В, постоянный ток  
Потребляемый ток до 2 А  
Скорость вращения: 3 880 об/мин.  
Присоединительная резьба: M12x1  
Внутренний диаметр: 8 мм  
2 шарикоподшипника

##### Салазки U3CNC (поперечный суппорт)

Перемещение: 50 мм  
Винт подачи M6x1

##### Салазки U9CNC (продольный суппорт)

Перемещение: 145 мм  
Винт подачи M8x2 P1 LH

##### Drehtisch CNC

Присоединительная резьба: M12x1  
Внутренний диаметр: 8 мм

##### Задняя бабка U6ML

Присоединительная резьба: M12x1  
Перемещение пиноли: 30 мм

#### Трансформатор

Первичное напряжение: 110-240В,  
50-60 Гц, Вторичное напряжение:  
14,4В, постоянный ток 2А

#### СТАНКИ

##### Токарный станок

Высота центров 50 мм  
Расстояние между центрами 80 мм

##### Горизонтальный фрезерный станок

Рабочее поле: x=145, y=50, z=50 mm

##### Вертикальный фрезерный станок

Рабочее поле: x=145, y=50, z=50 mm

### 技术参数

# UNIMAT CNC

Drehmaschine

Metal lathe

Tour

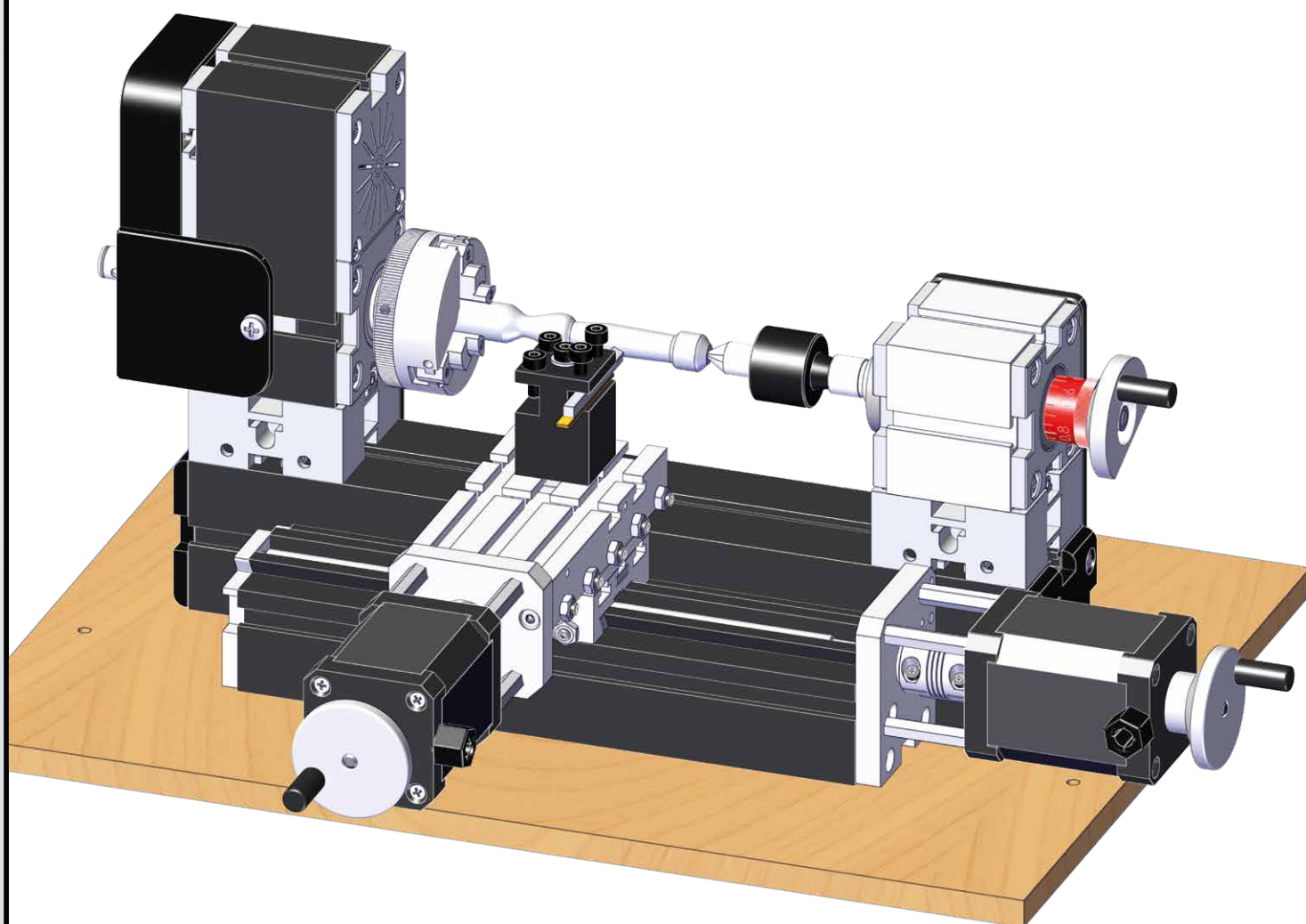
Torno de metal

车床

Токарный станок

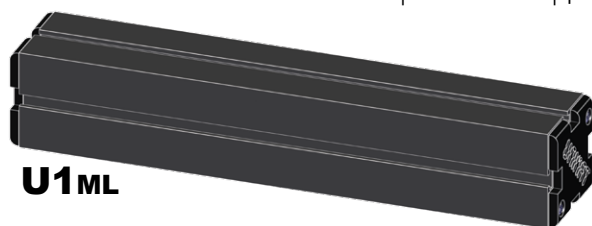


**UNI-DREH**

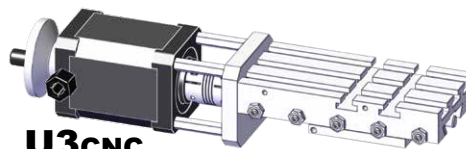


|         |   | DE                       | EN                          | FR                                | ES                               | 中国 (ZH)      | RU                         |                |
|---------|---|--------------------------|-----------------------------|-----------------------------------|----------------------------------|--------------|----------------------------|----------------|
| U1ML    | 1 | Maschinenbett, lang      | Machine bed, long           | Banc, grand                       | Bancada grande                   | 长机座          | Станина длинная            | A1A 020 000 SW |
| U3CNC   | 1 | CNC Querschleitten       | CNC Cross slide             | CNC Chariot, petit                | CNC Carro, pequeño               | CNC 全金属小滑块   | CNC Салазки поперечные     | 164 060 NCNC   |
| U4MLEDU | 1 | Antriebseinheit ML       | Drive unit ML               | EDU-Moteur                        | EDU-Motor                        | EDU-马达       | EDU-Двигатель              | 164 420        |
| U6ML    | 1 | Reitstock                | Tailstock                   | Poupée mobile                     | Contrapunta                      | 全金属尾座        | Бабка задняя               | A1M 040 000    |
| U9CNC   | 1 | CNC Längsschleitten      | CNC Longitudinal slide      | CNC Chariot, grand                | CNC Carro, grande                | 全金属长滑块       | Салазки продольные         | 164 480 NCNC   |
| U10ML   | 2 | Zwischenstück            | Intermediate piece          | Pièce intermédiaire               | Pieza intermedia                 | 全金属中介块       | Проставка                  | A1M 000 100    |
| U12ML   | 1 | Spannzange 5 mm          | Collet 5 mm                 | Pince 5 mm                        | Pinza 5 mm                       | 金属夹头 5 mm    | Цанги 5 mm                 | 162 460 50     |
| U13ML   | 1 | Dreibackenfutter         | Three-jaw chuck             | Mandrin à trois mors              | Mandril de tres mordazas         | 3爪夹头         | Патрон 3-кулачковый        | 162 430 MH     |
| U15A    | 1 | Schraubendreher #2       | Screwdriver #2              | Tourne-vis #2                     | Destornillador #2                | 螺丝刀2#        | Отвертка Philips № 2       | ZWZ 980 030    |
| U15B    | 1 | Inbusschraubendreher     | Screwdriver allen key 2.5mm | Tourne-vis hexagonale 2,5mm       | Destornillador allen 2,5mm       | 内六角扳手2.5 mm  | Отвертка 6-гранная 2,5 mm  | ZWZ 980 075    |
| U48ML   | 1 | Spannzangenhalter        | Collet holder               | Porte-pinces                      | Porta-pinza                      | 固定铜帽         | Гайка зажимная для цанг    | A1A 000 073    |
| U51     | 1 | Inbusschlüssel 2 mm      | Allen key 2 mm              | Clé hexagonale 2 mm               | Llave allen 2 mm                 | 内六角扳手2 mm    | Ключ 6-гранный 2 mm        | ZWZ 110 200    |
| U52     | 2 | Stift                    | Rod                         | Cheville                          | Perno                            | 锁杆           | Вороток                    | ZST 110 345    |
| U54RO   | 1 | Präzisions Rollkörner    | Precision live center       | Contre-pointe tournante précision | Contra punto giratorio precisión | 精密活顶尖        | Центр вращающийся          | 164 450 MH     |
| U66     | 6 | Verbindungselement       | Connection piece            | Pièce de connexion                | Elemento de conexión             | 连接件          | Сухарь соединительный      | A1A 00 ZINSK   |
| U67     | 2 | Fixierplatte groß        | Stabilizing plates          | Plaques de fixation               | Platos de fijacion               | 固定片          | Пластина стабилизирующая   | A1Z 470 010    |
| U70     | 1 | Schraube M4x40           | Screw M4x40                 | Vis M4x40                         | Tornillo M4x40                   | 螺钉M4x40      | Винт M4x40                 | ZSR M44 01S KT |
| U71     | 1 | Gabelschlüssel 7 / 14 mm | Fork wrench 7 / 14 mm       | Clé de fourche 7 / 14 mm          | llave de furca 7 / 14 mm         | 扳手 7 / 14 mm | Ключ гаечный 7 / 14 mm     | ZWZ 400 700    |
| U75     | 1 | Inbusschlüssel 3,0 mm    | Allen key 3,0 mm            | Clé hexagonale 3,0 mm             | Llave allen 3,0 mm               | 内六角扳手3 mm    | Ключ 6-гранный 3,0 mm      | ZWZ 110 300    |
| M4      | 1 | Mehrfachstahlhalter      | 2 position tool post        | Porte outil 2 position            | Fijacion para herramienta torno  | 两段刀座         | Резцедержатель двухместный | A1M 000 091    |
|         | 1 | Grundplatte CNC          | Mounting plate CNC          | Plaque de mantange CNC            | Plancha basico CNC               | 固定底板 CNC     | Монтажная пластина CNC     | 164 402        |

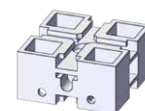
nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



**U1ML**



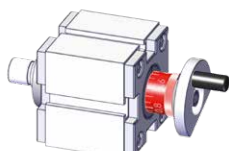
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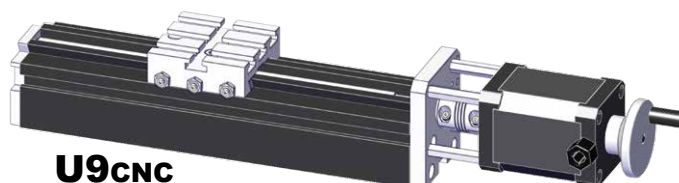
**U10ML**



**U4MLEDU**



**U6ML**



**U9CNC**



**U15A**



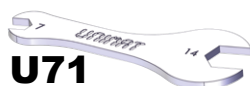
**U54RO**



**U13ML**



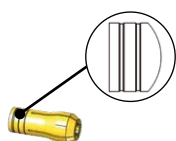
**U15B**



**U71**



**U67**



**U12ML**  
(5 mm)



**U48ML**



**U66**



**U52**



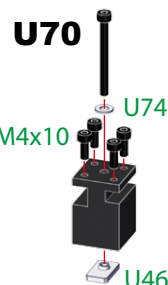
**U51**



**U75**



**M4**



**U70**

M4x10 U74  
U46



**164402**

|                                                                                     |   | DE                           | EN                     | FR                   | ES                           | 中国 (ZH)    | RU                    |             |
|-------------------------------------------------------------------------------------|---|------------------------------|------------------------|----------------------|------------------------------|------------|-----------------------|-------------|
| U31                                                                                 | 8 | Schraube M4x10               | Screw M4x10            | Vis M4x10            | Tornillo M4x10               | 螺钉M4x10    | Винт M4x10            | ZSR M40 410 |
| U37                                                                                 | 4 | Schraube M4x8                | Screw M4x8             | Vis M4x8             | Tornillo M4x8                | 螺钉M4x8     | Винт M4x8             | ZSR M40 408 |
| U38                                                                                 | 2 | Schraube M4x6                | Screw M4x6             | Vis M4x6             | Tornillo M4x6                | 螺钉M4x6     | Винт M4x6             | ZSR M40 406 |
| U40                                                                                 | 2 | Drehstahlunterlage<br>0,1 mm | Small part 0.1 mm      | Plaquette 0,1 mm     | Plaquita 0,1 mm              | 压条0.1 mm   | Прокладка 0,1 мм      | A1A 000 170 |
| U41                                                                                 | 2 | Drehstahlunterlage<br>0,4 mm | Small part 0.4 mm      | Plaquette 0,4 mm     | Plaquita 0,4 mm              | 压条0.4 mm   | Прокладка 0,4 мм      | A1A 000 190 |
| U42                                                                                 | 2 | Drehstahlunterlage<br>1,0 mm | Small part 1.0 mm      | Plaquette 1,0 mm     | Plaquita 1,0 mm              | 压条1.0 mm   | Прокладка 1,0 мм      | A1A 000 180 |
| U46                                                                                 | 7 | Nutstein                     | Slot nut               | Boulon en «T»        | Pernos "T"                   | 单孔螺母       | Гайка пазовая         | A1A 060 040 |
| U47                                                                                 | 3 | Klemmplatte                  | Camping plate          | Élément en «T»       | Elemento "T"                 | 双孔螺母       | Гайка пазовая двойная | A1A 010 020 |
| U53                                                                                 | 1 | Außendrehstahl               | Tool for outs. turning | Outil à tourner      | Herramienta para tor. exter. | 外车刀        | Резец токарный        | A1A 000 080 |
| U54                                                                                 | 1 | Körnerspitze                 | Center                 | Pointe               | Punto                        | 中心锥        | Центр                 | A1A 000 130 |
| U74                                                                                 | 9 | Beilagscheibe                | Plain washer           | Rondelle             | Arandela                     | 垫片         | Шайба                 | ZSB 250 430 |
|                                                                                     | 4 | Gummipuffer                  | Elastic buffer         | Butoir élastique     | Amortiguador elástico        | 弹性缓冲       | Эластичный буфер      | 166 EP      |
| ohne Abbildung   without picture   sans figure   sin ilustración   无图   без рисунка |   |                              |                        |                      |                              |            |                       |             |
|                                                                                     | 1 | Netzteil 14,4V               | 14.4V adaptor          | 14,4V Transformateur | 14,4V Transformador          | 变压器 14.4 V | Трансформатор 14,4 В  | 161 31x     |

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе

**U40**

**U41**

**U42**



**U46**



**U47**



**U53**



**U54**



**U74**

**166EP**

**1:1**



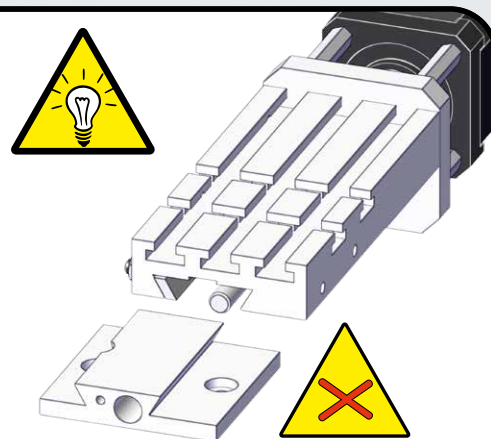
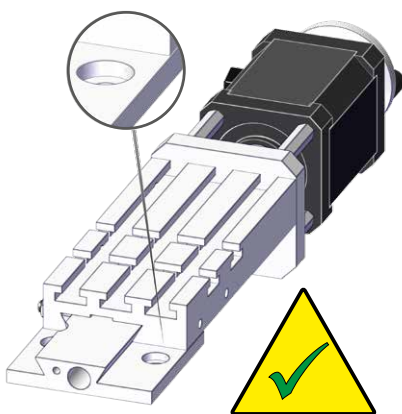
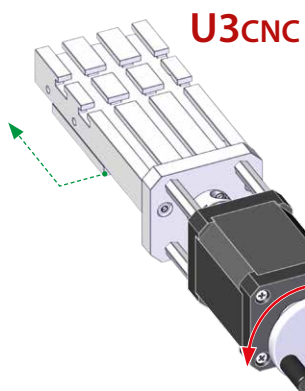
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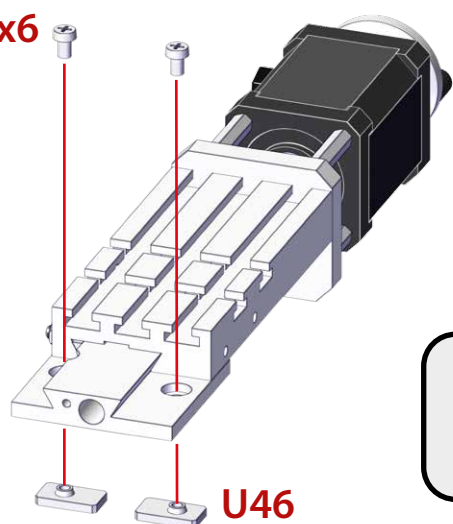
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**M4x10**



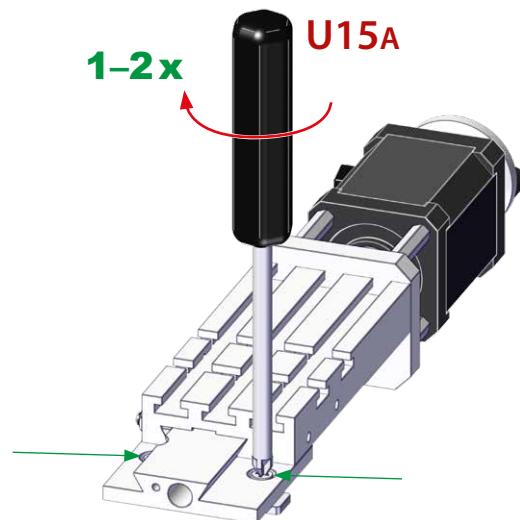
**M4x6**



**U46**

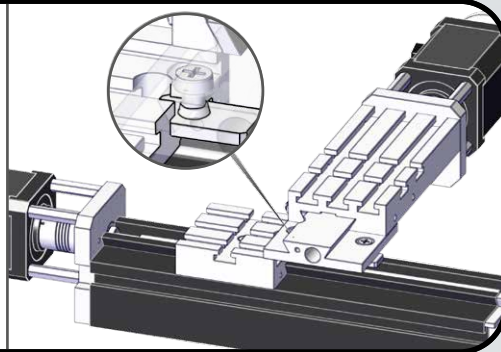
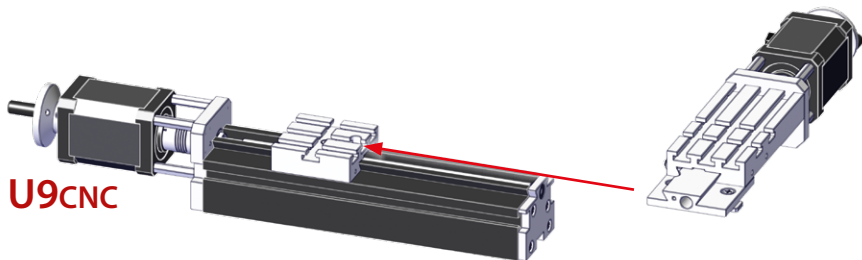
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**1-2x U15A**

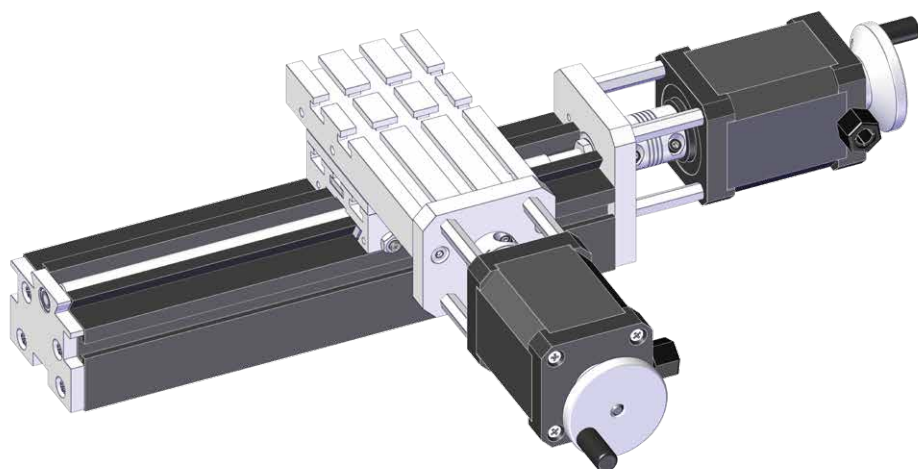
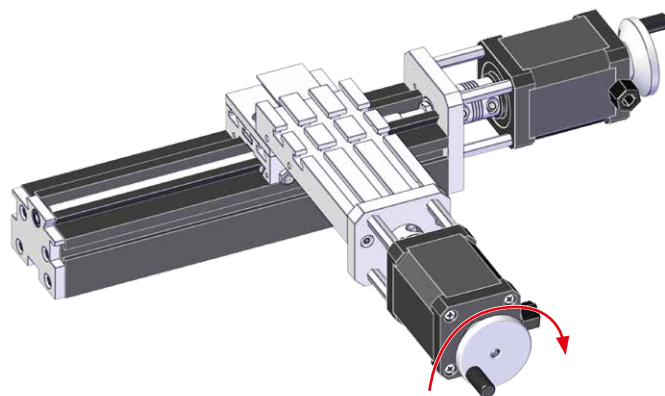
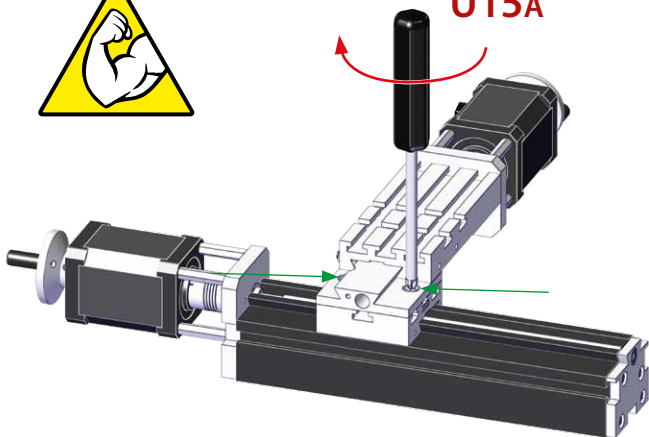




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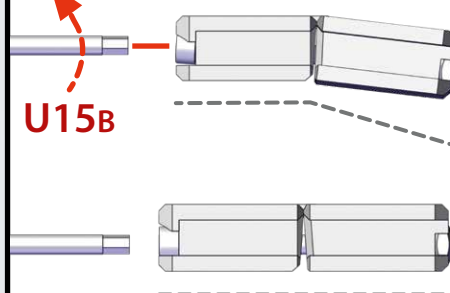
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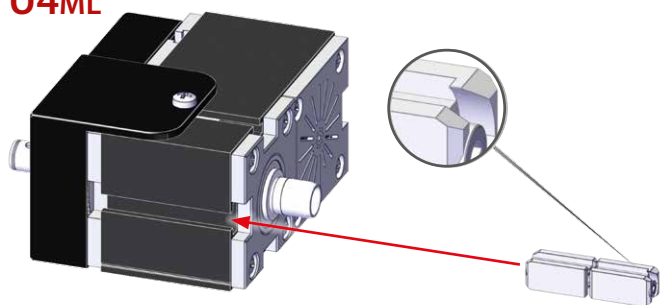
1-2x

U66

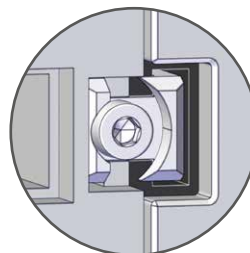
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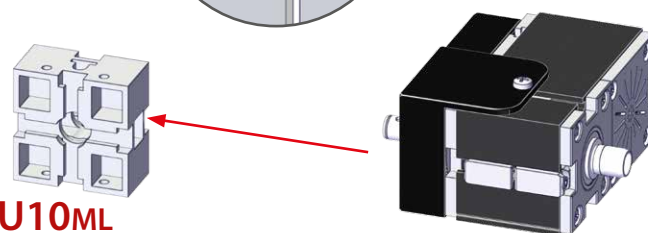
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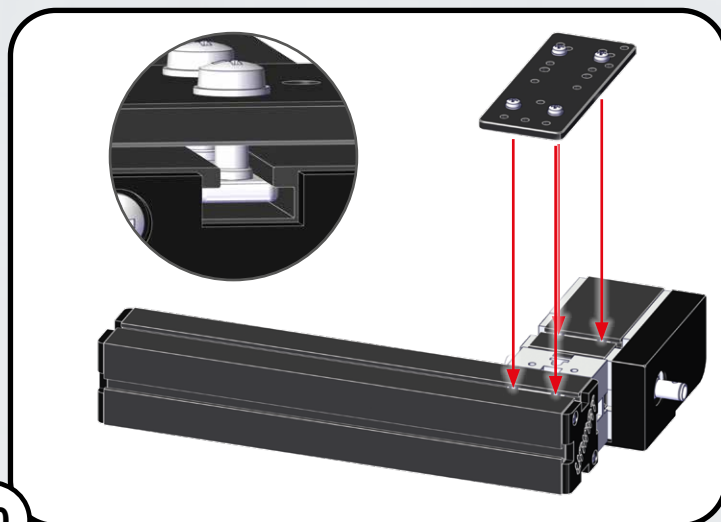
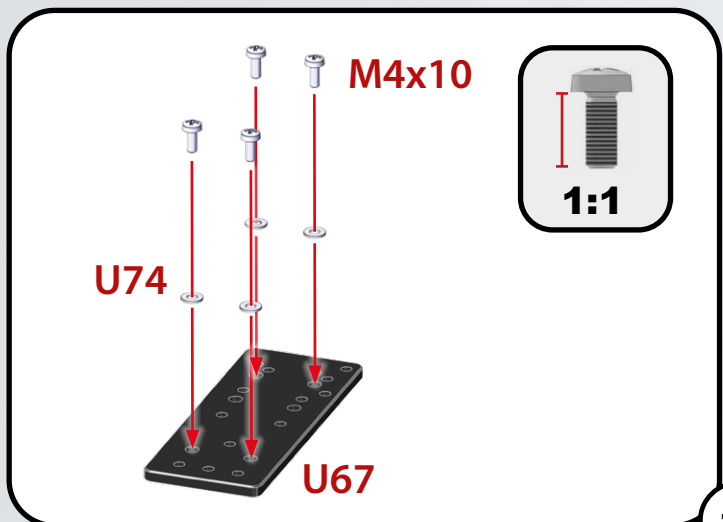
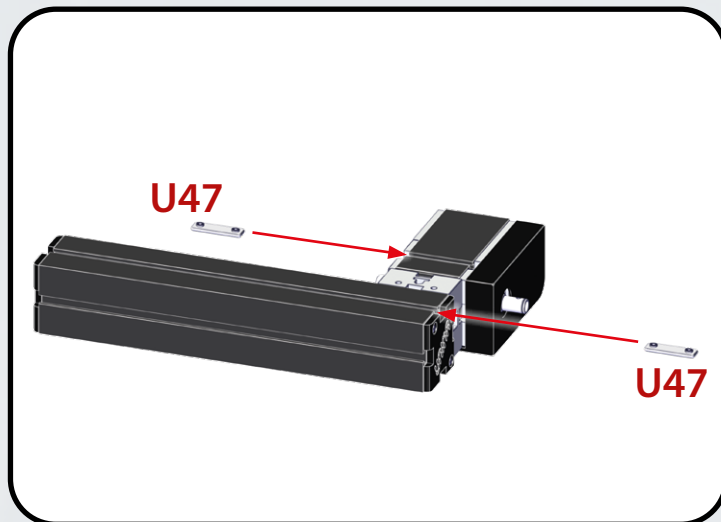
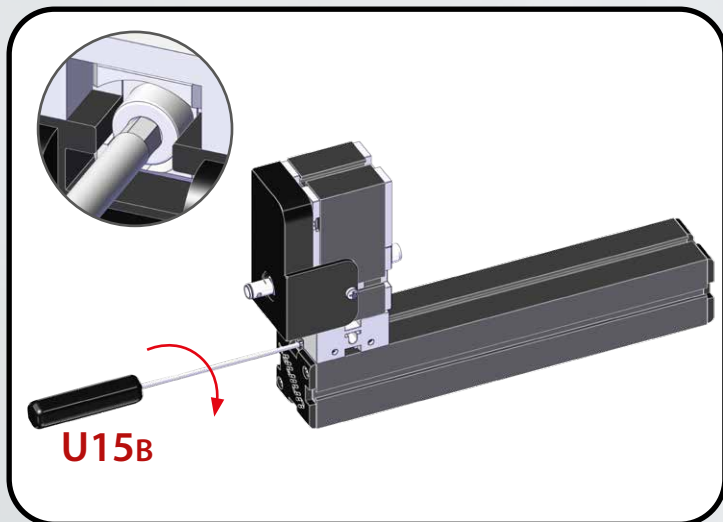
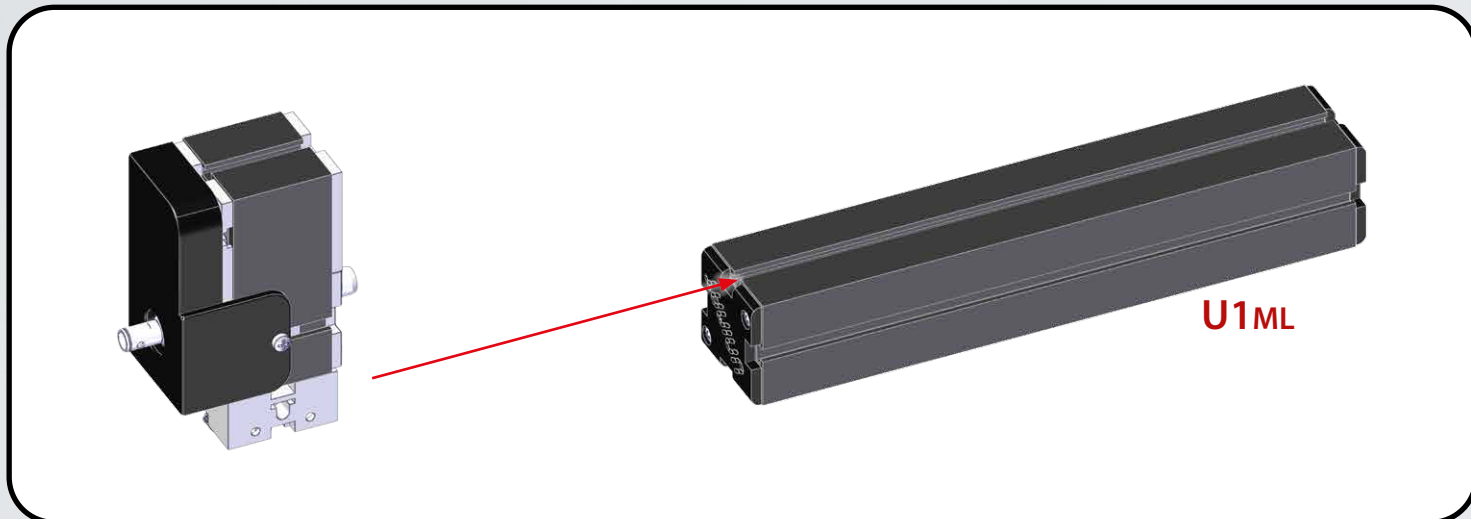
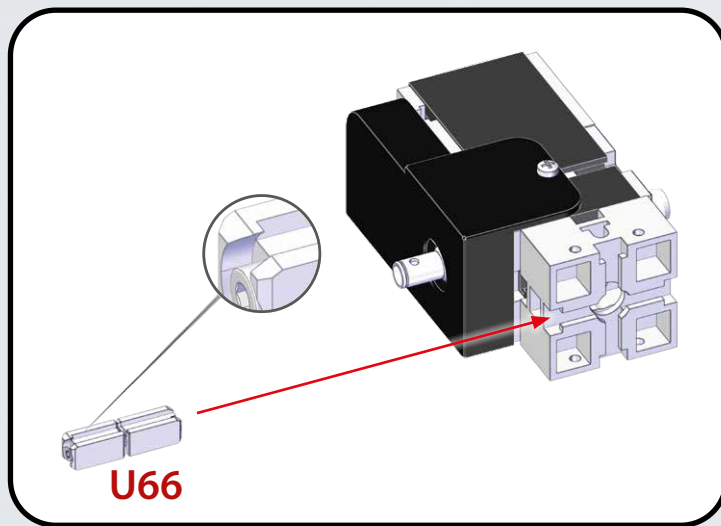
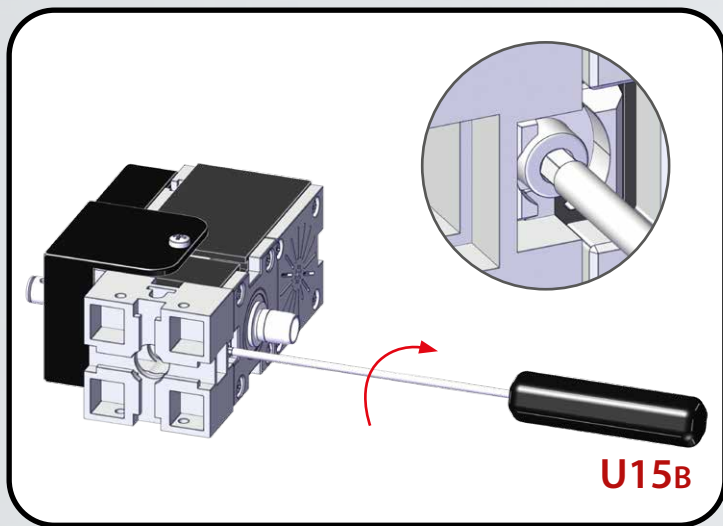


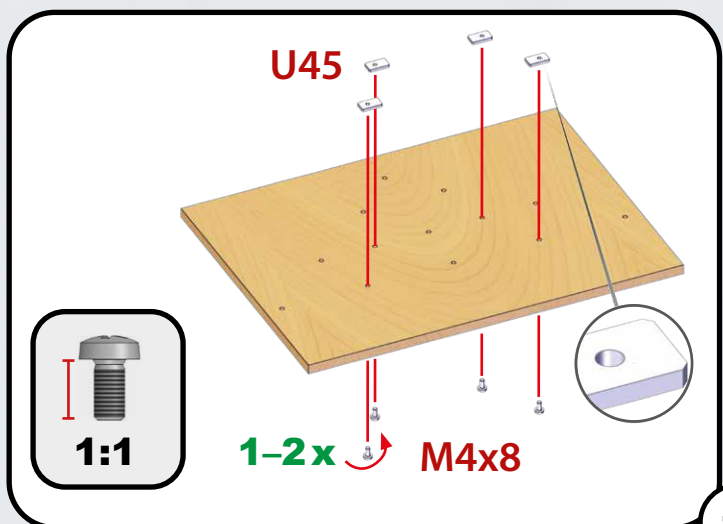
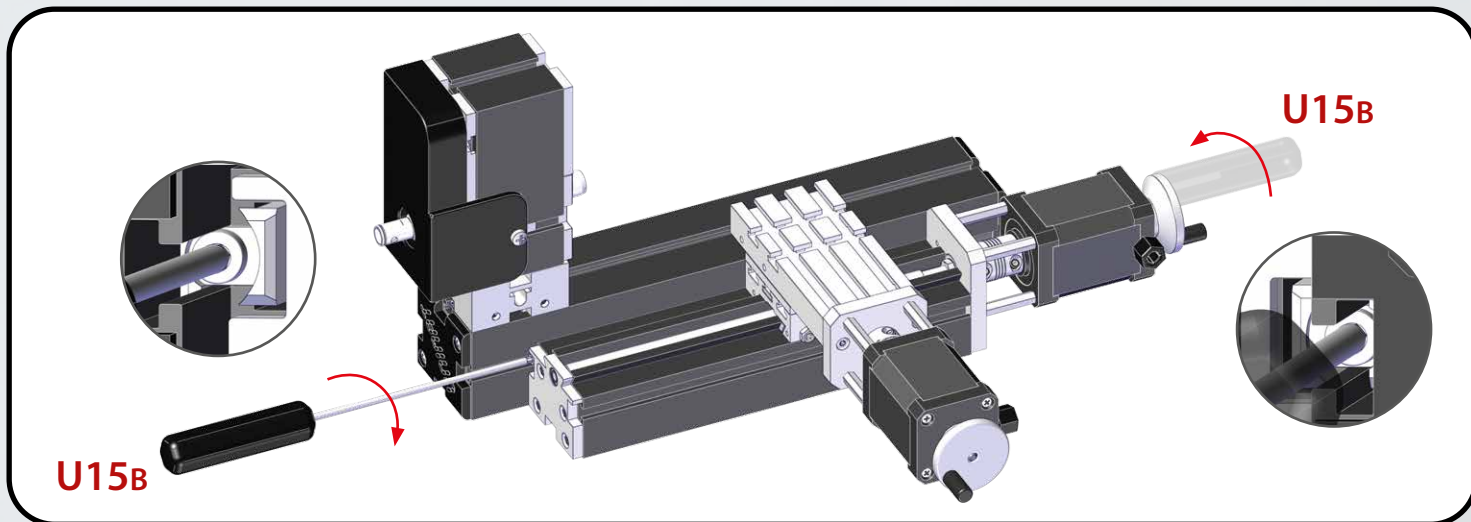
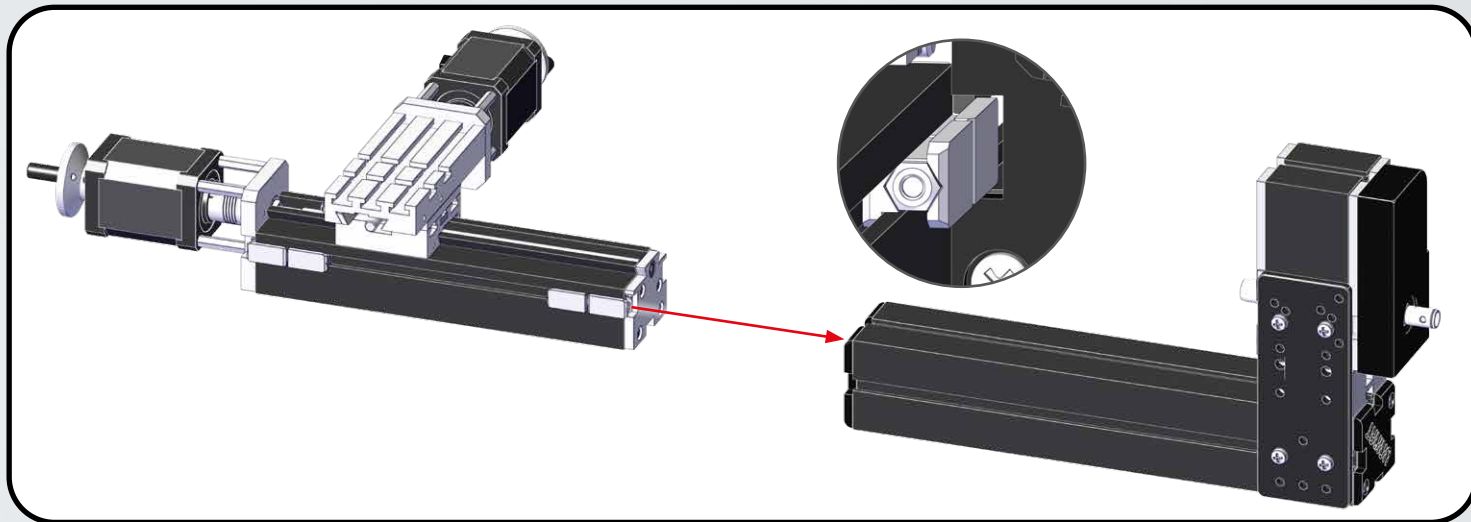
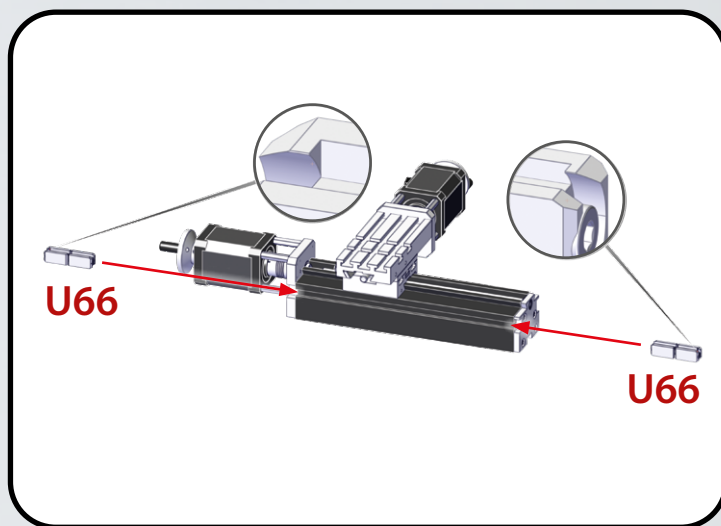
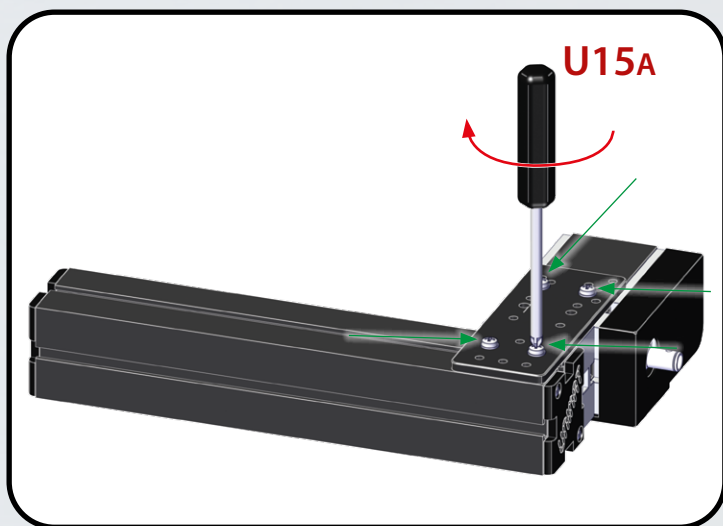
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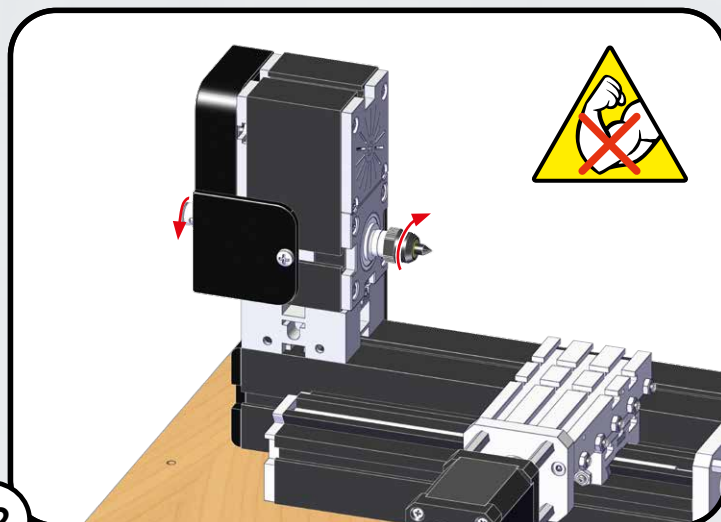
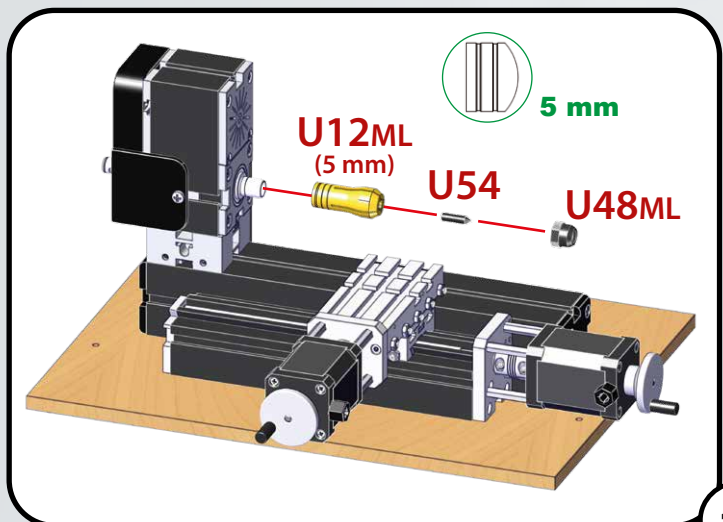
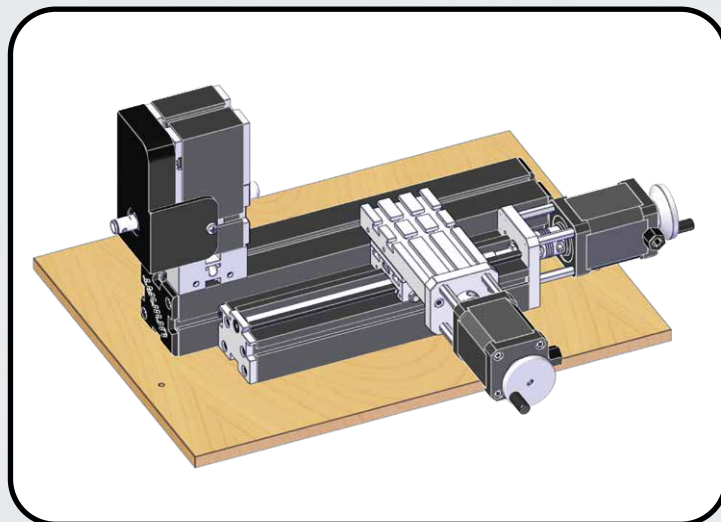
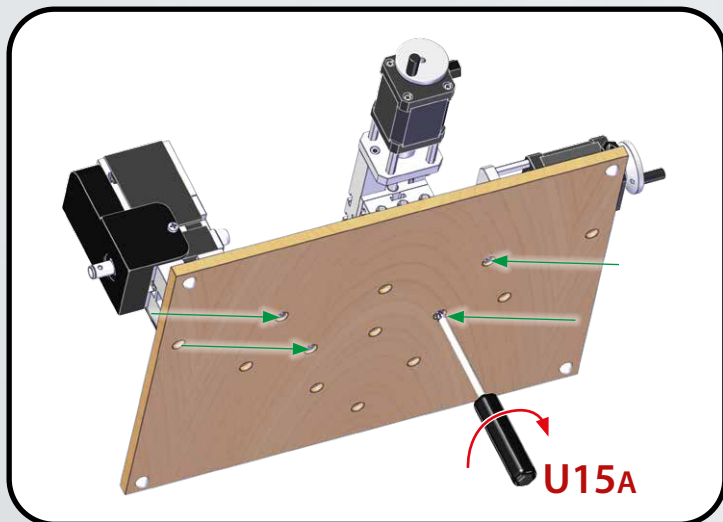
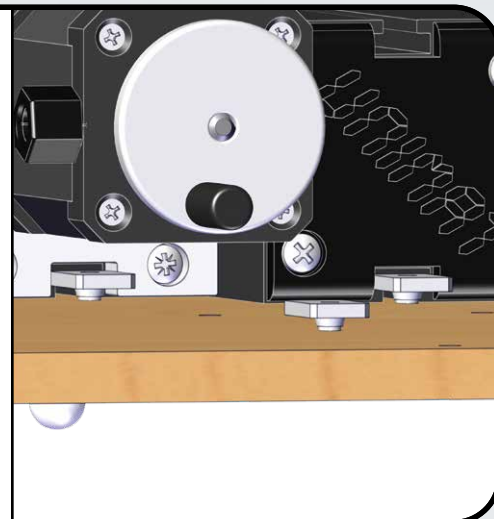
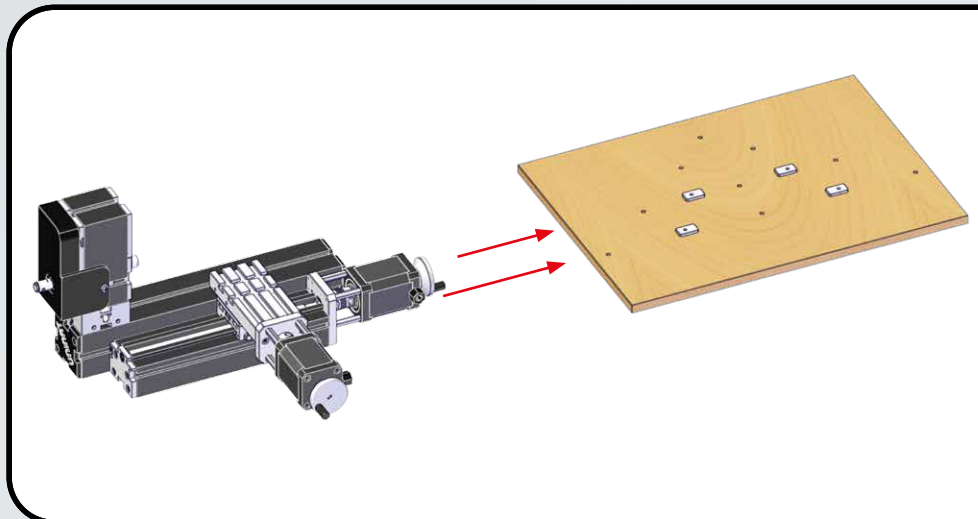
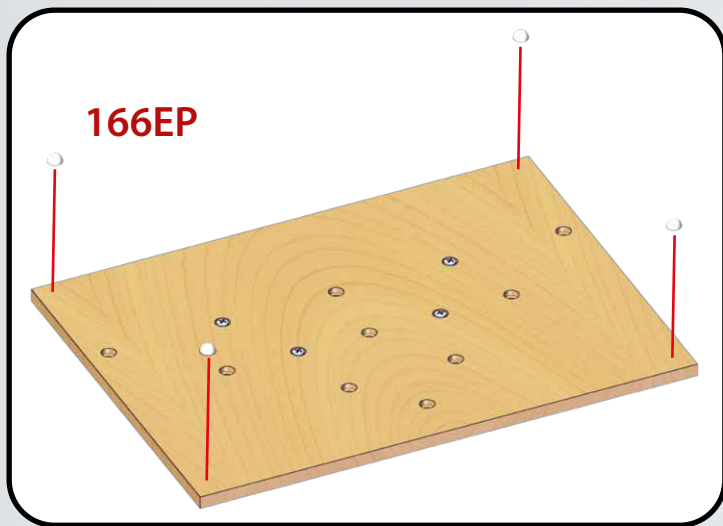
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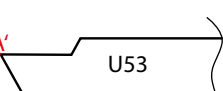
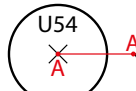
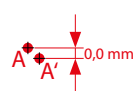
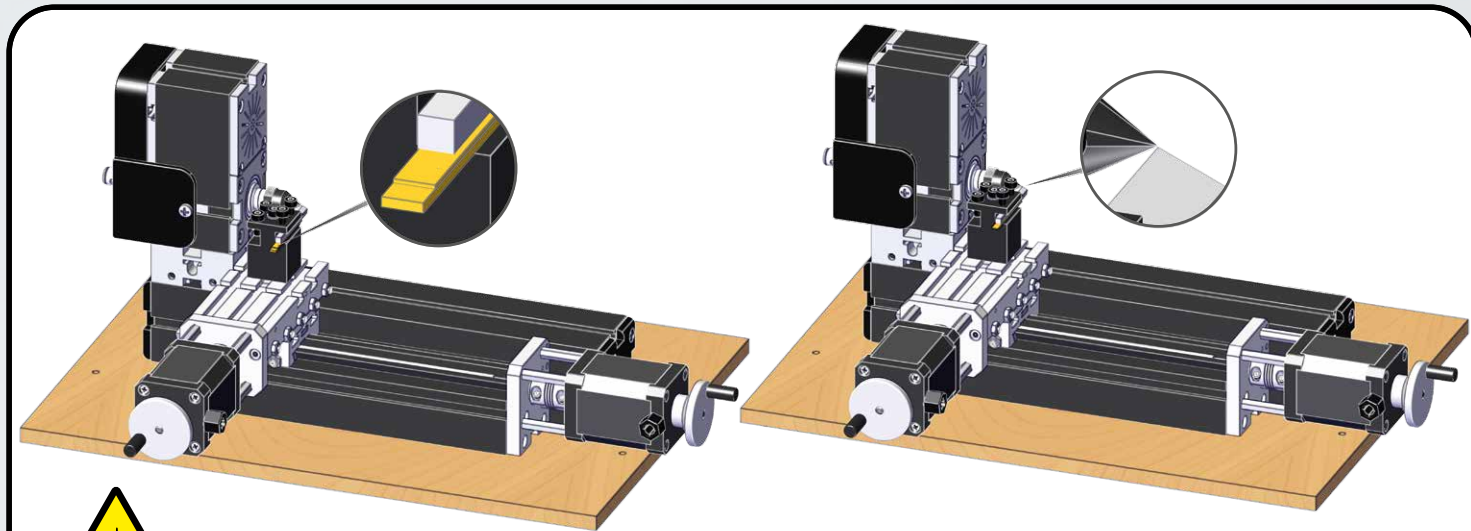
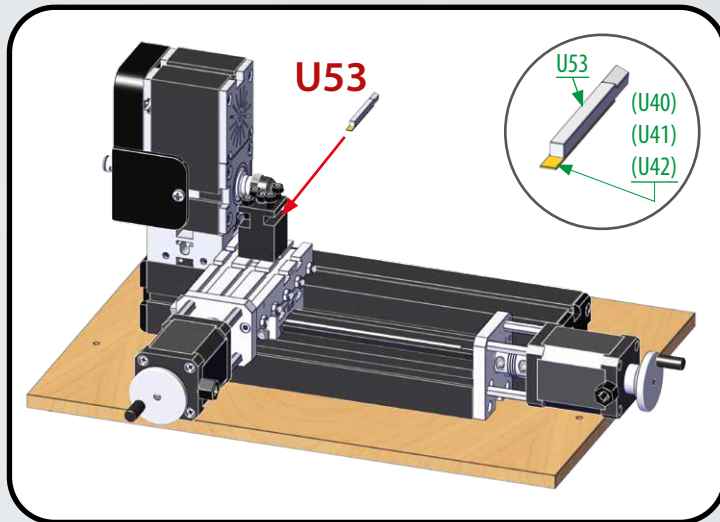
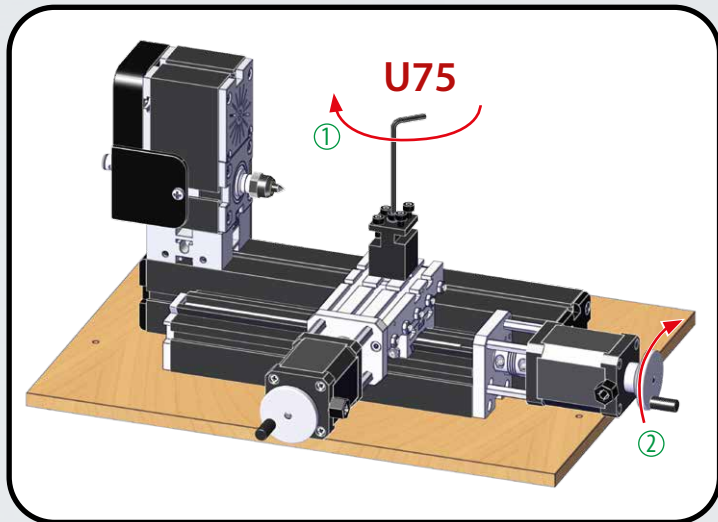
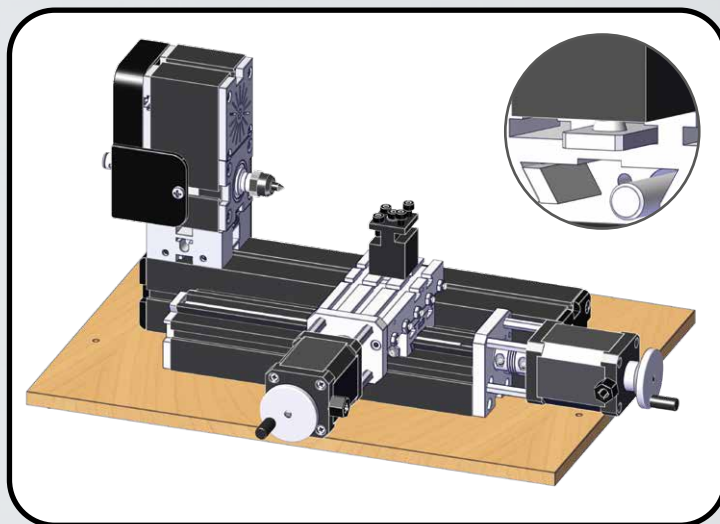
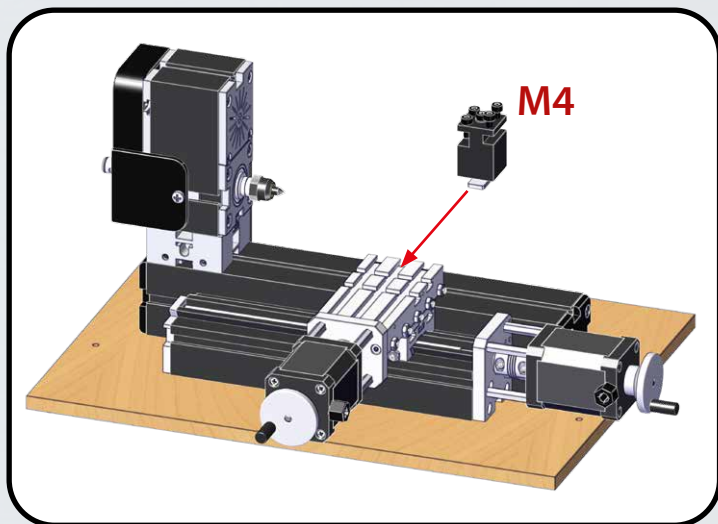




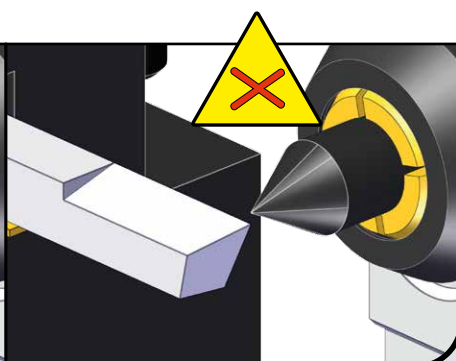
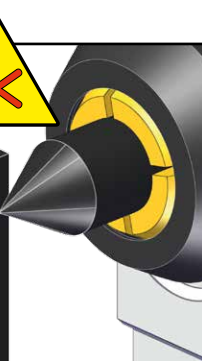
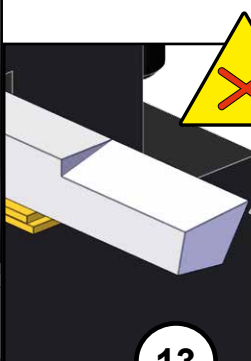
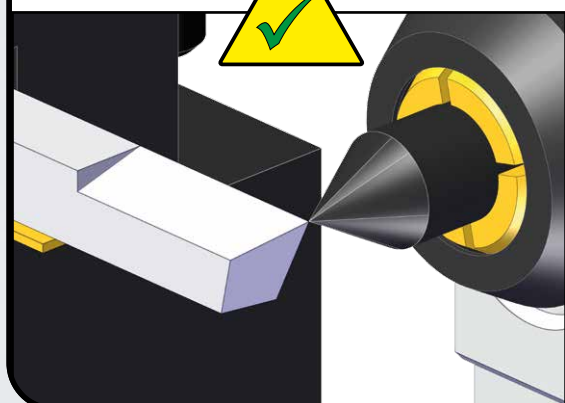


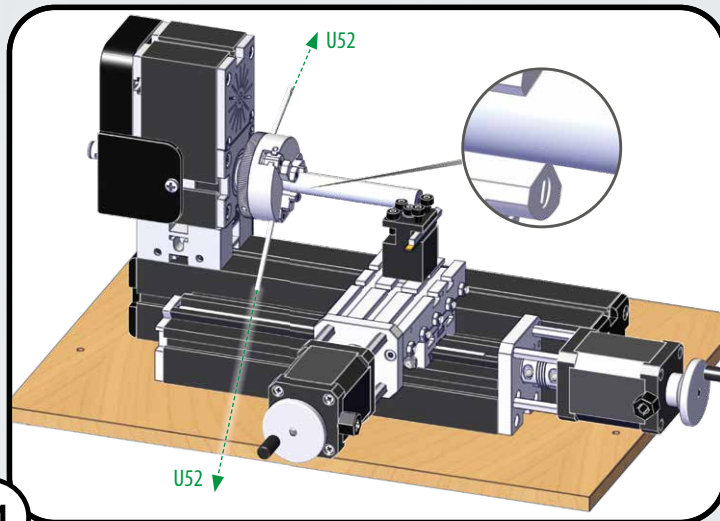
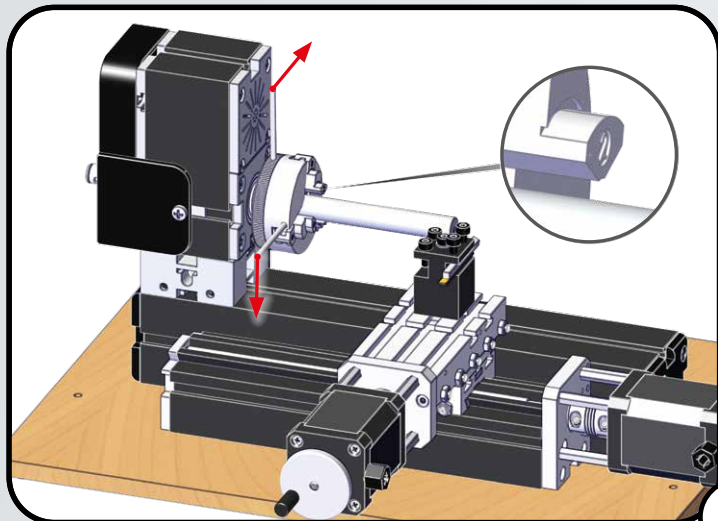
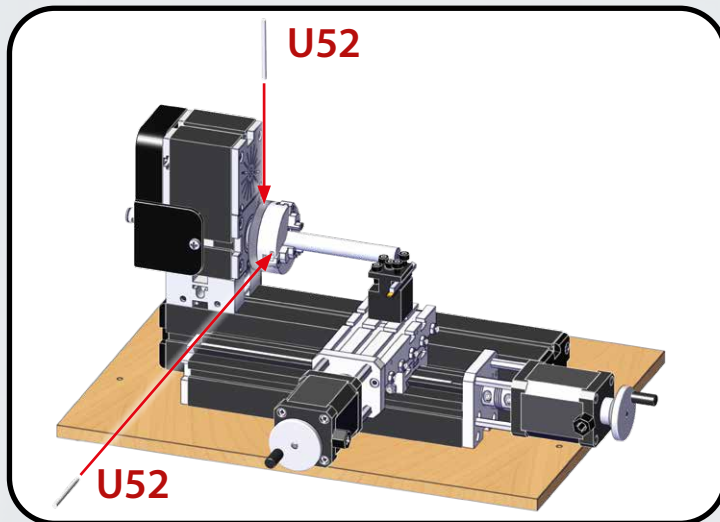
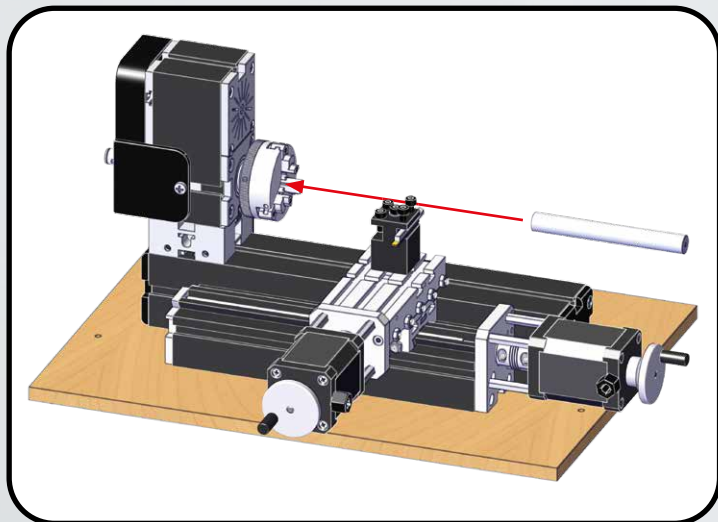
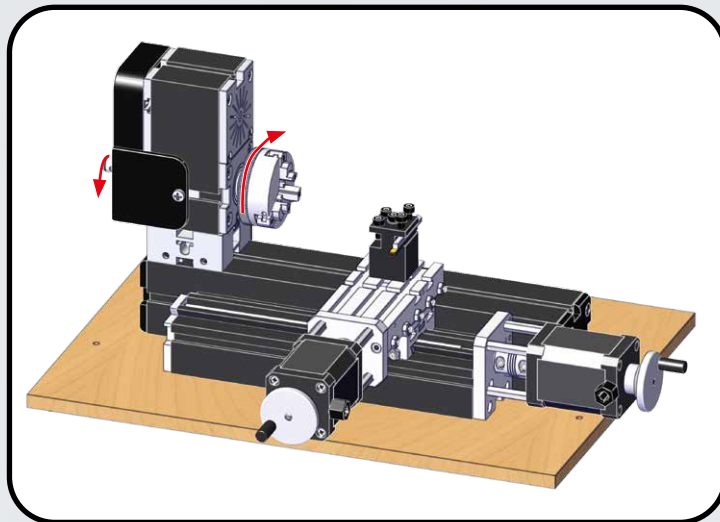
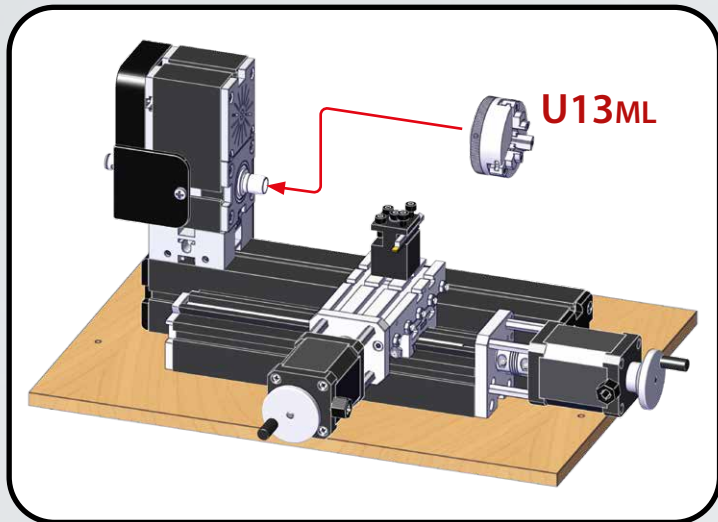
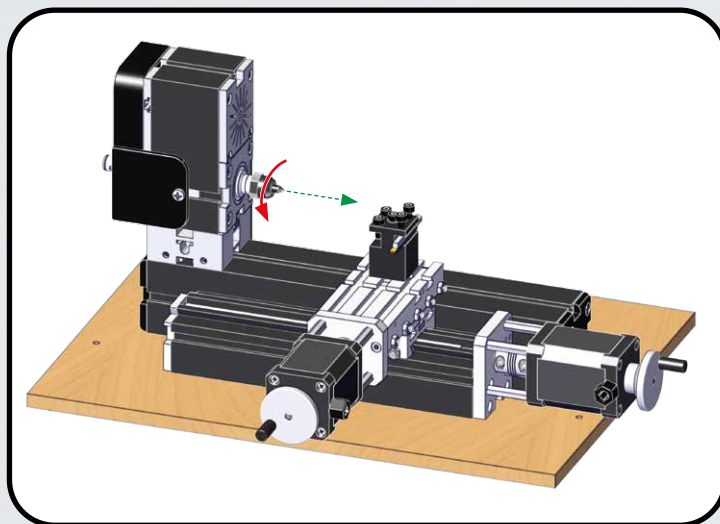
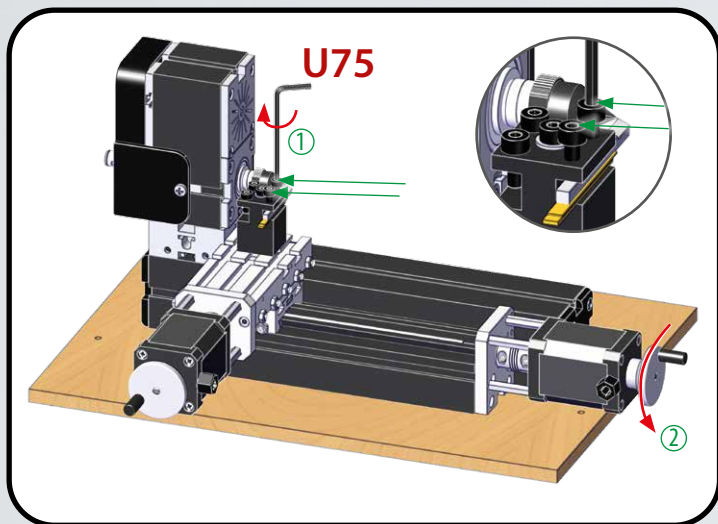






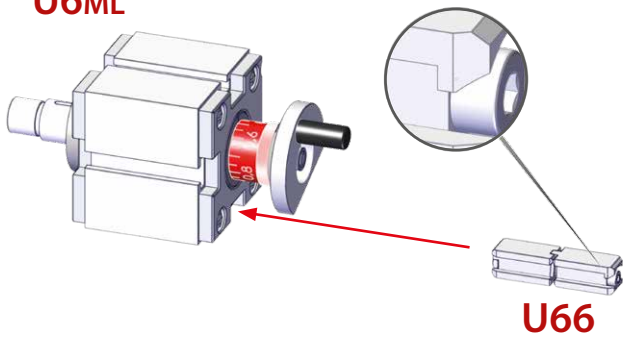
- 0,1 mm U40
- 0,4 mm U41
- 1,0 mm U42





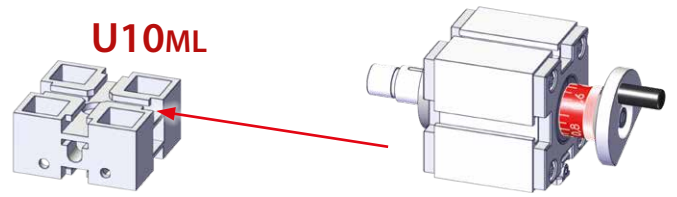


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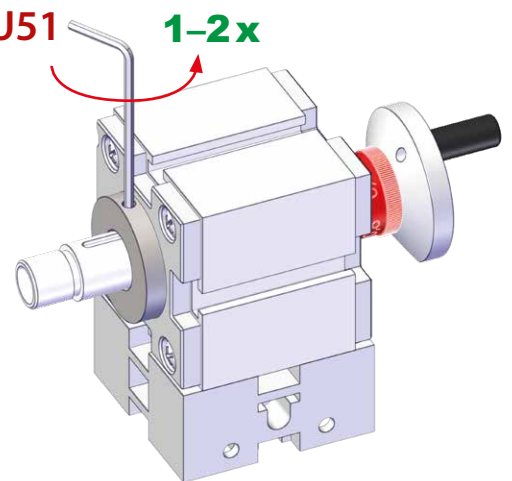
U66

U10ML

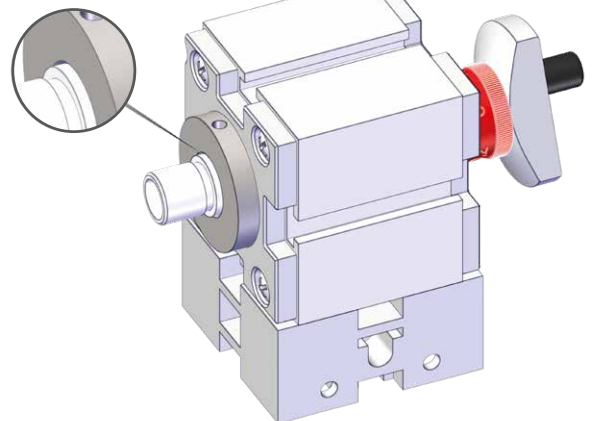
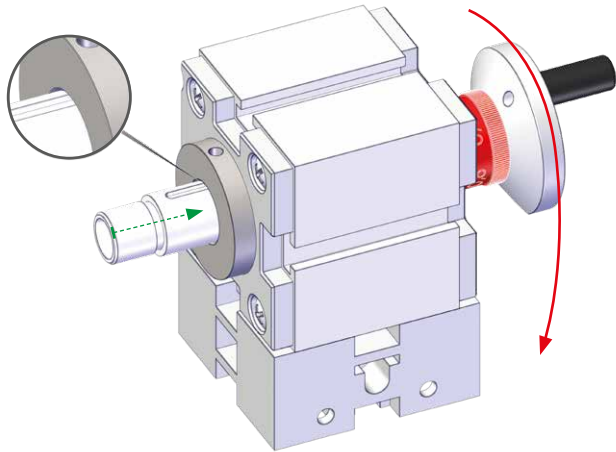
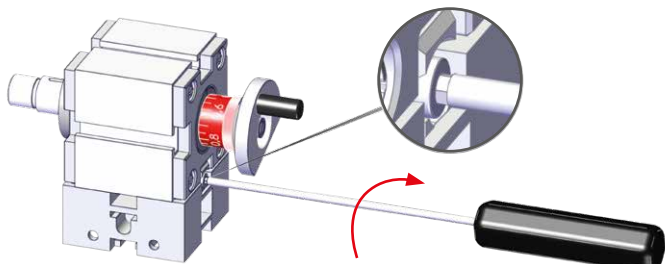


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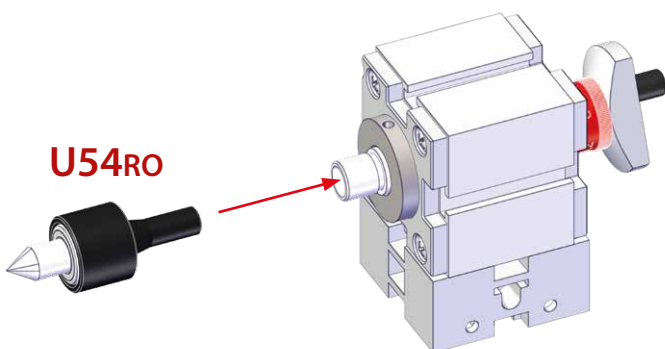
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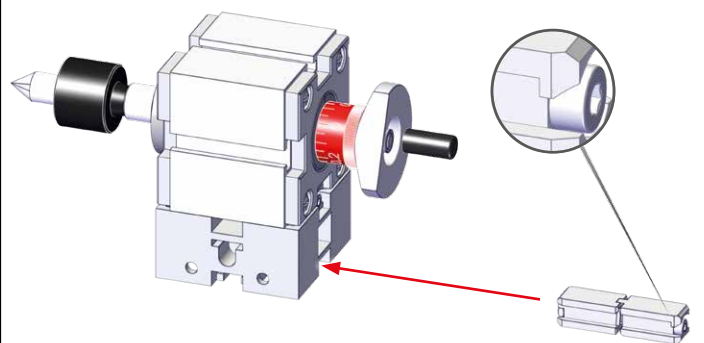
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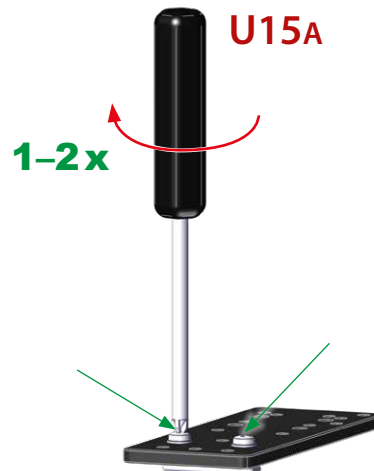
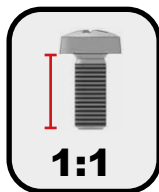
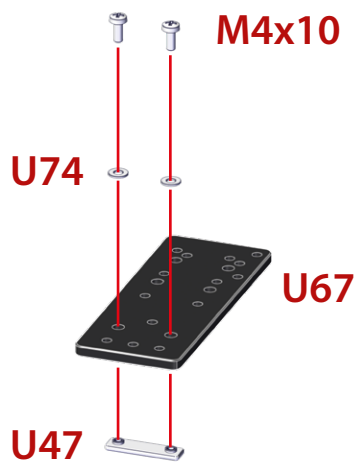
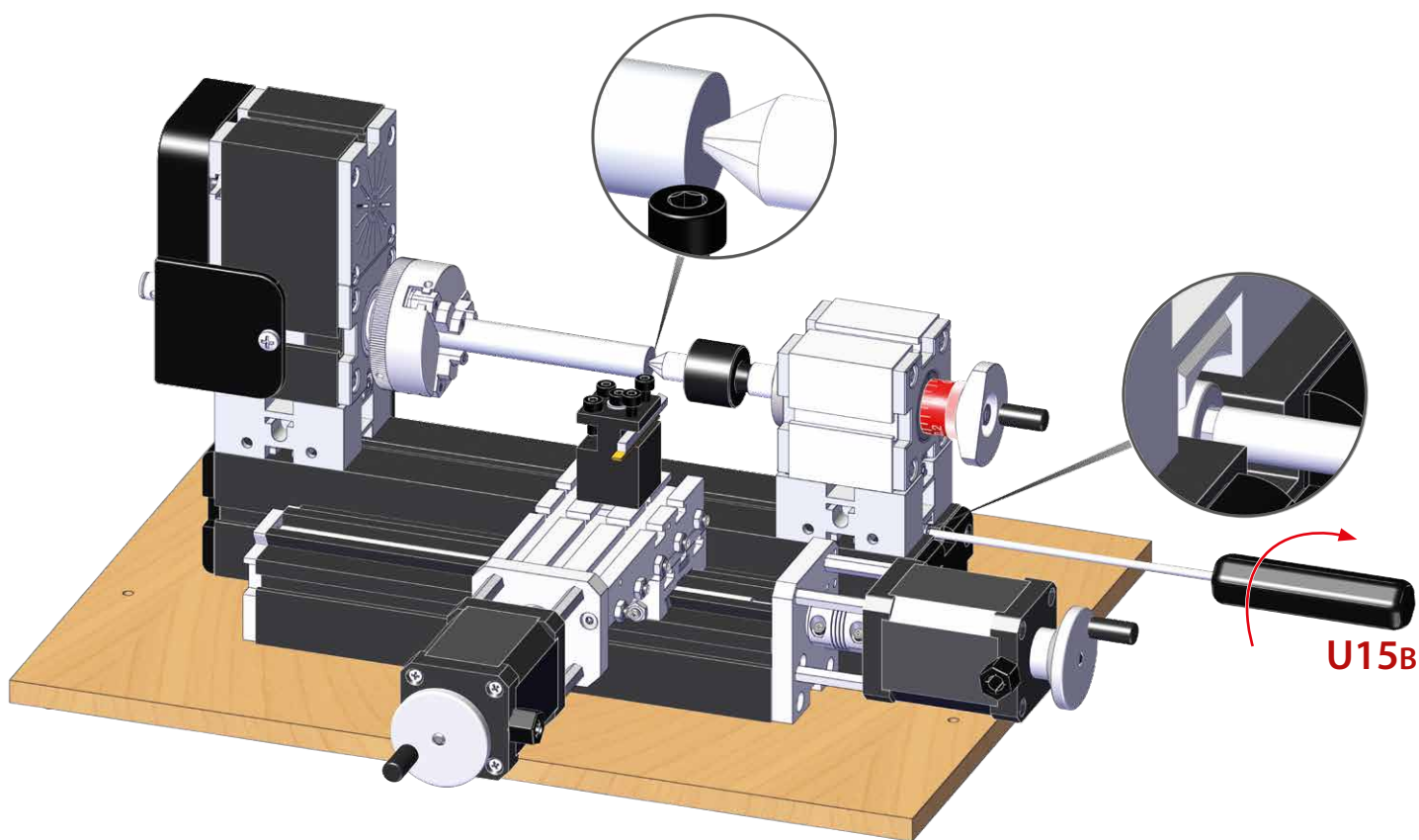
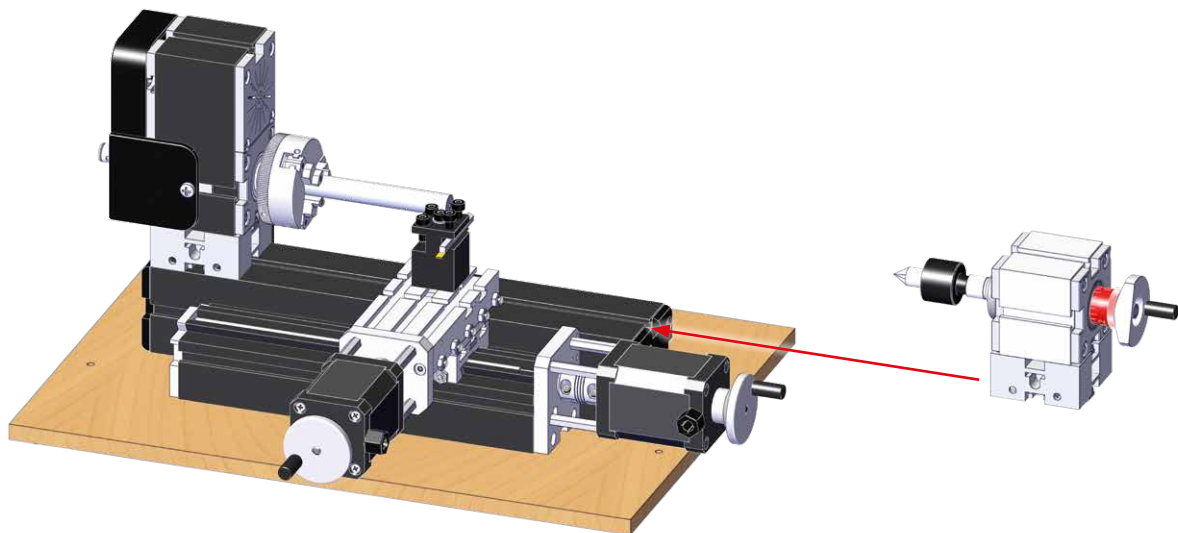


U54RO

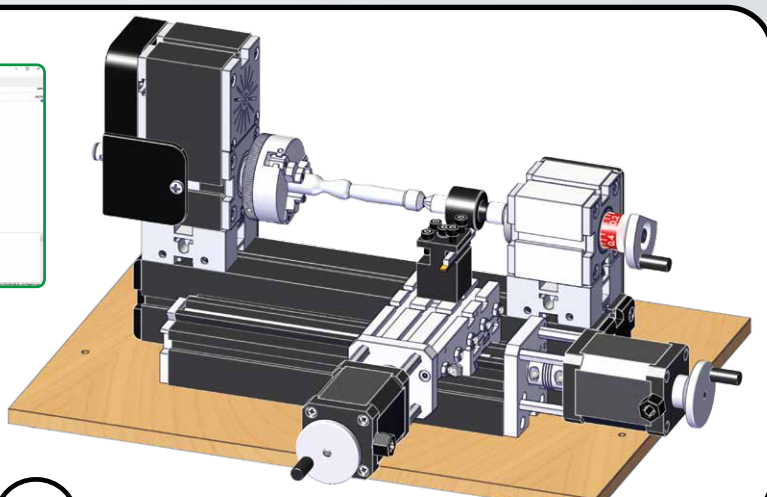
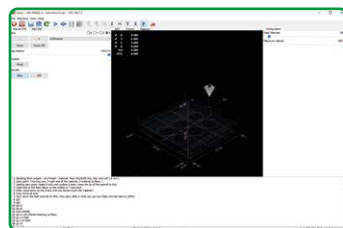
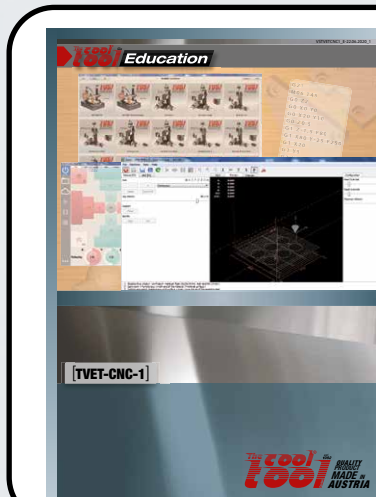
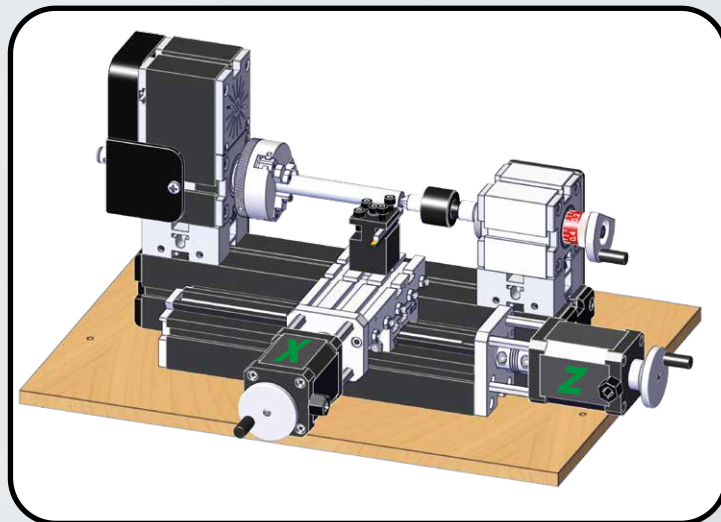
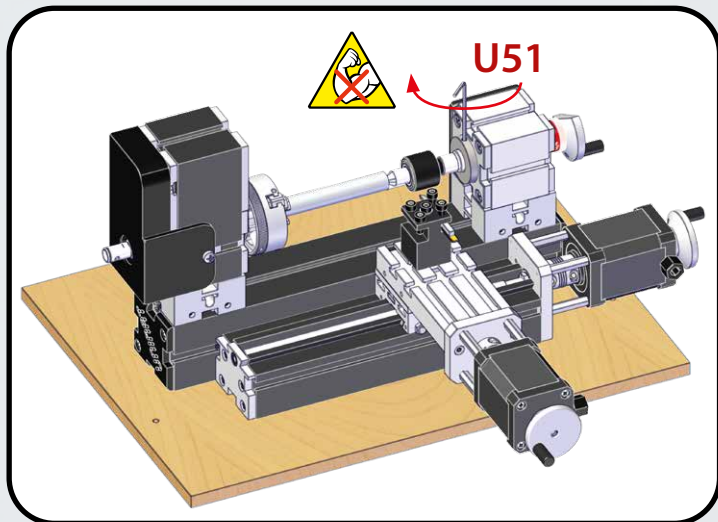
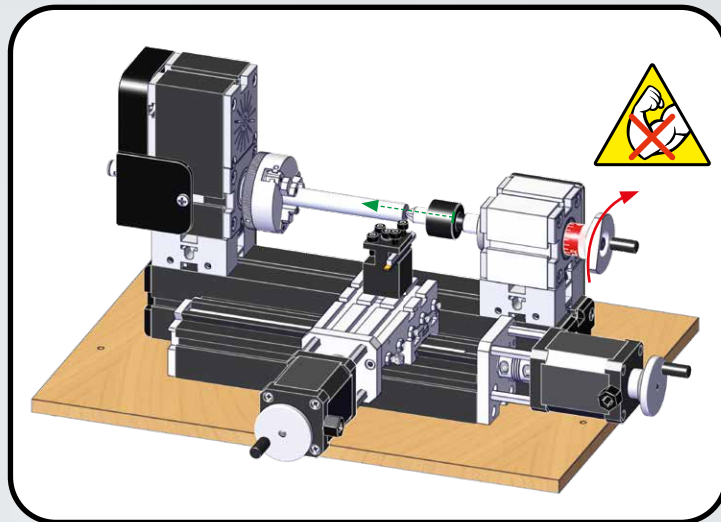
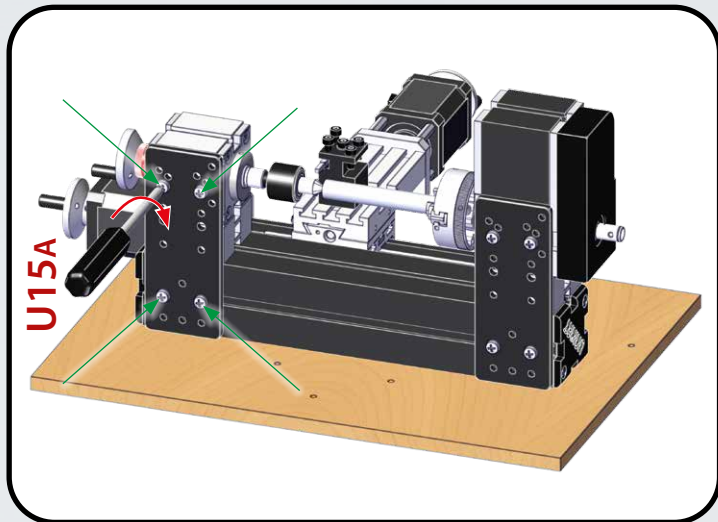
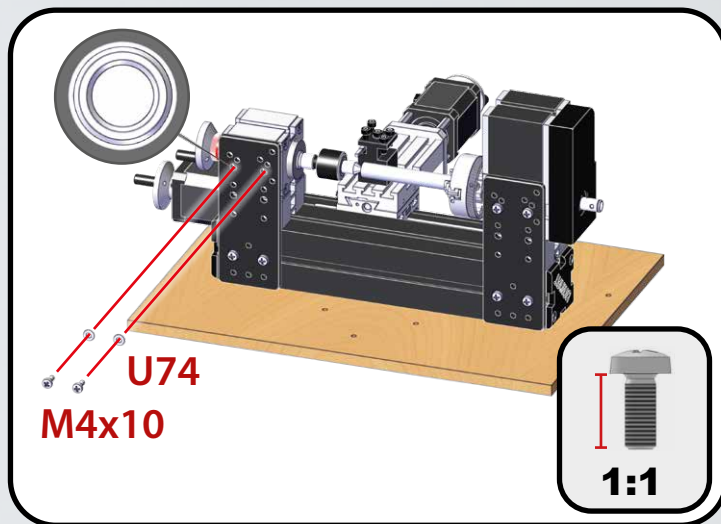
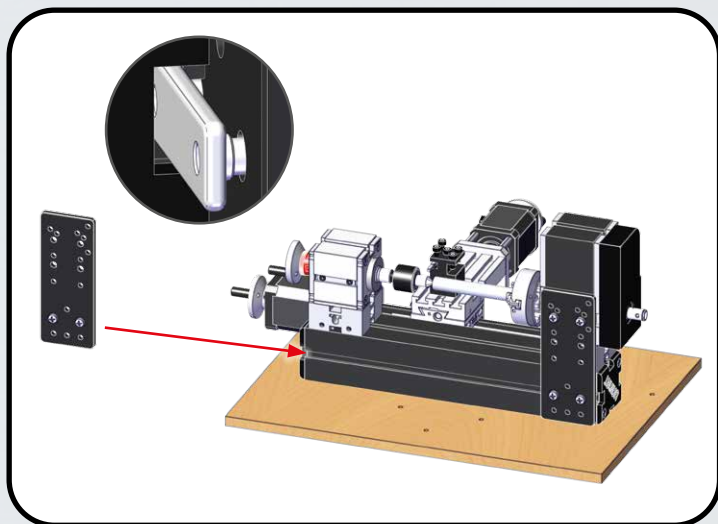


U66









**Inhalt • contents • contenu • contenido • 内容 • содержание:**

**1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

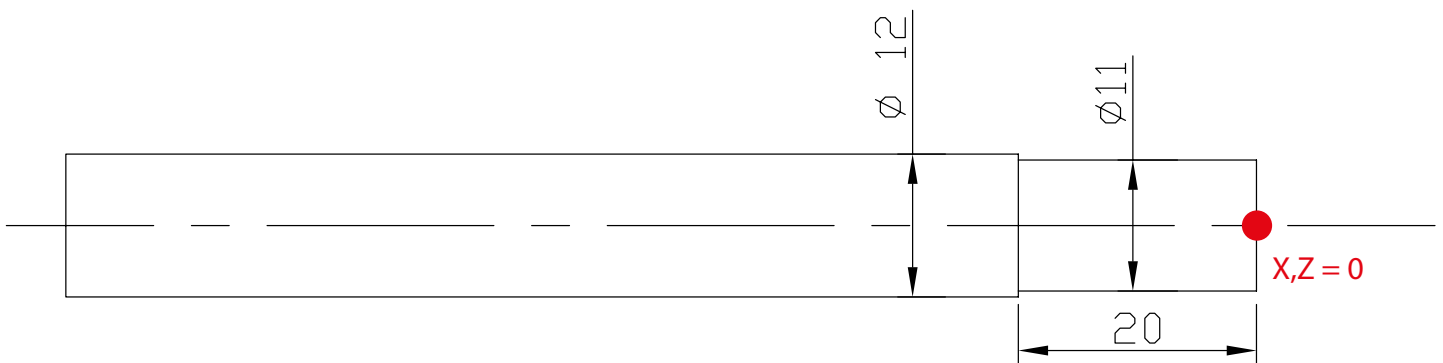
Aluminium • aluminum • aluminium • aluminio • 铝 • алюминий ---- Ø 12 x 100 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертеж

**3) Lösungsvorschlag • proposed solution • solution proposée • solución propuesta •**

建议的解决方案 • Предложенное решение



**Projekt • project • projet • proyecto • 项目 • Проект**

Außendrehstahl • tool for outside turning • outil à tourner extérieur • herramienta para torneado exterior • 外车刀 • Резец токарный (U53 / A1A 000 080)

$F_{\max}$ : 80 mm/min

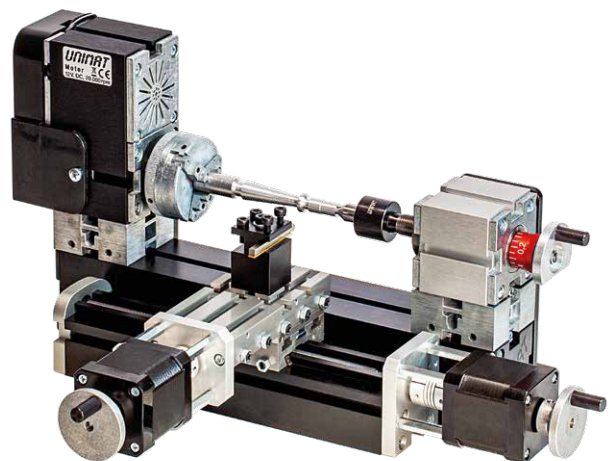
Maximale Schnitttiefe • maximum depth of cut • profondeur de coupe maximale • profundidad máxima de corte • 最大切削深度 • максимальная глубина резания: 0,2 mm

**A**

g21  
g7 (activates diameter mode)  
g0 x20  
g0 z1  
g0 x11.8  
g1 z-20 f50  
g0 z1  
g0 x11.6  
g1 z-20  
g0 z1  
g0 x11.4  
g1 z-20  
g0 z1  
g0 x11.2  
g1 z-20  
g0 z1  
g0 x11  
g1 z-20  
g0 x11.4  
g0 x20 z1  
m02

**B**

g21  
g8 (activates radius mode)  
g0 x10  
g0 z1  
g0 x5.9  
g1 z-20 f50  
g0 z1  
g0 x5.8  
g1 z-20  
g0 z1  
g0 x5.7  
g1 z-20  
g0 z1  
g0 x5.6  
g1 z-20  
g0 z1  
g0 x5.5  
g1 z-20  
g1 x5.7  
g0 x10 z1  
m02



UNI-DREH

**Inhalt • contents • contenu • contenido • 内容 • содержание:**

**1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

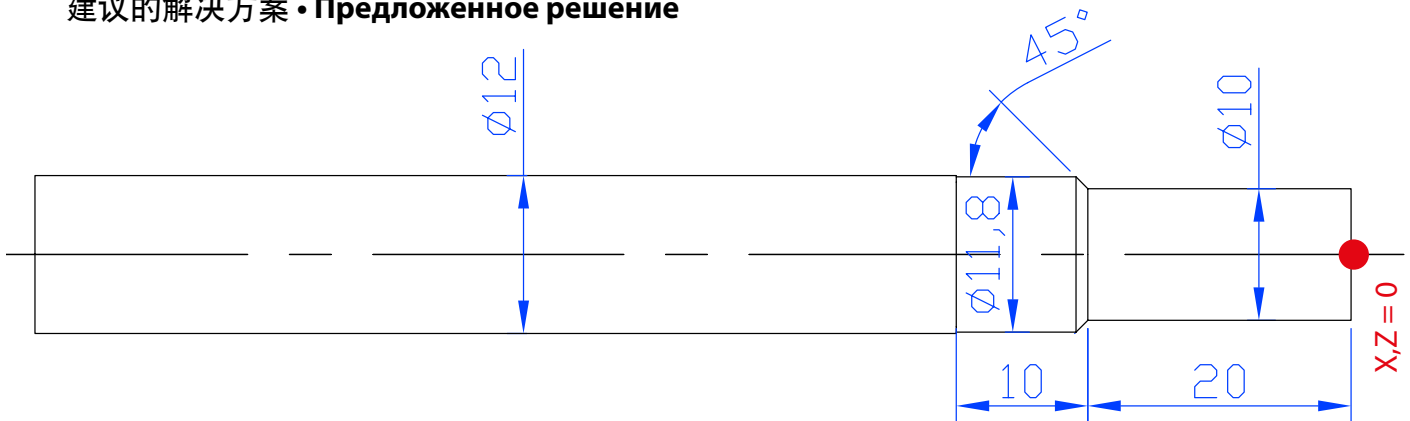
Aluminium • aluminum • aluminium • aluminio • 铝 • алюминий ---- Ø 12 x 100 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертёж

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**Projekt • project • projet • proyecto • 项目 • Проект**

Außendrehstahl • tool for outside turning • outil à tourner extérieur • herramienta para torneado exterior • 外车刀 • Резец токарный (U53 / A1A 000 080)

$F_{\max}$ : 80 mm/min

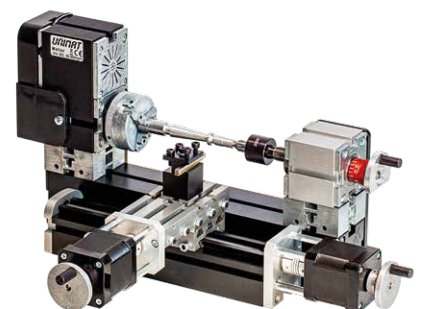
Maximale Schnitttiefe • maximum depth of cut • profondeur de coupe maximale • profundidad máxima de corte • 最大切削深度 • максимальная глубина резания: 0,2 mm

**A**

|                              |             |           |
|------------------------------|-------------|-----------|
| g21                          | g1 z-20     | g0 z-18   |
| g7 (activates diameter mode) | g1 x12 z-21 | g0 x11.8  |
| g0 x20                       | g0 z1       | g1 z-30   |
| g0 z1                        | g0 x10.8    | g0 x12    |
| g0 x11.8                     | g1 z-20     | g0 x20 z2 |
| g1 z-20 f50                  | g1 x12 z-21 | m02       |
| g1 x12 z-21                  | g0 z1       |           |
| g0 z1                        | g0 x10.6    |           |
| g0 x11.6                     | g1 z-20     |           |
| g1 z-20                      | g1 x12 z-21 |           |
| g1 x12 z-21                  | g0 z1       |           |
| g0 z1                        | g0 x10.4    |           |
| g0 x11.4                     | g1 z-20     |           |
| g1 z-20                      | g1 x12 z-21 |           |
| g1 x12 z-21                  | g0 z1       |           |
| g0 z1                        | g0 x10.2    |           |
| g0 x11.2                     | g1 z-20     |           |
| g1 z-20                      | g1 x12 z-21 |           |
| g1 x12 z-21                  | g0 z1       |           |
| G0 z1                        | g0 x10      |           |
| g0 x11                       | g1 z-20     |           |
|                              | g1 x12 z-21 |           |

**B**

|                            |            |            |
|----------------------------|------------|------------|
| g21                        | g0 x5.5    | g1 z-20    |
| g8 (activates radius mode) | g1 z-20    | g1 x6 z-21 |
| g0 x10                     | g1 x6 z-21 | g0 z-18    |
| g0 z1                      | g0 z1      | g0 x5.9    |
| g0 x5.9                    | g0 x5.4    | g1 z-30    |
| g1 z-20 f50                | g1 z-20    | g0 x6      |
| g1 x6 z-21                 | g1 x6 z-21 | g0 x10 z2  |
| g0 z1                      | g0 z1      | m02        |
| g0 x5.8                    | g0 x5.3    |            |
| g1 z-20                    | g1 z-20    |            |
| g1 x6 z-21                 | g1 x6 z-21 |            |
| g0 z1                      | g0 z1      |            |
| g0 x5.7                    | g0 x5.2    |            |
| g1 z-20                    | g1 z-20    |            |
| g1 x6 z-21                 | g1 x6 z-21 |            |
| g0 z1                      | g0 z1      |            |
| g0 x5.6                    | g0 x5.1    |            |
| g1 z-20                    | g1 z-20    |            |
| g1 x6 z-21                 | g1 x6 z-21 |            |
| g0 z1                      | g0 z1      |            |
|                            | g0 x5      |            |



UNI-DREH



**Inhalt • contents • contenu • contenido • 内容 • содержание:****1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

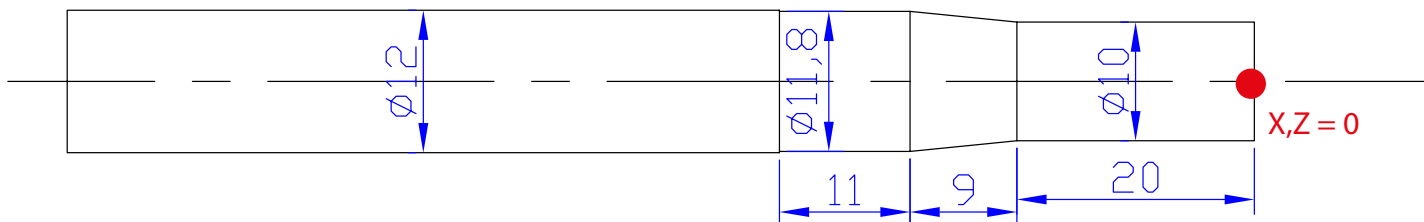
Aluminium • aluminum • aluminium • aluminio • 铝 • алюминий ---- Ø 12 x 100 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертеж

**3) Lösungsvorschlag • proposed solution • solution proposée • solución propuesta •**

建议的解决方案 • Предложенное решение

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 $F_{\max.}$ : 80 mm/min

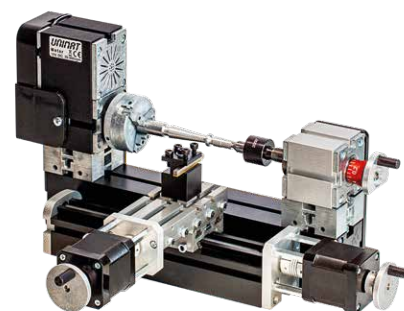
Maximale Schnitttiefe • maximum depth of cut • profondeur de coupe maximale • profundidad máxima de corte • 最大切削深度 • максимальная глубина резания: 0,2 mm

**A**

|                              |             |          |
|------------------------------|-------------|----------|
| g21                          | g1 z-20     | g0 z-29  |
| g7 (activates diameter mode) | g1 x12 z-30 | g0 x11.8 |
| g0 x30                       | g0 z1       | g1 z-40  |
| g0 z1                        | g0 x10.8    | g0 x30   |
| g0 x11.8                     | g1 z-20     | g0 z1    |
| g1 z-20 f25                  | g1 x12 z-30 | m02      |
| g1 x12 z-30                  | g0 z1       |          |
| g0 z1                        | g0 x10.6    |          |
| g0 x11.6                     | g1 z-20     |          |
| g1 z-20                      | g1 x12 z-30 |          |
| g1 x12 z-30                  | g0 z1       |          |
| g0 z1                        | g0 x10.4    |          |
| g0 x11.4                     | g1 z-20     |          |
| g1 z-20                      | g1 x12 z-30 |          |
| g1 x12 z-30                  | g0 z1       |          |
| g0 z1                        | g0 x10.2    |          |
| g0 x11.2                     | g1 z-20     |          |
| g1 z-20                      | g1 x12 z-30 |          |
| g1 x12 z-30                  | g0 z1       |          |
| g0 z1                        | g0 x10      |          |
| g0 x11                       | g1 z-20     |          |
|                              | g1 x12 z-30 |          |

**B**

|                            |            |         |
|----------------------------|------------|---------|
| g21                        | g1 z-20    | g0 z-29 |
| g8 (activates radius mode) | g1 x6 z-30 | g0 x5.9 |
| g0 x15                     | g0 z1      | g1 z-40 |
| g0 z1                      | g0 x5.4    | g1 x6.5 |
| g0 x5.9                    | g1 z-20    | g0 x15  |
| g1 z-20 f25                | g1 x6 z-30 | g0 z1   |
| g1 x6 z-30                 | g0 z1      | m02     |
| g0 z1                      | g0 x5.3    |         |
| g0 x5.8                    | g1 z-20    |         |
| g1 z-20                    | g1 x6 z-30 |         |
| g1 x6 z-30                 | g0 z1      |         |
| g0 z1                      | g0 x5.2    |         |
| g0 x5.7                    | g1 z-20    |         |
| g1 z-20                    | g1 x6 z-30 |         |
| g1 x6 z-30                 | g0 z1      |         |
| g0 z1                      | g0 x5.1    |         |
| g0 x5.6                    | g1 z-20    |         |
| g1 z-20                    | g1 x6 z-30 |         |
| g1 x6 z-30                 | g0 z1      |         |
| g0 z1                      | g0 x5      |         |
| g0 x5.5                    | g1 z-20    |         |
|                            | g1 x6 z-30 |         |



UNI-DREH

**Inhalt • contents • contenu • contenido • 内容 • содержание:****1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

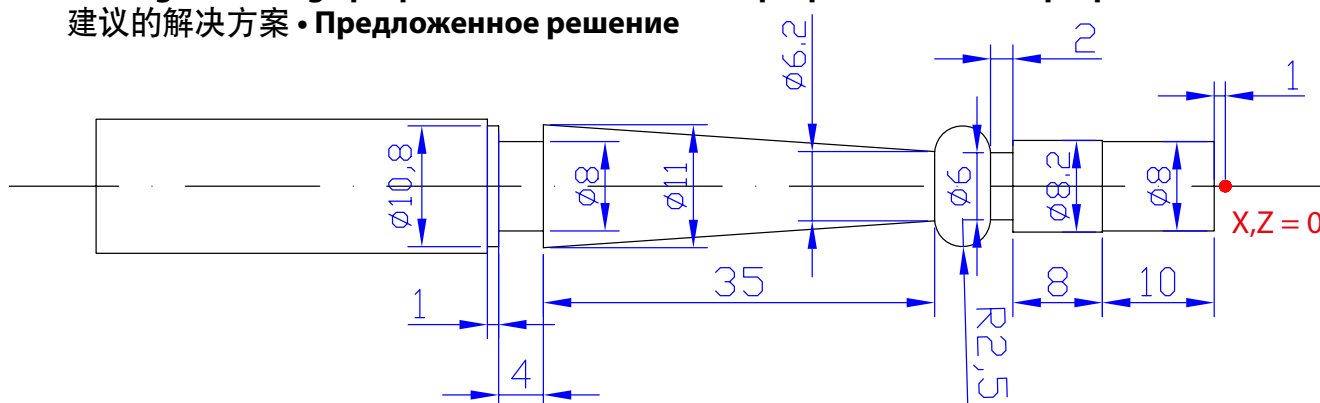
Aluminium • aluminum • aluminium • aluminio • 铝 • алюминий ---- Ø 12 x 100 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертёж

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Außendrehstuhl • tool for outside turning • outil à tourner extérieur • herramienta para torneado exterior • 外车刀 • Резец токарный (162 231 B)

F<sub>max.</sub>: 50 mm/min

Maximale Schnitttiefe • maximum depth of cut • profondeur de coupe maximale • profundidad máxima de corte • 最大切削深度 • максимальная глубина резания: 0,2 mm



|                   |                 |                  |                 |                  |                 |                       |
|-------------------|-----------------|------------------|-----------------|------------------|-----------------|-----------------------|
| g21               | g0 x11.6        | g1 x11 z-60 f50  | g0 x9           | g0 x11           | g0 x11.6        | g1 x6.6 f5            |
| g7                | g1 z-20 f50     | g1 x9.8 f5       | g1 z-20 f50     | g1 x8.4 z-25 f25 | g0 z-20         | g1 x11 z-60 f50       |
| g0 x16 z0         | g0 x10.8        | g1 z-64 f50      | g0 x11          | g0 x11.6         | g0 x8.2         | g1 x6.2 z-25 f25      |
| g0 x11.8          | g1 x10.4 f5     | g1 x9.6 f5       | g0 z-25         | g0 z-20          | g1 x7.8 f5      | g0 x11.6              |
| g1 z-65 f50       | g1 z0 f50       | g1 z-60 f50      | g0 x9.6         | g0 x9            | g1 z-18 f50     | g0 z-20               |
| g1 x11.8 f5       | g0 x10.2        | g0 x11           | g1 x9 f5        | g1 x8.4 f5       | g0 x9           | g1 x6.2 f5            |
| g1 z0 f50         | g1 z-20         | g1 x8.6 z-25 f25 | g1 x11 z-60 f50 | g1 z0 f50        | g1 z-10 f50     | g1 z-18 f50           |
| g0 x11.4          | g0 x11          | g0 x11.6         | g0 x9.6         | g0 x8.2          | g1 x7.8 f5      | g1 x6 f5              |
| g1 z-65           | g0 z-25         | g0 z-20          | g1 x9 f5        | g1 z-20          | g1 z0 f50       | g1 z-20 f50           |
| g1 x11.2 f5       | g0 x10.6        | g0 x10           | g1 z-64 f50     | g0 x11.6         | g0 x7.4         | g0 x10                |
| g1 z0 f50         | g1 x10.2 f5     | g1 x9.6 f5       | g1 z-60 f50     | g0 z-25          | g1 z-10 f50     | g18                   |
| g0 x11            | g0 x10.6        | g1 z0 f50        | g0 x8.4         | g0 x8.6          | g0 x9           | g3 x10 r2.5 z-25 f2.5 |
| g1 z-65           | g1 x10.2 f5     | g0 x8.4          | g1 z-20         | g1 x8.2 f5       | g1 z-18 f50     | g1 x9 f5              |
| g1 x10.8 f5       | g1 z-64 f50     | g0 x11.6         | g0 z-25         | g1 x11 z-60 f50  | g0 x8.2         | g2 x9 r2.5 z-20 f2.5  |
| g1 z0 f50         | g1 x10 f5       | g0 z-25          | g0 x9.8         | g0 x11.6         | g1 x7.4 f5      | g1 x8 f5              |
| g0 x10.6          | g0 x11          | g1 x9.4 f5       | g1 x9.4 f5      | g0 z-20          | g1 z-20 f50     | g3 x8 r2.5 z-25 f2.5  |
| g1 z-20           | g1 x10 z-25 f25 | g1 x11 z-60 f50  | g1 z0 f50       | g0 x11.8         | g0 x11.6        | g1 x7 f5              |
| g0 x11.6          | g0 x11.6        | g1 x9.4 f5       | g0 x8.6         | g0 z0            | g0 z-25         | g2 x7 r2.5 z-20 f2.5  |
| g0 z-25           | g0 z-20         | g1 z-64 f50      | g1 z-20         | g0 x8            | g0 x8.2         | g1 x6 f5              |
| g0 x11            | g0 x10.2        | g1 x9.2 f5       | g0 x11.6        | g1 z-20 f50      | g1 x7.4 f5      | g3 x6 r2.5 z-25 f2.5  |
| g1 x10.6 f10      | g1 x10 f5       | g1 z-60 f50      | g0 z-25         | g0 x11.6         | g1 x11 z-60 f50 | G1 x11 z-60 f50       |
| g1 x11 z-60 f50   | g1 z0 f50       | g0 x11           | g0 x9           | g0 z-25          | g1 x7 z-25 f25  | g0 x12                |
| g1 x10.6 f5       | g0 x9.8         | g1 x9.2 z-25 f25 | g1 x8.6 f5      | g1 x8 f5         | g0 x11.6        | g0 z0                 |
| g1 z-64 f50       | g1 z-20         | g0 x11.6         | g1 x11 z-60 f50 | g1 x8.4 f5       | g0 z-20         | m02                   |
| g1 x10.2 f5       | g0 x11.6        | g0 z-20          | g1 x8.6 f5      | g1 z-64 f50      | g1 z-18 f50     |                       |
| g1 z-60 f50       | g0 z-25         | g0 x9.6          | g1 z-64 f50     | g0 x11           | g1 x6.6 f5      |                       |
| g0 x11            | g0 x10.2        | g1 x9.2 f5       | g1 x8.4 f5      | g0 z-60          | g1 z-20 f50     |                       |
| g1 x10.2 z-25 f25 | g1 x9.8 f5      | g1 z0 f50        | g1 z-60 f50     | g1 x7.8 z-25 f25 | g0 x11.6        |                       |
|                   |                 |                  |                 |                  | g0 z-25         |                       |



UNI-DREH

# UNIMAT CNC

**3 Achsen Vertikalfräse**

**3 axis vertical milling machine**

**3 axes Fraiseuse verticale**

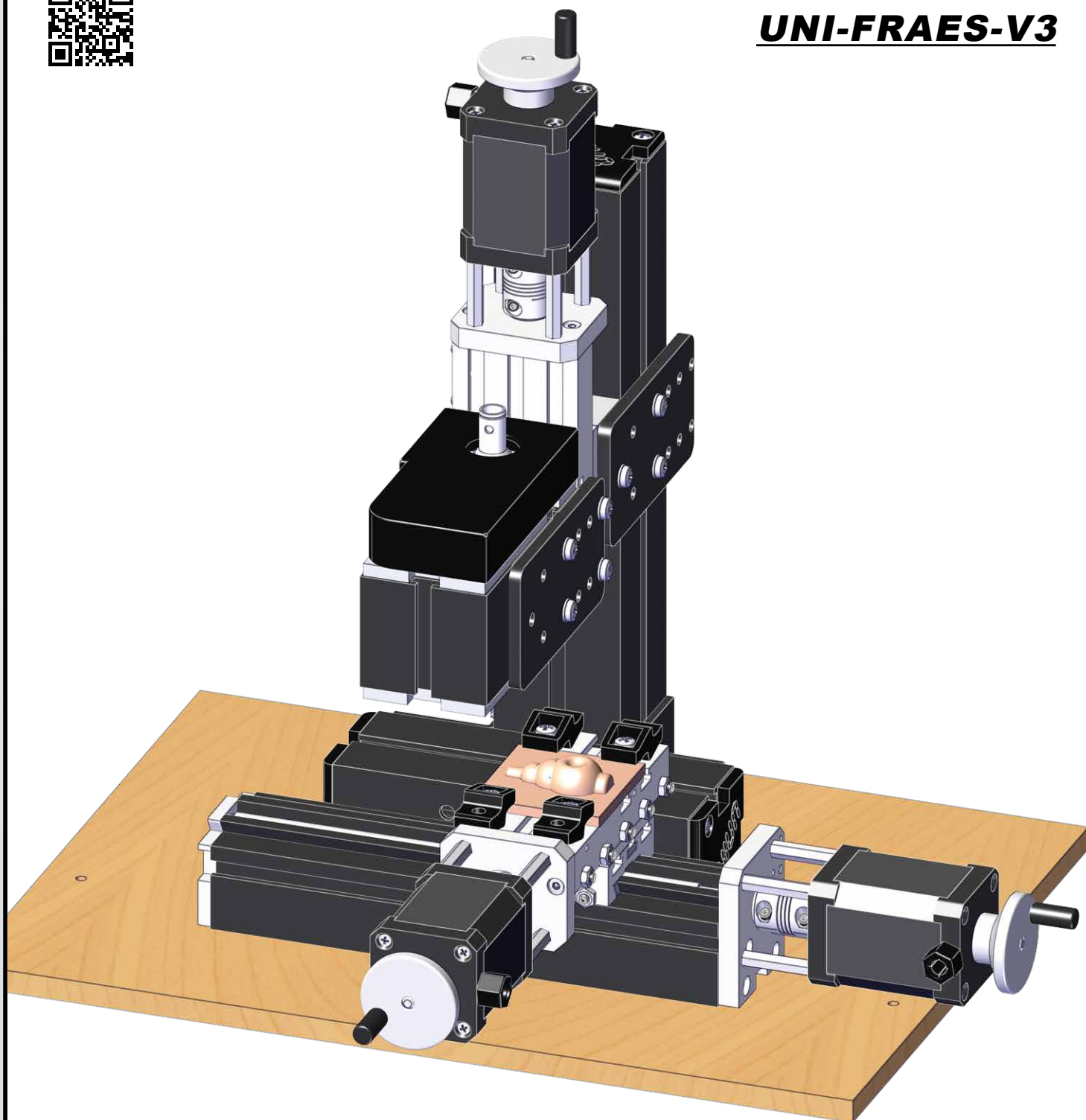
**3 ejes Fresadora vertical**

**3 轴 立式 铣床**

**Зоси Вертикальний фрезерний станок**



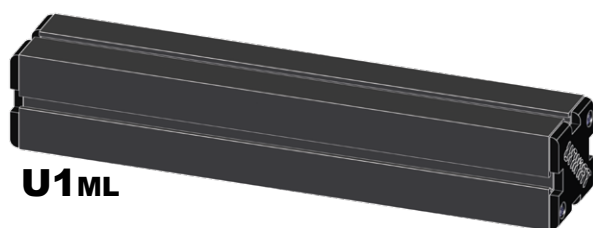
**UNI-FRAES-V3**



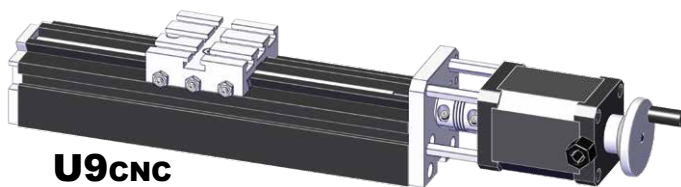


|         |   | DE                       | EN                          | FR                          | ES                          | 中国 (ZH)      | RU                             |                |
|---------|---|--------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|--------------------------------|----------------|
| U1ML    | 1 | Maschinenbett, lang      | Machine bed, long           | Banc, grand                 | Bancada grande              | 长机座          | Станина длинная                | A1A 020 000 SW |
| U3CNC   | 2 | CNC Querschleitten       | CNC Cross slide             | CNC Chariot, petit          | CNC Carro, pequeño          | CNC 全金属小滑块   | CNC Салазки поперечные         | 164 060 NCNC   |
| U4MLEDU | 1 | Antriebseinheit ML       | Drive unit ML               | EDU-Moteur                  | EDU-Motor                   | EDU-马达       | EDU-Двигатель                  | 164 420        |
| U7ML    | 1 | Maschinenbett, kurz      | Machine bed, short          | Banc, petit                 | Bancada pequeña             | 全金属短机座       | Станина короткая               | A1A 010 000SW  |
| U9CNC   | 1 | CNC Längsschleitten      | CNC Longitudinal slide      | CNC Chariot, grand          | CNC Carro, grande           | 全金属长滑块       | Салазки продольные             | 164 480 NCNC   |
| U10ML   | 1 | Zwischenstück            | Intermediate piece          | Pièce intermédiaire         | Pieza intermedia            | 全金属中介块       | Проставка                      | A1M 000 100    |
| U12ML   | 1 | Spannzange 1/8"          | Collet 1/8"                 | Pince 1/8"                  | Pinza 1/8"                  | 金属夹头 1/8"    | Цанги 1/8"                     | 162 460 31/8   |
| U15A    | 1 | Schraubendreher #2       | Screwdriver #2              | Tourne-vis #2               | Destornillador #2           | 螺丝刀2#        | Отвертка Philips № 2           | ZWZ 980 030    |
| U15B    | 1 | Inbusschraubendreher     | Screwdriver allen key 2.5mm | Tourne-vis hexagonale 2,5mm | Destornillador allen 2,5mm  | 内六角扳手2.5 mm  | Отвертка 6-гранная 2,5 мм      | ZWZ 980 075    |
| U48ML   | 1 | Spannzangenhalter        | Collet holder               | Porte-pinces                | Porta-pinza                 | 固定铜帽         | Гайка зажимная для цанг        | A1A 000 073    |
| U49     | 4 | Spannklaue               | Clamping jaw                | Mors de serrage             | Brida de sujeción           | 夹板           | Прихват Прихват                | A1A 000 090    |
| U66     | 4 | Verbindungselement       | Connection piece            | Pièce de connexion          | Elemento de conexión        | 连接件          | Сухарь соединительный          | A1A 00 ZIN5K   |
| U71     | 1 | Gabelschlüssel 7 / 14 mm | Fork wrench 7 / 14 mm       | Clé de fourche 7 / 14 mm    | llave de furca 7 / 14 mm    | 扳手 7 / 14 mm | Ключ гаечный 7 / 14 мм         | ZWZ 400 700    |
| U79     | 3 | Fixierplatte klein       | Stabilizing plates small    | Plaques de fixation petits  | Platos de fijación pequeños | 小固定片         | Пластина стабилизирующая малая | A1Z 470 000    |
| U80     | 2 | Befestigungswinkel       | Stabilizing angle           | Angle de fixation           | Escuadra de fijación        | 直角固定座        | Угольник стабилизирующий       | A1Z 480 000    |
|         | 1 | Grundplatte CNC          | Mounting plate CNC          | Plaque de montage CNC       | Plancha basico CNC          | 固定底板 CNC     | Монтажная пластина CNC         | 164 402        |

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



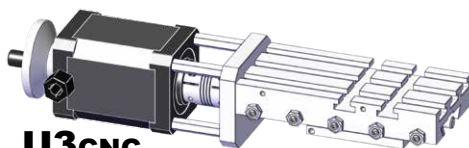
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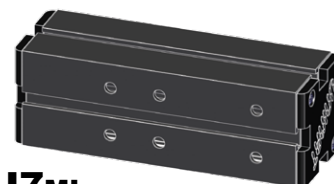
**U9CNC**



**U4MLEDU**



**U3CNC**



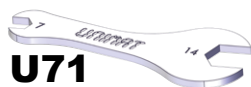
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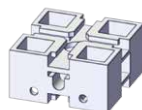
**U12ML**  
(1/8")



**U48ML**



**U71**



**U10ML**



**U79**



**U80**



**U66**



**U49**



**U15A**



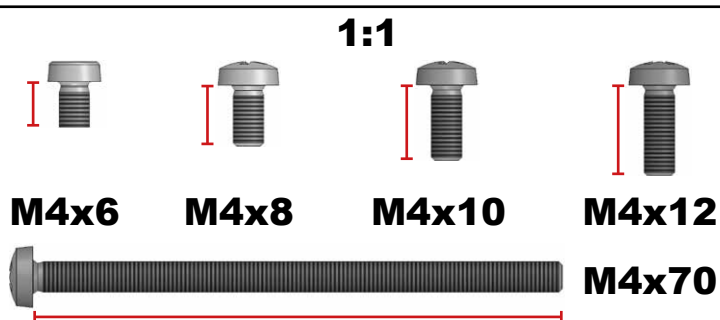
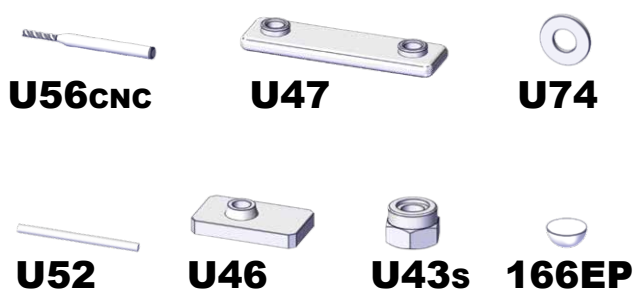
**U15B**



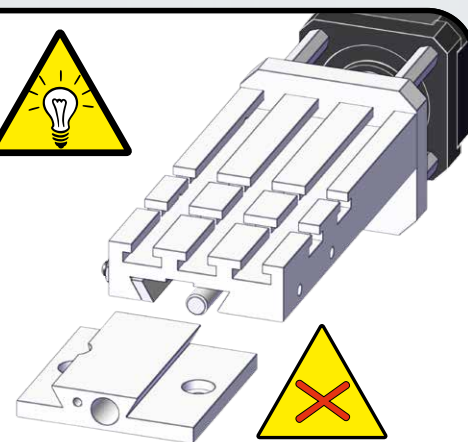
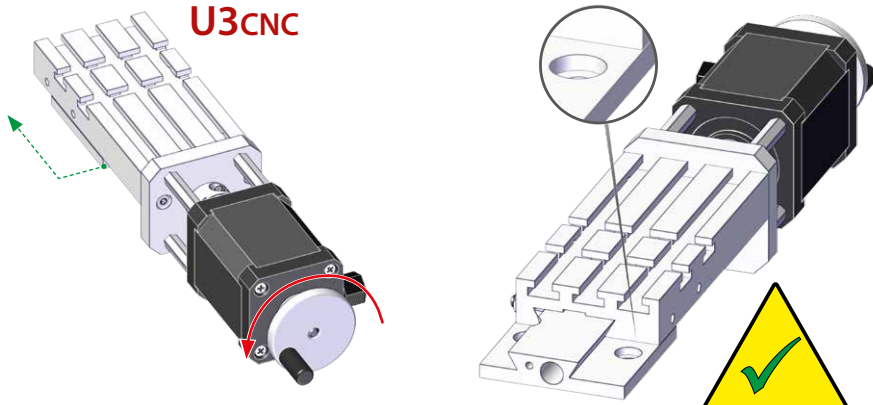
**164402**

|                                                                                   |    | DE                  | EN                  | FR                   | ES                    | 中国 (ZH)    | RU                       |             |
|-----------------------------------------------------------------------------------|----|---------------------|---------------------|----------------------|-----------------------|------------|--------------------------|-------------|
| U31                                                                               | 8  | Schraube M4x10      | Screw M4x10         | Vis M4x10            | Tornillo M4x10        | 螺钉M4x10    | Винт M4x10               | ZSR M40 410 |
| U37                                                                               | 12 | Schraube M4x8       | Screw M4x8          | Vis M4x8             | Tornillo M4x8         | 螺钉M4x8     | Винт M4x8                | ZSR M40 408 |
| U38                                                                               | 6  | Schraube M4x6       | Screw M4x6          | Vis M4x6             | Tornillo M4x6         | 螺钉M4x6     | Винт M4x6                | ZSR M40 406 |
| U43S                                                                              | 1  | Sicherungsmutter M4 | Locking nut M4      | Ecrou sécurité M4    | Tuerca M4 seguridad   | 防松螺母M4     | Гайка M4 самоконтрящаяся | ZMU 340 120 |
| U46                                                                               | 12 | Nutstein            | Slot nut            | Boulon en «T»        | Pernos "T"            | 单孔螺母       | Гайка пазовая            | A1A 060 040 |
| U47                                                                               | 8  | Klemmplatte         | Camping plate       | Élément en «T»       | Elemento "T"          | 双孔螺母       | Гайка пазовая двойная    | A1A 010 020 |
| U50                                                                               | 1  | Schraube M4x70      | Screw M4x70         | Vis M4x70            | Tornillo M4x70        | 螺钉M4x70    | Винт M4x70               | ZSR M40 470 |
| U52                                                                               | 1  | Stift               | Rod                 | Cheville             | Perno                 | 锁杆         | Вороток                  | ZST 110 345 |
| U56CNC                                                                            | 1  | 1,6 mm Fräser       | 1.6 mm Milling head | 1,6 mm Fraise        | 1,6 mm Fresa          | 铣刀头 1.6 mm | Фреза концевая 1,6 mm    | F2470 1.60  |
| U69                                                                               | 4  | Schraube M4x12      | Screw M4x12         | Vis M4x12            | Tornillo M4x12        | 螺钉M4x12    | Винт M4x12               | ZSR M40 412 |
| U74                                                                               | 18 | Beilagscheibe       | Plain washer        | Rondelle             | Arandela              | 垫片         | Шайба                    | ZSB 250 430 |
|                                                                                   | 4  | Gummipuffer         | Elastic buffer      | Butoir élastique     | Amortiguador elástico | 弹性缓冲       | Эластичный буфер         | 166 EP      |
| ohne Abbildung   without picture   sans figure   sin ilustración 无图   без рисунка |    |                     |                     |                      |                       |            |                          |             |
|                                                                                   | 1  | Netzteil 14,4V      | 14.4V adaptor       | 14,4V Transformateur | 14,4V Transformador   | 变压器 14.4 V | Трансформатор 14,4 В     | 161 31x     |

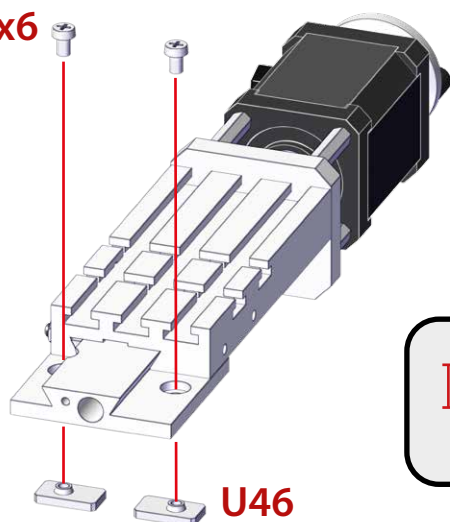
nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



**U3CNC**

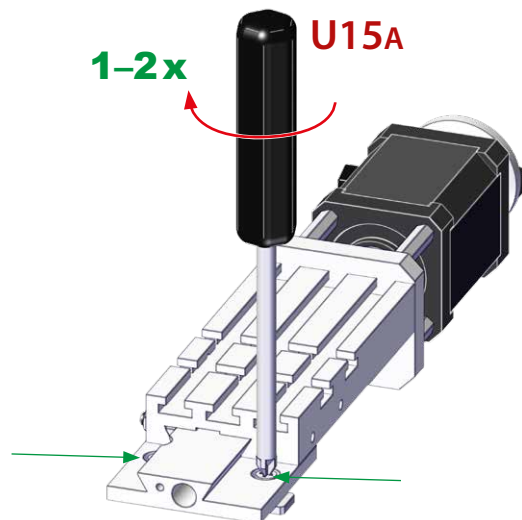


**M4x6**

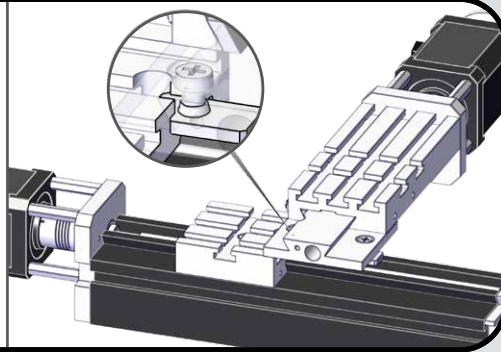
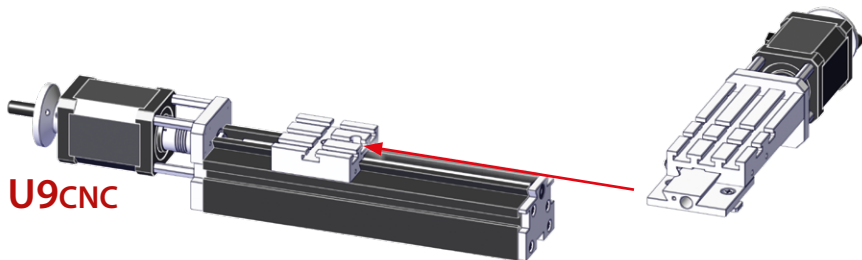


**1-2x**

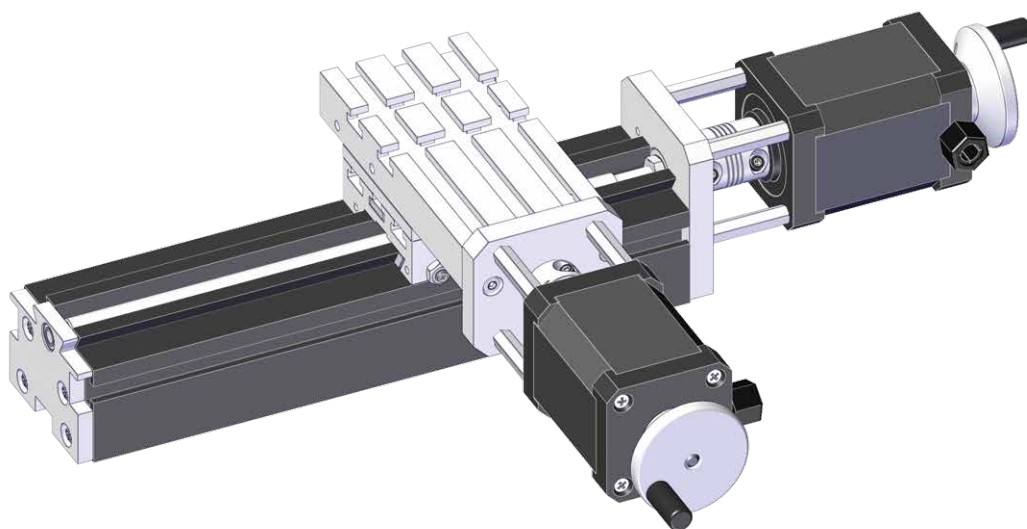
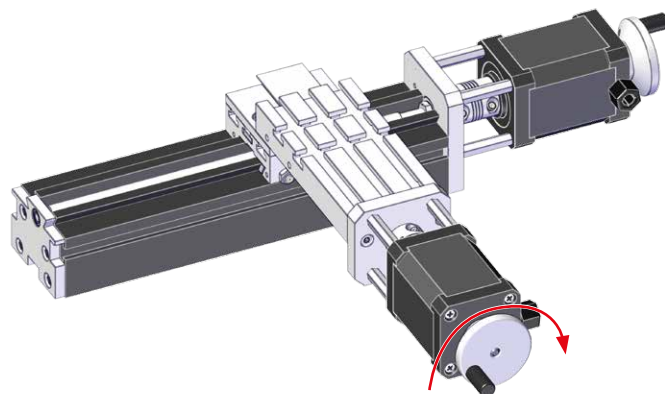
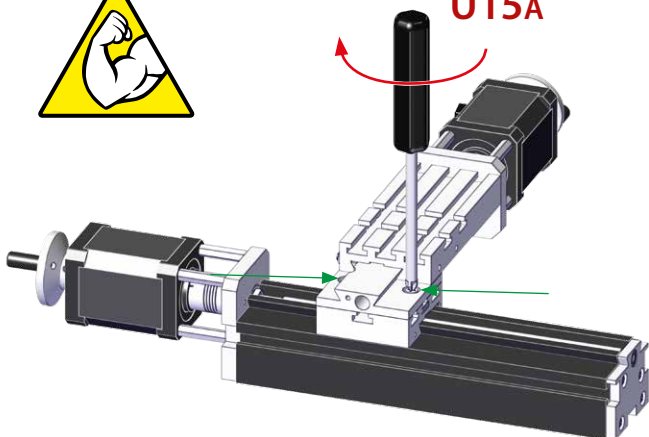
**U15A**



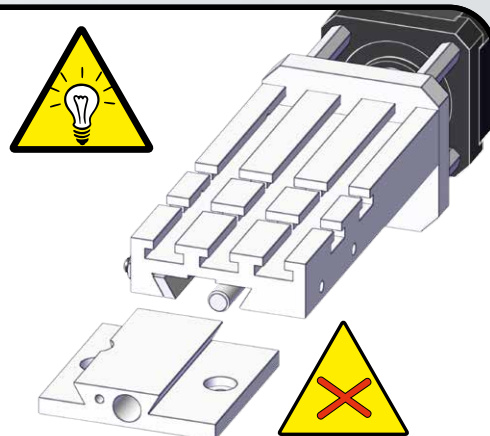
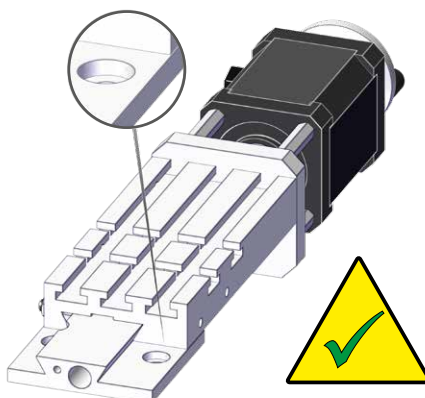
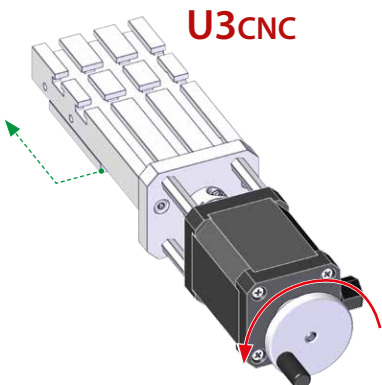
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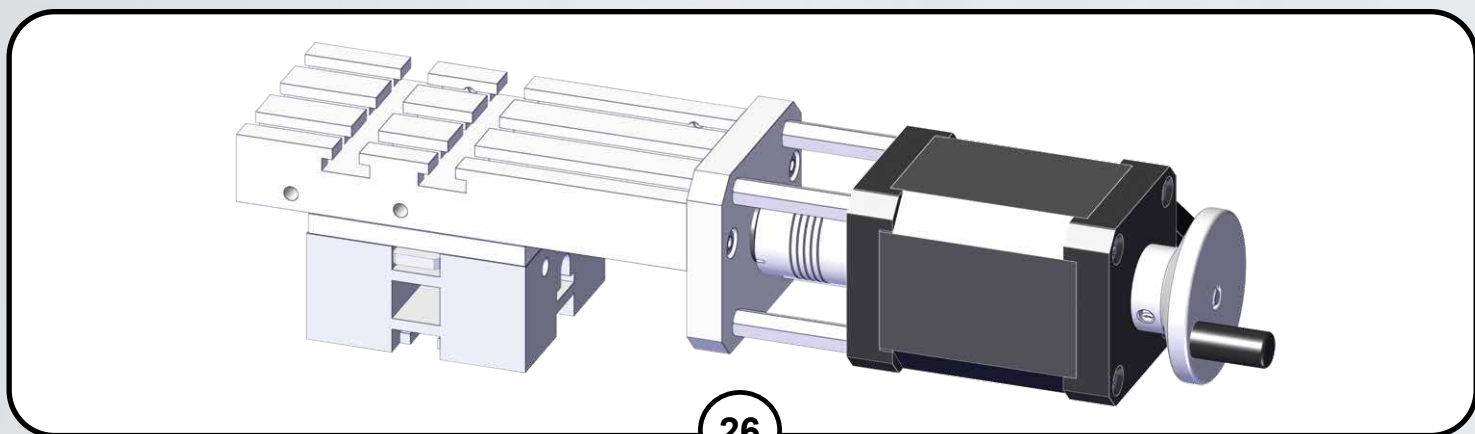
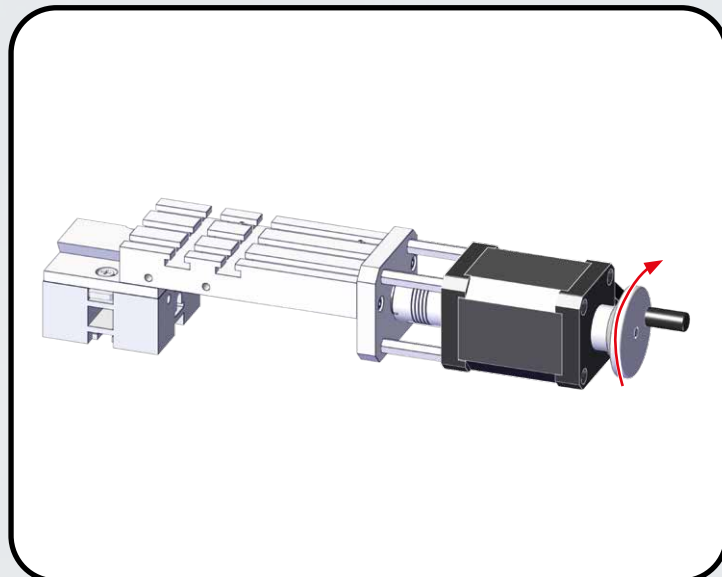
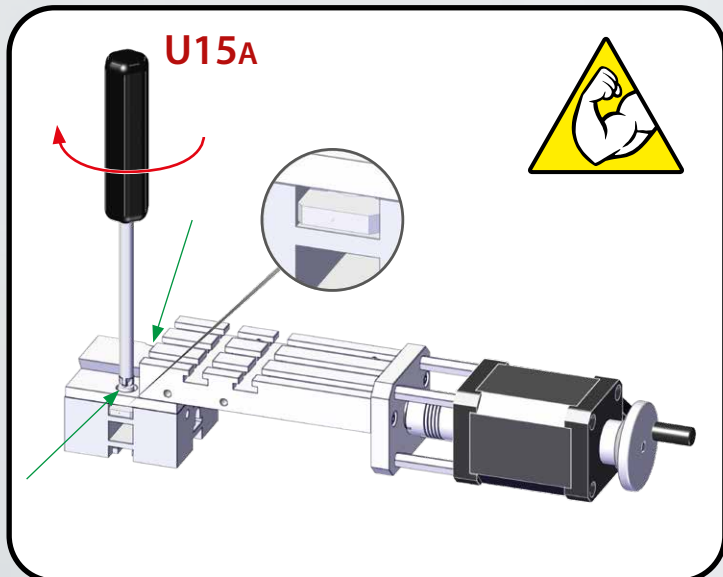
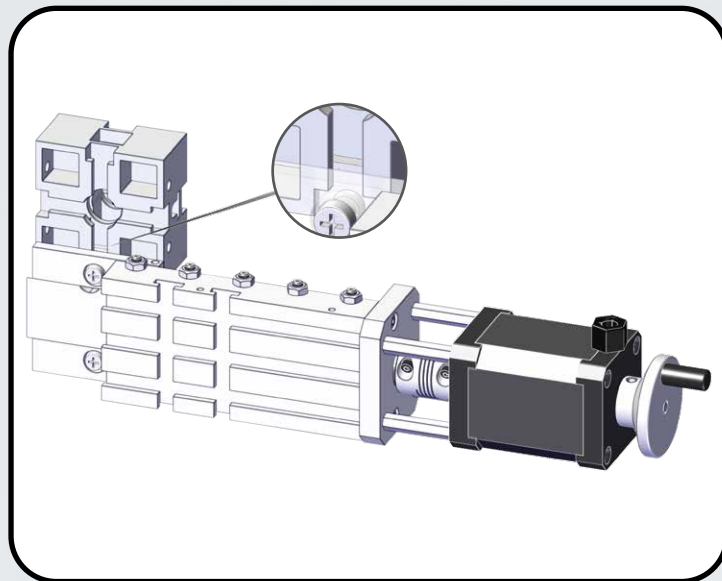
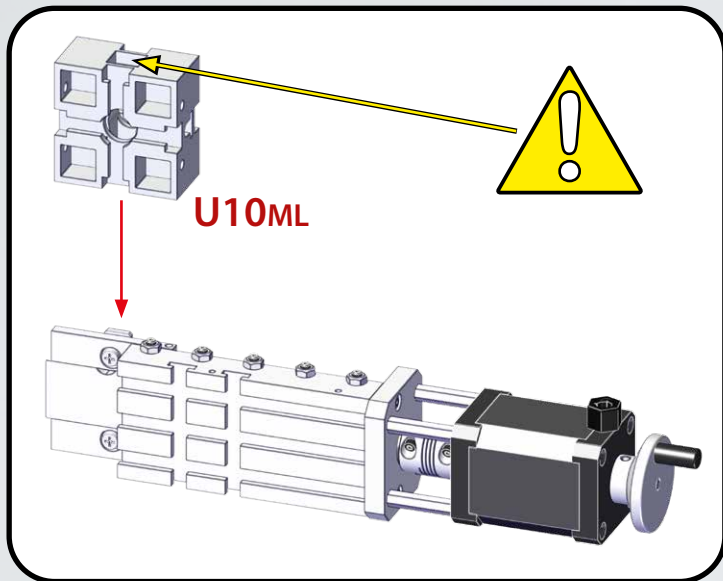
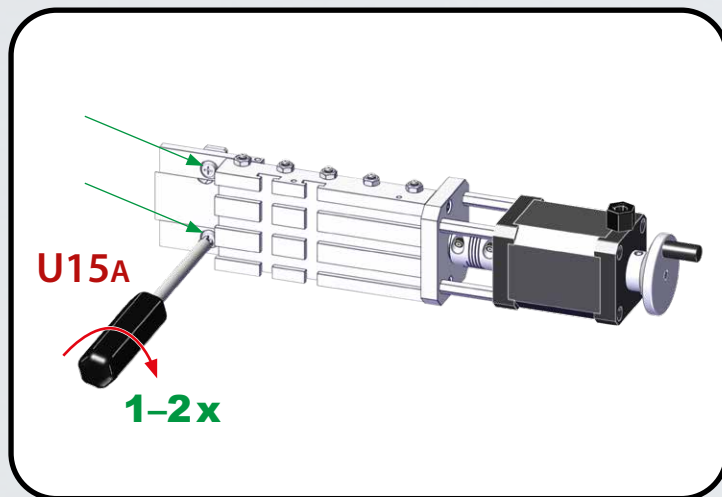
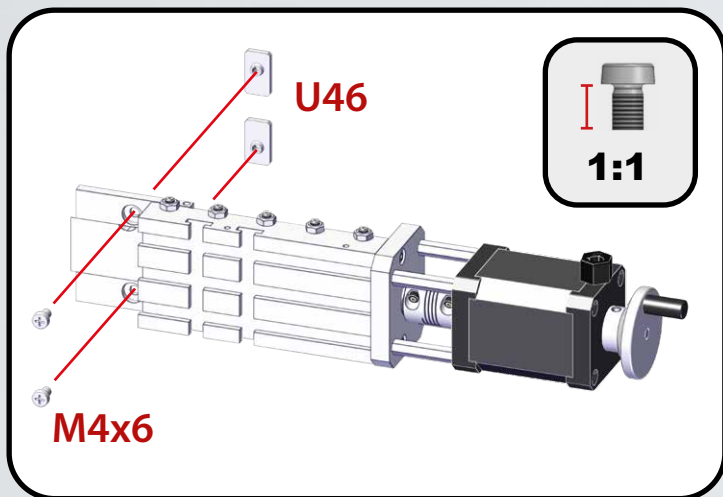
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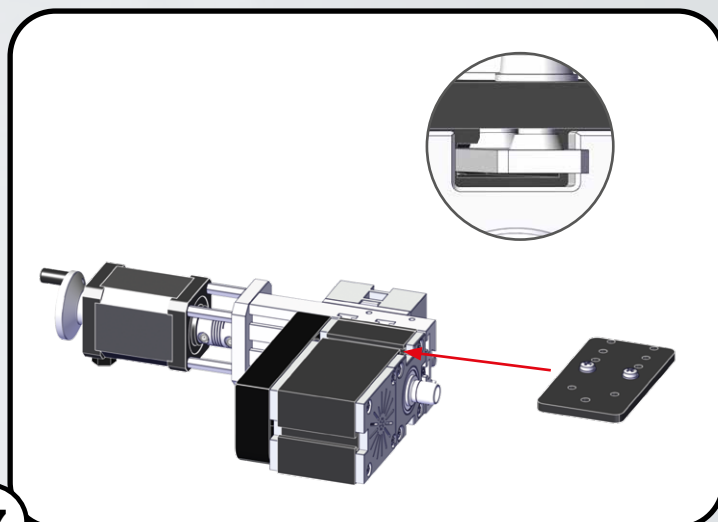
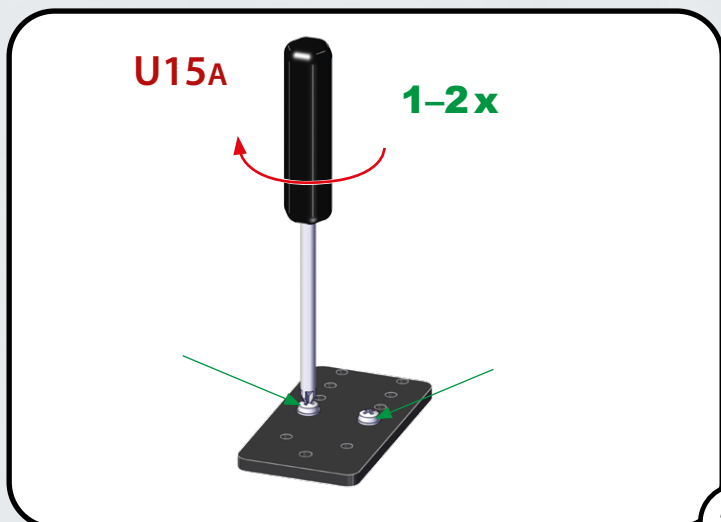
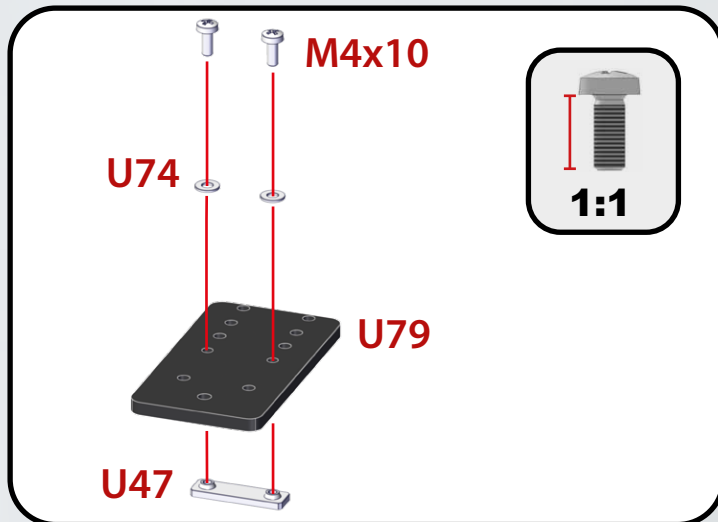
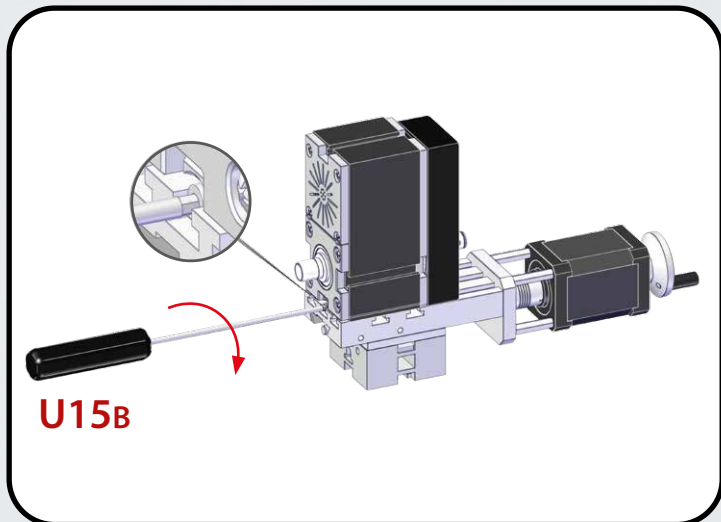
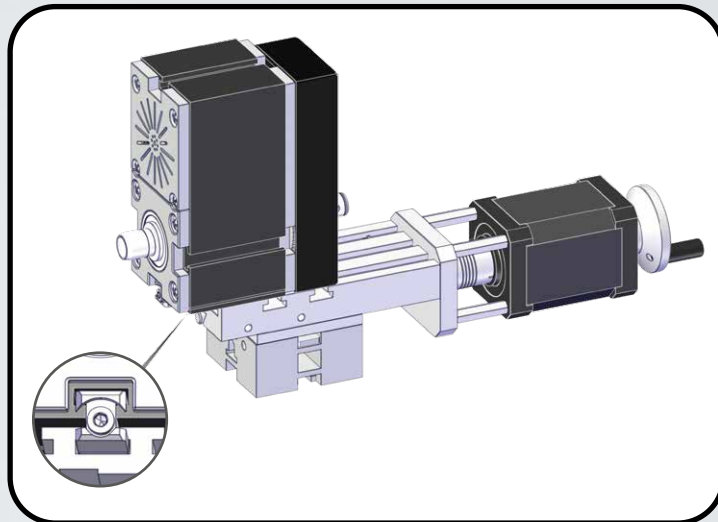
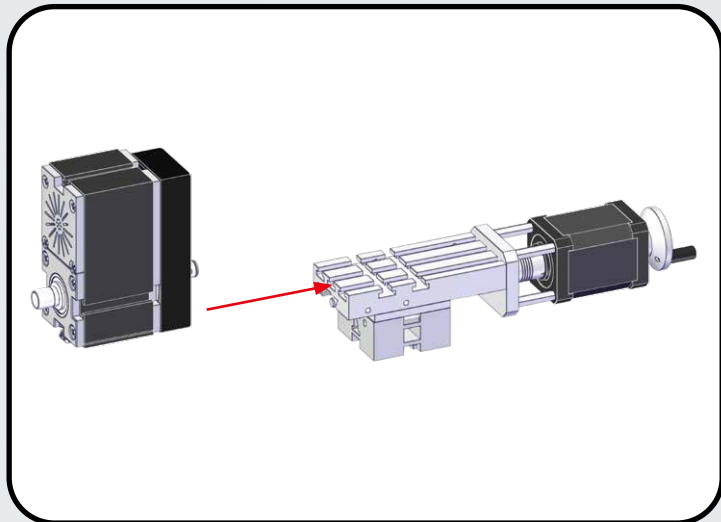
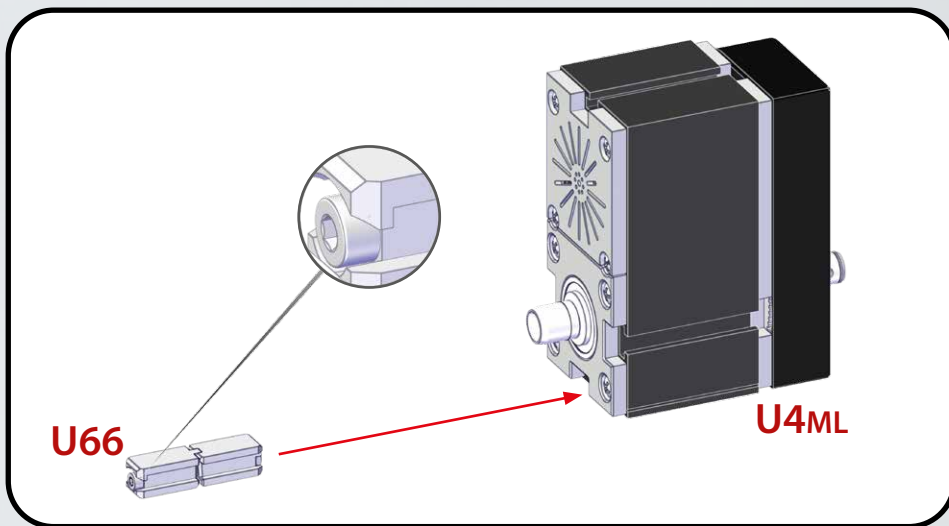
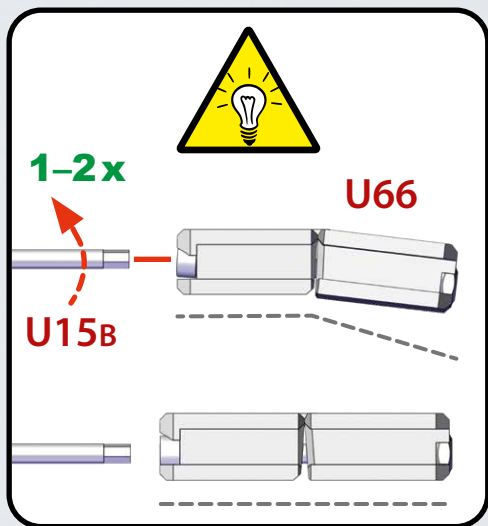


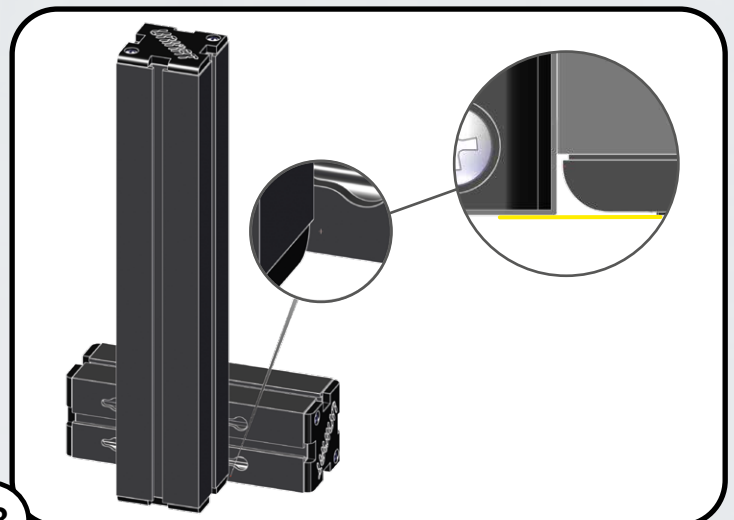
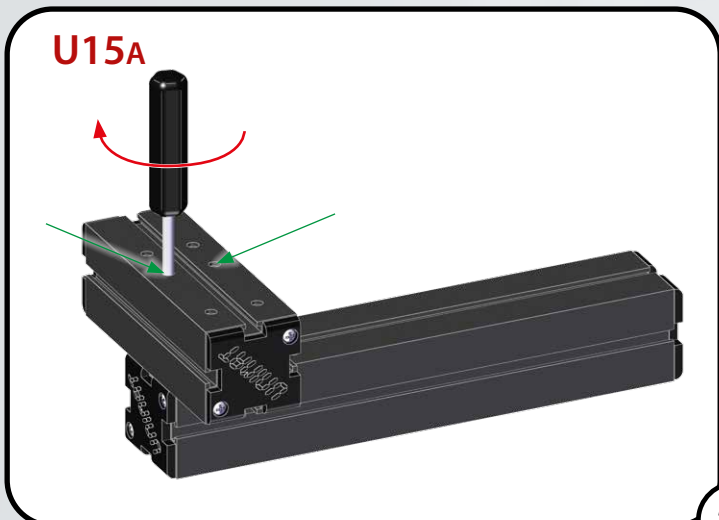
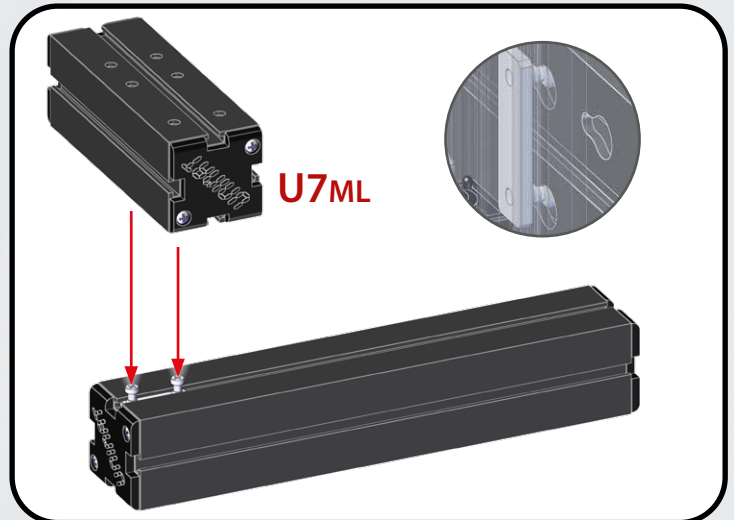
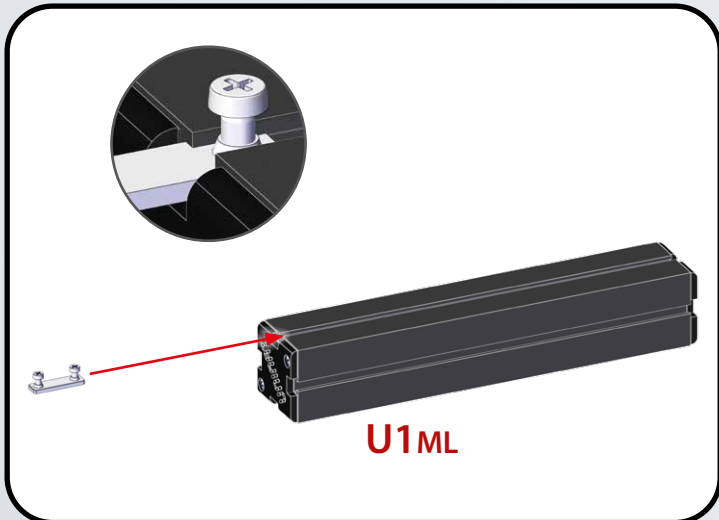
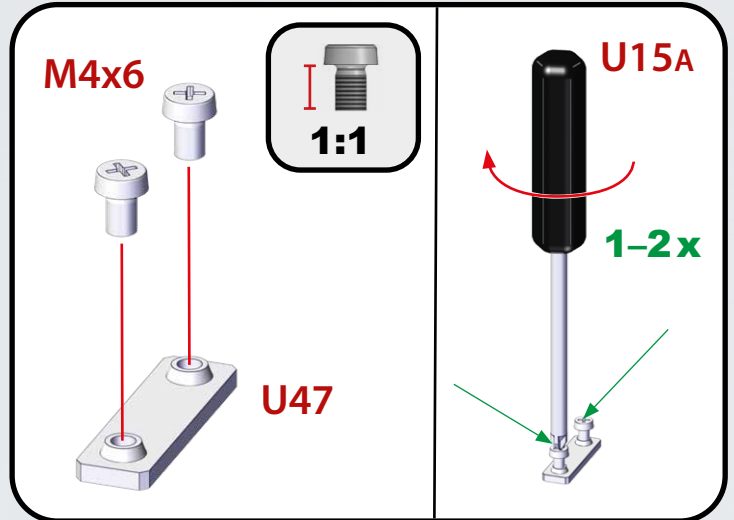
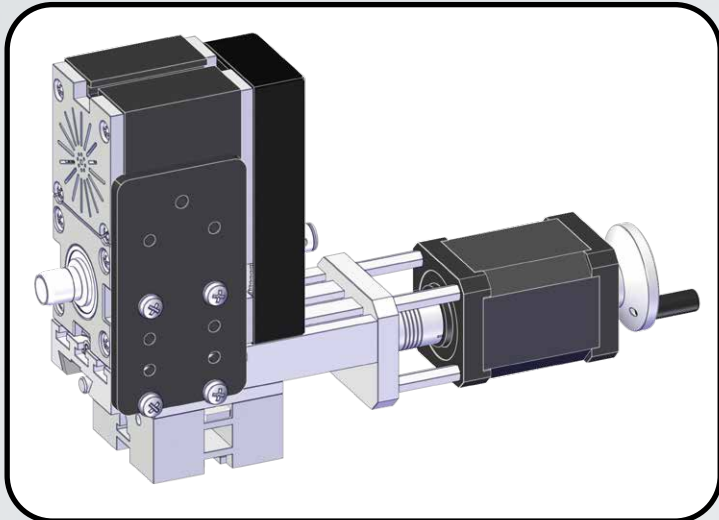
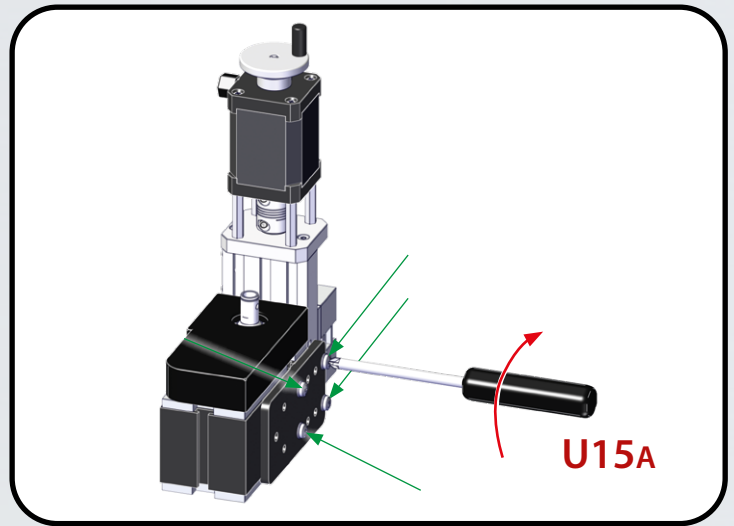
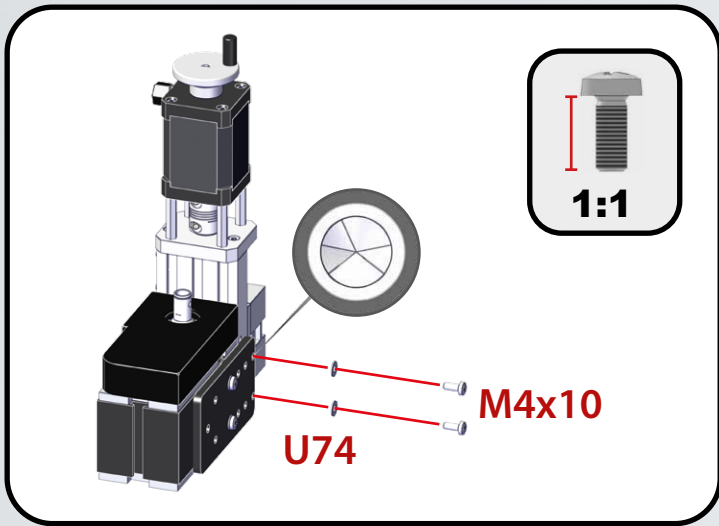
U3CNC





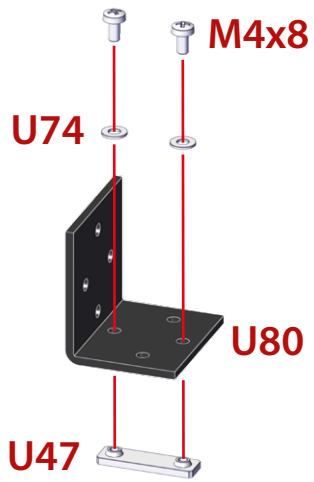






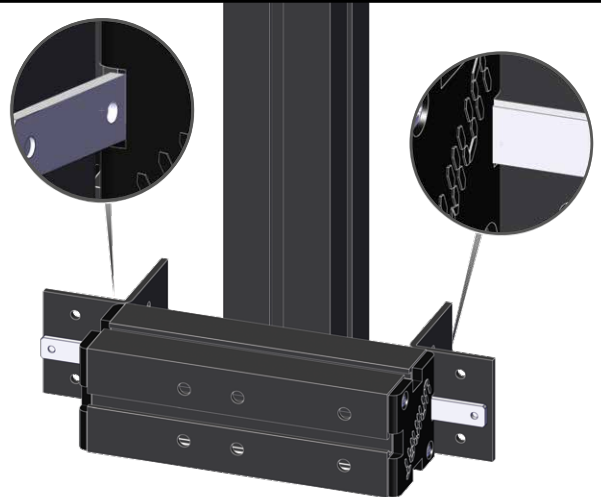
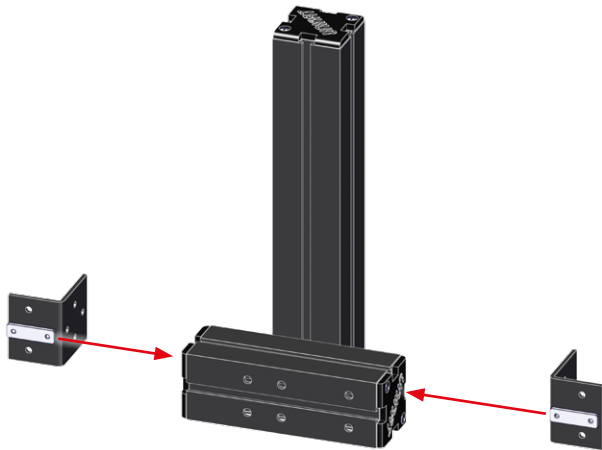
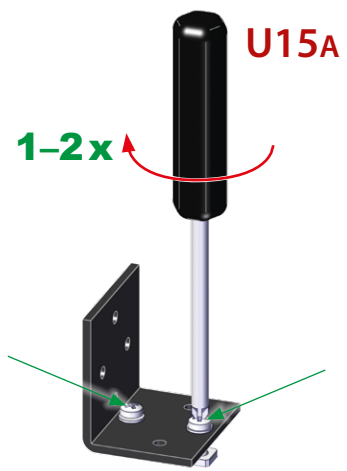


2x



1:1

2x



M4x8

②

U74

U47

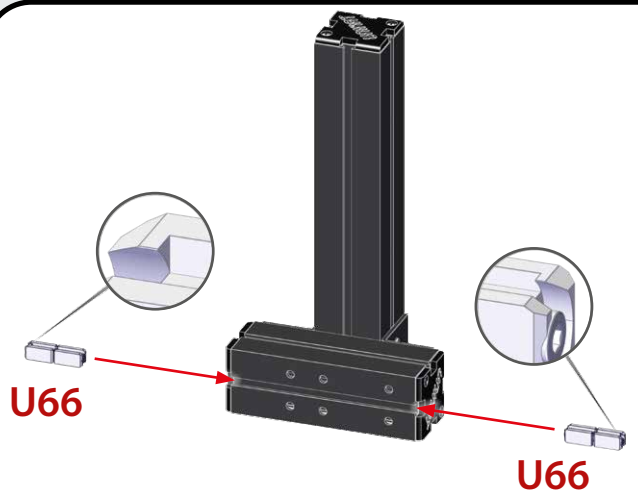
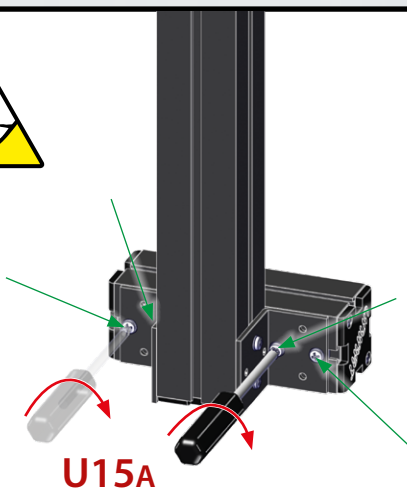
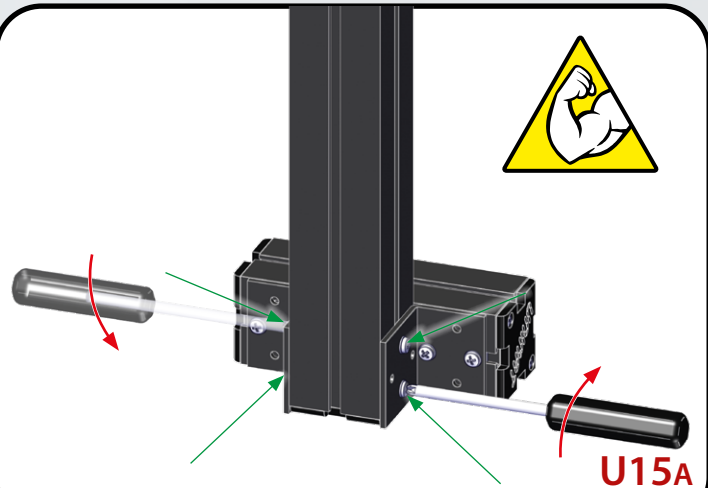
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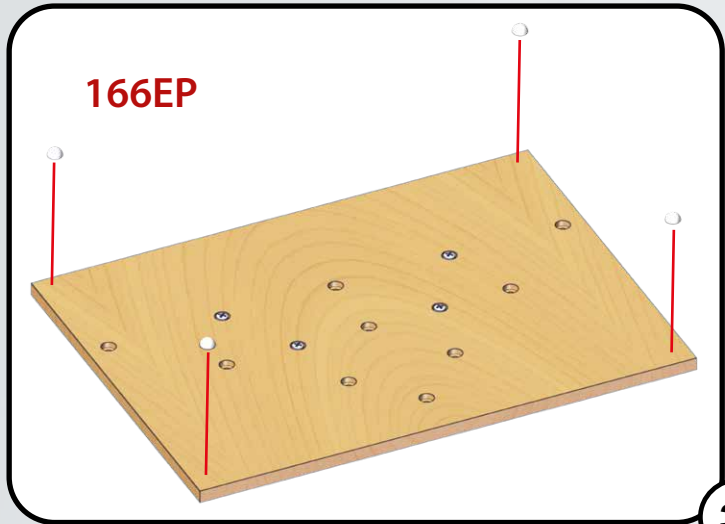
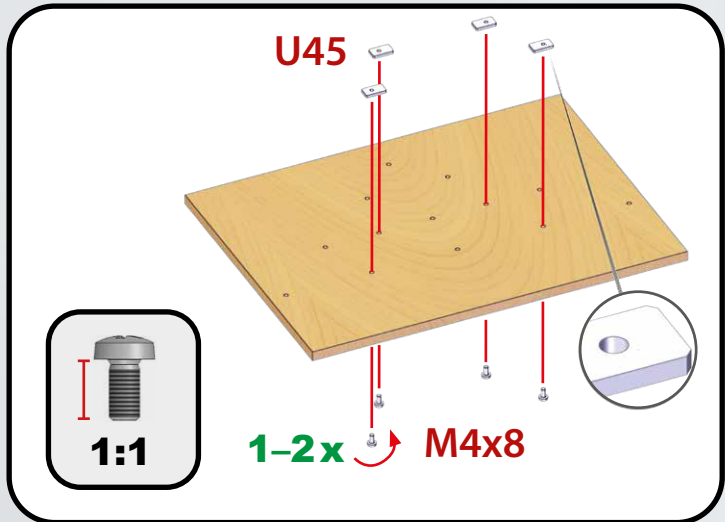
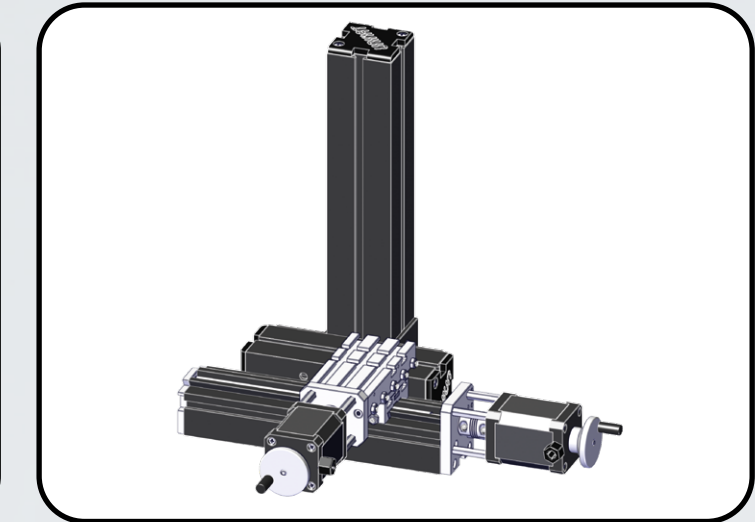
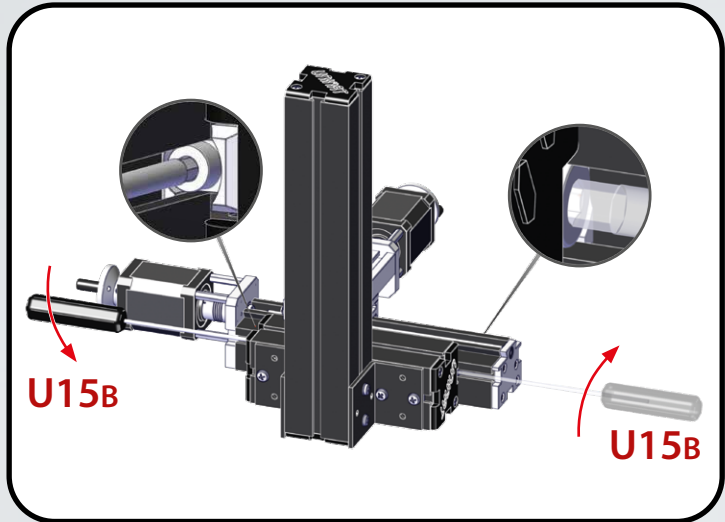
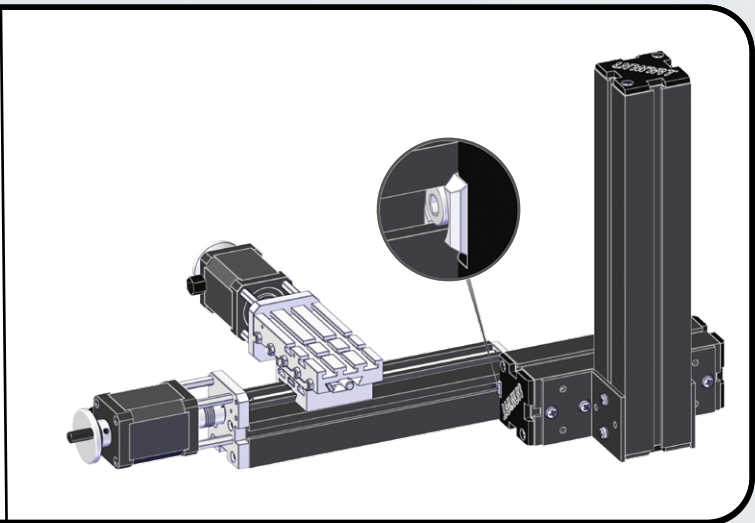
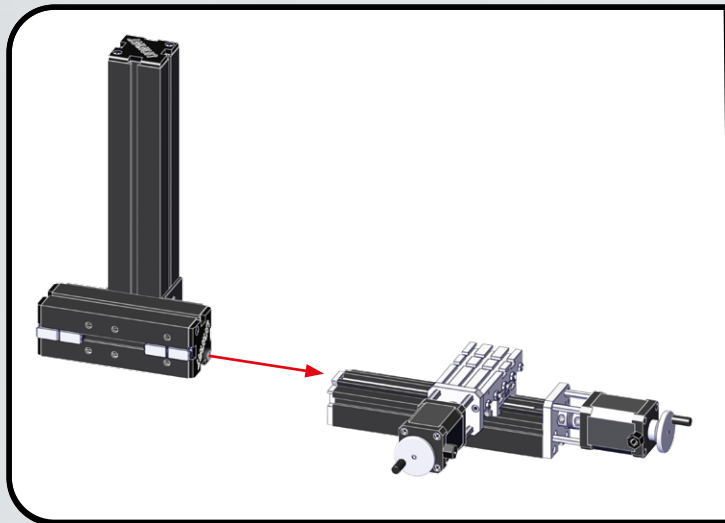
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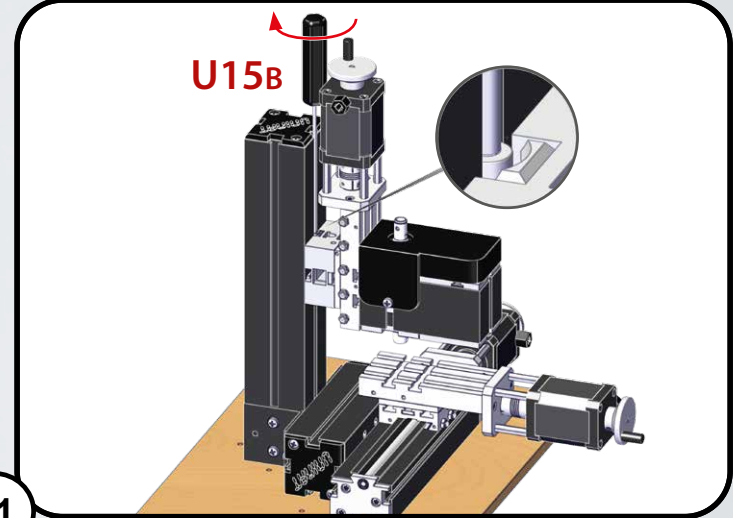
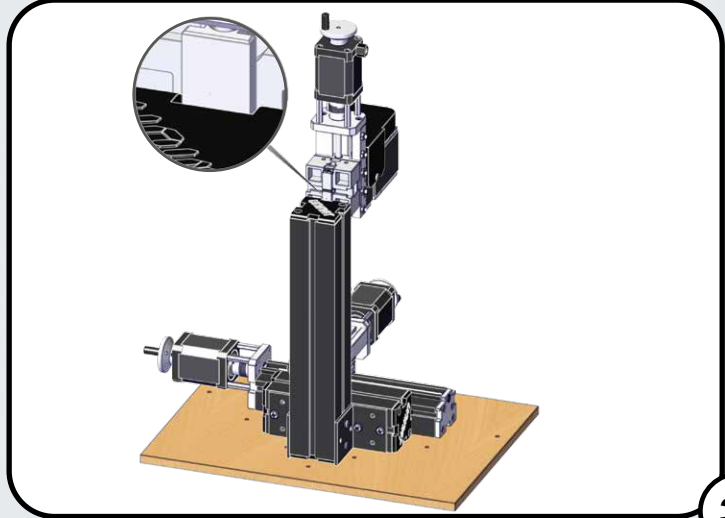
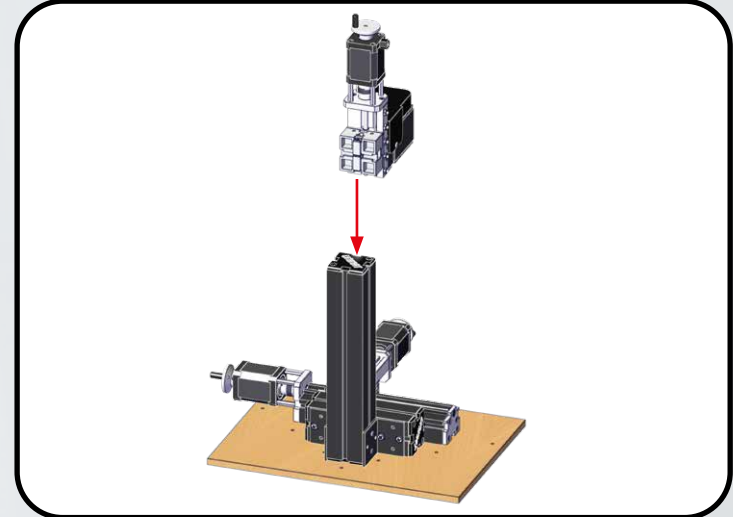
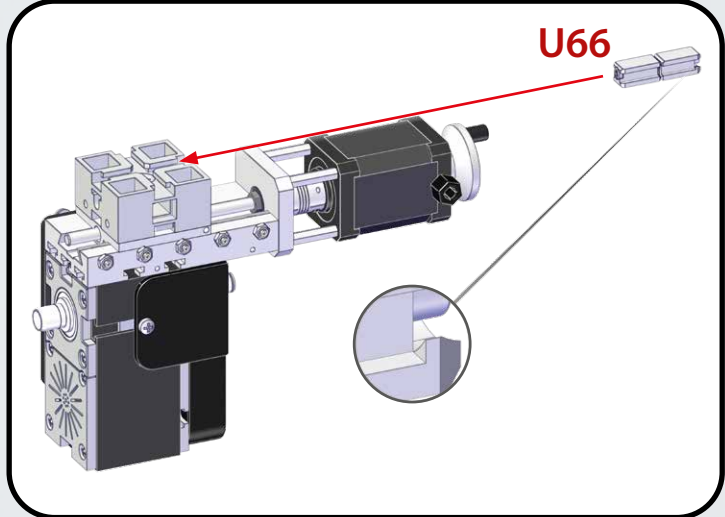
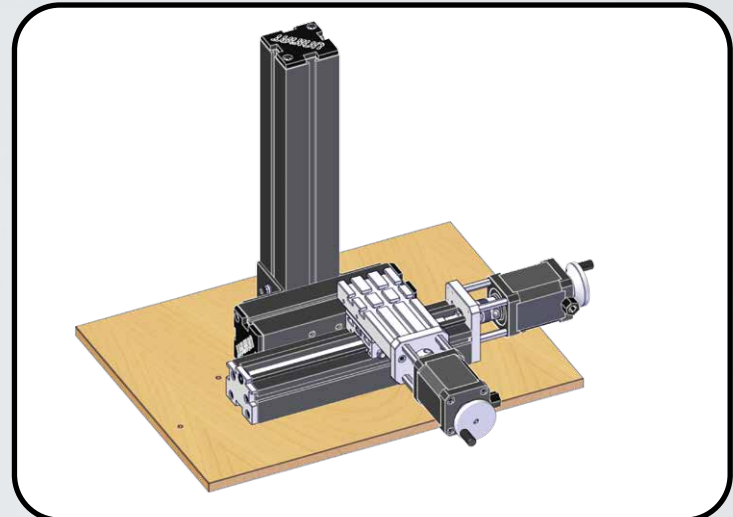
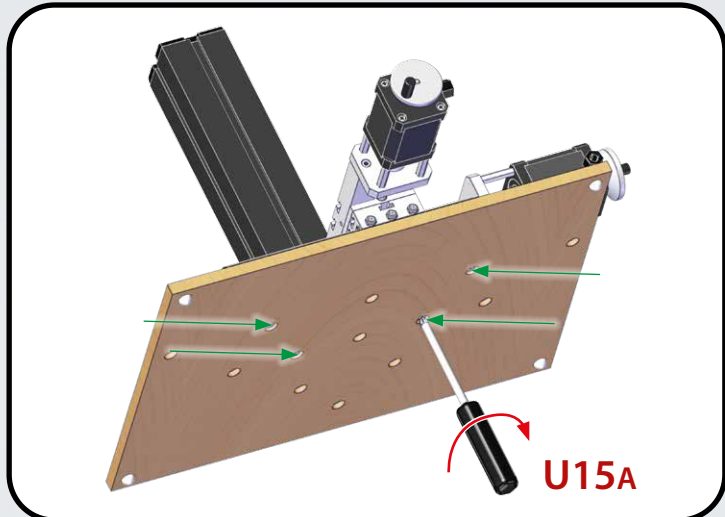
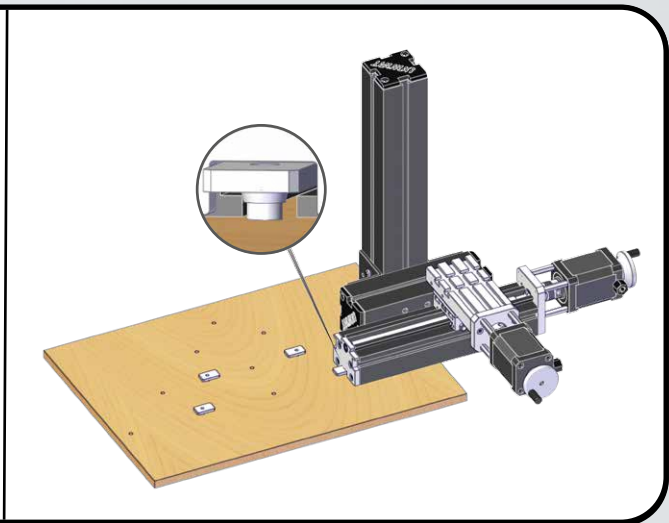
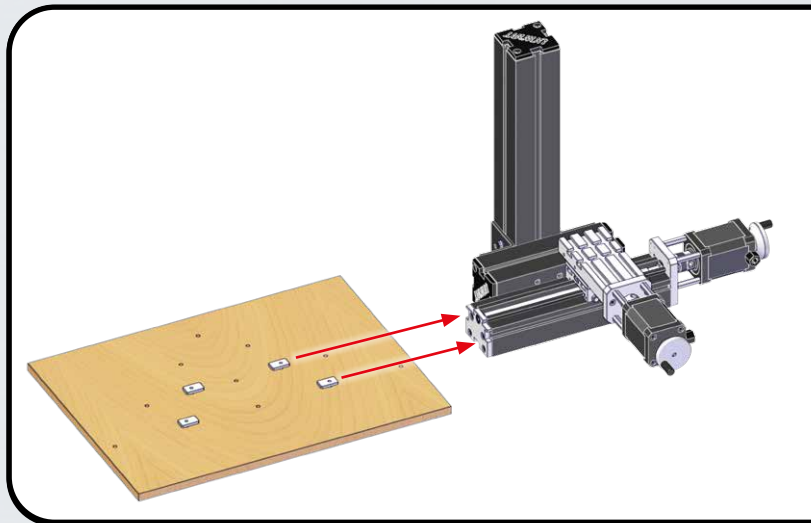
U74

M4x8

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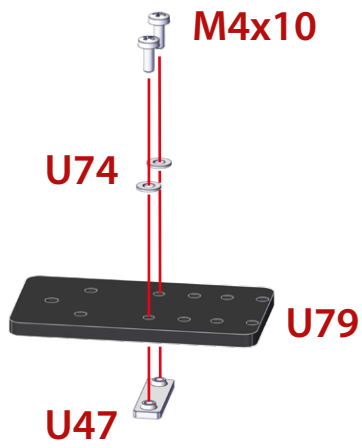






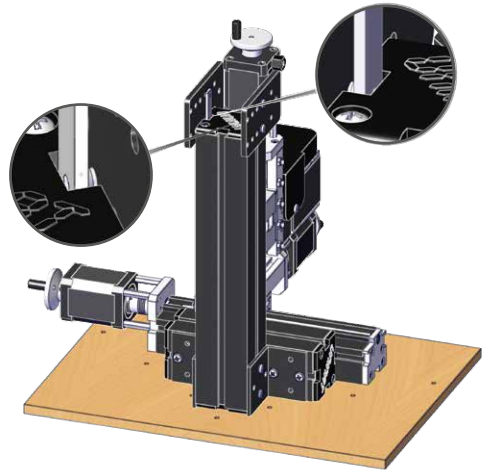
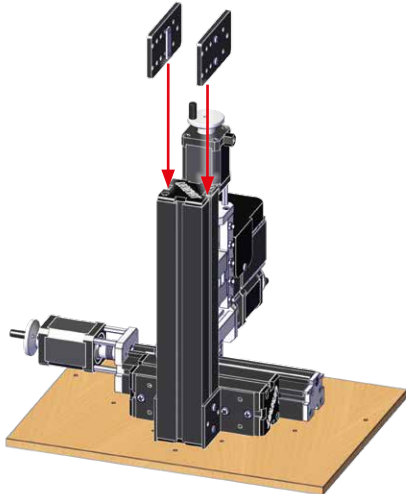
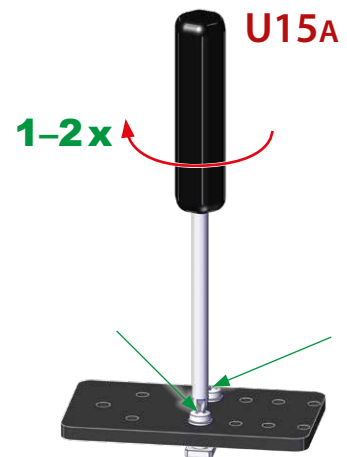


2x



1:1

2x



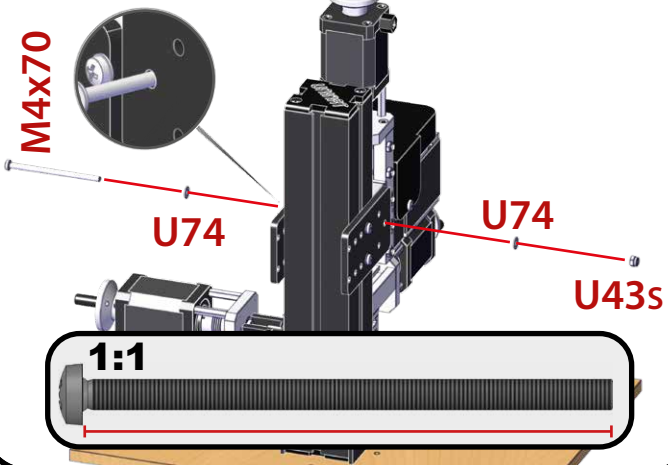
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U74

U74

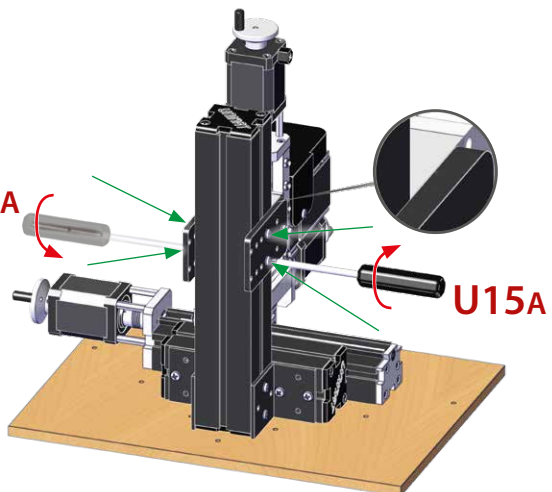
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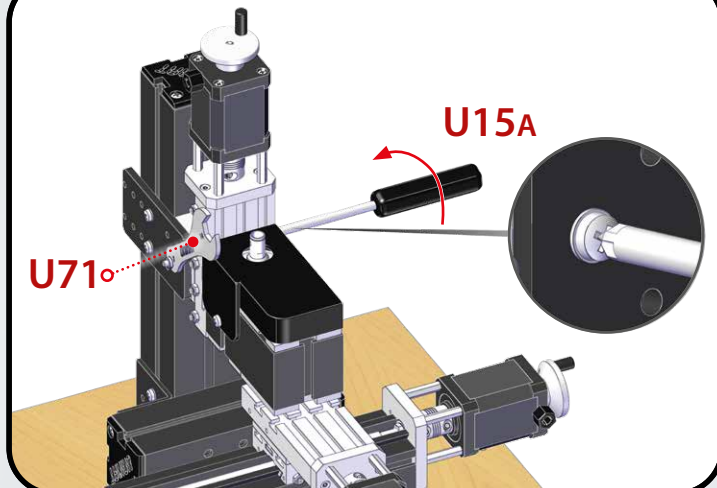
U15A

U15A



U71

U15A



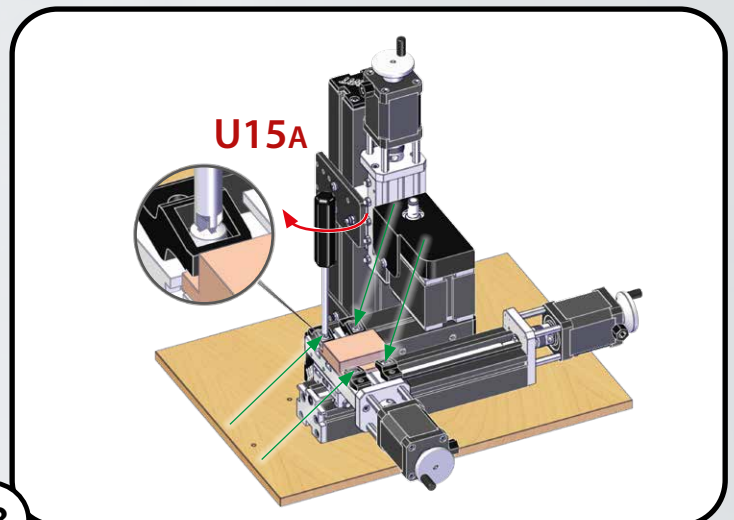
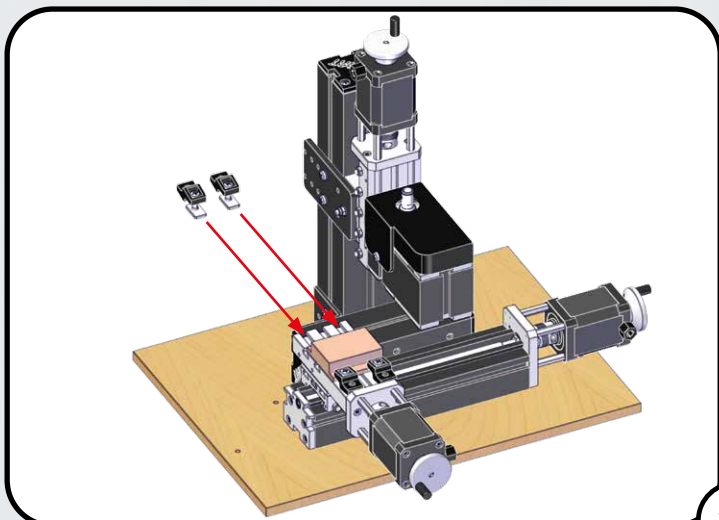
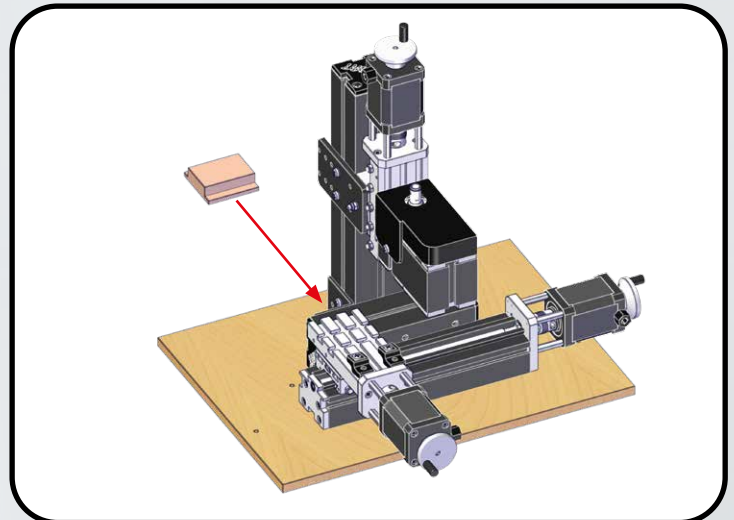
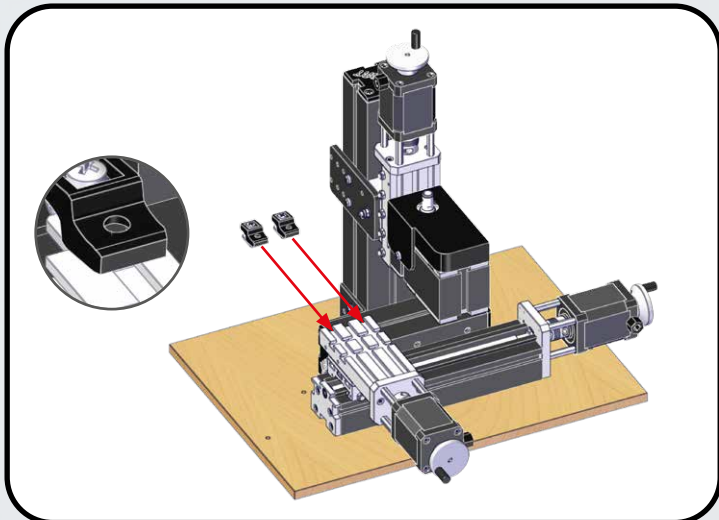
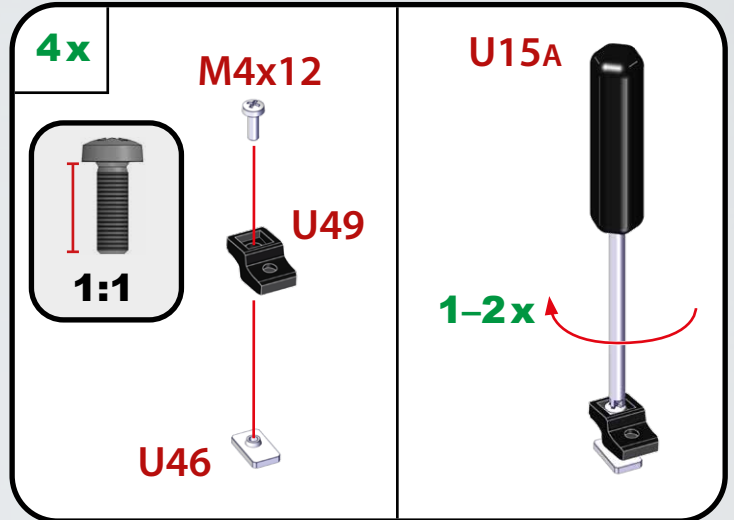
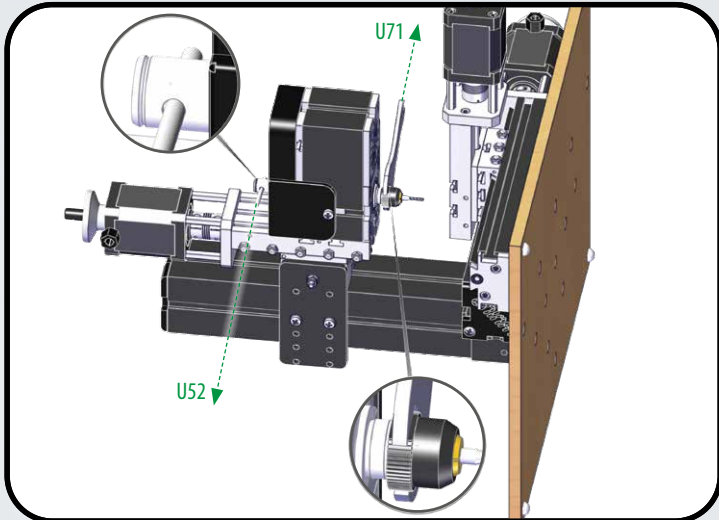
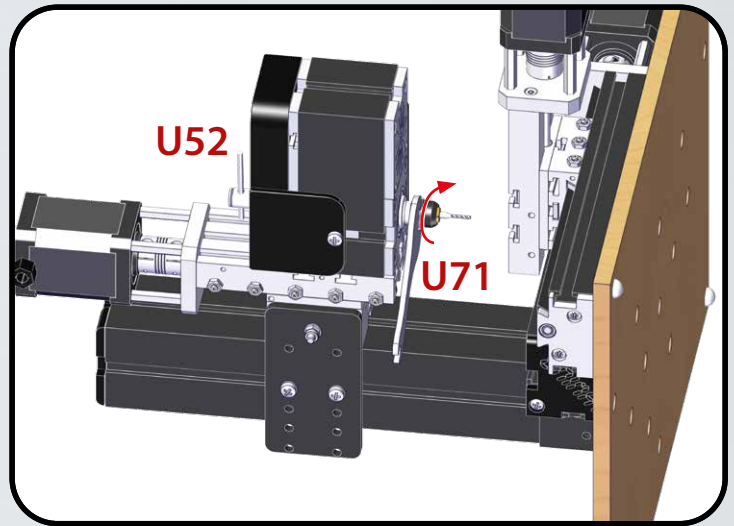
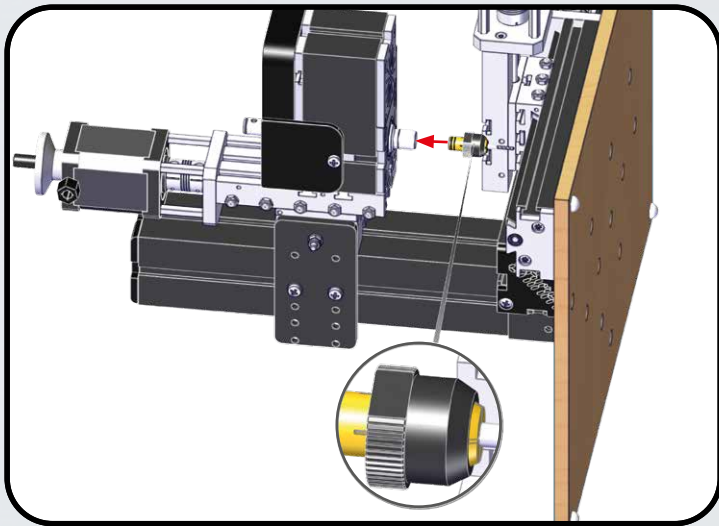
1/8"

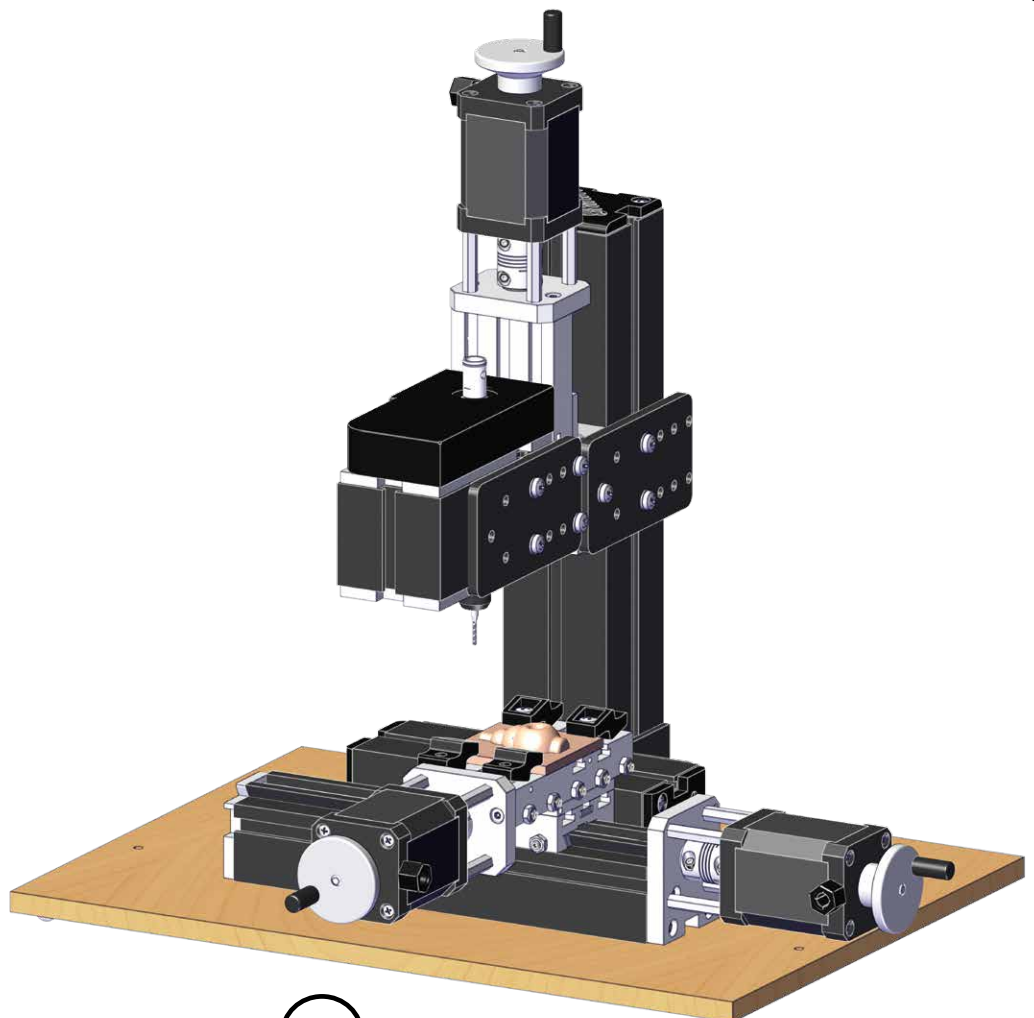
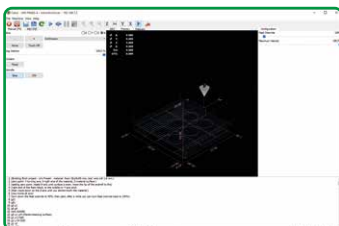
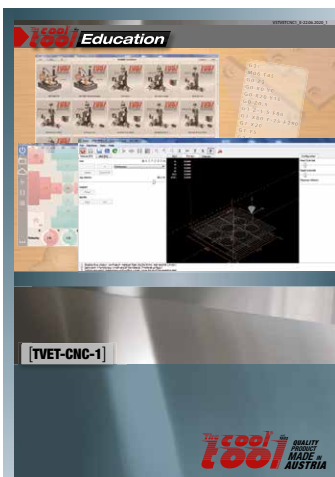
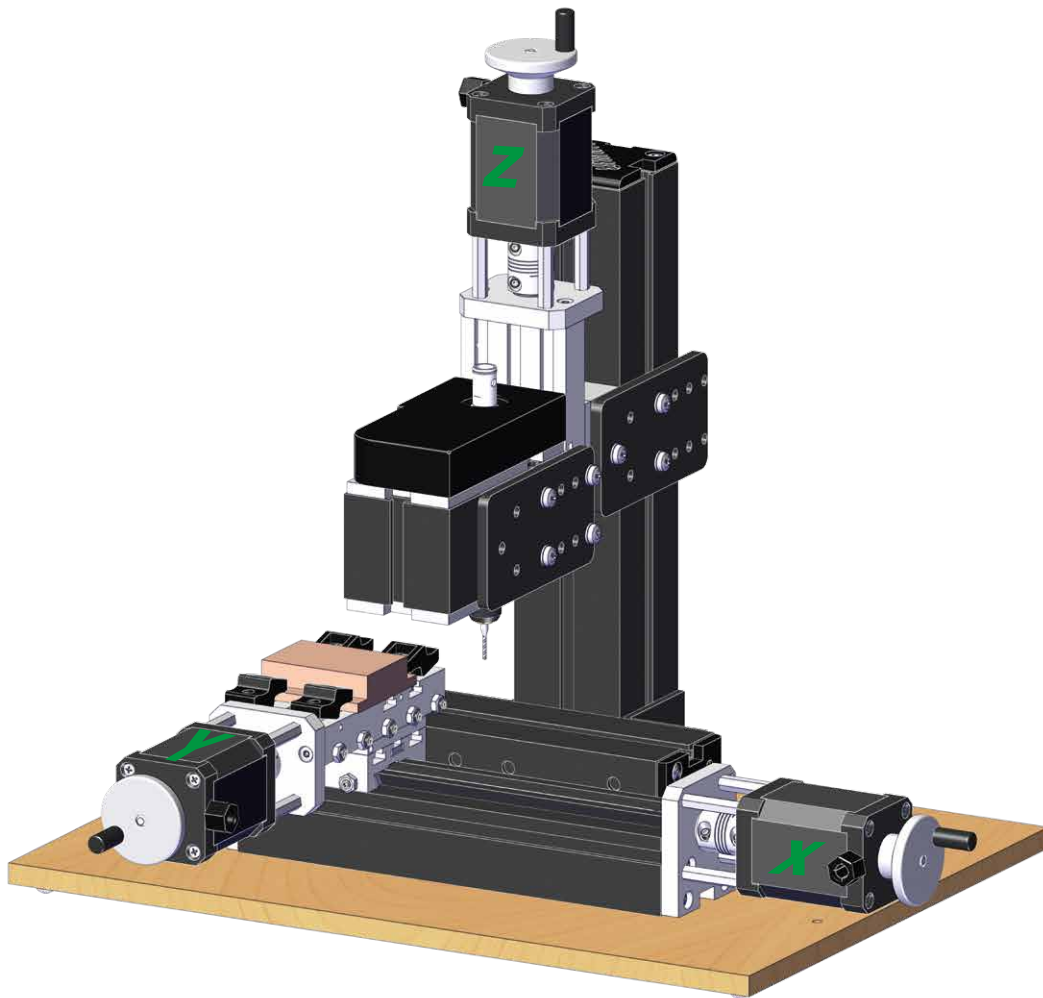
U48ML

U12ML  
(1/8")

U56CNC









**Inhalt • contents • contenu • contenido • 内容 • содержание:**

**1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

Acrylglasplatte • acrylic sheet • feuille acrylique •

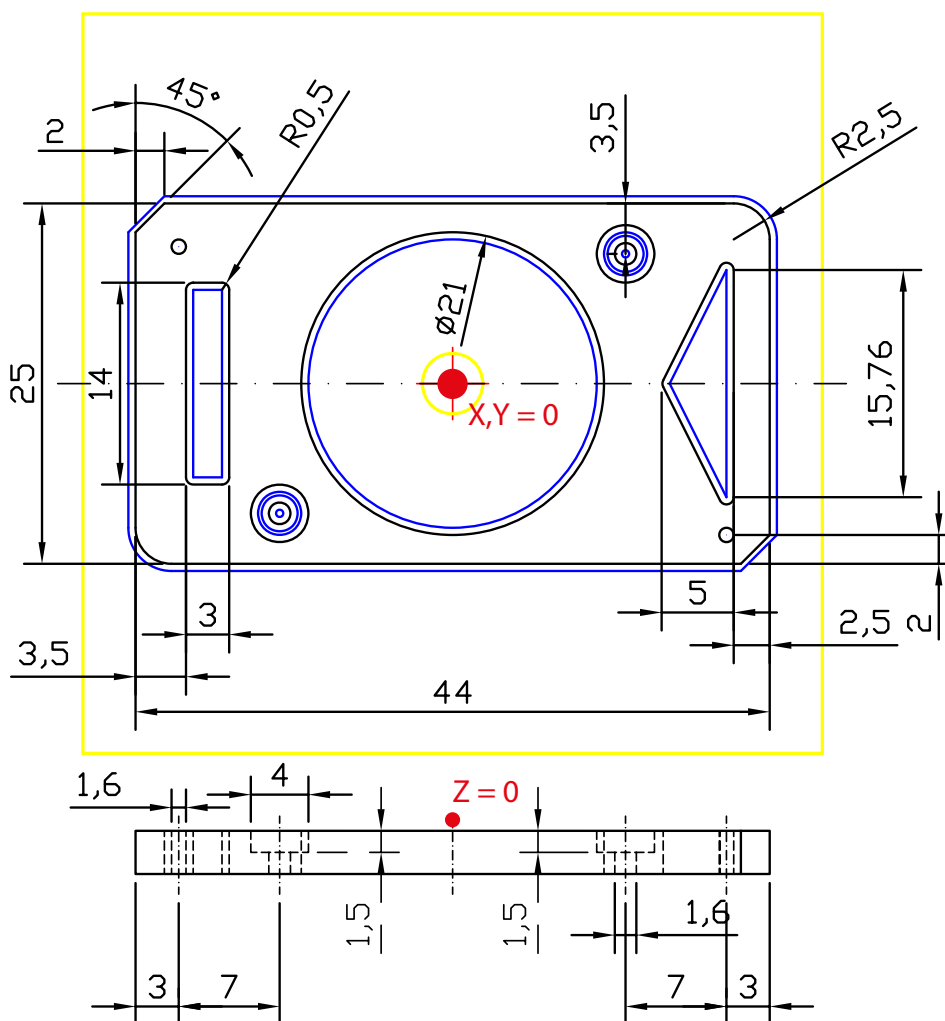
hoja acrílica • 亚克力板 • Акриловый лист ---- 50x50x3 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертёж

**3) Lösungsvorschlag • proposed solution • solution proposée • solución propuesta •**

建议的解决方案 • Предложенное решение



**Rohmaterial • Matière première • materia prima • 原料 • Сырье**

Werkstück • workpiece • pièce • pieza de trabajo • 工件 • заготовка

**Werkzeugbahn • tool path • trajectoire d'outil • trayectoria de la herramienta • 刀具路径 • путь инструмента**

**Projekt • project • projet • proyecto • 项目 • Проект**

Schaftfräser • end mill • fraise en bout • molino de extremo • 立铣刀 • Фреза концевая:  $\varnothing 1,6$  mm

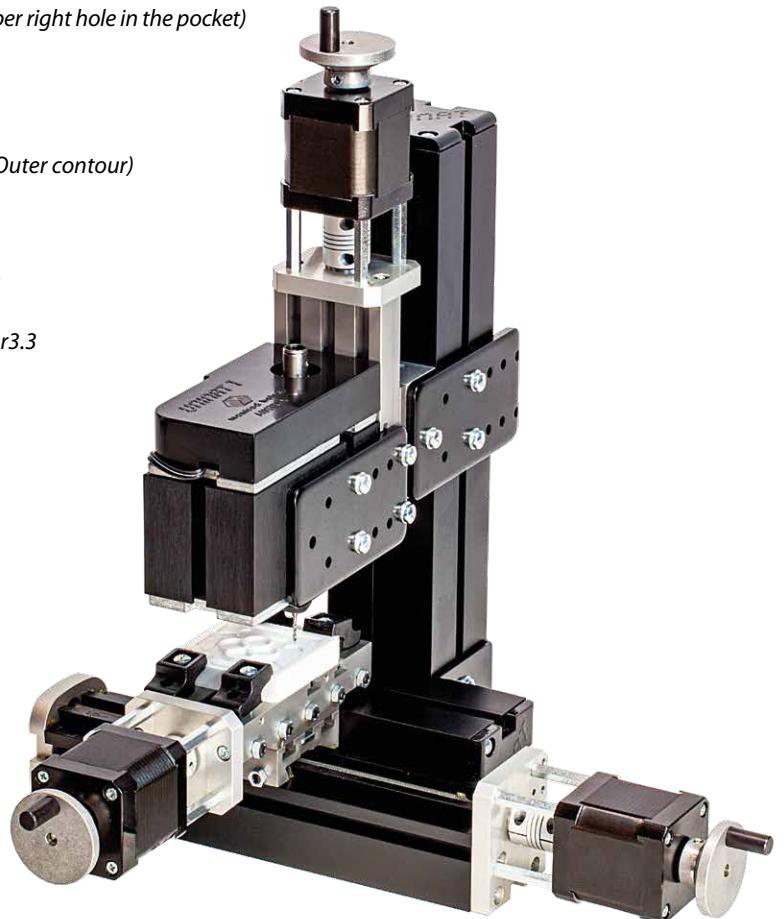
$F_{max}$ : 100 mm/min

Maximale Schnitttiefe • maximum depth of cut • profondeur de coupe maximale • profundidad máxima de corte • 最大切削深度 • максимальная глубина резания: 1,5 mm

g21  
g0 z10  
g0 x-19 y10.5 (left opere hole)  
g0 z1  
g1 z-1 f50  
g0 z1  
g0 z-1  
g1 z-2 f50  
g0 z1  
g0 z-2  
g1 z-3.6 f40  
g0 z10  
g0 x-17.7 y6.2 (left box)  
g0 z1  
g1 z-1.2 f50  
g1 y-6.2 f100  
g1 x-16.3  
g1 y6.2  
g1 x-17.7  
g1 z-2.4 f50  
g1 y-6.2 f100  
g1 x-16.3  
g1 y6.2  
g1 x-17.7  
g1 z-3.6 f50  
g1 y-6.2 f100  
g1 x-16.3  
g1 y6.2  
g1 x-17.7  
g0 z10  
g0 x-12 y-9 (lower left pocket)  
g0 z1  
g1 z-1.5 f50  
g1 x-10.8 f80  
g2 x-10.8 y-9 i-1.2 j0  
g1 x-11.25  
g2 x-11.25 y-9 i-0.75 j0  
g1 x-12 y-9  
g1 z-2.5 f50 (lower left hole in the pocket)  
g0 z2  
g0 z-2  
g1 z-3.6 f50  
g0 z10  
g0 x19 y-10.5 (lower right hole)

g0 z1  
g1 z-1 f50  
g0 z1  
g0 z-1  
g1 z-2 f50  
g0 z1  
g0 z-2  
g1 z-3.6 f40  
g0 z10  
g0 x15.3 y0 (left triangle)  
g0 z1  
g1 z-1.2 f50  
g1 x18.7 y-7.08 f100  
g1 y7.08  
g1 x15.3 y0  
g1 z-2.4 f50  
g1 x18.7 y-7.08 f100  
g1 y7.08  
g1 x15.3 y0  
g1 z-3.6 f50  
g1 x18.7 y-7.08 f100  
g1 y7.08  
g1 x15.3 y0  
g0 z10  
g0 x12 y9 (right opere pocket)  
g0 z1  
g1 z-1.5 f50  
g1 x13.2 f80  
g2 x13.2 y9 i-1.2 j0  
g1 x12.85  
g2 x12.85 y9 i-0.75 j0  
g1 x12 y9  
g1 z-2.5 f50 (upper right hole in the pocket)  
g0 z2  
g0 z-2  
g1 z-3.6 f50  
g0 z10  
g0 x19.5 y13.3 (Outer contour)  
g0 z1  
g1 z-1.2 f50  
g1 x-20.33 f100  
g1 x-22.8 y10.83  
g1 y-10  
g3 x-19.5 y-13.3 r3.3  
g1 x20.33  
g1 x22.8 y-10.83  
g1 y10  
g3 x19.5 y13.3 r3.3  
g0 z10  
g0 x9.7 y0  
g0 z1  
g1 z-1.2 f50  
g2 x9.7 y0 i-9.7 j0 f100  
g1 z-2.4 f50  
g3 x9.7 y0 i-9.7 j0 f100  
g1 z-3.6 f50  
g2 x9.7 y0 i-9.7 j0 f10  
m02

g1 x22.8 y-10.83  
g1 y10  
g3 x19.5 y13.3 r3.3  
g1 z-2.4 f50  
g1 x-20.33 f100  
g1 x-22.8 y10.83  
g1 y-10  
g3 x-19.5 y-13.3 r3.3  
g1 x20.33  
g1 x22.8 y-10.83  
g1 y10  
g3 x19.5 y13.3 r3.3  
g1 z-3.6 f50  
g1 x-20.33 f100  
g1 x-22.8 y10.83  
g1 y-10  
g3 x-19.5 y-13.3 r3.3  
g1 x20.33  
g1 x22.8 y-10.83  
g1 y10  
g3 x19.5 y13.3 r3.3  
g0 z10  
g0 x9.7 y0  
g0 z1  
g1 z-1.2 f50  
g2 x9.7 y0 i-9.7 j0 f100  
g1 z-2.4 f50  
g3 x9.7 y0 i-9.7 j0 f100  
g1 z-3.6 f50  
g2 x9.7 y0 i-9.7 j0 f10  
m02



UNI-FRAES-V3

**Inhalt • contents • contenu • contenido • 内容 • содержание:****1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

Acrylglasplatte • acrylic sheet • feuille acrylique •

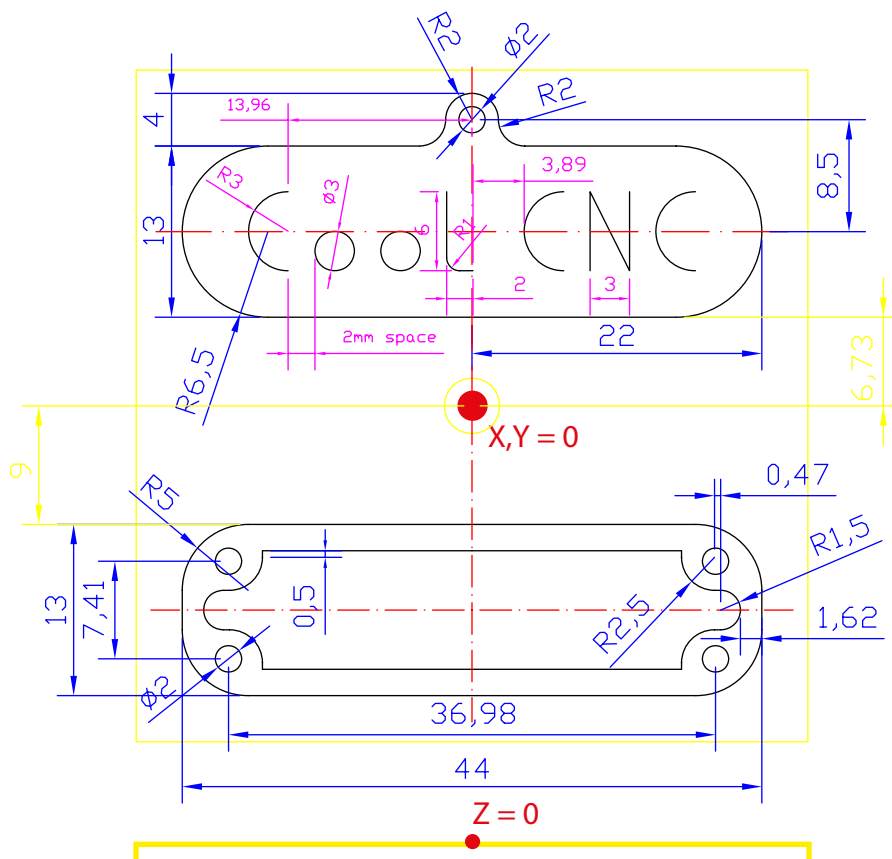
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立铣刀 • Фреза концевая:  $\varnothing_{\max}$  1,0 mm $F_{\max}$ : 100 mm/min

Maximale Schnitttiefe • maximum depth of cut •

profondeur de coupe maximale • profundidad

máxima de corte • 最大切削深度 •

максимальная глубина резания: 1,2 mm

**Tool database:**

| Tool | POC | Z     | DIAM   | COMMENT         |
|------|-----|-------|--------|-----------------|
| 1    | 1   | 0.511 | 0.125  | 1/8 end mill    |
| 2    | 2   | 0.1   | 0.0625 | 1/16 end mill   |
| 3    | 3   | 1.273 | 0.201  | #7 tap drill    |
| 30   | 30  | 4     | 0.5    | end mill 0.5 mm |
| 35   | 35  | 5     | 0.6    | end mill 0.6 mm |
| 40   | 40  | 6     | 0.8    | end mill 0.8 mm |
| 45   | 45  | 8     | 1.0    | end mill 1.0 mm |
| 50   | 50  | 9     | 1.2    | end mill 1.2 mm |
| 55   | 55  | 10    | 1.6    | end mill 1.6 mm |
| 60   | 60  | 10    | 2.0    | end mill 2.0 mm |
| 65   | 65  | 10    | 3.0    | end mill 3.0 mm |





g21  
g0 z30  
g0 x0 y0  
m06 t6  
(Start des „CoolCNC“ An-  
hängers)  
g0 y21.73 z2  
m03  
(Montagebohrung)  
g42 (Werkzeugkorrektur  
rechts)  
g0 y22.73  
g0 z0.3  
g1 z-1.2 f30  
g2 x0 y20.73 i0 j-1 f100  
g2 x0 y22.73 i0 j1  
g1 z-2.2 f30  
g2 x0 y20.73 i0 j-1 f100  
g2 x0 y22.73 i0 j1  
g1 z-3.6 f30  
g2 x0 y20.73 i0 j-1 f100  
g2 x0 y22.73 i0 j1  
g0 z2  
g40 (Werkzeugkorrektur aus)  
(„CoolCNC“ Schrift)  
g0 x-13.96 y16.23  
g0 z0.5  
g1 z-1.2 f30  
g91 (Relativkoordinaten ein)  
g3 x0 y-6 i0 j-3 f80  
g1 z-1.2 f30  
g2 x0 y6 i0 j3 f80  
g1 z-1.2 f30  
g3 x0 y-6 i0 j-3 f80  
g0 z5.6  
g0 x2 y1.5  
g0 z-1.7  
g1 z-1.5 f30  
g2 x3 y0 i1.5 j0 f80  
g2 x-3 y0 i-1.5 j0  
g1 z-1.2 f30  
g2 x3 y0 i1.5 j0 f80  
g2 x-3 y0 i-1.5 j0  
g1 z-1.2 f30  
g2 x3 y0 i1.5 j0 f80  
g2 x-3 y0 i-1.5 j0  
g0 z5.6  
g0 x5  
g0 z-1.7  
g1 z-1.5 f30  
g2 x3 y0 i1.5 j0 f80  
g2 x-3 y0 i-1.5 j0  
g1 z-1.2 f30  
g2 x3 y0 i1.5 j0 f80  
g2 x-3 y0 i-1.5 j0  
g1 z-1.2 f30  
g2 x3 y0 i1.5 j0 f80  
g2 x-3 y0 i-1.5 j0  
g0 z5.6  
g0 x5 y4.5  
g0 z-1.7  
g1 z-1.5  
g1 y-5 f80  
g3 x1 y-1 r1  
q1 x1

$g_1 z-1.2 f_{30}$   
 $g_1 x-1 f_{80}$   
 $g_2 x-1 y_1 r_1$   
 $g_1 y_5$   
 $g_1 z-1.2 f_{30}$   
 $g_1 y-5 f_{80}$   
 $g_3 x_1 y-1 r_1$   
 $g_1 x_1$   
 $g_0 z_5.6$   
 $g_0 x_6.89 y_6$   
 $g_0 z-1.7$   
 $g_1 z-1.5 f_{30}$   
 $g_3 x_0 y-6 i_0 j-3 f_{80}$   
 $g_1 z-1.2 f_{30}$   
 $g_2 x_0 y_6 i_0 j_3 f_{80}$   
 $g_1 z-1.2 f_{30}$   
 $g_3 x_0 y-6 i_0 j-3 f_{80}$   
 $g_0 z_5.6$   
 $g_0 x_2$   
 $g_0 z-1.7$   
 $g_1 z-1.5 f_{30}$   
 $g_1 y_6 f_{80}$   
 $g_1 x_3 y-6$   
 $g_1 y_6$   
 $g_1 z-1.2 f_{30}$   
 $g_1 y-6 f_{80}$   
 $g_1 x-3 y_6$   
 $g_1 y-6$   
 $g_1 z-1.2 f_{30}$   
 $g_1 y_6$   
 $g_1 x_3 y-6$   
 $g_1 y_6$   
 $g_0 z_5.6$   
 $g_0 x_5$   
 $g_0 z-1.7$   
 $g_1 z-1.5 f_{30}$   
 $g_3 x_0 y-6 i_0 j-3 f_{80}$   
 $g_1 z-1.2 f_{30}$   
 $g_2 x_0 y_6 i_0 j_3 f_{80}$   
 $g_1 z-1.2 f_{30}$   
 $g_3 x_0 y-6 i_0 j-3 f_{80}$   
 $g_{90}$  (Absolutkoordinaten ein)  
 $g_0 z_2$   
 (Außenkontur)  
 $g_0 x_{24} y_{11.23}$   
 $g_{42}$  (Werkzeugkorrektur rechts)  
 $g_0 x_{22} y_{13.25}$   
 $g_0 z_0.3$   
 $g_{91}$  (Relativkoordinaten ein)  
 $g_1 z-1.5 f_{30}$   
 $g_3 x-6.5 y_6.5 i-6.5 j_0 f_{80}$   
 $g_1 x-11.5$   
 $g_2 x-2 y_2 i_0 j_2$   
 $g_3 x-2 y_2 i-2 j_0$   
 $g_3 x-2 y-2 i_0 j-2$   
 $g_2 x-2 y-2 i-2 j_0$   
 $g_1 x-11.5$   
 $g_3 x-6.5 y-6.5 i_0 j-6.5$   
 $g_3 x_6.5 y-6.5 i_6.5 j_0$   
 $g_1 x_{31}$   
 $g_3 x_6.5 y_6.5 i_0 j_6.5$   
 $g_1 z-1.2 f_{30}$   
 $g_3 x-6.5 y_6.5 r_6.5 f_{80}$   
 $g_1 x-11.5$   
 $g_2 x-2 y_2 r_2$   
 $g_3 x-2 y_2 r_2$   
 $g_3 x-2 y-2 r_2$   
 $g_2 x-2 y-2 r_2$

g1 x-11.5  
g3 x-6.5 y-6.5 r6.5  
g3 x6.5 y-6.5 r6.5  
g1 x31  
g3 x6.5 y6.5 r6.5  
g1 z-1.2 f30  
g3 x-6.5 y6.5 i-6.5 j0 f80  
g1 x-11.5  
g2 x-2 y2 i0 j2  
g3 x-2 y2 i-2 j0  
g3 x-2 y-2 i0 j-2  
g2 x-2 y-2 i-2 j0  
g1 x-11.5  
g3 x-6.5 y-6.5 i0 j-6.5  
g3 x6.5 y-6.5 i6.5 j0  
g1 x31  
g3 x6.5 y6.5 i0 j6.5  
g90 (Absolutkoordinaten ein)  
g0 z10  
g40 (Werkzeugkorrektur aus)  
m05  
(Start Dichtungsmodell)  
g0 x-18.49 y-11.445  
m03  
(Bohrung)  
g41 (Werkzeugkorrektur links)  
g91 (Relativkoordinaten ein)  
g0 x-1 z-9.7  
g1 z-1.5 f30  
g3 x2 y0 i1 j0 f80  
g3 x-2 y0 i-1 j0  
g1 z-1.2 f30  
g3 x2 y0 i1 j0 f80  
g3 x-2 y0 i-1 j0  
g1 z-1.2 f30  
g3 x2 y0 i1 j0 f80  
g3 x-2 y0 i-1 j0  
g0 z5.6  
g40 (Werkzeugkorrektur aus)  
g0 x1 y-7.41  
g42 (Werkzeugkorrektur rechts)  
g0 x-1 z-1.7  
g1 z-1.5 f30  
g2 x2 y0 i1 j0 f80  
g2 x-2 y0 i-1 j0  
g1 z-1.2 f30  
g2 x2 y0 i1 j0 f80  
g2 x-2 y0 i-1 j0  
g1 z-1.2 f30  
g2 x2 y0 i1 j0 f80  
g2 x-2 y0 i-1 j0  
g0 z5.6  
g40 (Werkzeugkorrektur aus)  
g0 x37.98  
g41 (Werkzeugkorrektur links)  
g91 (Relativkoordinaten ein)  
g0 x-1 z-1.7  
g1 z-1.5 f30  
g3 x2 y0 i1 j0 f80  
g3 x-2 y0 i-1 j0  
g1 z-1.2 f30  
g3 x2 y0 i1 j0 f80  
g3 x-2 y0 i-1 j0  
g1 z-1.2 f30  
g3 x2 y0 i1 j0 f80  
g3 x-2 y0 i-1 j0

g0 z5.6  
 g40 (Werkzeugkorrektur aus)  
 g0 x1 y7.41  
 g42 (Werkzeugkorrektur  
 rechts)  
 g0 x-1 z-1.7  
 g1 z-1.5 f30  
 g2 x2 y0 i1 j0 f80  
 g2 x-2 y0 i-1 j0  
 g1 z-1.2 f30  
 g2 x2 y0 i1 j0 f80  
 g2 x-2 y0 i-1 j0  
 g1 z-1.2 f30  
 g2 x2 y0 i1 j0 f80  
 g2 x-2 y0 i-1 j0  
 g0 z5.6  
 g40 (Werkzeugkorrektur aus)  
 g90 (Absolutkoordinaten ein)  
 (Innere Kontur)  
 g0 x18.49 y-15.5  
 g41 (Werkzeugkorrektur  
 links)  
 g0 x20.38 z0.3  
 g1 z-1.2 f30  
 g91 (Relativkoordinaten ein)  
 g3 x-1.5 y1.5 r1.5 f80  
 g1 x-0.47  
 g2 x-2.5 y2.5 r2.5  
 g1 y0.5  
 g1 x-32  
 g1 y-0.5  
 g2 x-2.5 y-2.5 r2.5  
 g1 x-0.47  
 g3 x-1.5 y-1.5 r1.5  
 g3 x1.5 y-1.5 r1.5  
 g1 x0.47  
 g2 x2.5 y-2.5 r2.5  
 g1 y-0.5  
 g1 x32  
 g1 y0.5  
 g2 x2.5 y2.5 r2.5  
 g1 x0.47  
 g3 x1.5 y1.5 r1.5  
 g1 z-1.2 f30  
 g3 x-1.5 y1.5 r1.5 f80  
 g1 x-0.47  
 g2 x-2.5 y2.5 r2.5  
 g1 y0.5  
 g1 x-32  
 g1 y-0.5  
 g2 x-2.5 y-2.5 r2.5  
 g1 x-0.47  
 g3 x-1.5 y-1.5 r1.5  
 g3 x1.5 y-1.5 r1.5  
 g1 x0.47  
 g2 x2.5 y-2.5 r2.5  
 g1 y-0.5  
 g1 x32  
 g1 y0.5  
 g2 x2.5 y2.5 r2.5  
 g1 x0.47  
 g3 x1.5 y1.5 r1.5  
 g1 z-1.2 f30  
 g3 x-1.5 y1.5 r1.5 f80  
 g1 x-0.47  
 g2 x-2.5 y2.5 r2.5  
 g1 y0.5  
 g1 x-32  
 g1 y-0.5

$g2\ x-2.5\ y-2.5\ r2.5$   
 $g1\ x-0.47$   
 $g3\ x-1.5\ y-1.5\ r1.5$   
 $g3\ x1.5\ y-1.5\ r1.5$   
 $g1\ x0.47$   
 $g2\ x2.5\ y-2.5\ r2.5$   
 $g1\ y-0.5$   
 $g1\ x32$   
 $g1\ y0.5$   
 $g2\ x2.5\ y2.5\ r2.5$   
 $g1\ x0.47$   
 $g3\ x1.5\ y1.5\ r1.5$   
 $g0\ z5.6$   
 $g40$  (Werkzeugkorrektur aus)  
 $g90$  (Absolutkoordinaten ein)  
 (Äußere Kontur)  
 $g0\ x24\ y-17.5$   
 $g42$  (Werkzeugkorrektur  
 rechts)  
 $g0\ x22\ y-15.5\ z0.3$   
 $g1\ z-1.2\ f30$   
 $g91$   
 $g1\ y1.5\ f80$   
 $g3\ x-5\ y5\ r5$   
 $g1\ x-34$   
 $g3\ x-5\ y-5\ r5$   
 $g1\ y-3$   
 $g3\ x5\ y-5\ r5$   
 $g1\ x34$   
 $g3\ x5\ y5\ r5$   
 $g1\ y1.5$   
 $g1\ z-1.2\ f30$   
 $g1\ y1.5\ f80$   
 $g3\ x-5\ y5\ r5$   
 $g1\ x-34$   
 $g3\ x-5\ y-5\ r5$   
 $g1\ y-3$   
 $g3\ x5\ y-5\ r5$   
 $g1\ x34$   
 $g3\ x5\ y5\ r5$   
 $g1\ y1.5$   
 $g1\ z-1.2\ f30$   
 $g1\ y1.5\ f80$   
 $g3\ x-5\ y5\ r5$   
 $g1\ x-34$   
 $g3\ x-5\ y-5\ r5$   
 $g1\ y-3$   
 $g3\ x5\ y-5\ r5$   
 $g1\ x34$   
 $g3\ x5\ y5\ r5$   
 $g1\ y1.5$   
 $g0\ z26$   
 $g40$  (Werkzeugkorrektur aus)  
 $g90$   
 $m05$   
 $g0\ x-50\ y25$   
 $m02$



# UNIMAT CNC

**3 Achsen Horizontalfräse**

**3 axis horizontal milling machine**

**3 axes Fraiseuse verticale**

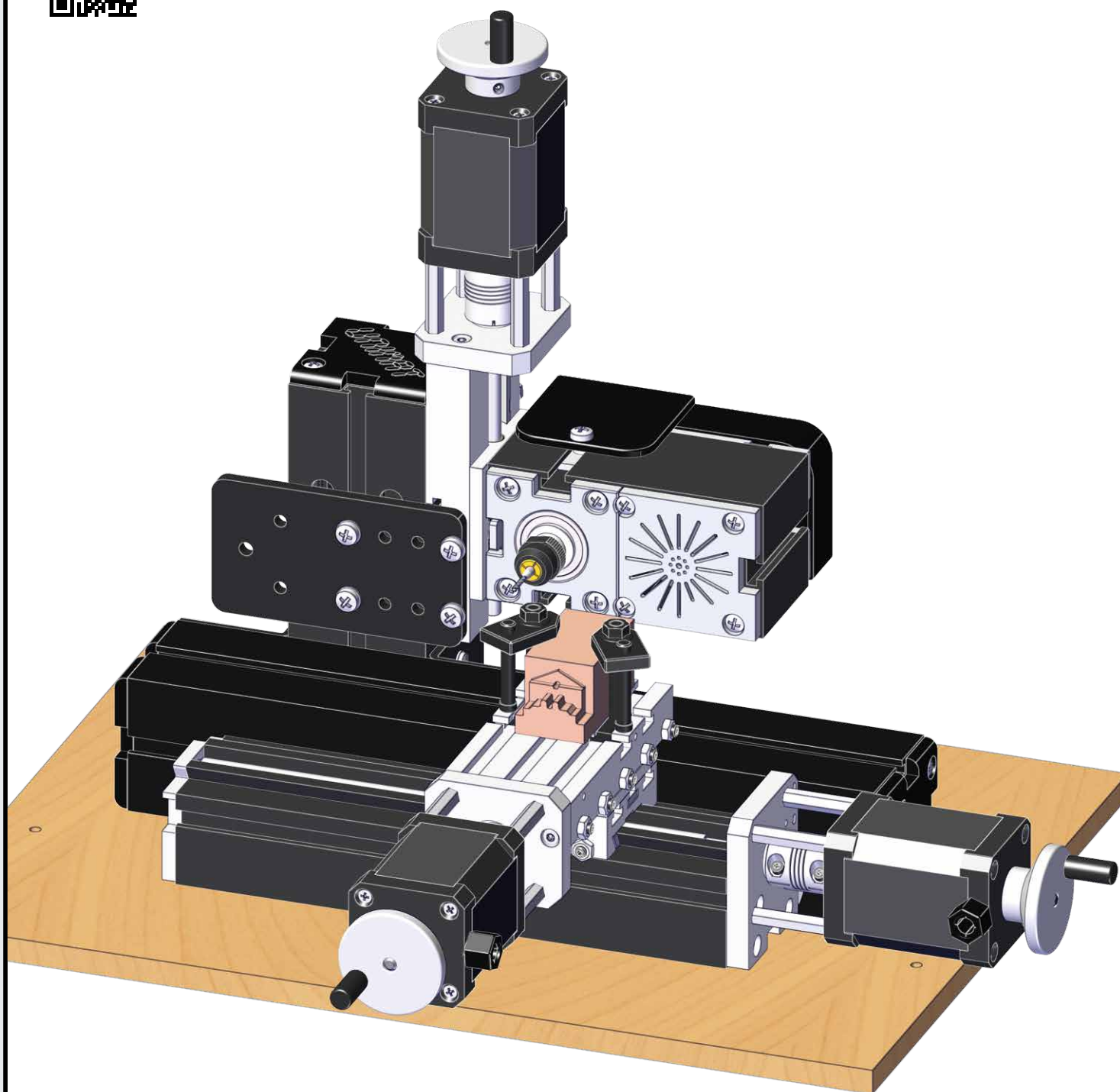
**3 ejes Fresadora horizontal**

**3 轴卧式铣床**

**3 оси Горизонтальный фрезерный станок**

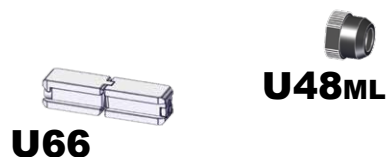
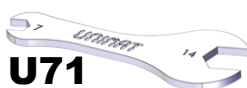
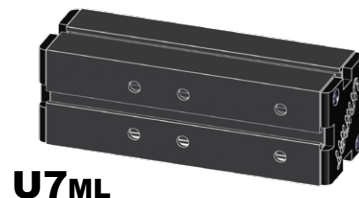
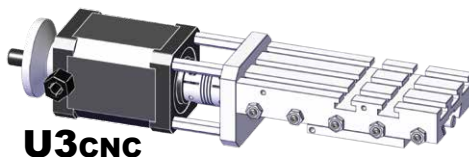
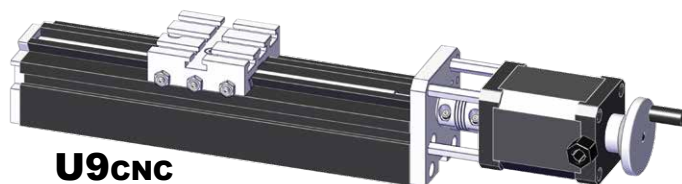
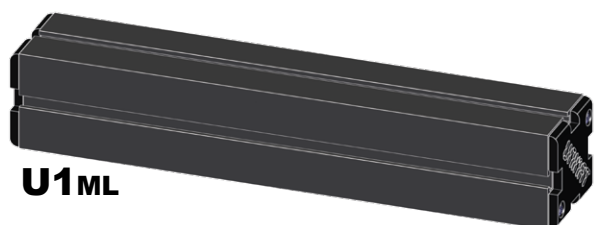


**UNI-FRAES-H3**



|         |   | DE                       | EN                          | FR                          | ES                          | 中国 (ZH)      | RU                             |                |
|---------|---|--------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|--------------------------------|----------------|
| U1ML    | 1 | Maschinenbett, lang      | Machine bed, long           | Banc, grand                 | Bancada grande              | 长机座          | Станина длинная                | A1A 020 000 SW |
| U3CNC   | 2 | CNC Querschlitten        | CNC Cross slide             | CNC Chariot, petit          | CNC Carro, pequeño          | CNC 全金属小滑块   | CNC Салазки поперечные         | 164 060 NCNC   |
| U4MLEDU | 1 | Antriebseinheit ML       | Drive unit ML               | EDU-Moteur                  | EDU-Motor                   | EDU-马达       | EDU-Двигатель                  | 164 420        |
| U7ML    | 1 | Maschinenbett, kurz      | Machine bed, short          | Banc, petit                 | Bancada pequeña             | 全金属短机座       | Станина короткая               | A1A 010 000SW  |
| U9CNC   | 1 | CNC Längsschlitten       | CNC Longitudinal slide      | CNC Chariot, grand          | CNC Carro, grande           | 全金属长滑块       | Салазки продольные             | 164 480 NCNC   |
| U12ML   | 1 | Spannzange 1/8"          | Collet 1/8"                 | Pince 1/8"                  | Pinza 1/8"                  | 金属夹头 1/8"    | Цанги 1/8"                     | 162 460 31/8   |
| U15A    | 1 | Schraubendreher #2       | Screwdriver #2              | Tourne-vis #2               | Destornillador #2           | 螺丝刀2#        | Отвертка Philips № 2           | ZWZ 980 030    |
| U15B    | 1 | Inbusschraubendreher     | Screwdriver allen key 2,5mm | Tourne-vis hexagonale 2,5mm | Destornillador allen 2,5mm  | 内六角扳手2.5 mm  | Отвертка 6-гранная 2,5 мм      | ZWZ 980 075    |
| U48ML   | 1 | Spannzangenhalter        | Collet holder               | Porte-pinces                | Porta-pinza                 | 固定铜帽         | Гайка зажимная для цанг        | A1A 000 073    |
| U49ML   | 2 | Spannklaue ML            | Clamping jaw ML             | Mors de serrage ML          | Brida de sujeción ML        | 夹板 ML        | Прихват Прихват ML             | A1A 000 090    |
| U65     | 1 | Inbusschlüssel 2,5 mm    | Allen key 2,5 mm            | Clé hexagonale 2,5 mm       | Llave allen 2,5 mm          | 内六角扳手2.5 mm  | Ключ 6-гранный 2,5 мм          | ZWZ 110 200    |
| U66     | 3 | Verbindungselement       | Connection piece            | Pièce de connexion          | Elemento de conexión        | 连接件          | Сухарь соединительный          | A1A 00 ZIN SK  |
| U71     | 1 | Gabelschlüssel 7 / 14 mm | Fork wrench 7 / 14 mm       | Clé de fourche 7 / 14 mm    | llave de furca 7 / 14 mm    | 扳手 7 / 14 mm | Ключ гаечный 7 / 14 мм         | ZWZ 400 700    |
| U79     | 1 | Fixierplatte klein       | Stabilizing plates small    | Plaques de fixation petits  | Platos de fijación pequeños | 小固定片         | Пластина стабилизирующая малая | A1Z 470 000    |
| U80     | 2 | Befestigungswinkel       | Stabilizing angle           | Angle de fixation           | Escuadra de fijación        | 直角固定座        | Угольник стабилизирующий       | A1Z 480 000    |
|         | 1 | Grundplatte CNC          | Mounting plate CNC          | Plaque de montage CNC       | Plancha basico CNC          | 固定底板 CNC     | Монтажная пластина CNC         | 164 402        |

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



|                                                                                   |    | DE             | EN                  | FR                   | ES                    | 中国 (ZH)    | RU                    |             |
|-----------------------------------------------------------------------------------|----|----------------|---------------------|----------------------|-----------------------|------------|-----------------------|-------------|
| U31                                                                               | 4  | Schraube M4x10 | Screw M4x10         | Vis M4x10            | Tornillo M4x10        | 螺钉M4x10    | Винт M4x10            | ZSR M40 410 |
| U37                                                                               | 12 | Schraube M4x8  | Screw M4x8          | Vis M4x8             | Tornillo M4x8         | 螺钉M4x8     | Винт M4x8             | ZSR M40 408 |
| U38                                                                               | 6  | Schraube M4x6  | Screw M4x6          | Vis M4x6             | Tornillo M4x6         | 螺钉M4x6     | Винт M4x6             | ZSR M40 406 |
| U46                                                                               | 8  | Nutstein       | Slot nut            | Boulon «T»           | Pernos "T"            | 单孔螺母       | Гайка пазовая         | A1A 060 040 |
| U47                                                                               | 6  | Klemmplatte    | Camping plate       | Élément en «T»       | Elemento "T"          | 双孔螺母       | Гайка пазовая двойная | A1A 010 020 |
| U52                                                                               | 1  | Stift          | Rod                 | Cheville             | Perno                 | 锁杆         | Вороток               | ZST 110 345 |
| U56CNC                                                                            | 1  | 1,6 mm Fräser  | 1.6 mm Milling head | 1,6 mm Fraise        | 1,6 mm Fresa          | 铣刀头 1.6 mm | Фреза концевая 1,6 mm | F2470 1.60  |
| U74                                                                               | 12 | Beilagscheibe  | Plain washer        | Rondelle             | Arandela              | 垫片         | Шайба                 | ZSB 250 430 |
|                                                                                   | 4  | Gummipuffer    | Elastic buffer      | Butoir élastique     | Amortiguador elástico | 弹性缓冲       | Эластичный буфер      | 166 EP      |
| ohne Abbildung   without picture   sans figure   sin ilustración 无图   без рисунка |    |                |                     |                      |                       |            |                       |             |
|                                                                                   | 1  | Netzteil 14,4V | 14.4V adaptor       | 14,4V Transformateur | 14,4V Transformador   | 变压器 14.4 V | Трансформатор 14,4 В  | 161 31x     |

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



**U56CNC**



**U47**



**U74**



**U52**



**U46**



**166EP**



**M4x6**

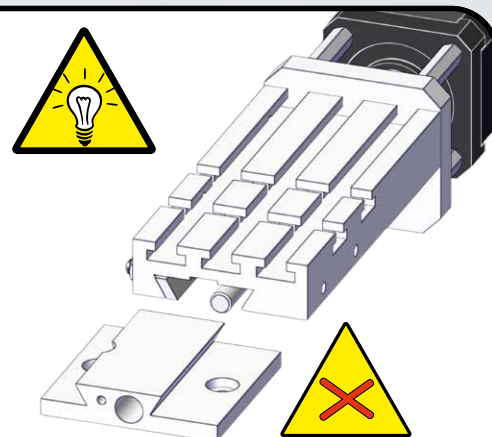
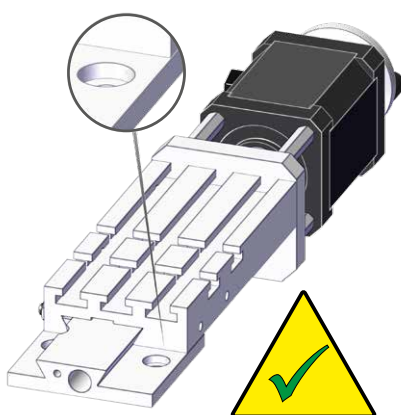
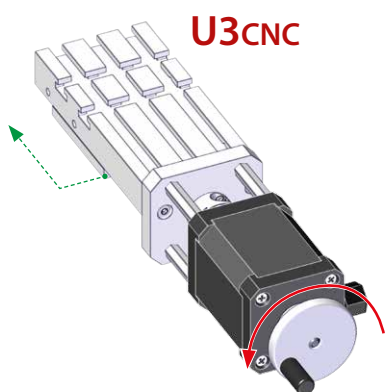
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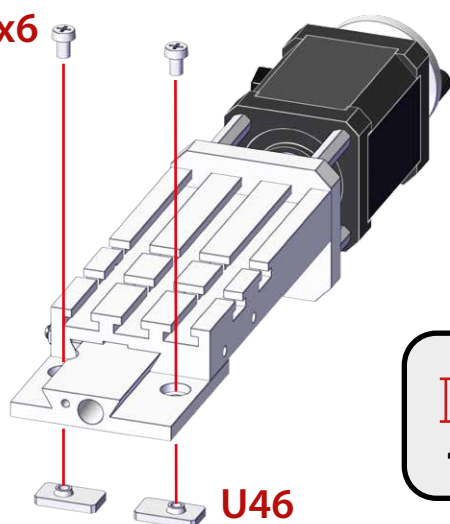
**M4x8**



**M4x10**



**M4x6**

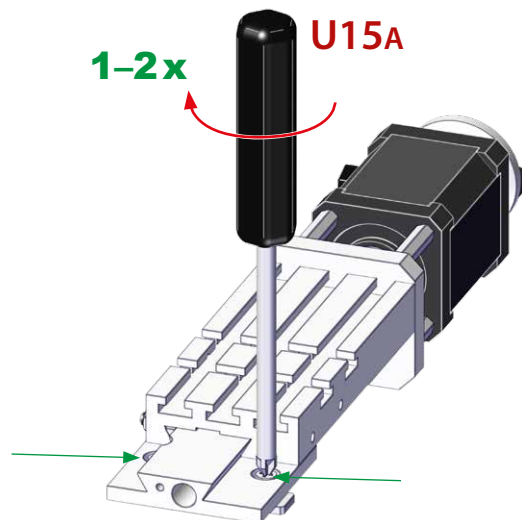


**U46**

**1:1**

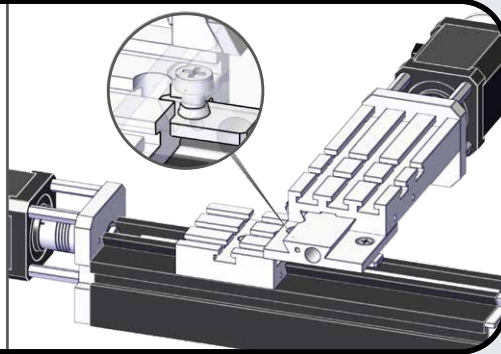
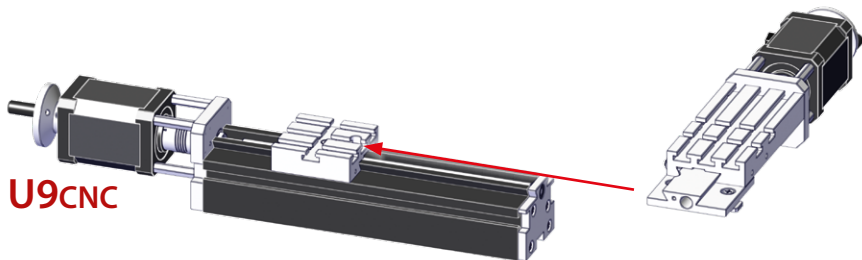
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**U15A**

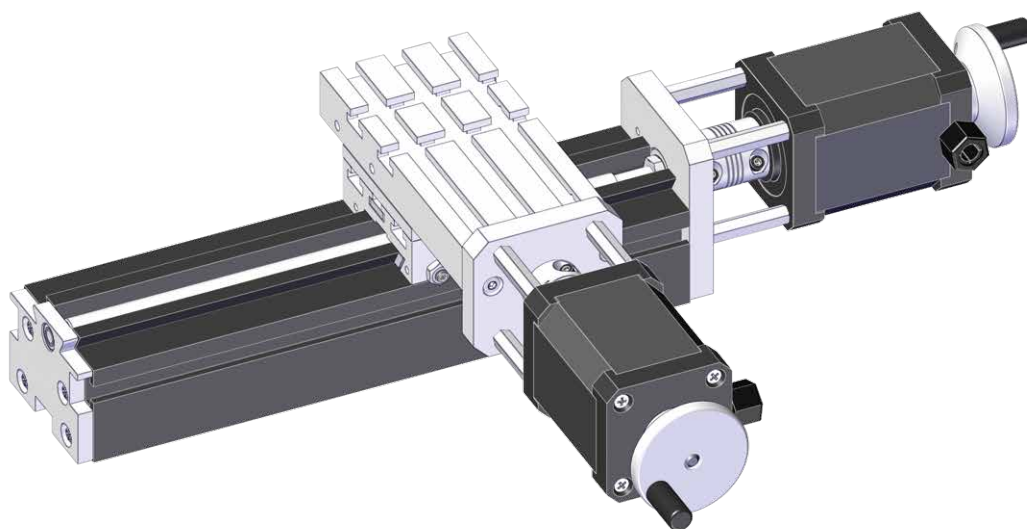
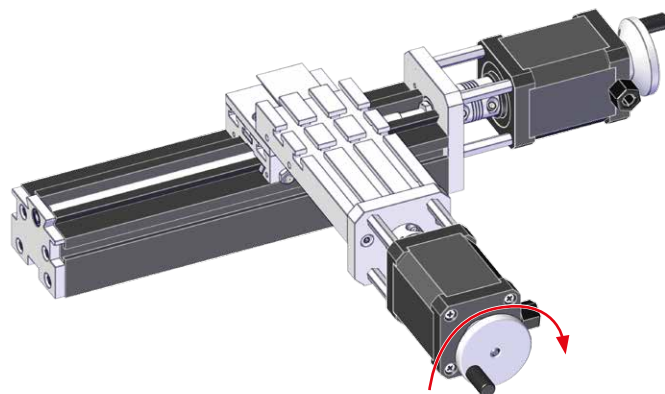
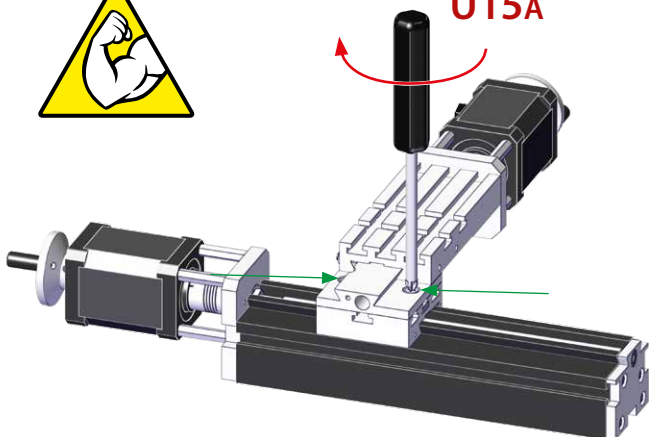




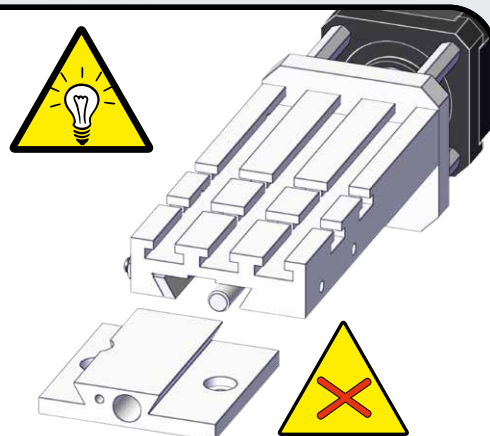
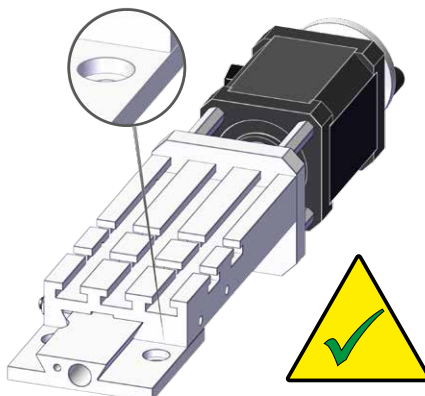
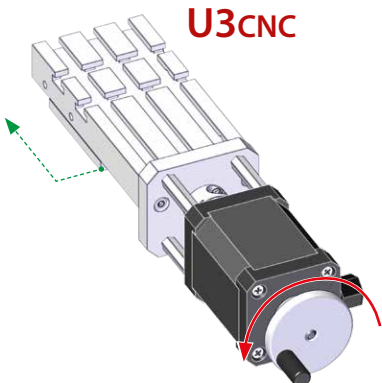
U9CNC

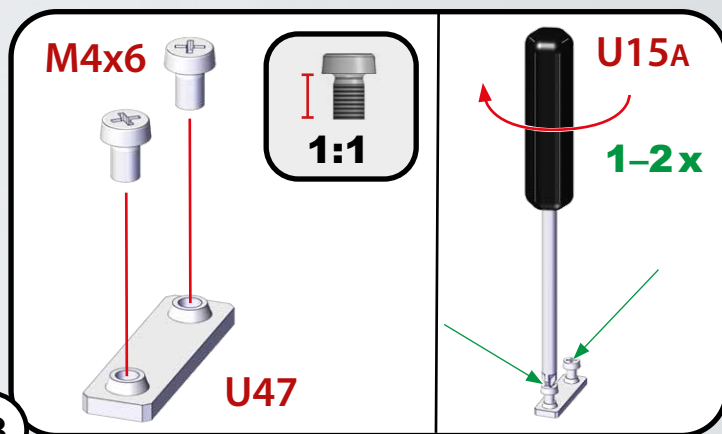
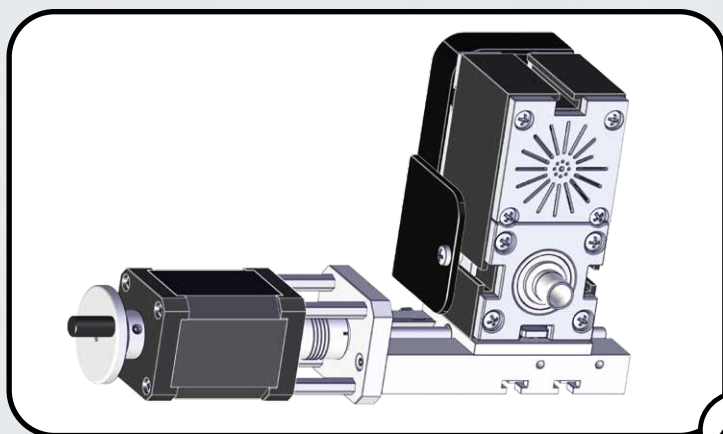
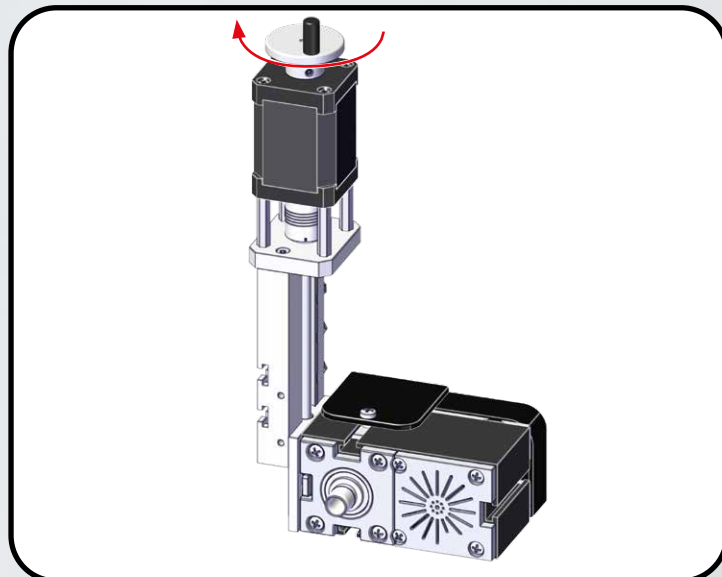
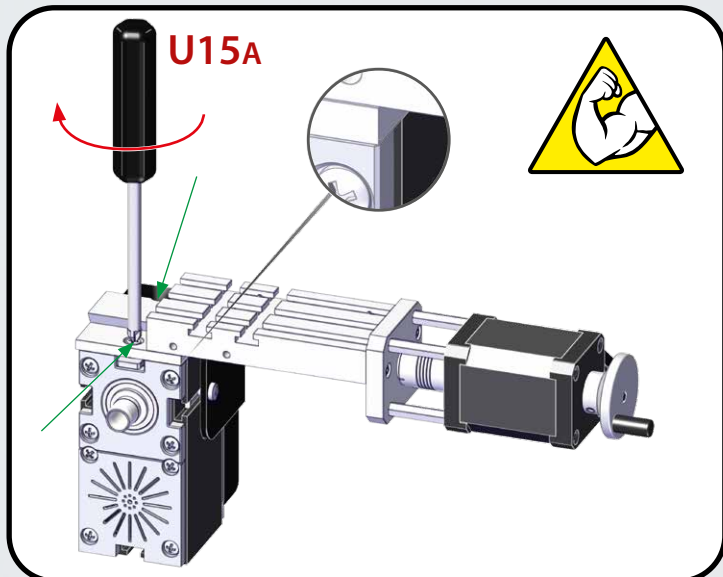
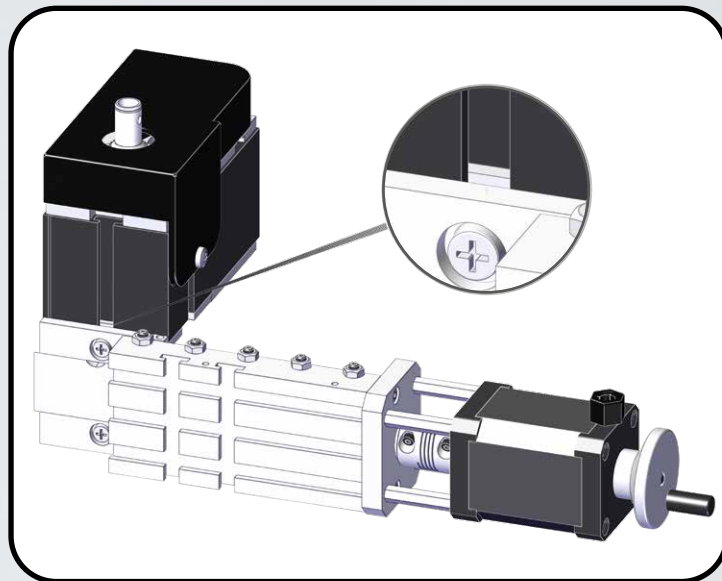
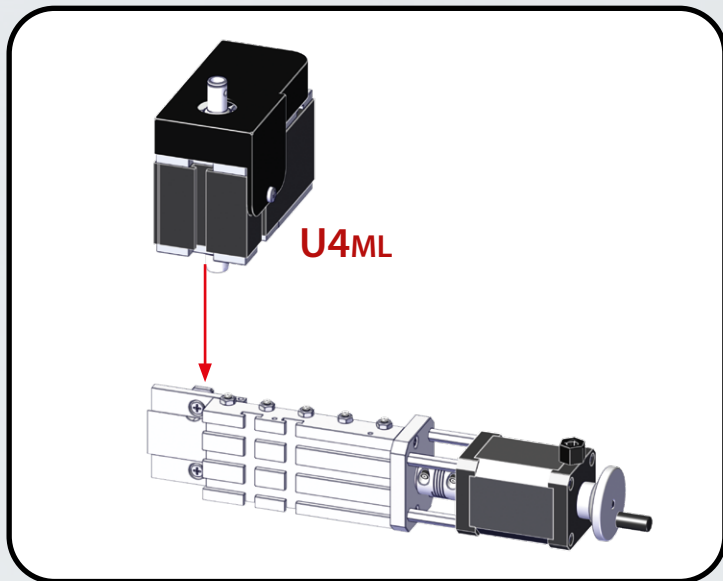
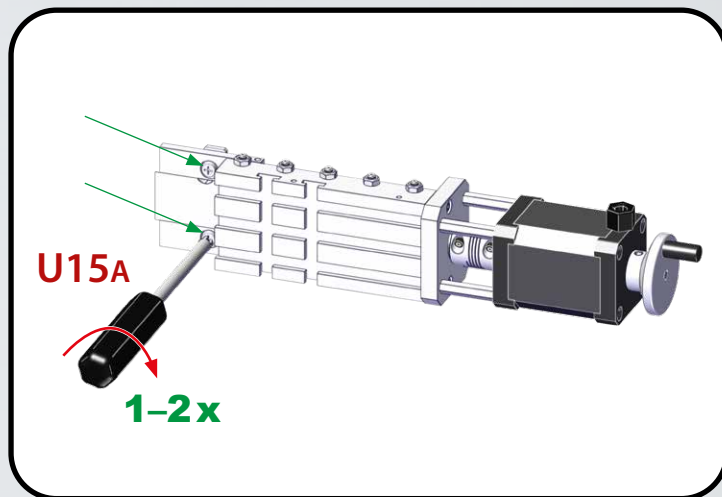
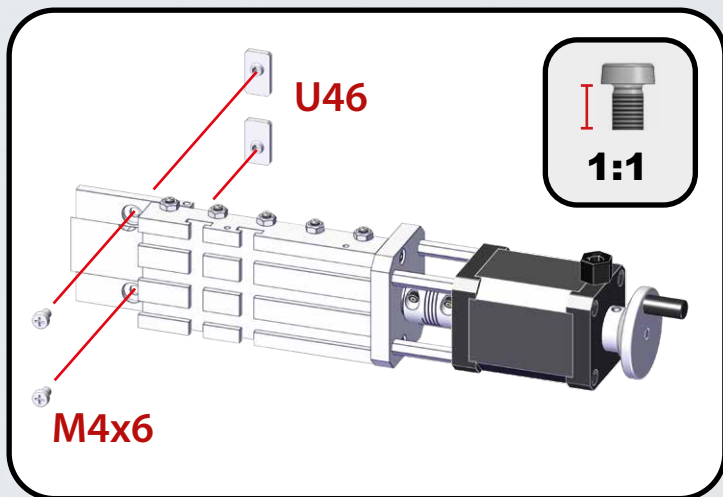


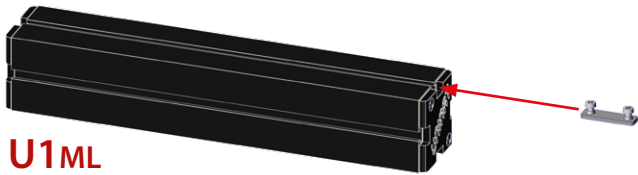
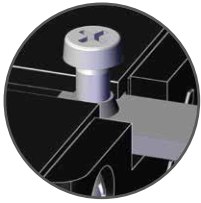
U15A



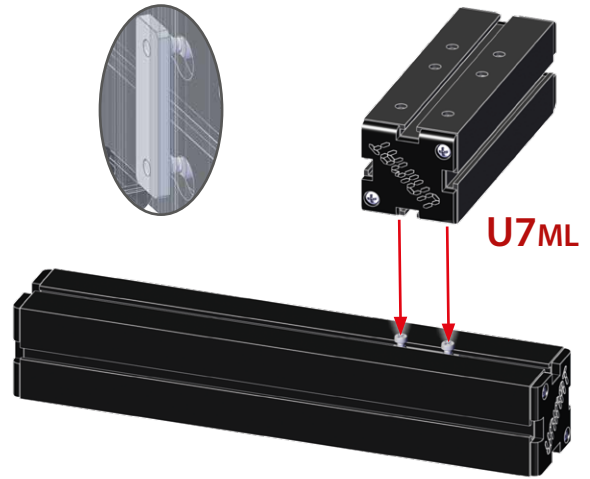
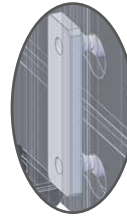
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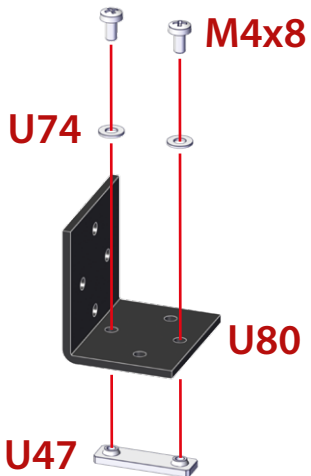




U1ML



U7ML



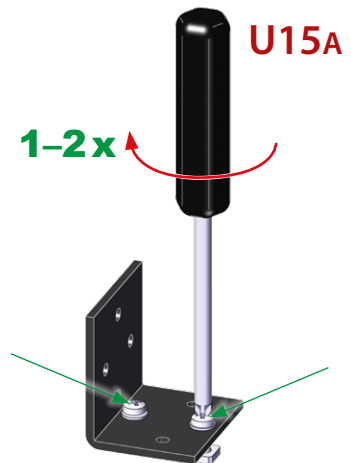
M4x8

U80

U47

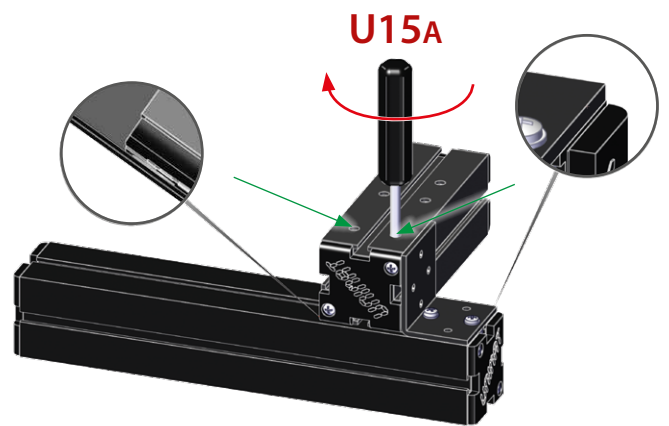


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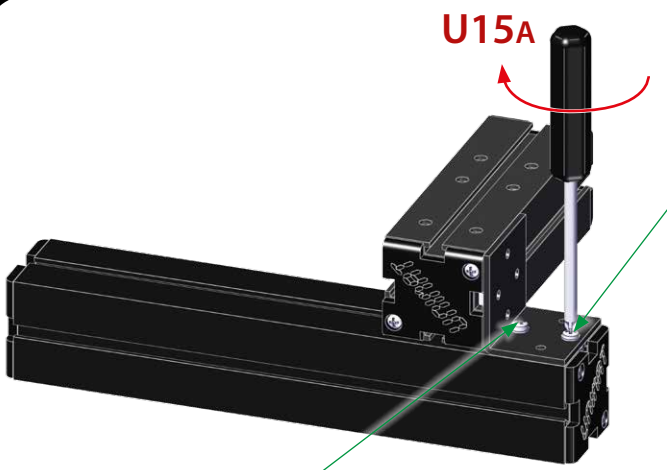


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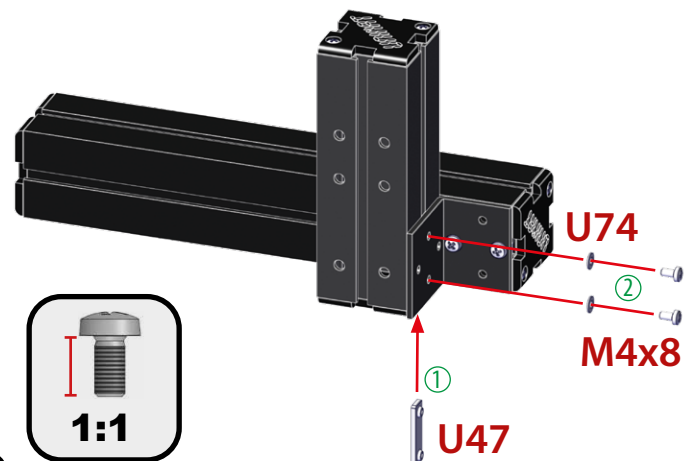
1-2x



U15A



U15A



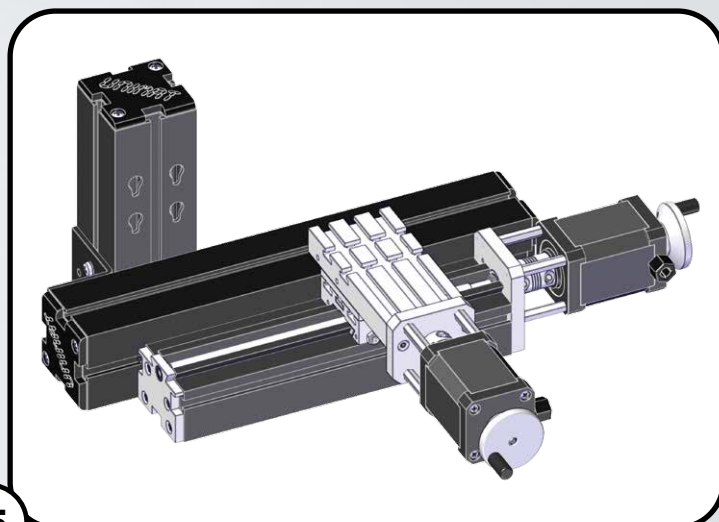
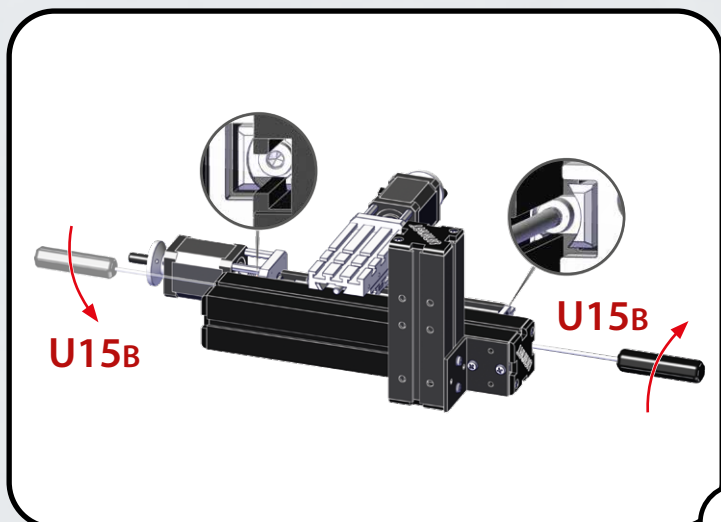
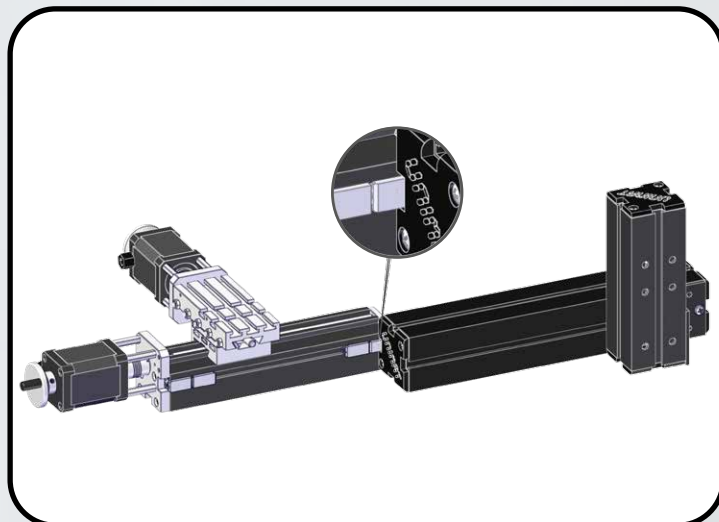
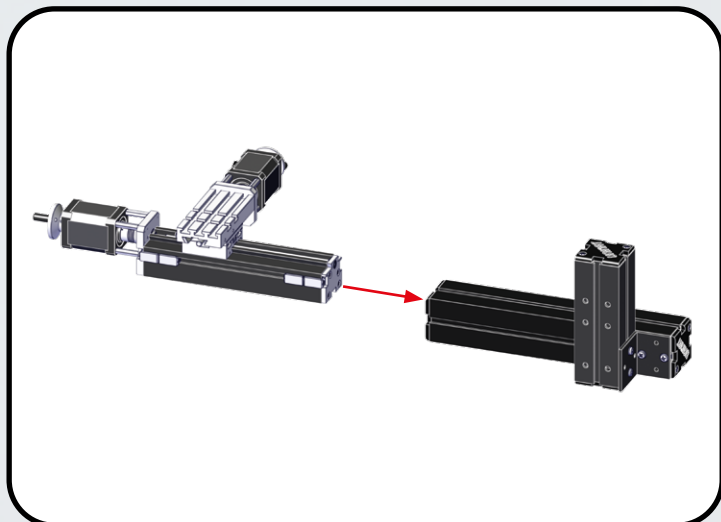
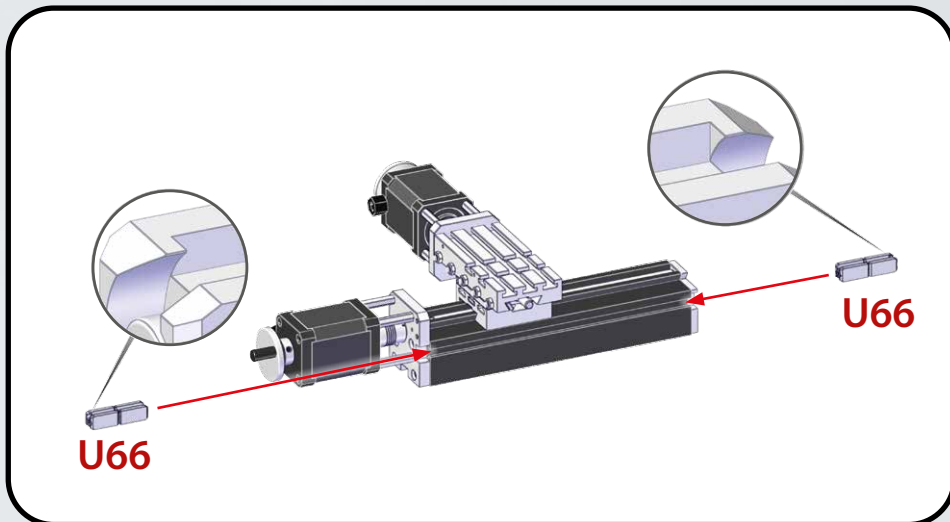
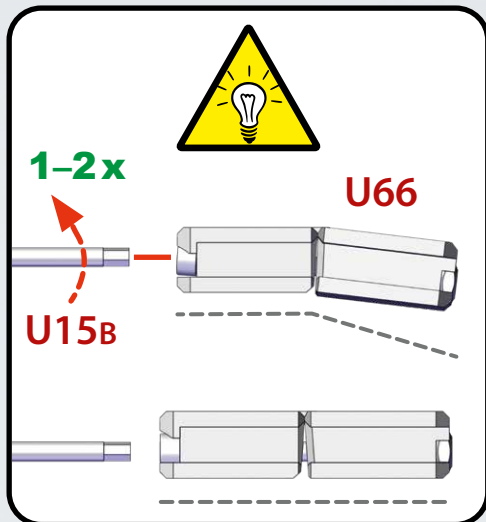
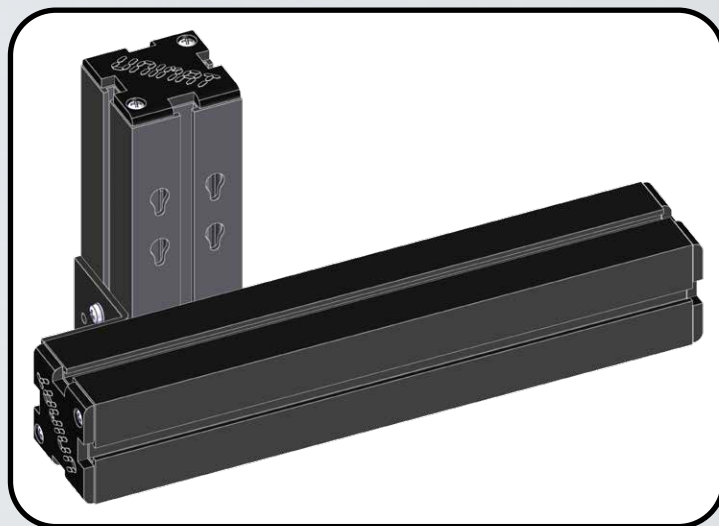
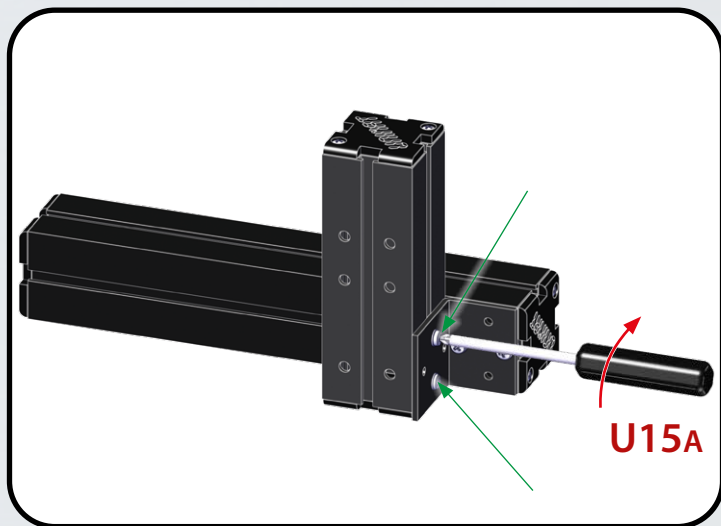
U74

M4x8

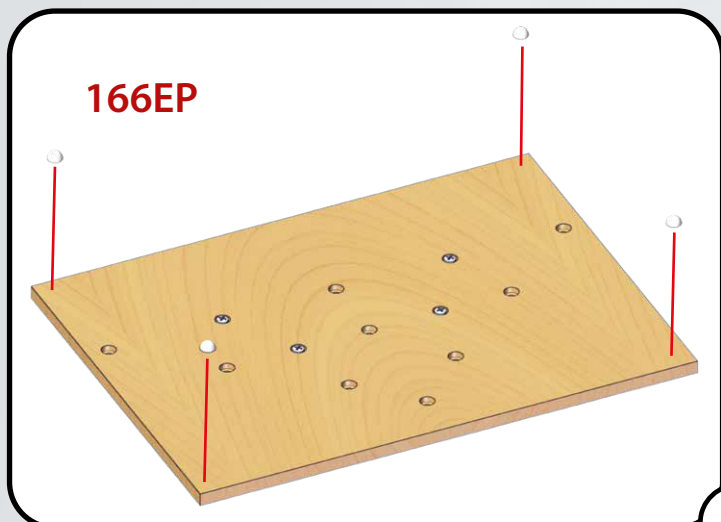
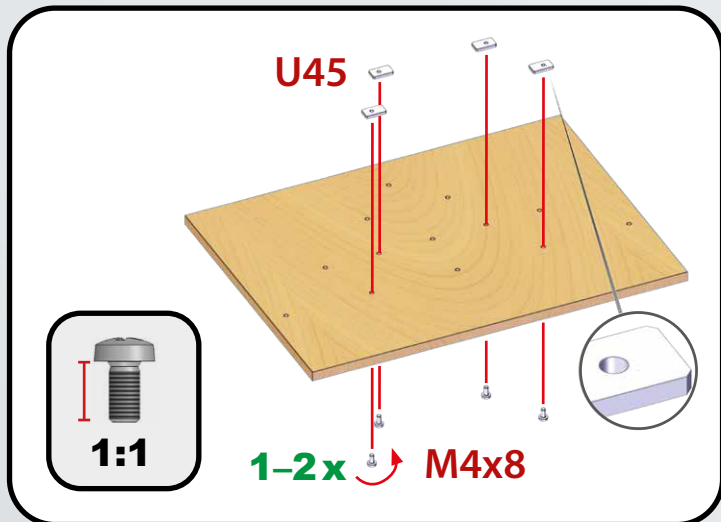
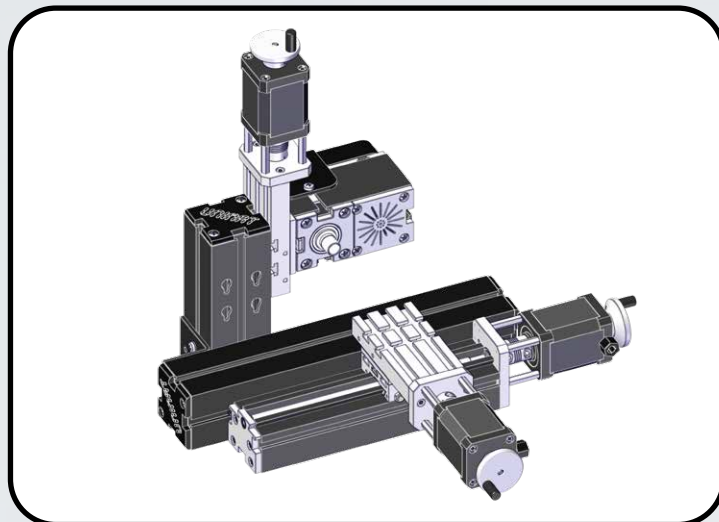
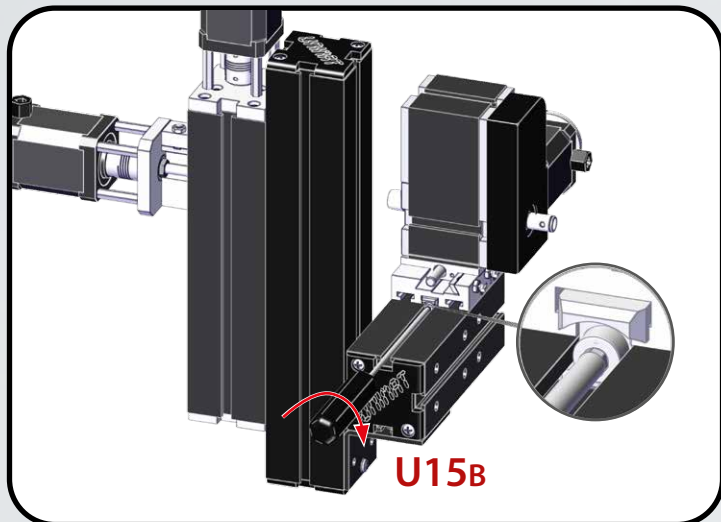
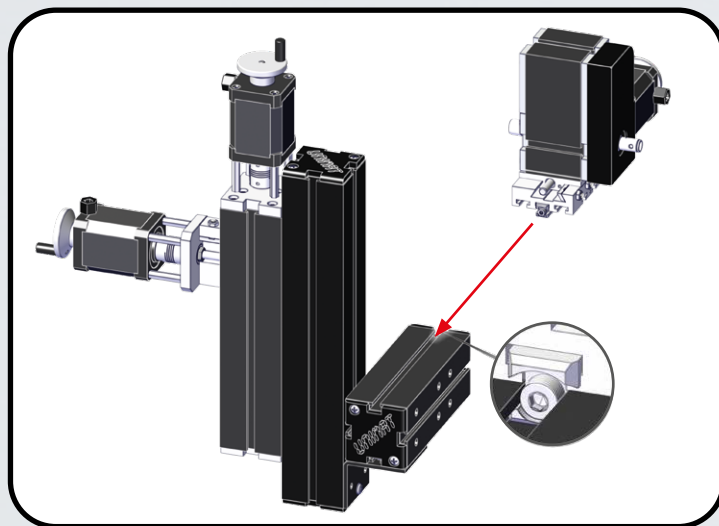
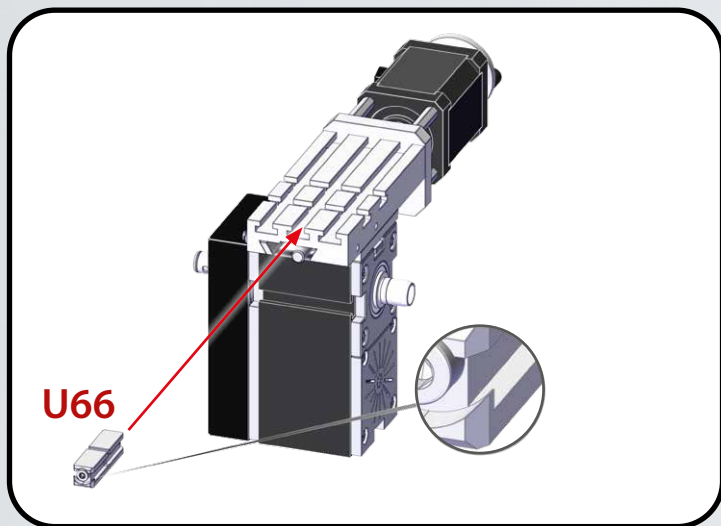
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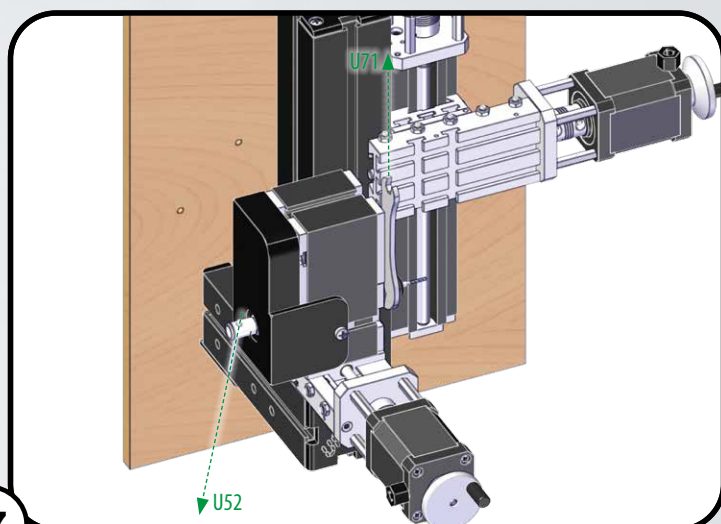
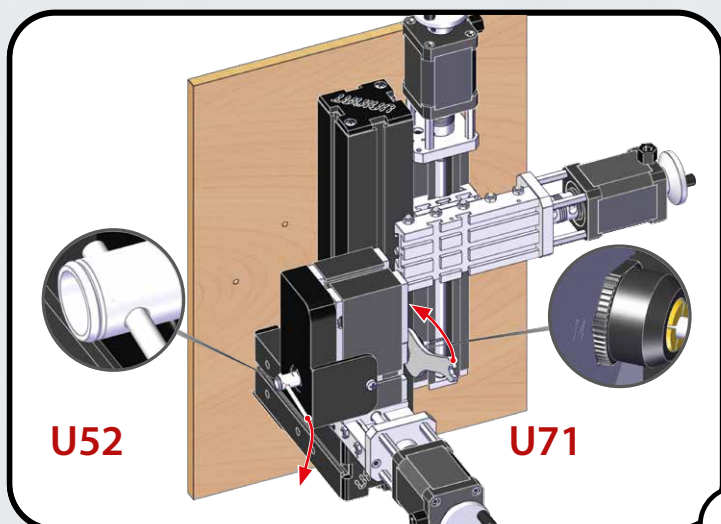
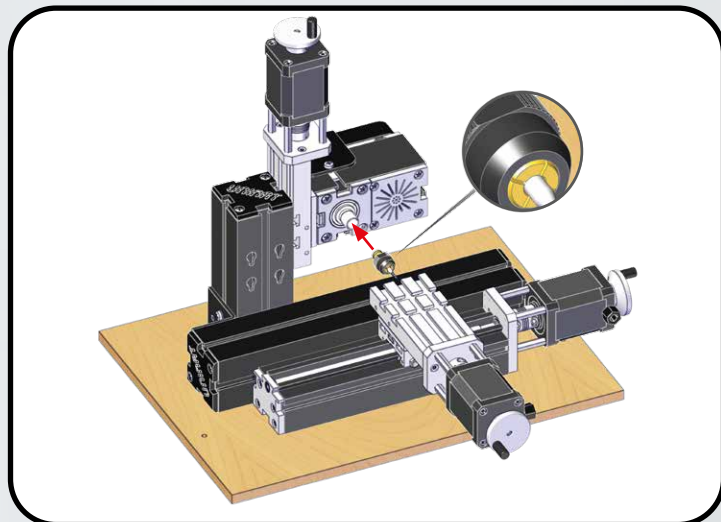
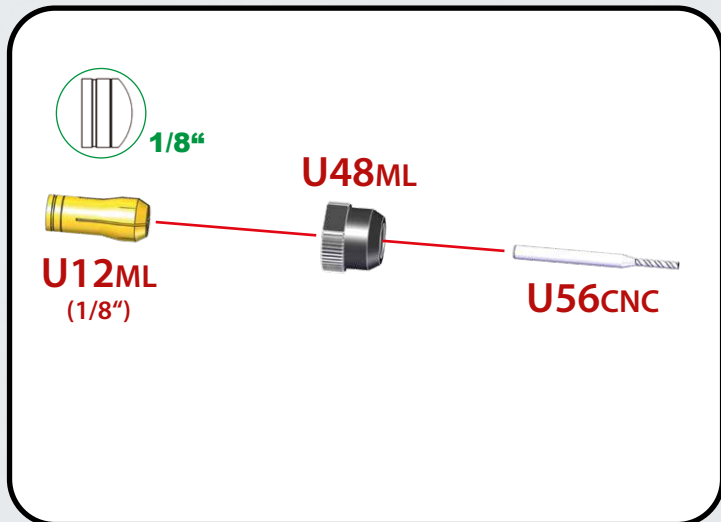
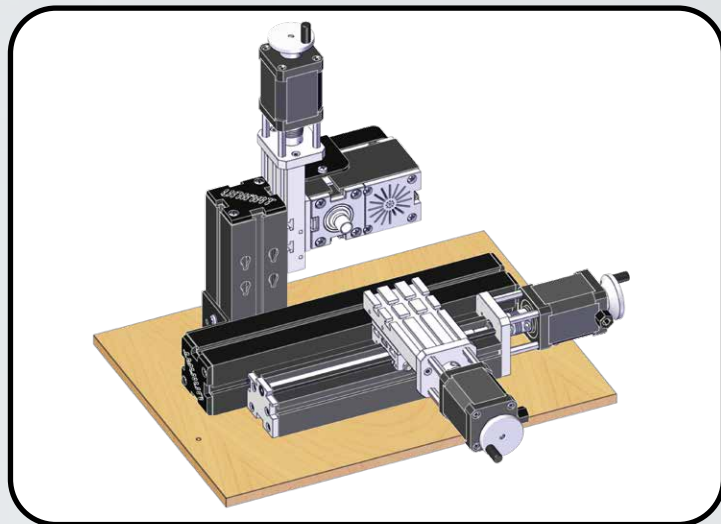
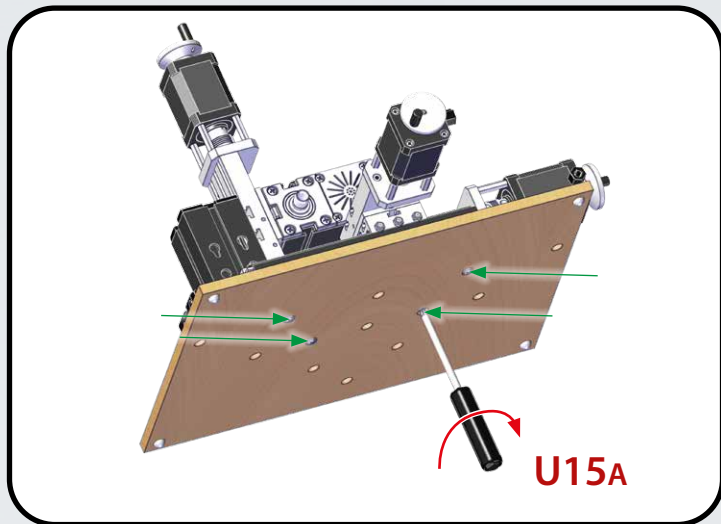
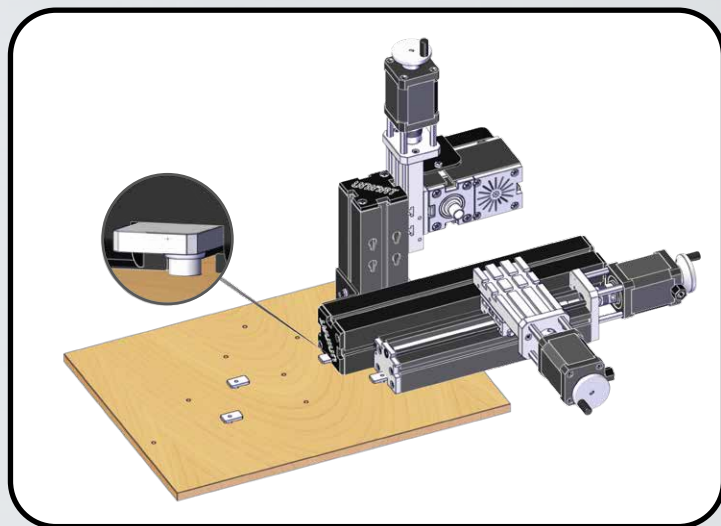
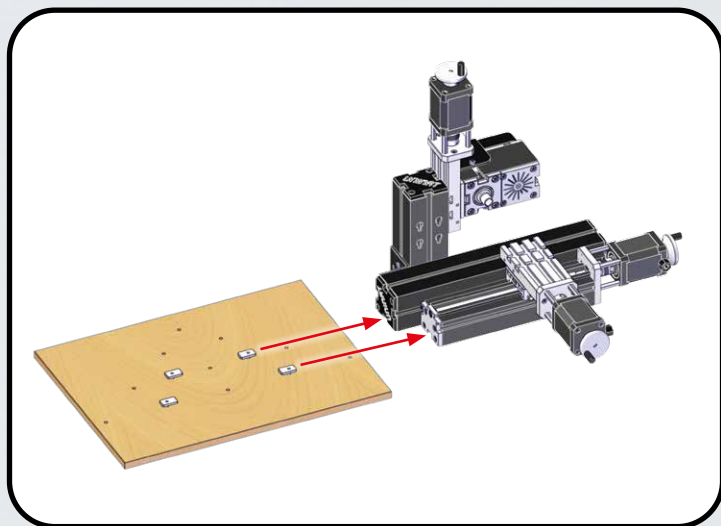
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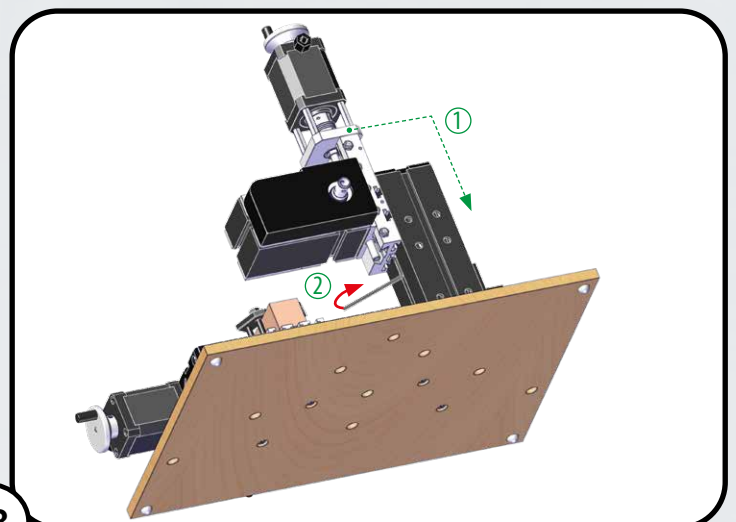
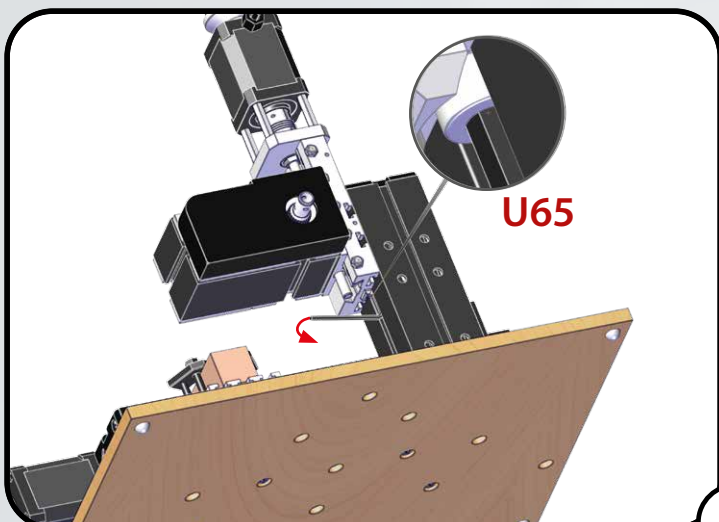
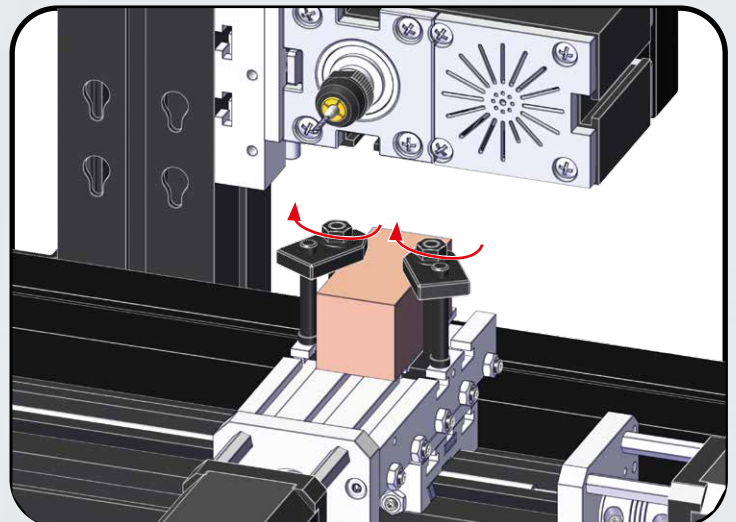
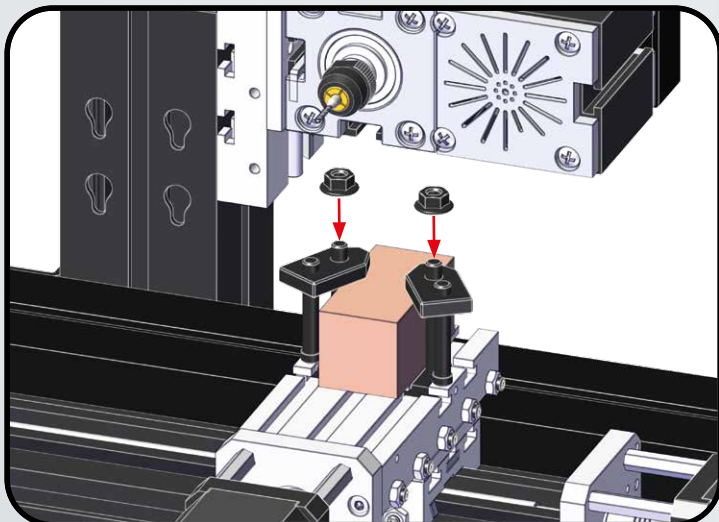
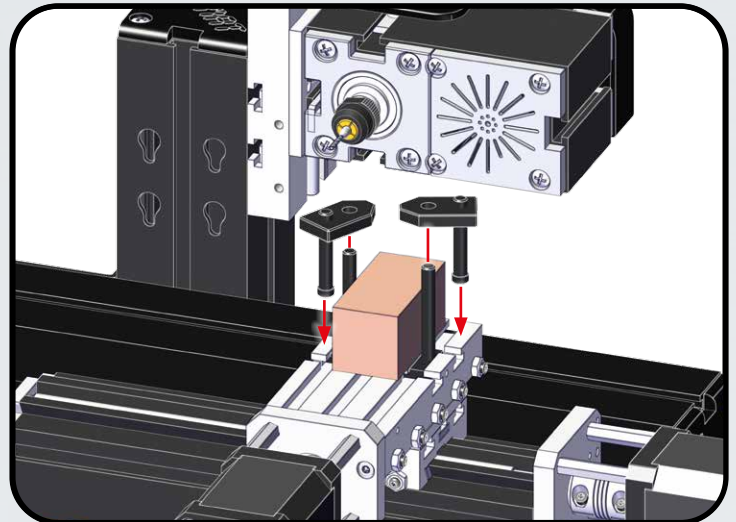
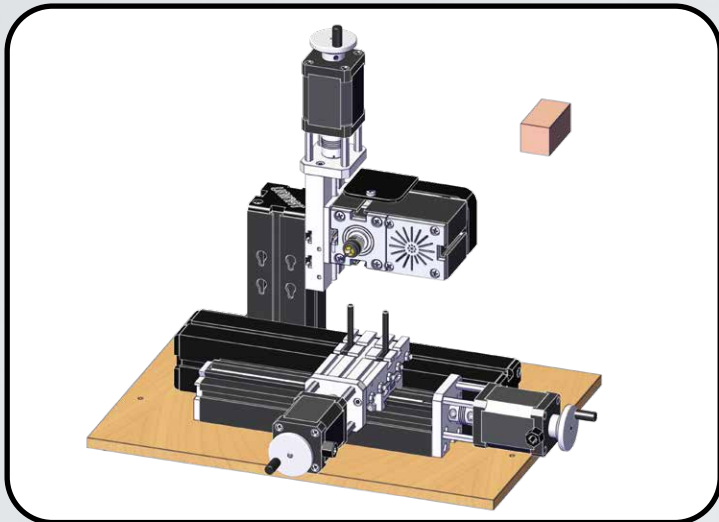
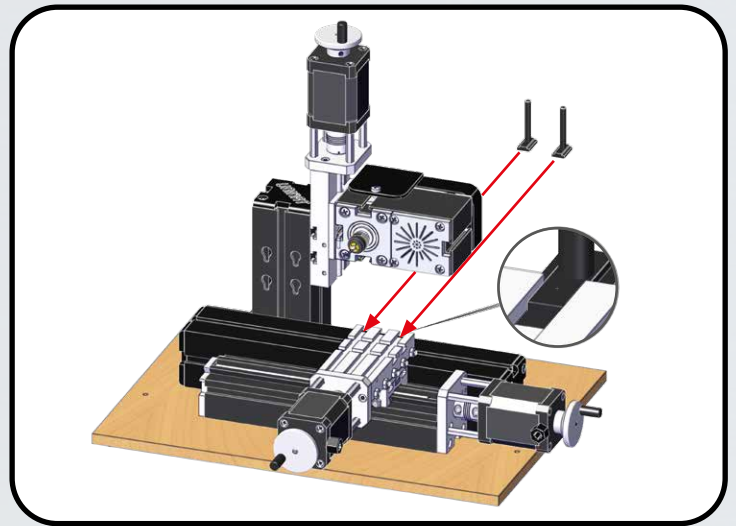
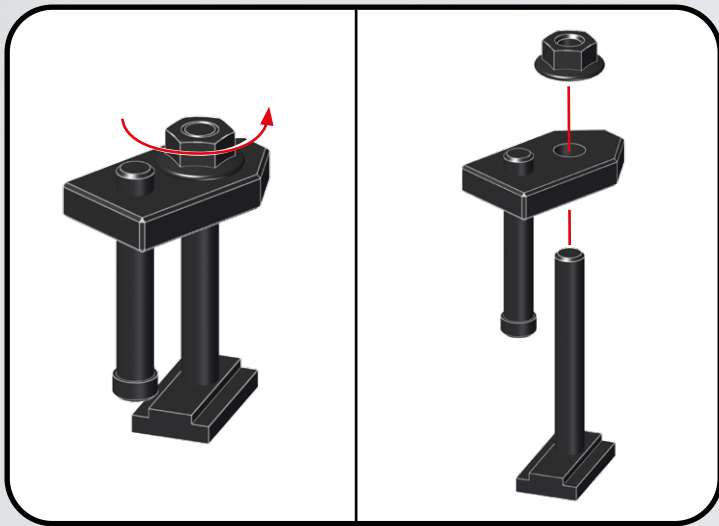


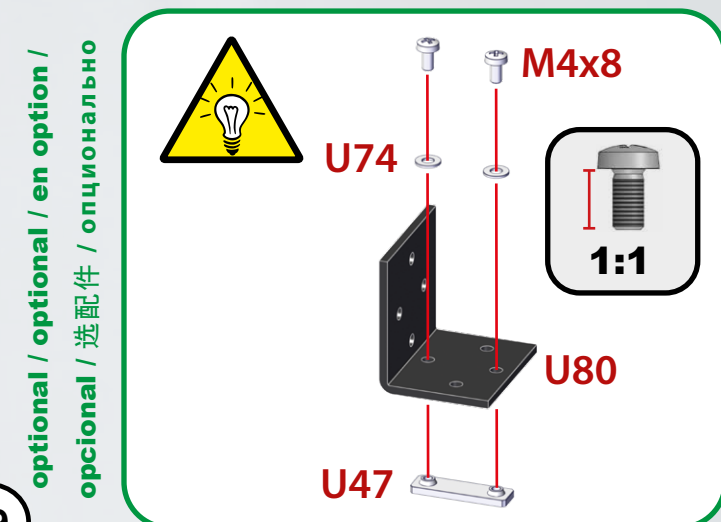
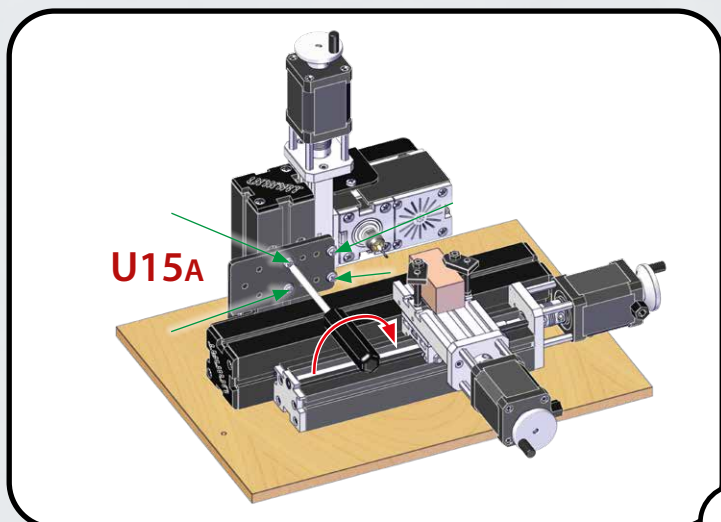
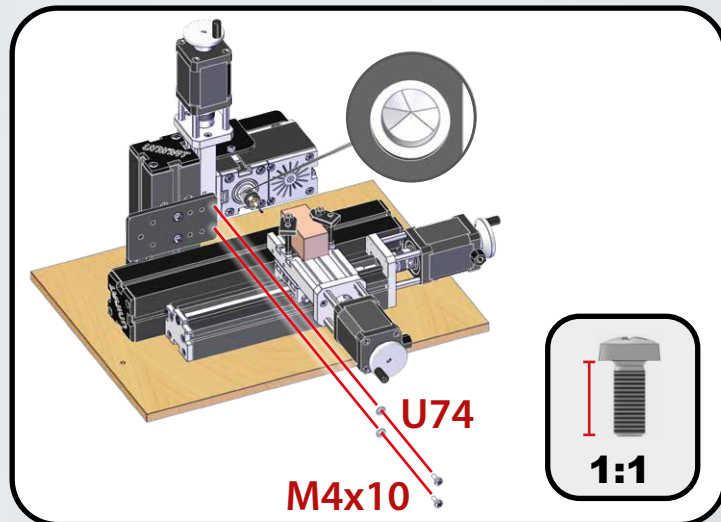
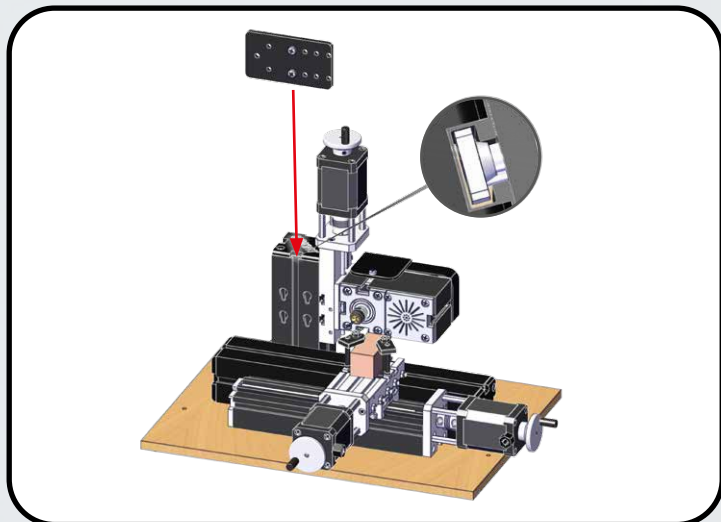
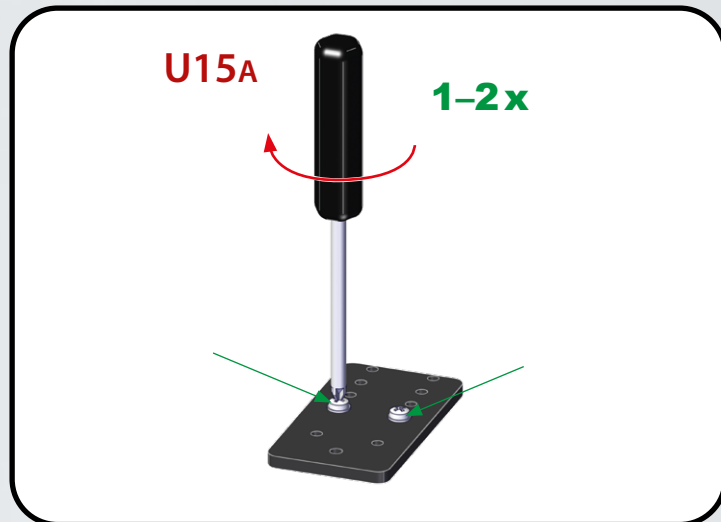
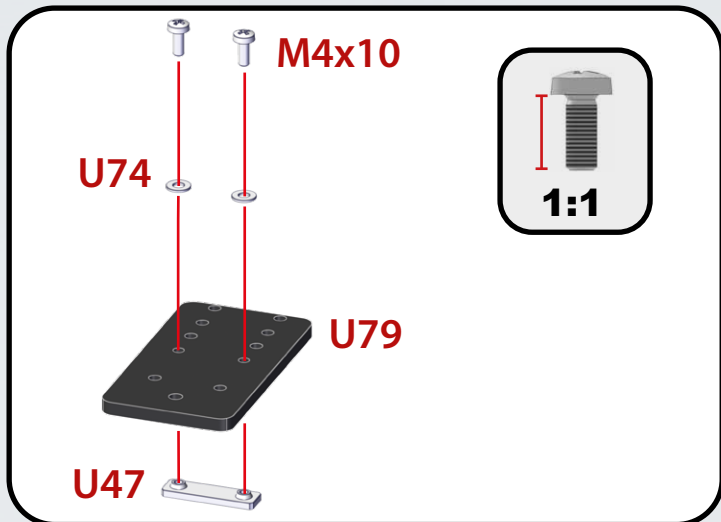
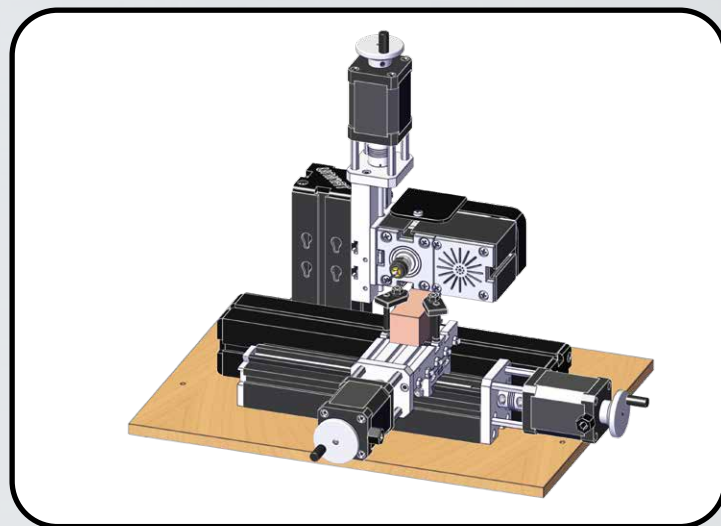
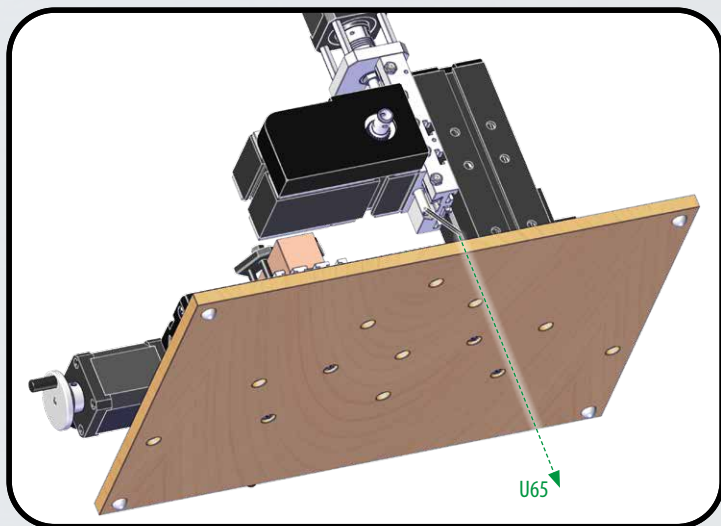






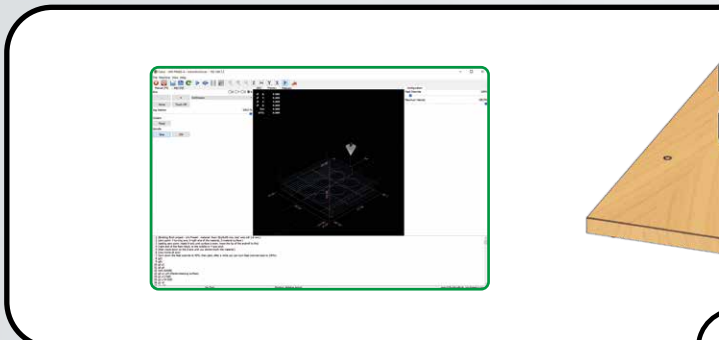
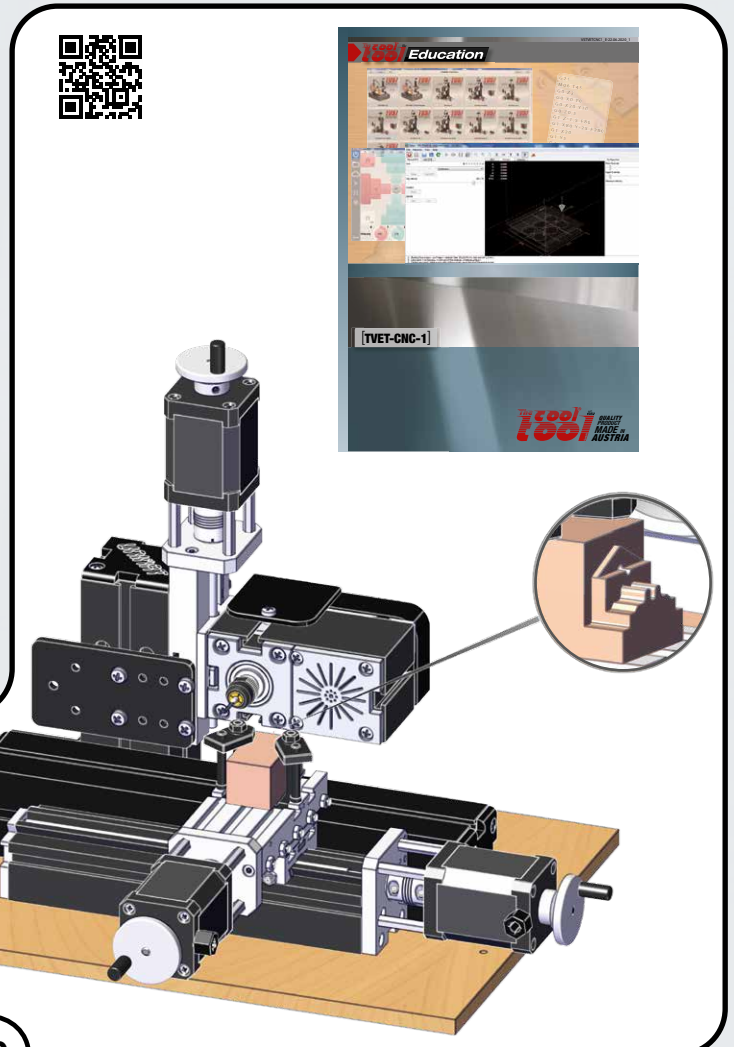
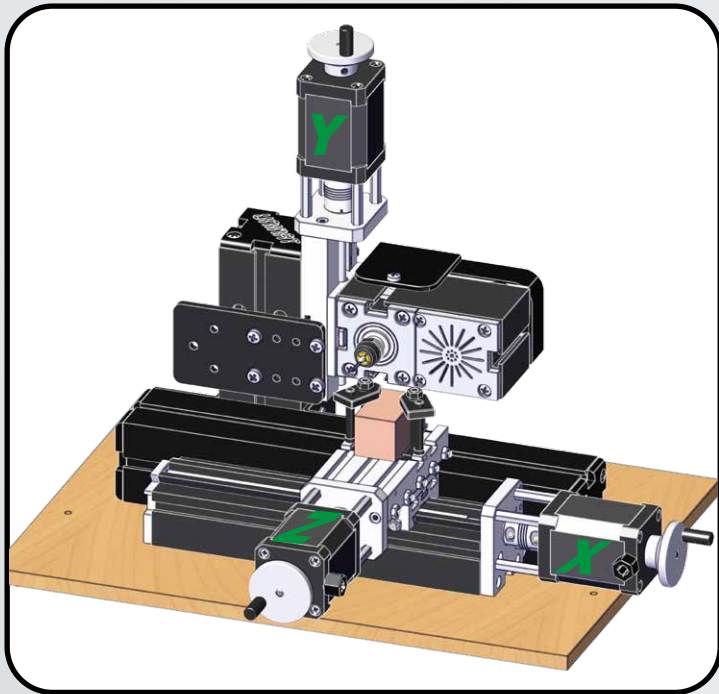
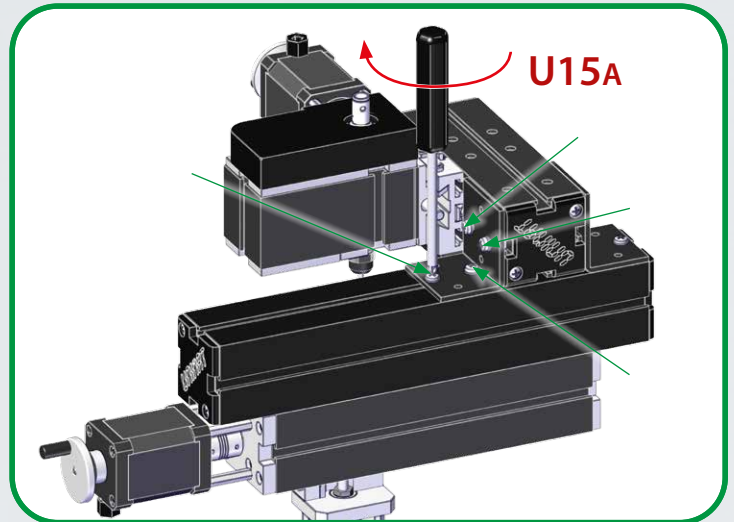
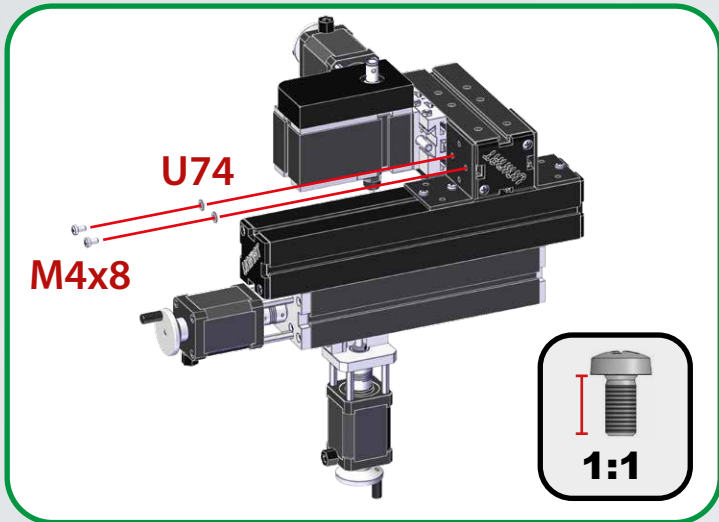
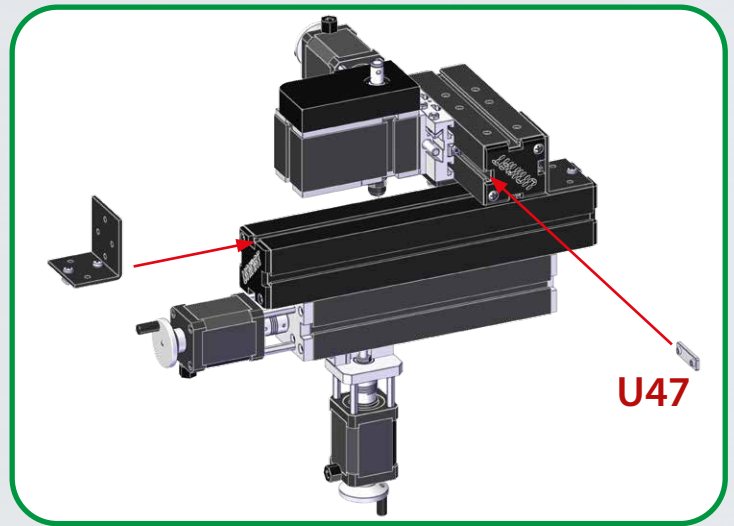
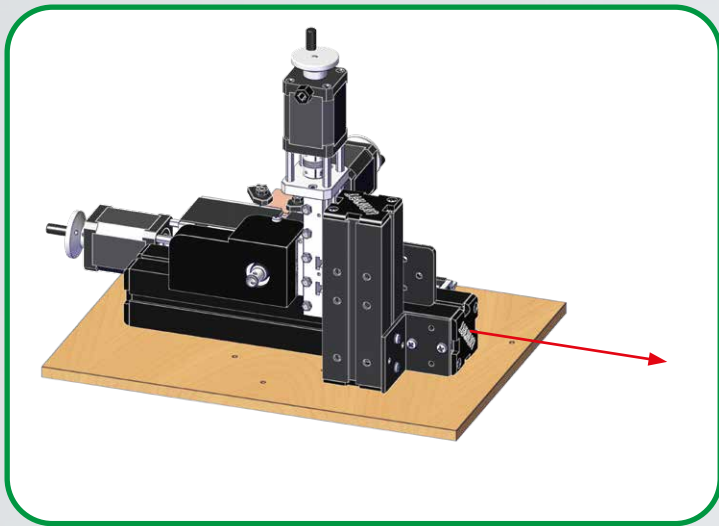






optional / optional / en option /  
opcional / 选配件 / optionally





**Inhalt • contents • contenu • contenido • 内容 • содержание:****1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

Corianplatte • corian sheet • feuille corian •

hoja corian • 可丽耐拼盘 • Кориан лист ---- ~50x50x12 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертеж

**3) Lösungsvorschlag • proposed solution • solution proposée • solución propuesta •**

建议的解决方案 • Предложенное решение

**Projekt • project • projet • proyecto • 项目 • Проект**

Schaftfräser • end mill • fraise en bout • molino de extremo •

立铣刀 • Фреза концевая:  $\varnothing_{\max} 1,6 \text{ mm}$ 

Gravurtiefe • Engraving depth • profondeur de

gravure • profundidad de grabado •

雕刻深度 • Глубина гравировки: 1,0 mm

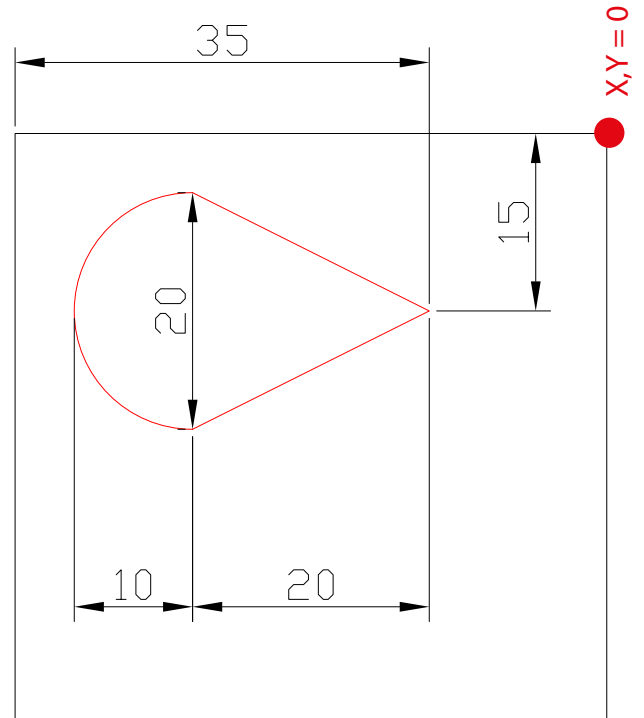
 $F_{\max.}$ : 200 mm/min

Maximale Schnitttiefe • maximum depth of cut •

profondeur de coupe maximale • profundidad

máxima de corte • 最大切削深度 •

максимальная глубина резания: 1,0 mm



g21

g0 z2

g0 x0 y0

g0 x-15 y-15

g0 z0.5

g1 z1 f50

g1 x-35 y-5 f180

g13 x-35 y-25 i0 j-10

g1 x-15 y-15

g0 z5

g0 x0 y0

m02



UNI-FRAES-H3

# UNIMAT CNC

**4 Achsen Vertikalfräse**

**4 axis vertical milling machine**

**4 axes Fraiseuse verticale**

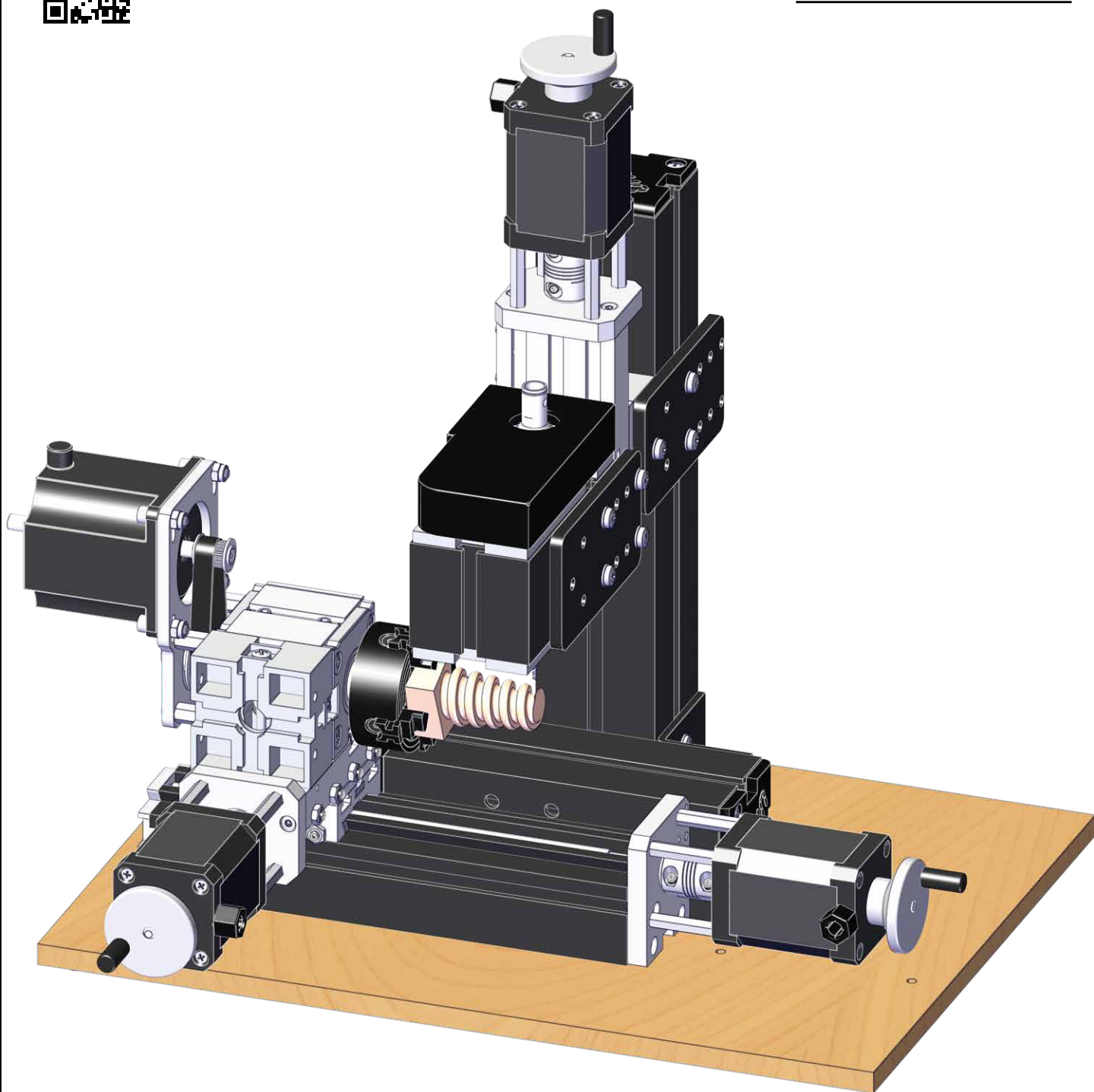
**4 ejes Fresadora vertical**

**4 轴 立式 铣床**

**4оси Вертикальный фрезерный станок**



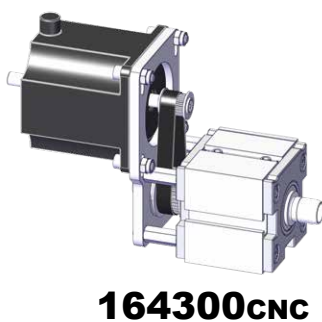
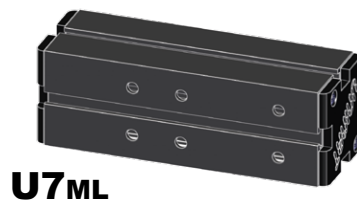
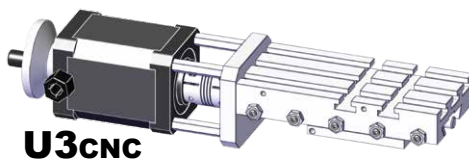
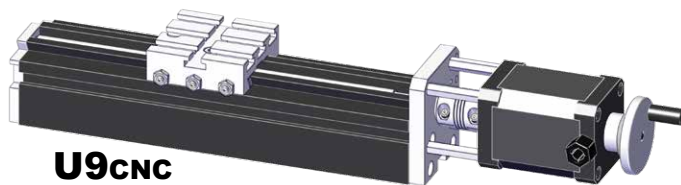
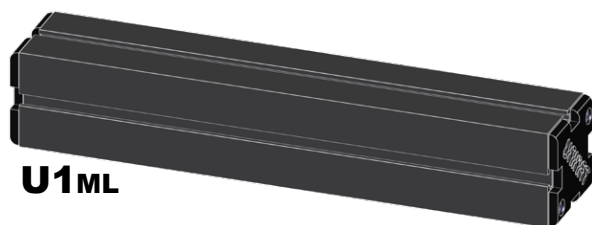
**UNI-FRAES-4**





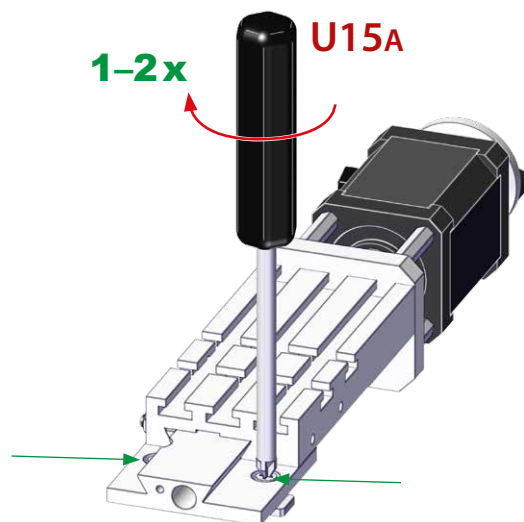
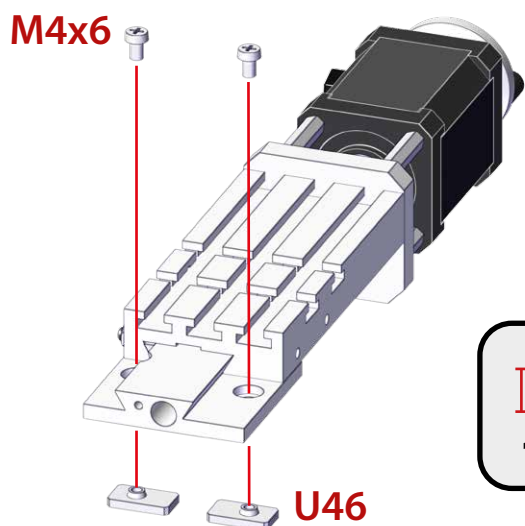
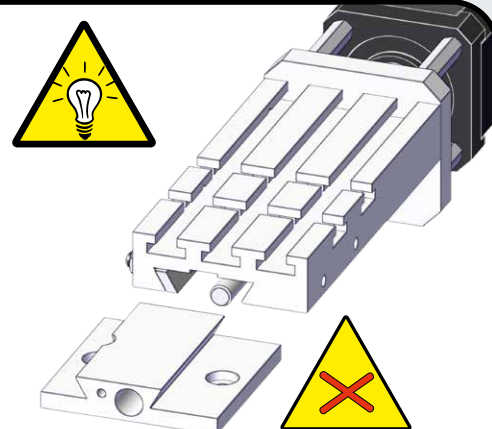
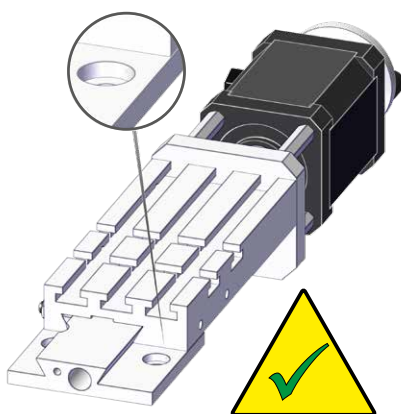
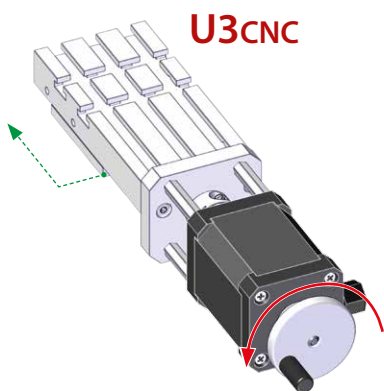
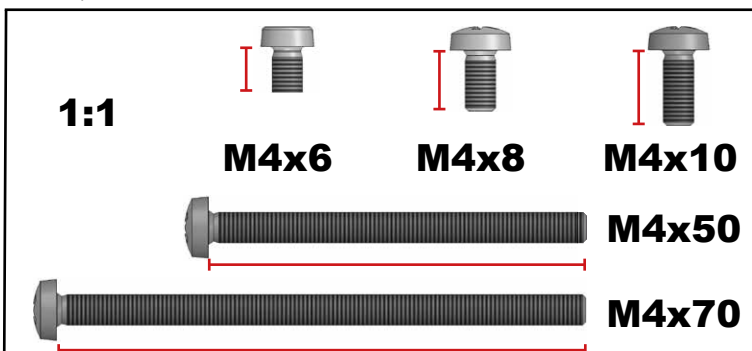
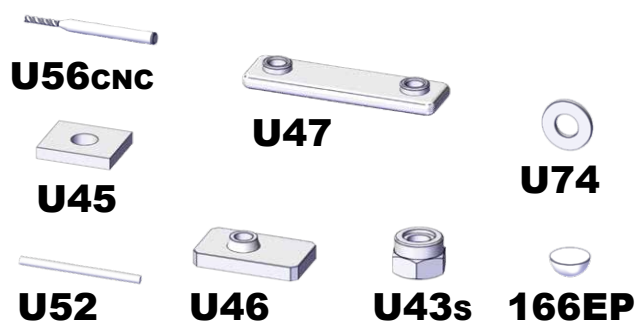
|         |   | DE                       | EN                          | FR                          | ES                          | 中国 (ZH)      | RU                             |                |
|---------|---|--------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|--------------------------------|----------------|
| U1ML    | 1 | Maschinenbett, lang      | Machine bed, long           | Banc, grand                 | Bancada grande              | 长机座          | Станина длинная                | A1A 020 000 SW |
| U3CNC   | 2 | CNC Querschlitten        | CNC Cross slide             | CNC Chariot, petit          | CNC Carro, pequeño          | CNC 全金属小滑块   | CNC Салазки поперечные         | 164 060 NCNC   |
| U4MLEDU | 1 | Antriebseinheit ML       | Drive unit ML               | EDU-Moteur                  | EDU-Motor                   | EDU-马达       | EDU-Двигатель                  | 164 420        |
| U7ML    | 1 | Maschinenbett, kurz      | Machine bed, short          | Banc, petit                 | Bancada pequeña             | 全金属短机座       | Станина короткая               | A1A 010 000 SW |
| U9CNC   | 1 | CNC Längsschlitten       | CNC Longitudinal slide      | CNC Chariot, grand          | CNC Carro, grande           | 全金属长滑块       | Салазки продольные             | 164 480 NCNC   |
| U10ML   | 2 | Zwischenstück            | Intermediate piece          | Pièce intermédiaire         | Pieza intermedia            | 全金属中介块       | Проставка                      | A1M 000 100    |
| U12ML   | 1 | Spannzange 1/8"          | Collet 1/8"                 | Pince 1/8"                  | Pinza 1/8"                  | 金属夹头 1/8"    | Цанги 1/8"                     | 162 460 31/8   |
| U15A    | 1 | Schraubendreher #2       | Screwdriver #2              | Tourne-vis #2               | Destornillador #2           | 螺丝刀 #2       | Отвертка Philips № 2           | ZWZ 980 030    |
| U15B    | 1 | Inbusschraubendreher     | Screwdriver allen key 2.5mm | Tourne-vis hexagonale 2,5mm | Destornillador allen 2,5mm  | 内六角扳手 2.5 mm | Отвертка 6-гранная 2,5 мм      | ZWZ 980 075    |
| U48ML   | 1 | Spannzangenhalter        | Collet holder               | Porte-pinces                | Porta-pinza                 | 固定铜帽         | Гайка зажимная для цанг        | A1A 000 073    |
| U66     | 5 | Verbindungselement       | Connection piece            | Pièce de connexion          | Elemento de conexión        | 连接件          | Сухарь соединительный          | A1A 00 ZINSK   |
| U71     | 1 | Gabelschlüssel 7 / 14 mm | Fork wrench 7 / 14 mm       | Clé de fourche 7 / 14 mm    | llave de furca 7 / 14 mm    | 扳手 7 / 14 mm | Ключ гаечный 7 / 14 мм         | ZWZ 400 700    |
| U79     | 3 | Fixierplatte klein       | Stabilizing plates small    | Plaques de fixation petits  | Platos de fijación pequeños | 小固定片         | Пластина стабилизирующая малая | A1Z 470 000    |
| U80     | 2 | Befestigungswinkel       | Stabilizing angle           | Angle de fixation           | Escuadra de fijación        | 直角固定座        | Угольник стабилизирующий       | A1Z 480 000    |
|         | 1 | Drehtisch CNC            | Rotary table CNC            | Table rotative CNC          | Mesa giratoria CNC          | 轮盘 CNC       | Поворотный стол CNC            | 164 300 CNC    |
|         | 1 | Vierbackenfutter         | Four-jaw chuck              | Mandrin à quatre mors       | Mandril de cuatro mordazas  | 4爪夹头         | Патрон 4-кулачковый            | 162 050        |
|         | 1 | Grundplatte CNC          | Mounting plate CNC          | Plaque de mantage CNC       | Plancha basico CNC          | 固定底板 CNC     | Монтажная пластина CNC         | 164 402        |

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе

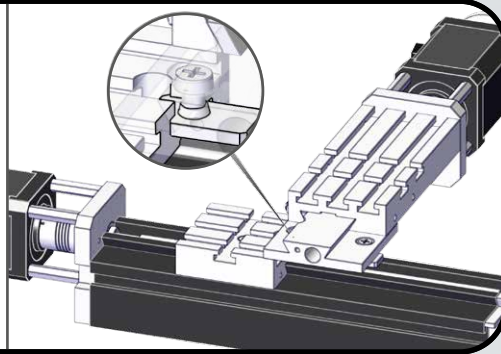
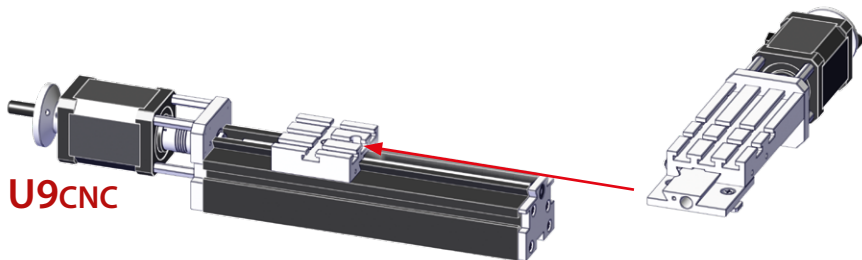


|                                                                                     |    | DE                  | EN                  | FR                   | ES                    | 中国 (ZH)    | RU                       |             |
|-------------------------------------------------------------------------------------|----|---------------------|---------------------|----------------------|-----------------------|------------|--------------------------|-------------|
| U31                                                                                 | 8  | Schraube M4x10      | Screw M4x10         | Vis M4x10            | Tornillo M4x10        | 螺钉M4x10    | Винт M4x10               | ZSR M40 410 |
| U33                                                                                 | 1  | Schraube M4x50      | Screw M4x50         | Vis M4x50            | Tornillo M4x50        | 螺钉M4x50    | Винт M4x50               | ZSR M40 450 |
| U37                                                                                 | 12 | Schraube M4x8       | Screw M4x8          | Vis M4x8             | Tornillo M4x8         | 螺钉M4x8     | Винт M4x8                | ZSR M40 408 |
| U38                                                                                 | 6  | Schraube M4x6       | Screw M4x6          | Vis M4x6             | Tornillo M4x6         | 螺钉M4x6     | Винт M4x6                | ZSR M40 406 |
| U43S                                                                                | 1  | Sicherungsmutter M4 | Locking nut M4      | Ecrou sécurité M4    | Tuerca M4 seguridad   | 防松螺母M4     | Гайка M4 самоконтрящаяся | ZMU 340 120 |
| U45                                                                                 | 1  | Zwischenblech       | Intermediate plate  | Tôle intermédiaire   | Lata intermedia       |            |                          | A1A 000 160 |
| U46                                                                                 | 9  | Nutstein            | Slot nut            | Boulon en «T»        | Pernos "T"            | 单孔螺母       | Гайка пазовая            | A1A 060 040 |
| U47                                                                                 | 8  | Klemmplatte         | Camping plate       | Élément en «T»       | Elemento "T"          | 双孔螺母       | Гайка пазовая двойная    | A1A 010 020 |
| U50                                                                                 | 1  | Schraube M4x70      | Screw M4x70         | Vis M4x70            | Tornillo M4x70        | 螺钉M4x70    | Винт M4x70               | ZSR M40 470 |
| U52                                                                                 | 1  | Stift               | Rod                 | Cheville             | Perno                 | 锁杆         | Вороток                  | ZST 110 345 |
| U56CNC                                                                              | 1  | 1,6 mm Fräser       | 1,6 mm Milling head | 1,6 mm Fraise        | 1,6 mm Fresa          | 铣刀头 1.6 mm | Фреза концевая 1,6 mm    | F2470 1.60  |
| U74                                                                                 | 18 | Beilagscheibe       | Plain washer        | Rondelle             | Arandela              | 垫片         | Шайба                    | ZSB 250 430 |
|                                                                                     | 4  | Gummipuffer         | Elastic buffer      | Butoir élastique     | Amortiguador elástico | 弹性缓冲       | Эластичный буфер         | 166 EP      |
| ohne Abbildung   without picture   sans figure   sin ilustración   无图   без рисунка |    |                     |                     |                      |                       |            |                          |             |
|                                                                                     | 1  | Netzteil 14,4V      | 14,4V adaptor       | 14,4V Transformateur | 14,4V Transformador   | 变压器 14.4 V | Трансформатор 14,4 В     | 161 31x     |

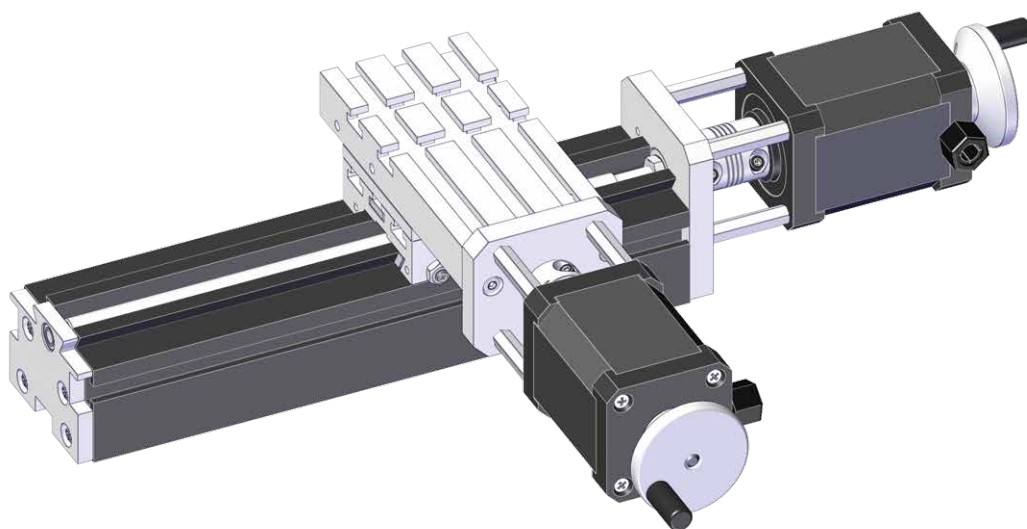
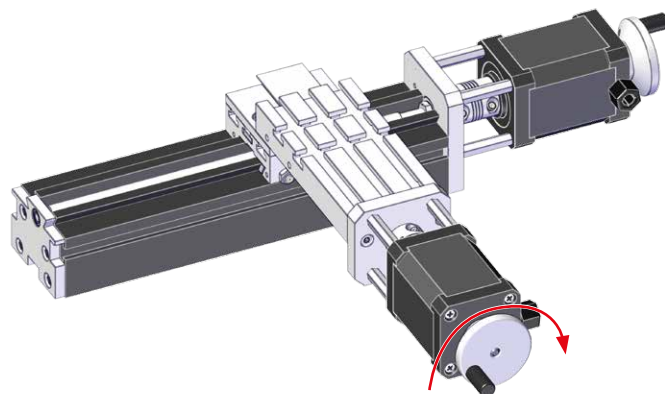
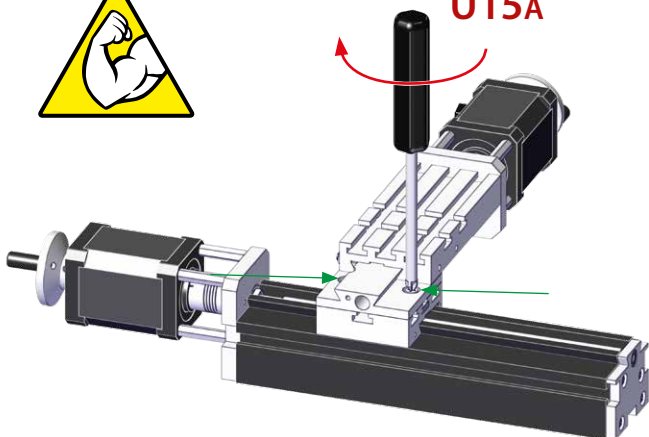
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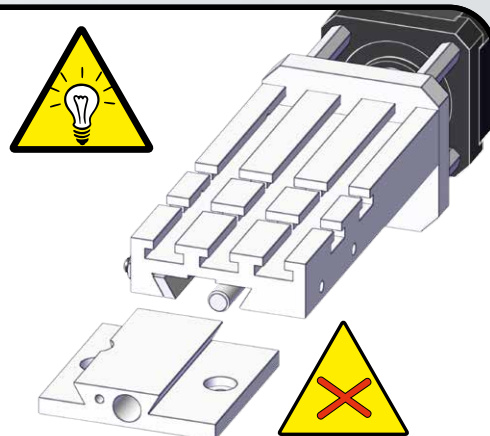
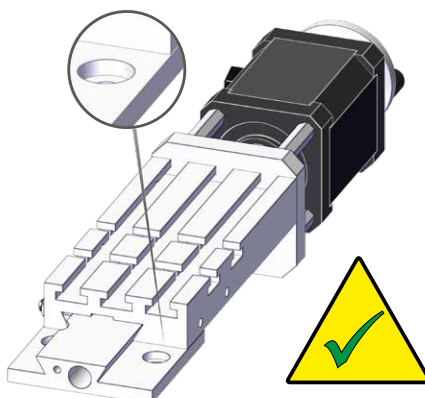
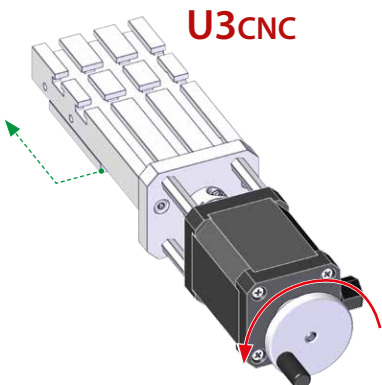
U9CNC



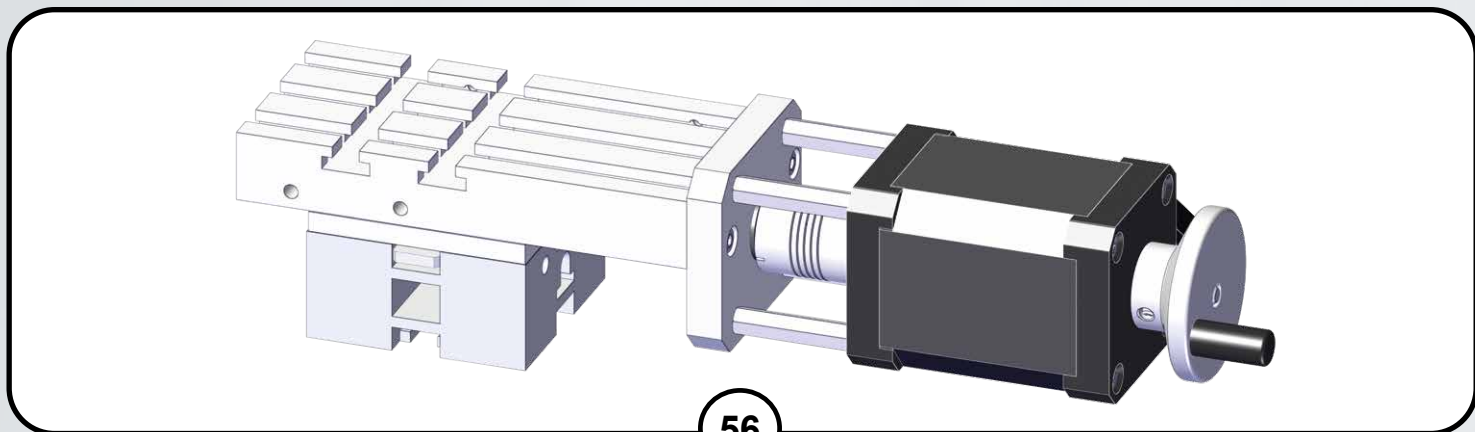
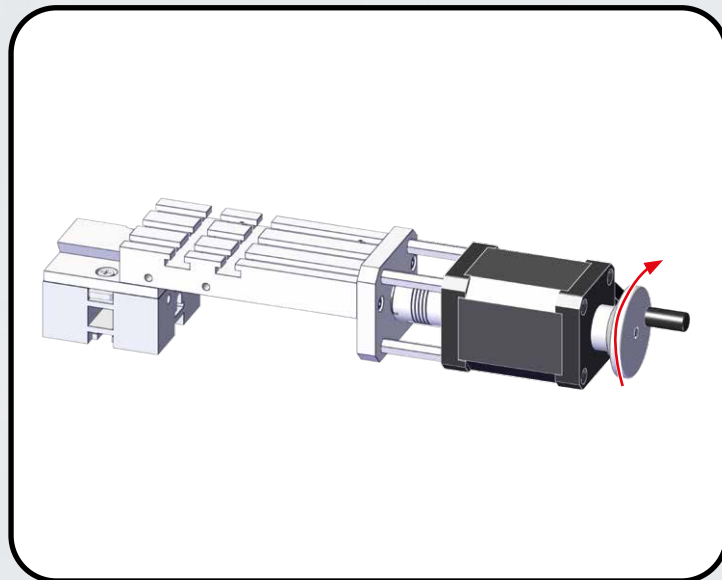
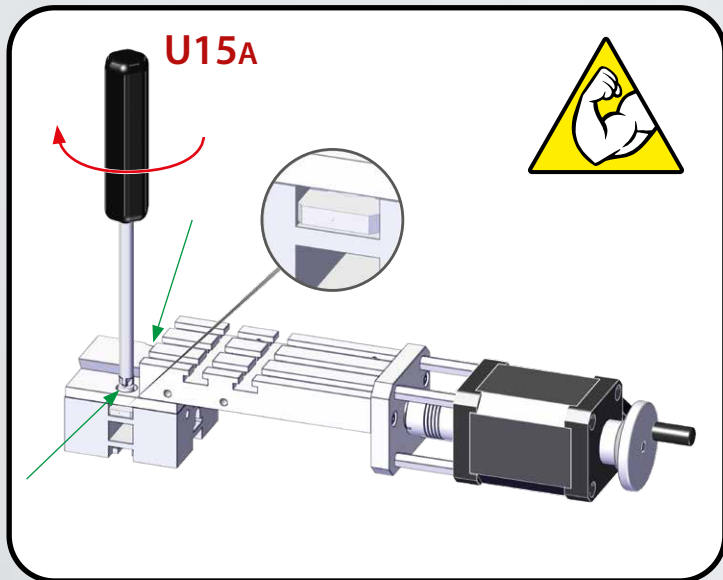
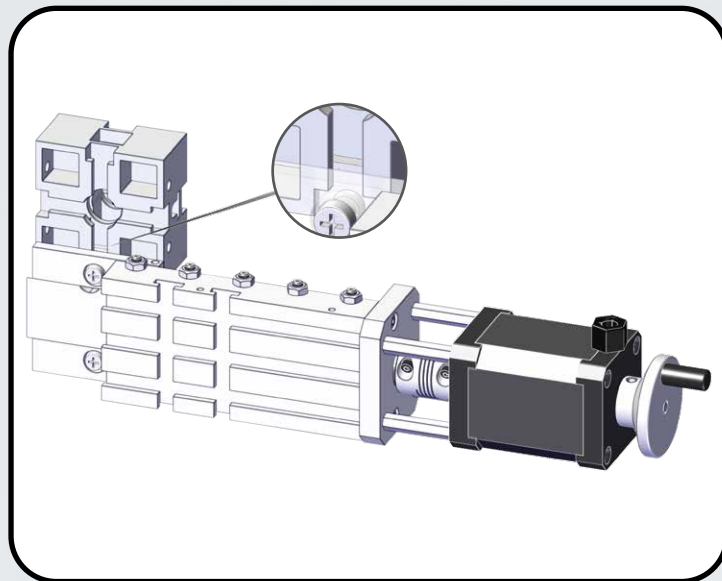
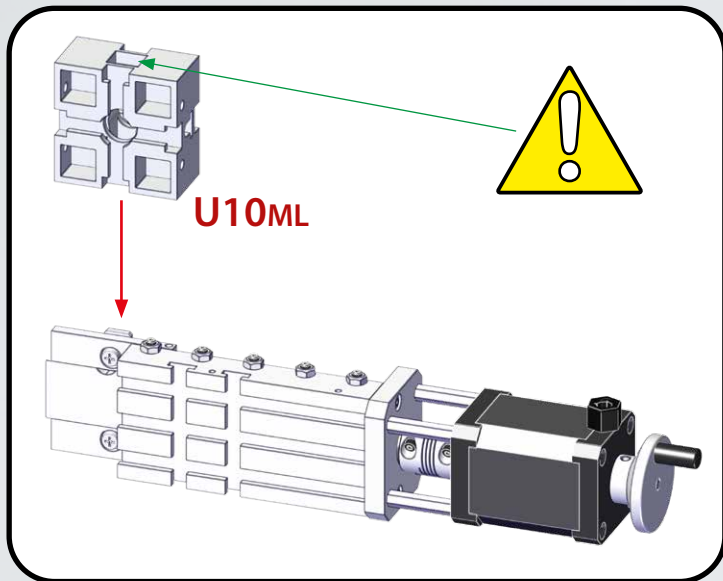
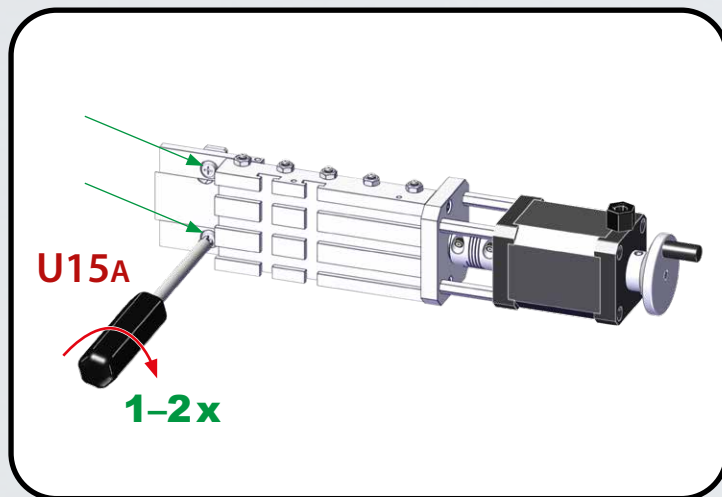
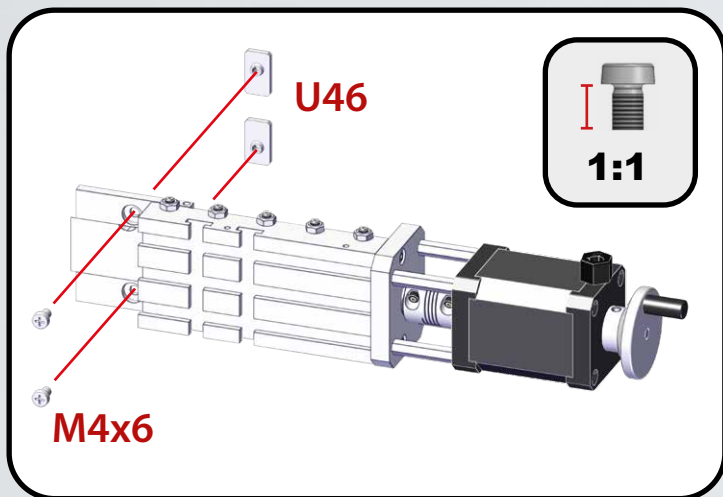
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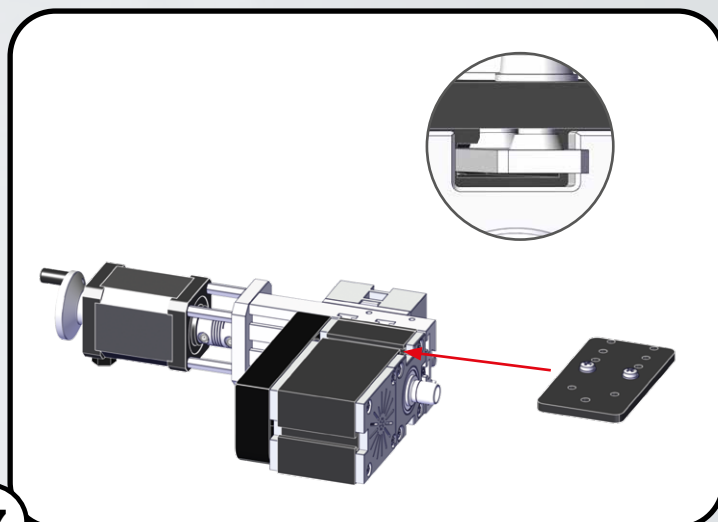
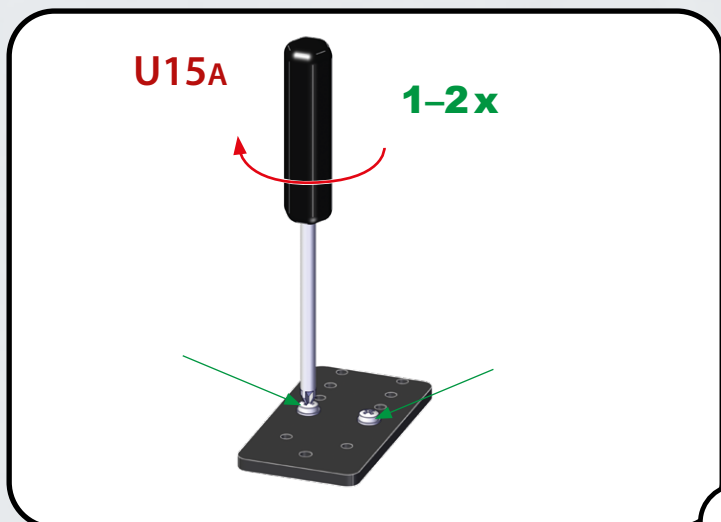
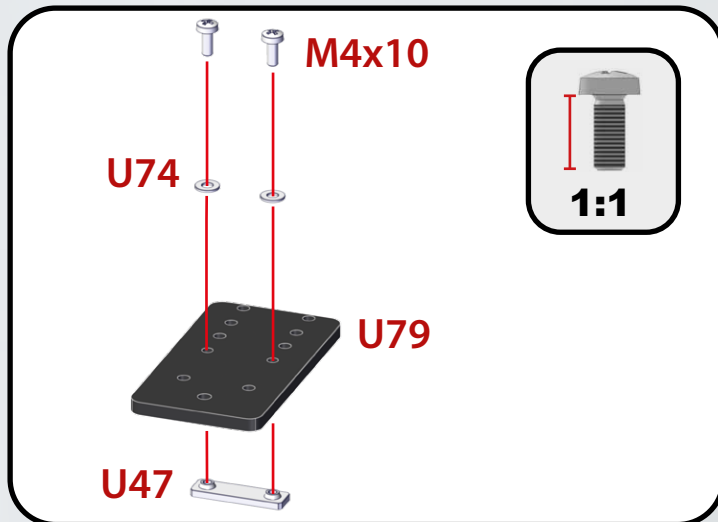
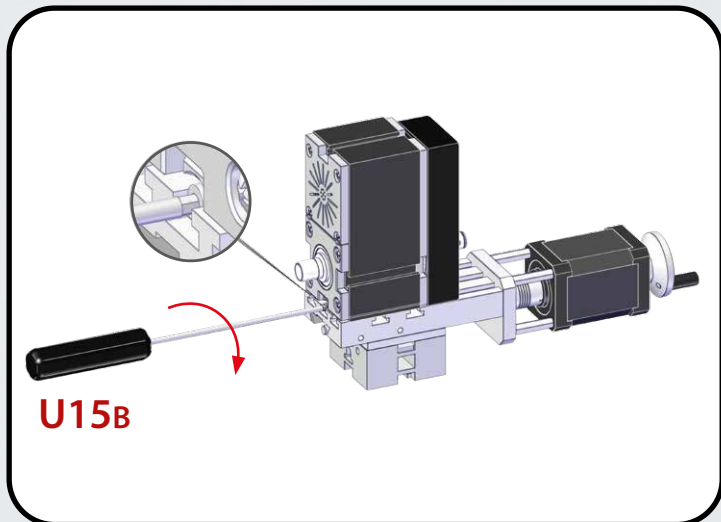
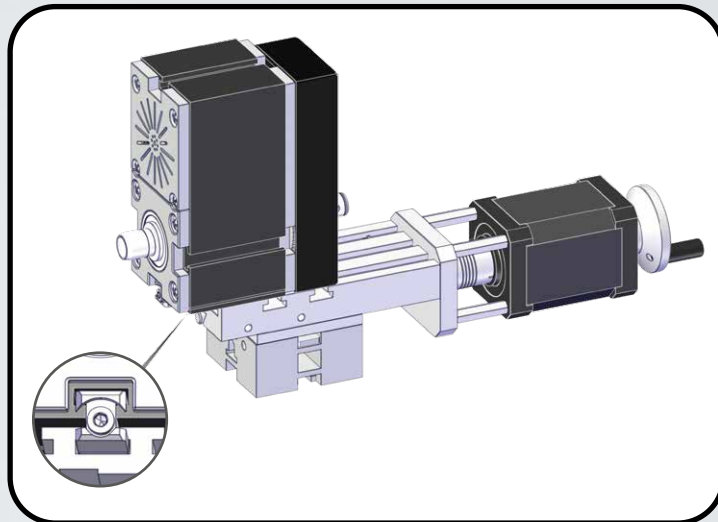
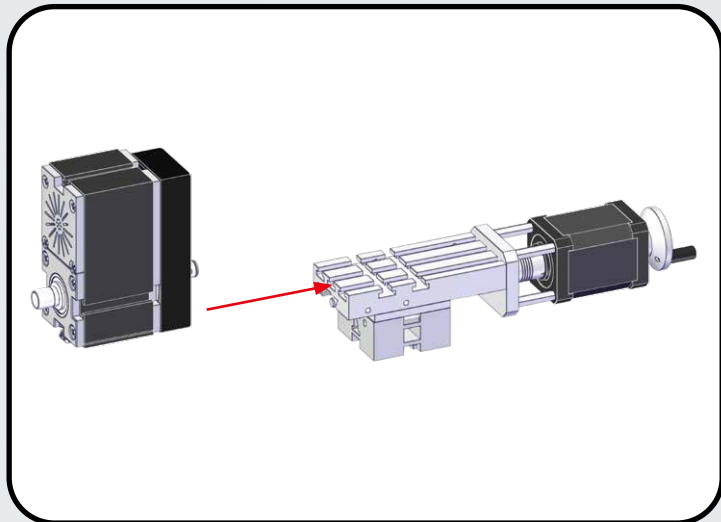
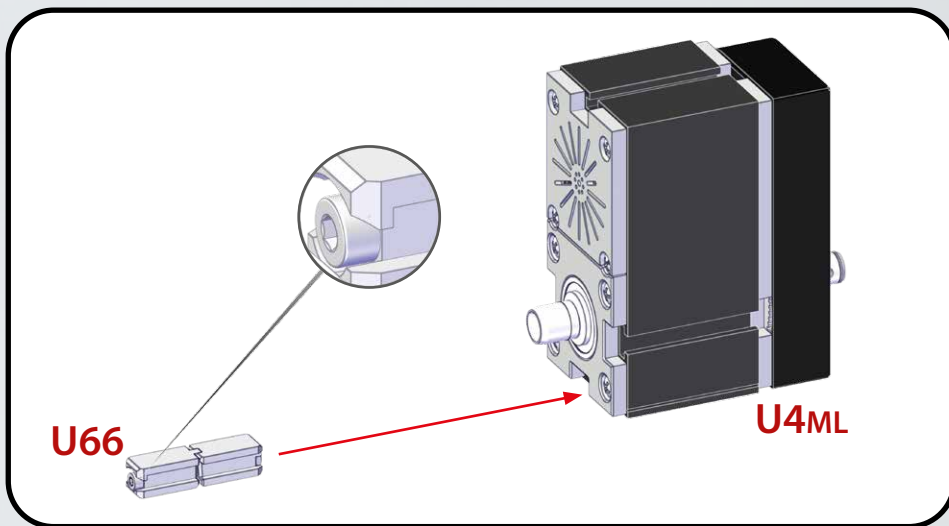
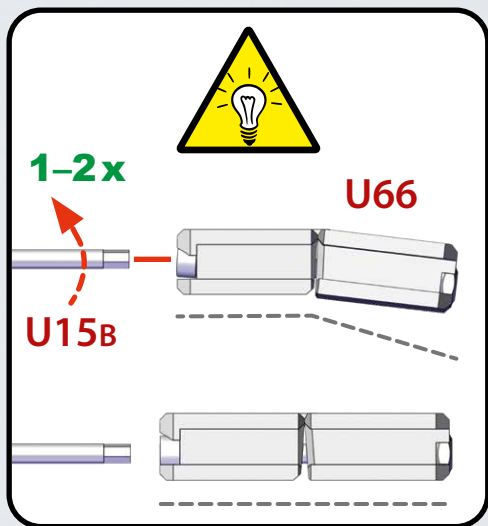


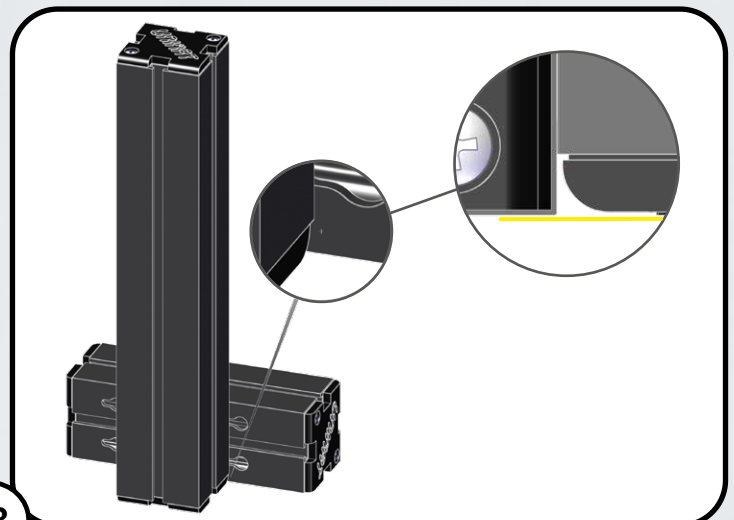
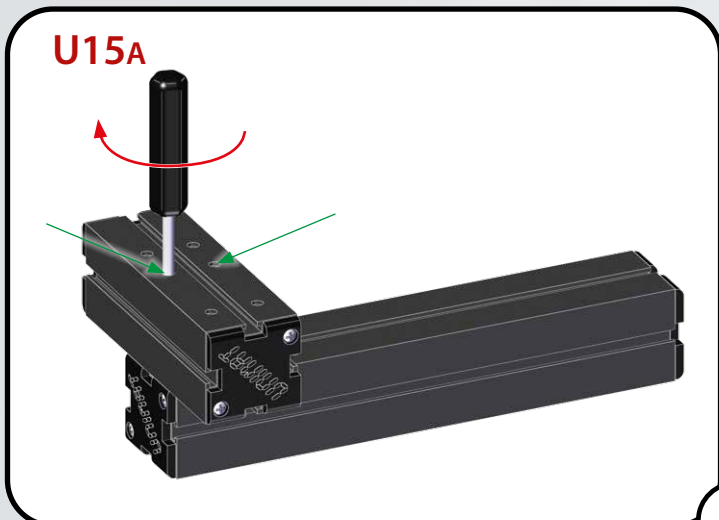
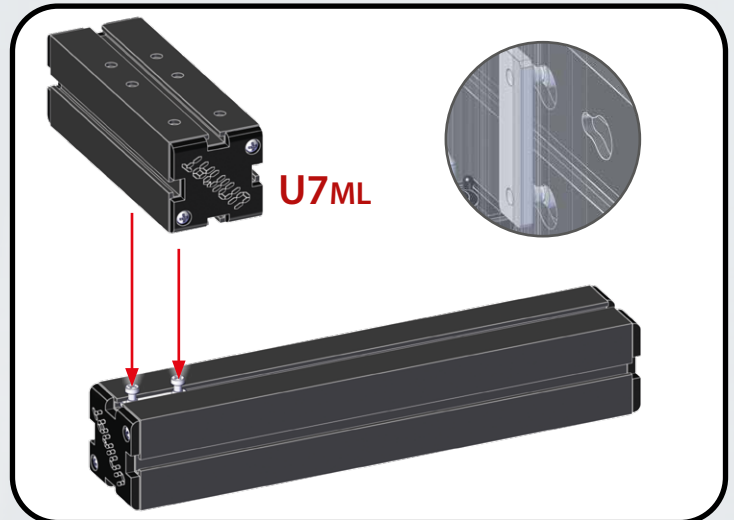
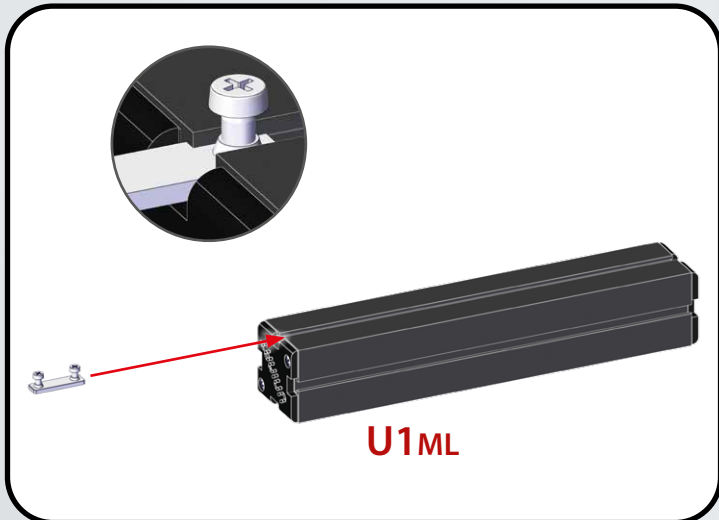
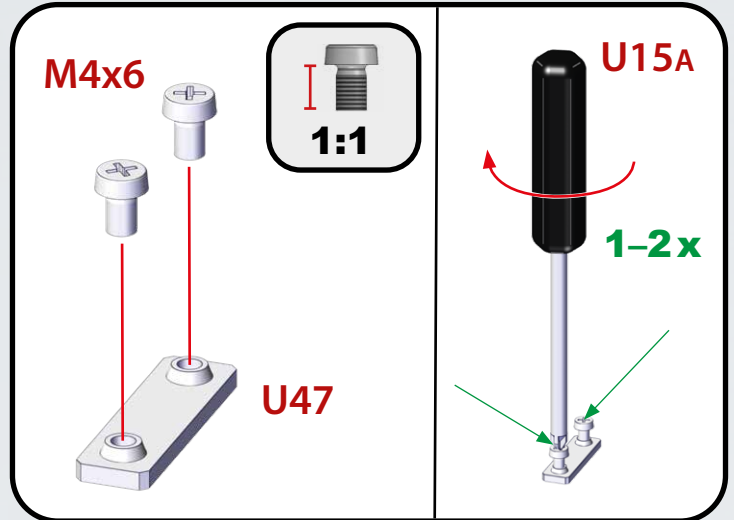
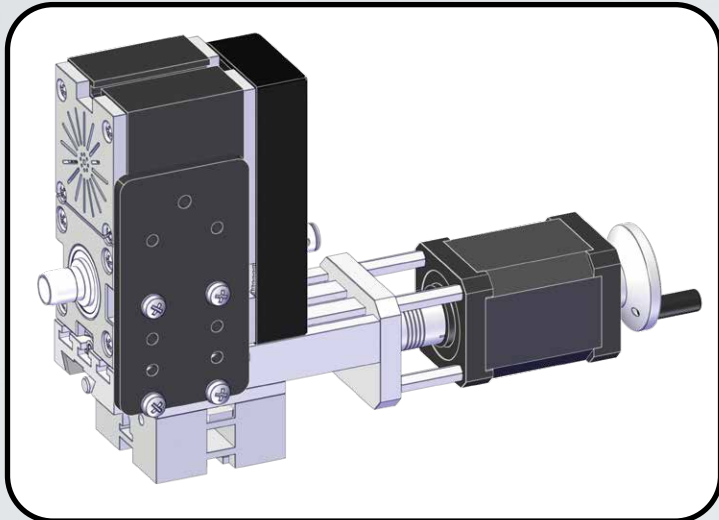
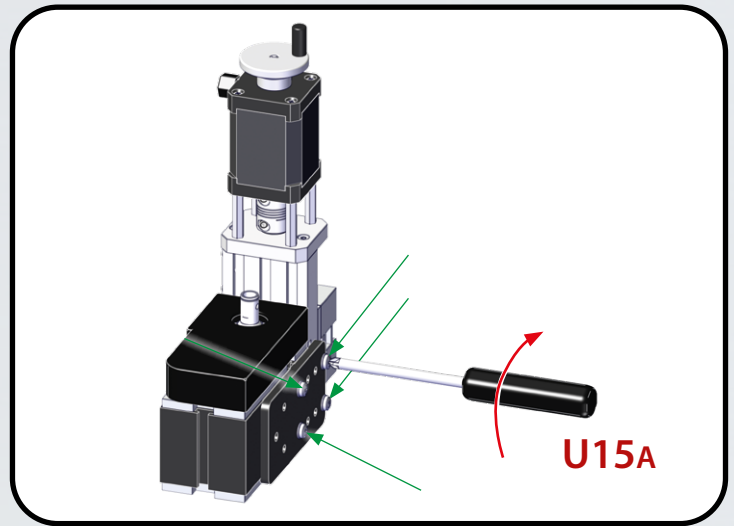
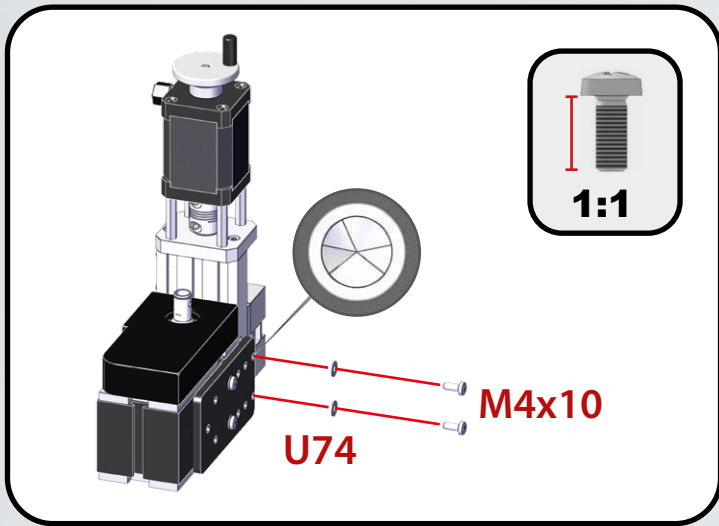
U3CNC





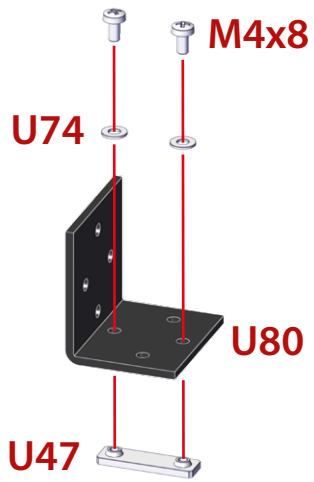






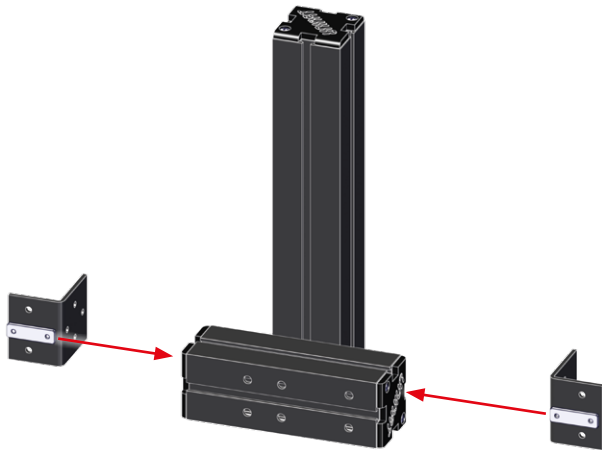
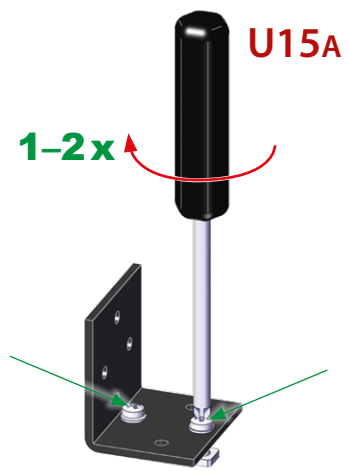


2x

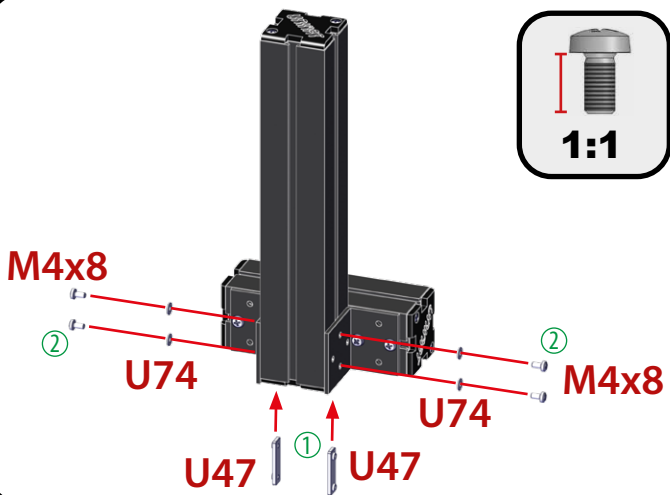


1:1

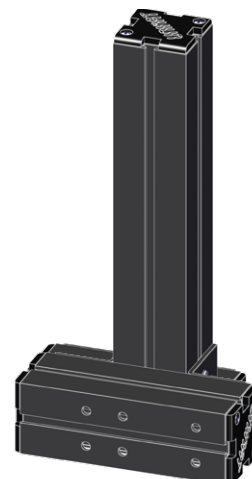
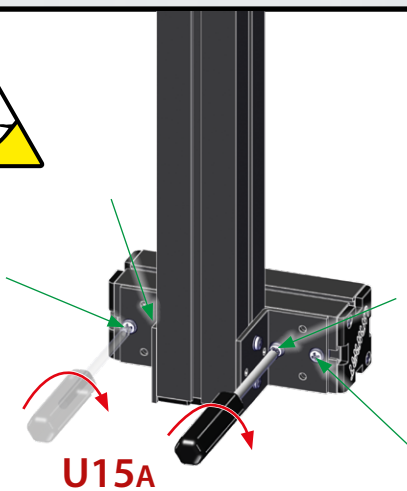
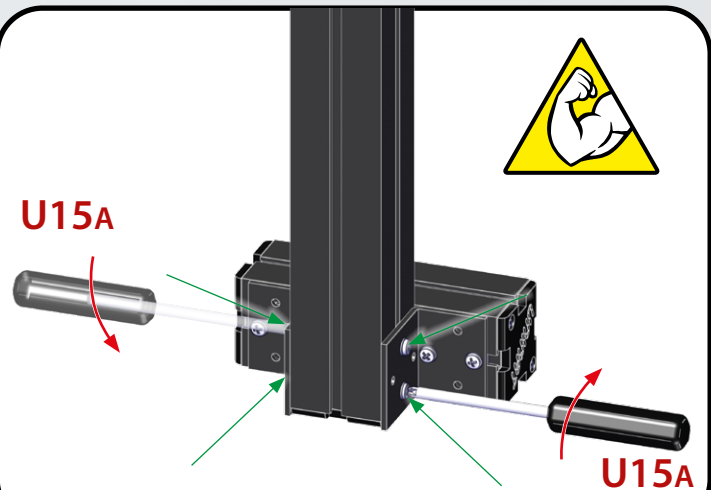
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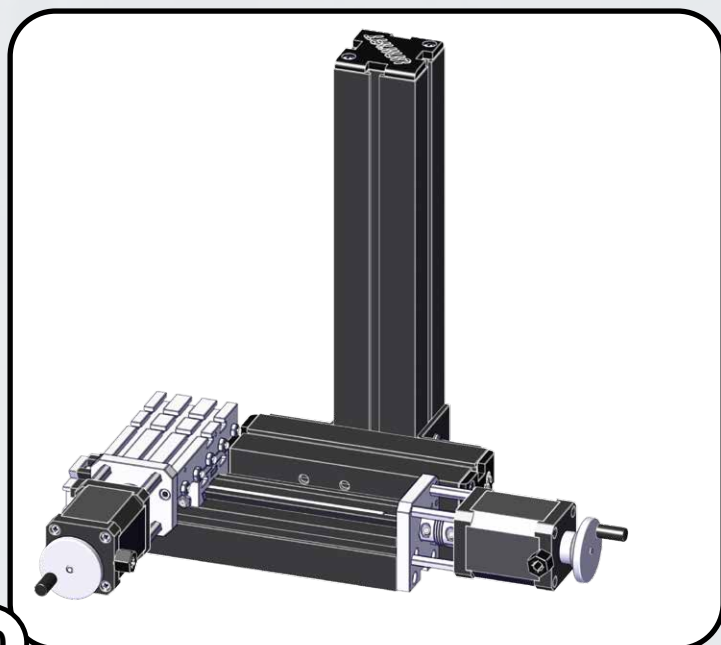
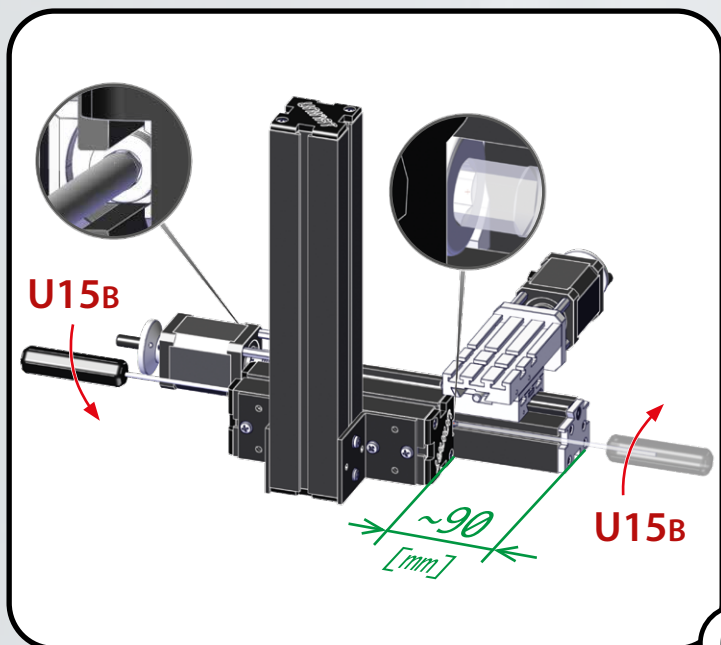
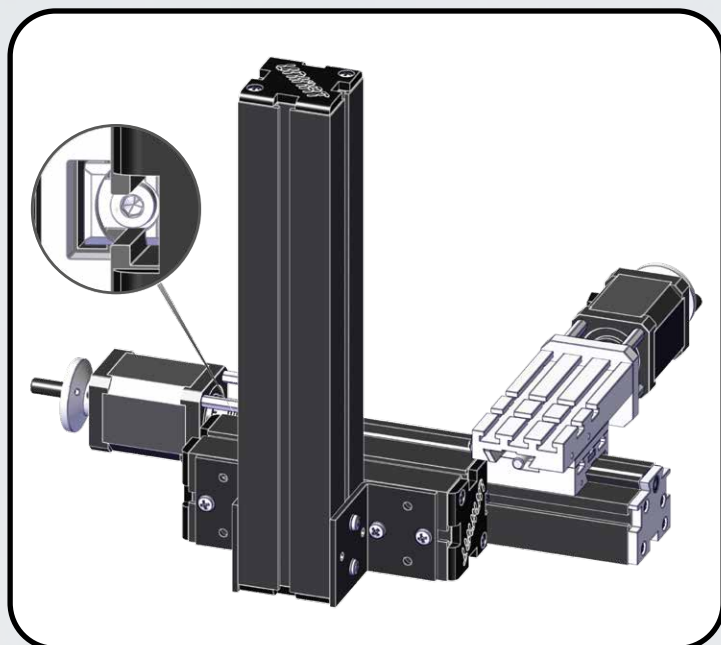
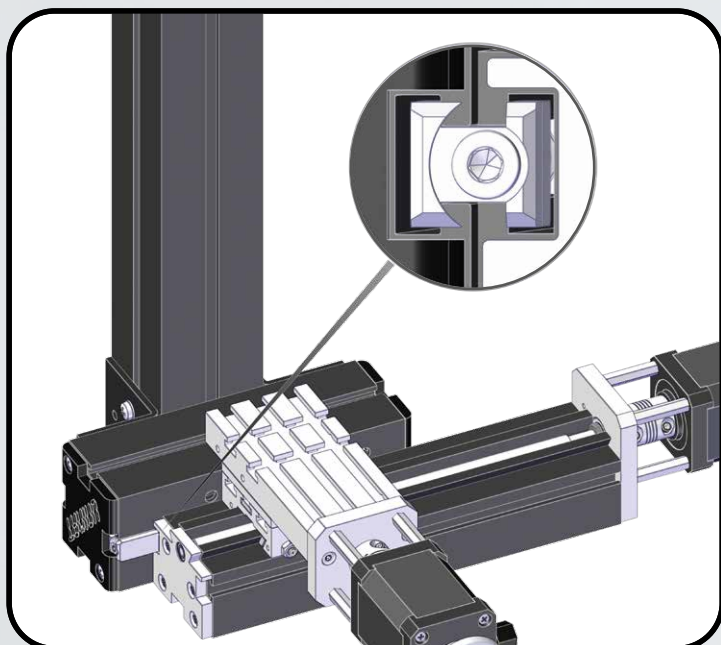
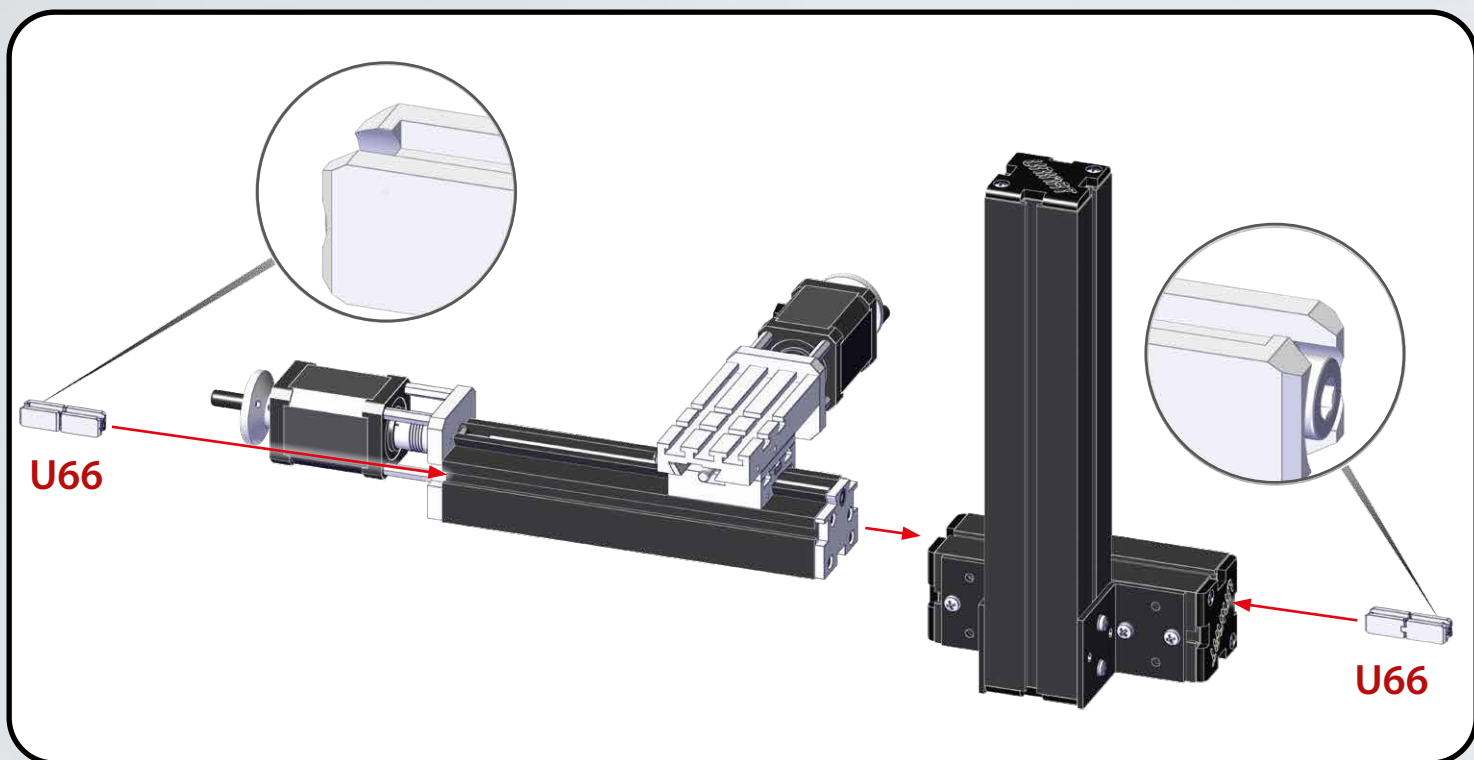


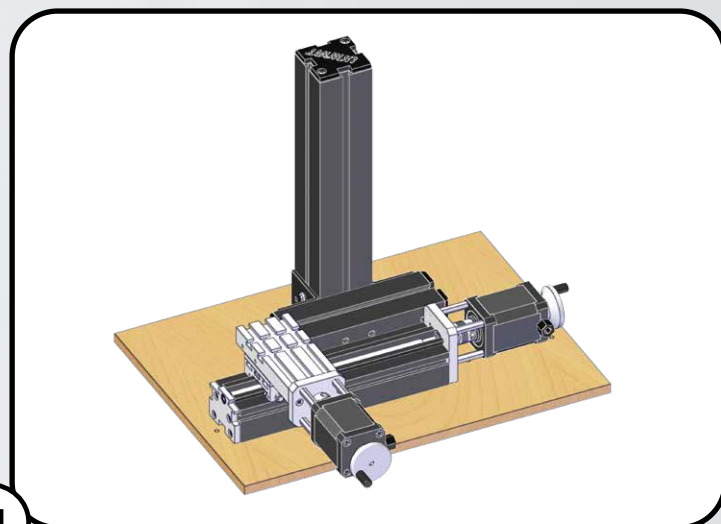
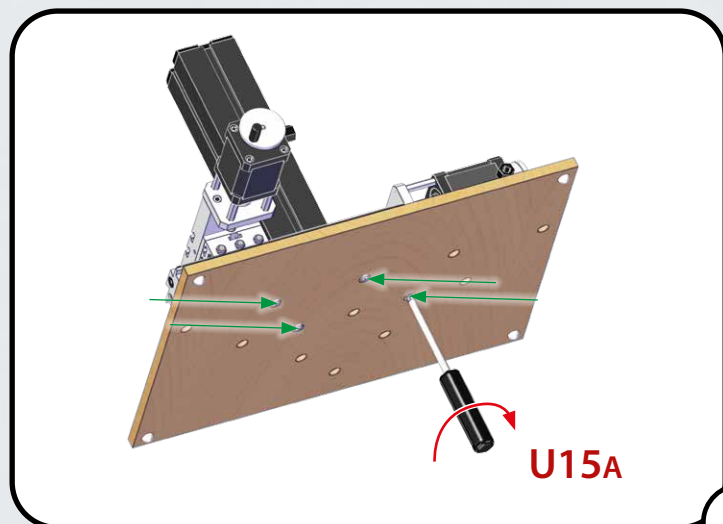
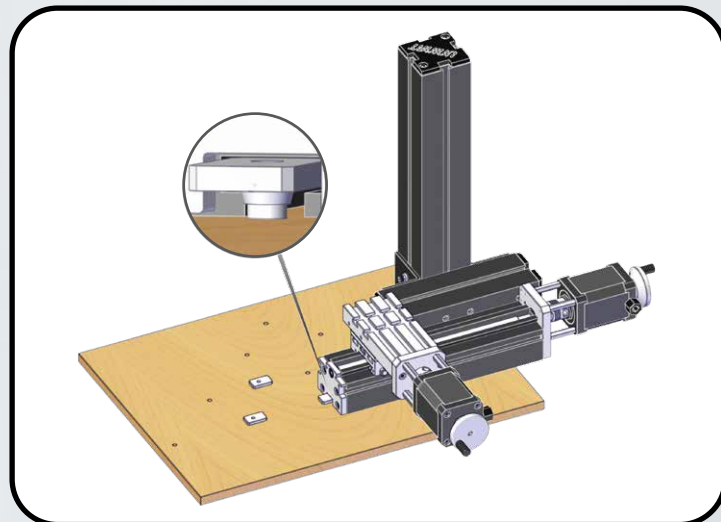
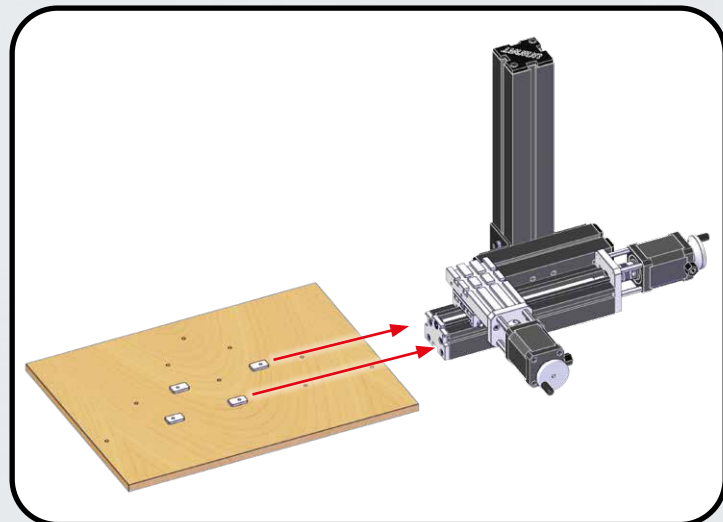
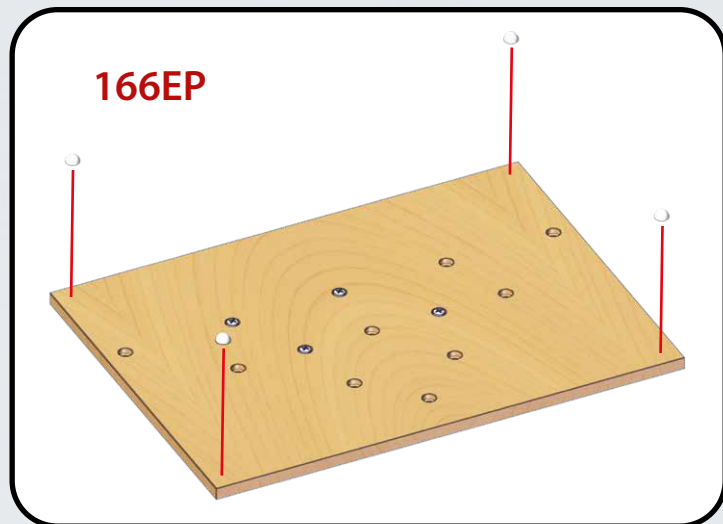
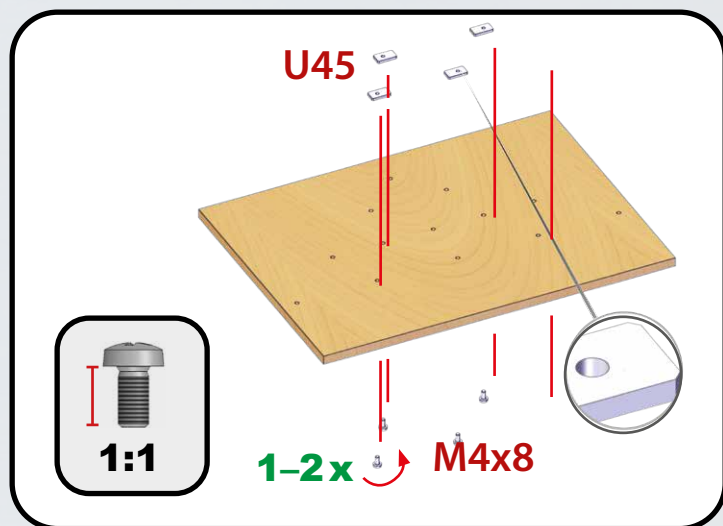
M4x8



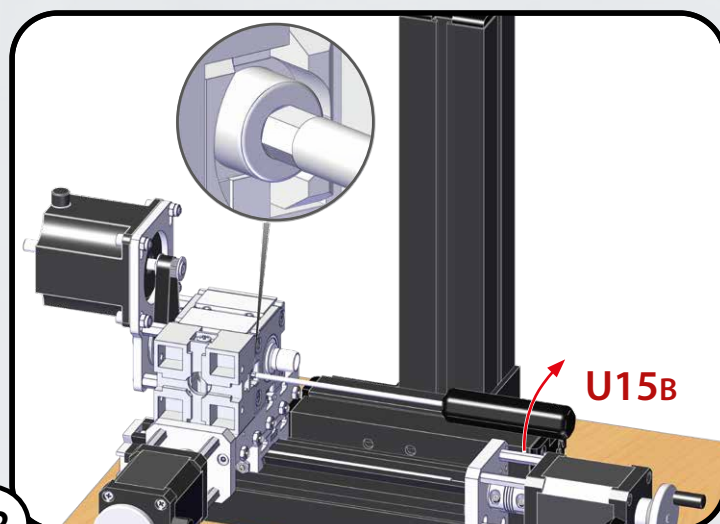
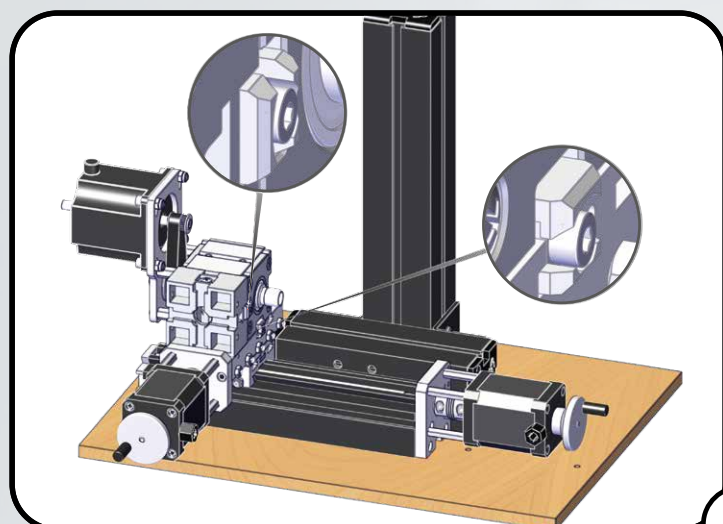
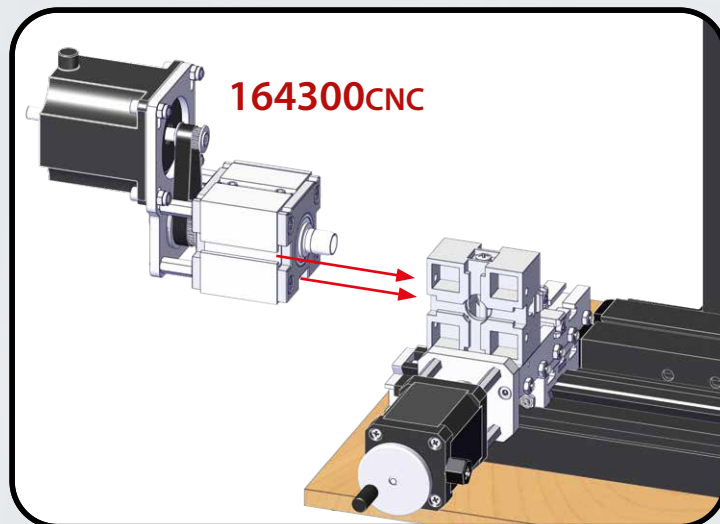
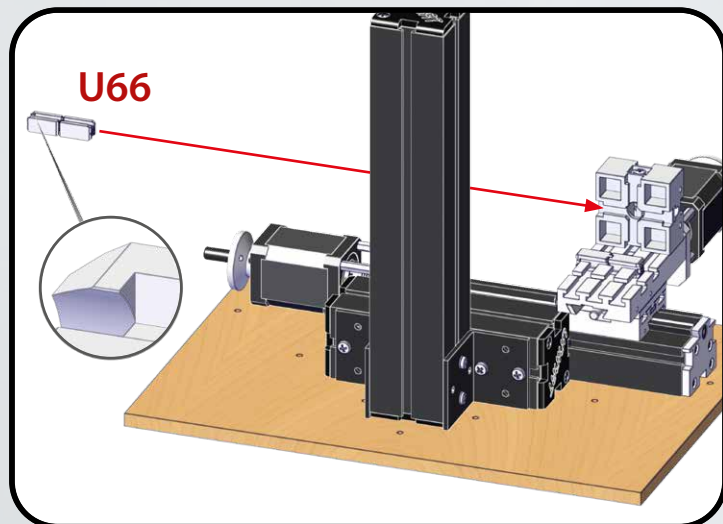
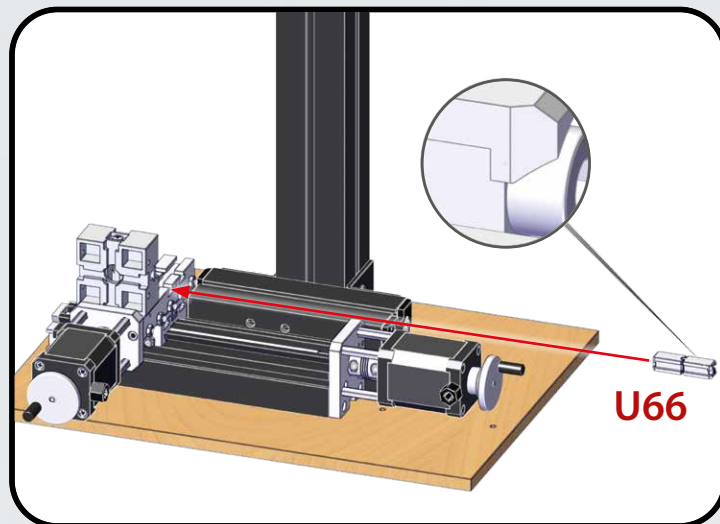
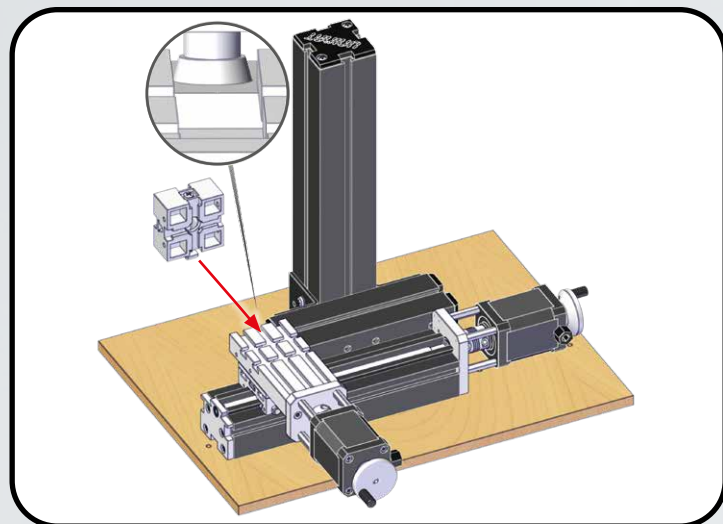
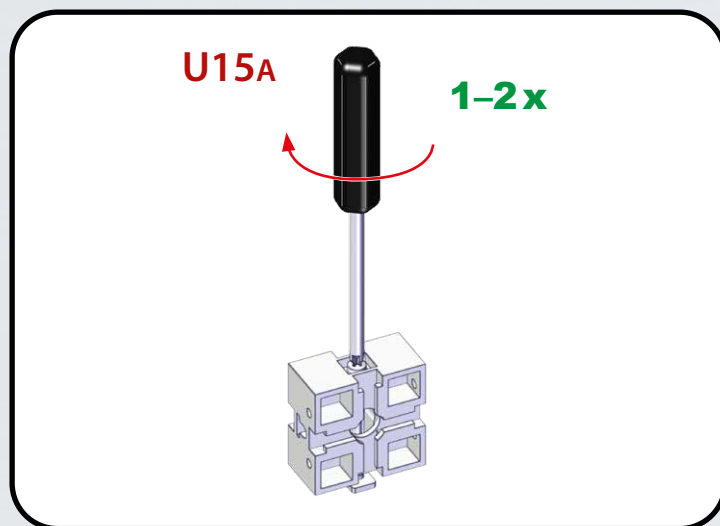
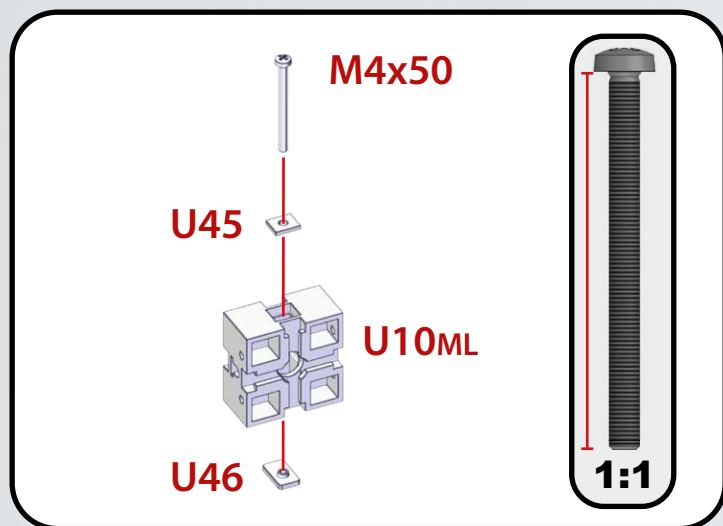
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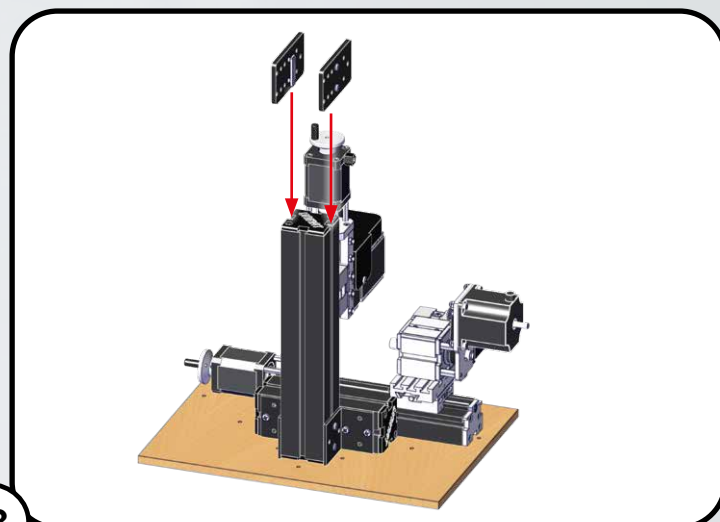
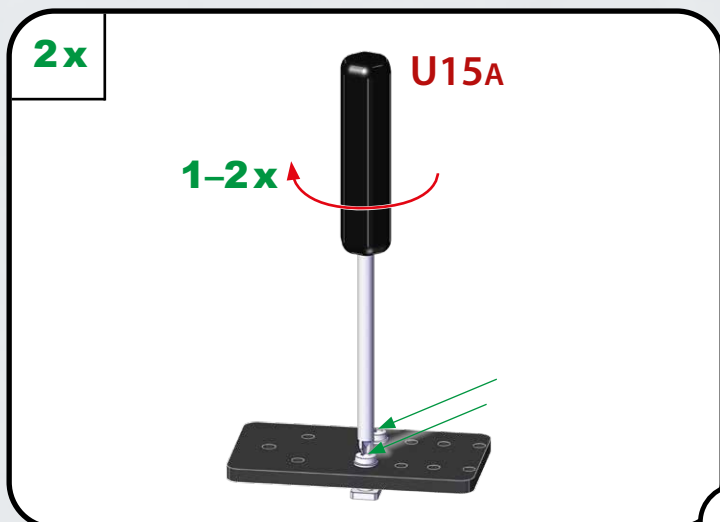
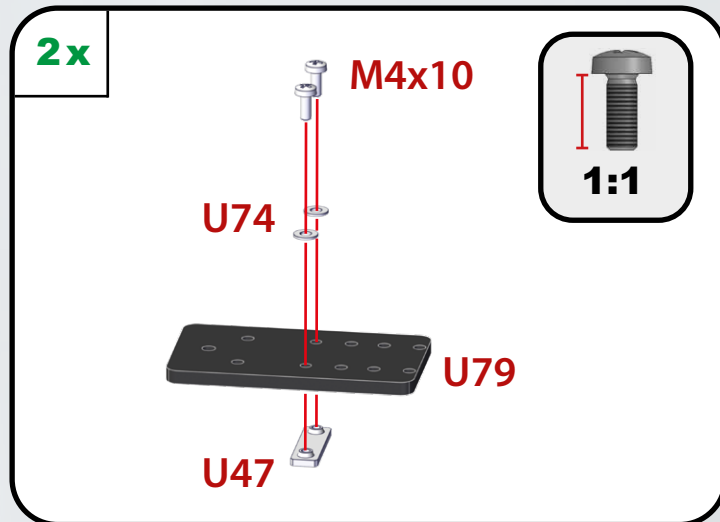
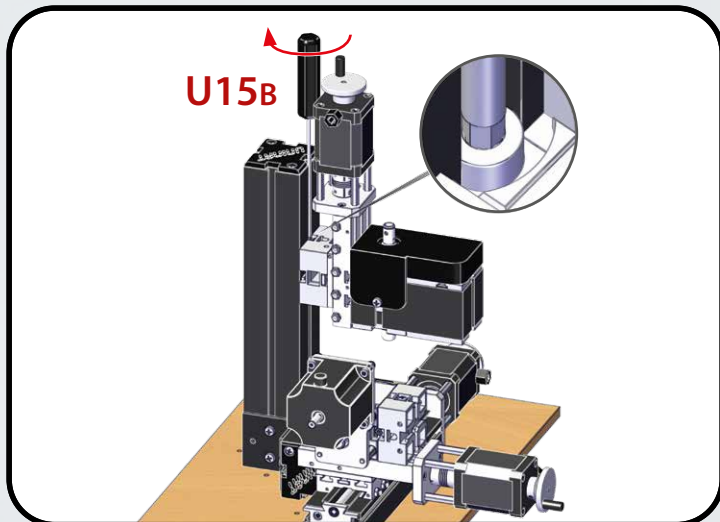
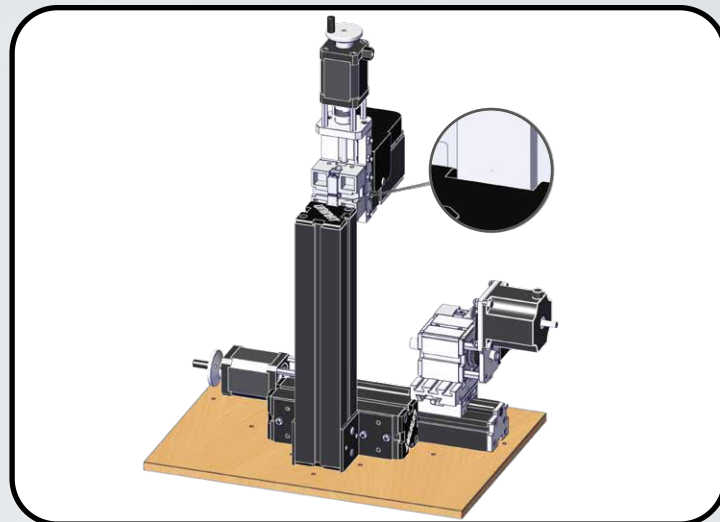
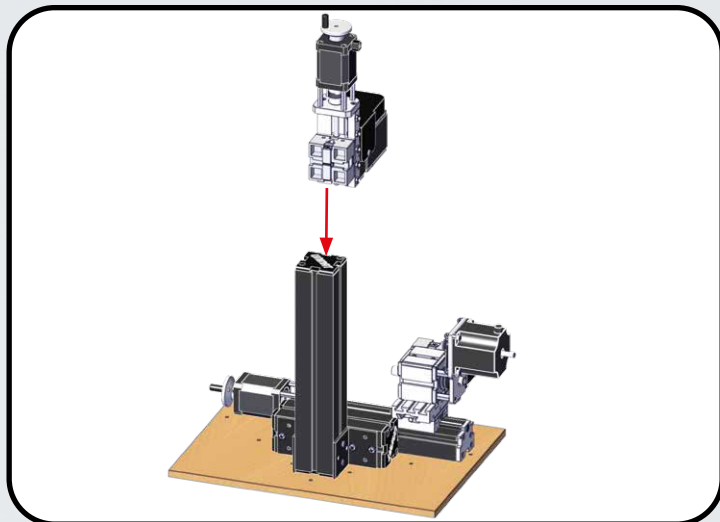
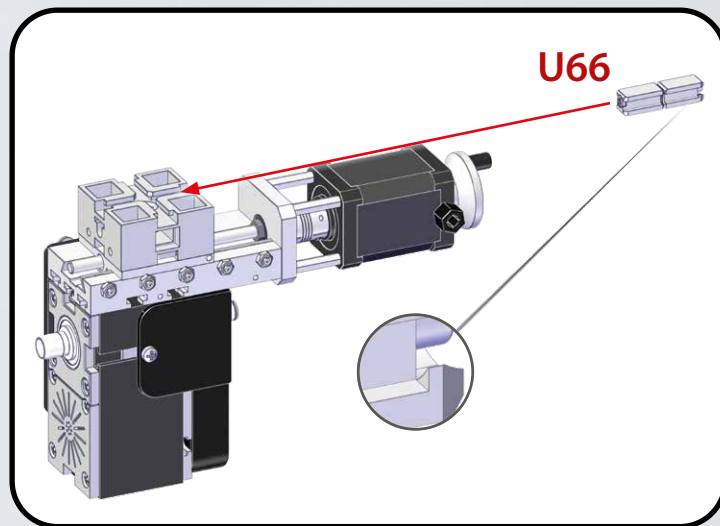
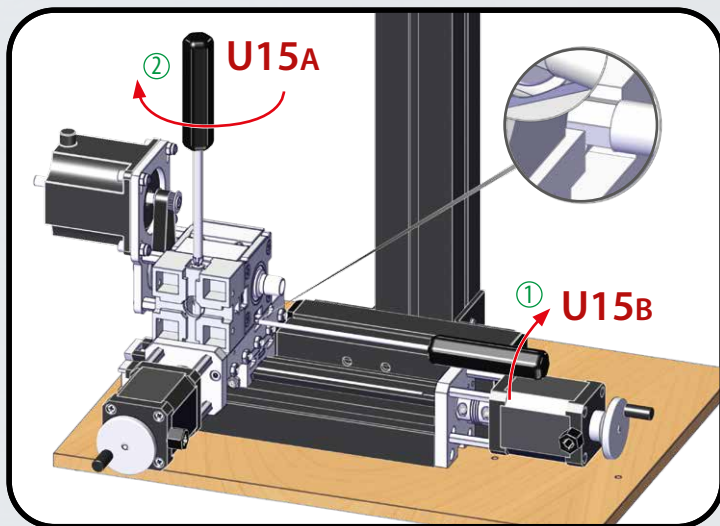




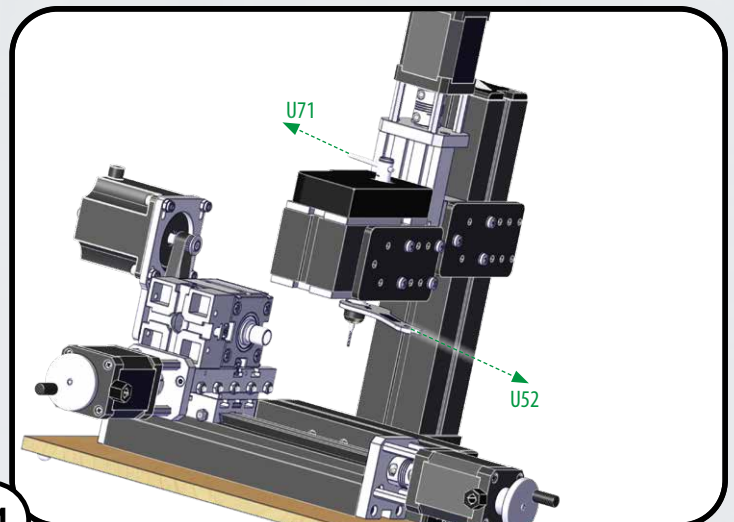
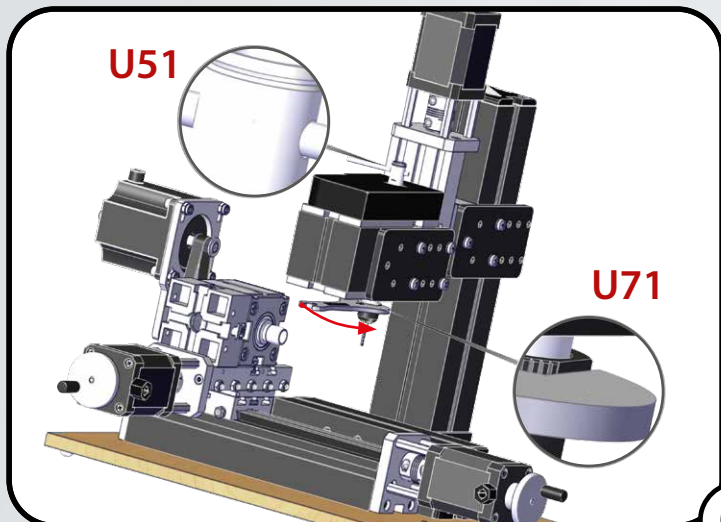
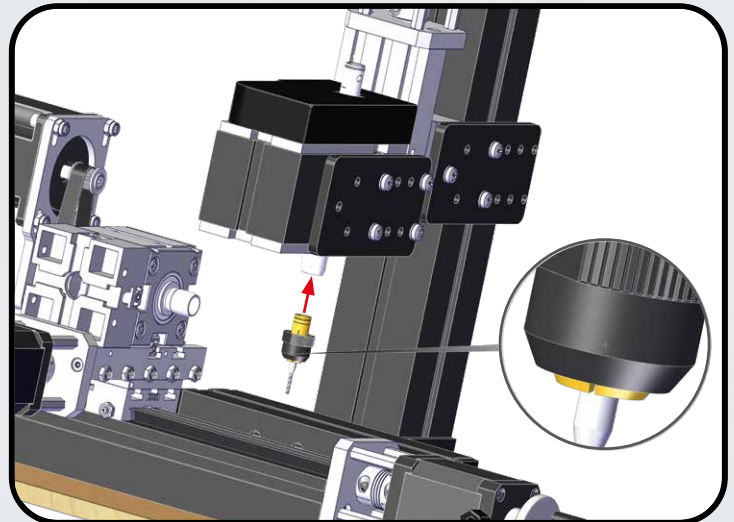
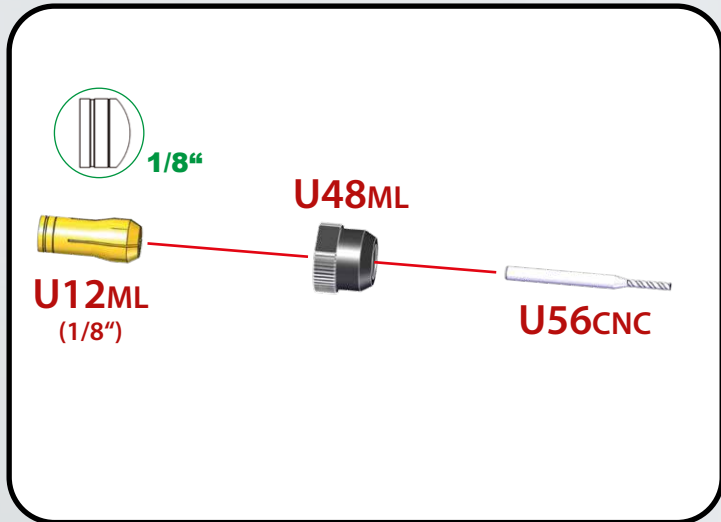
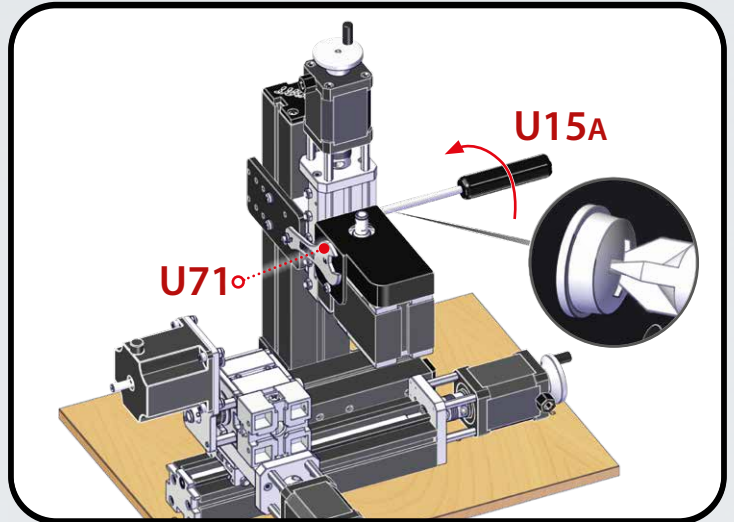
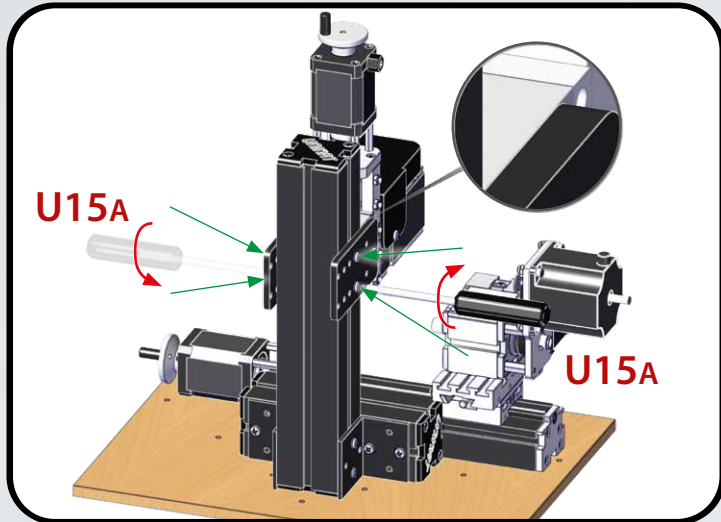
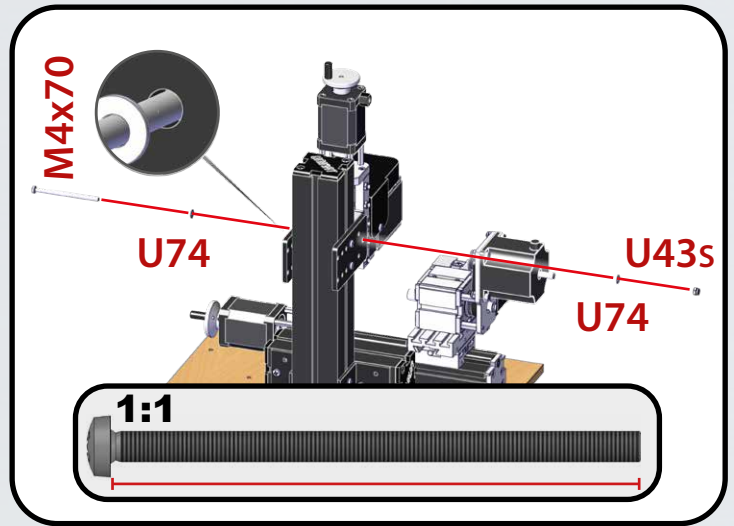
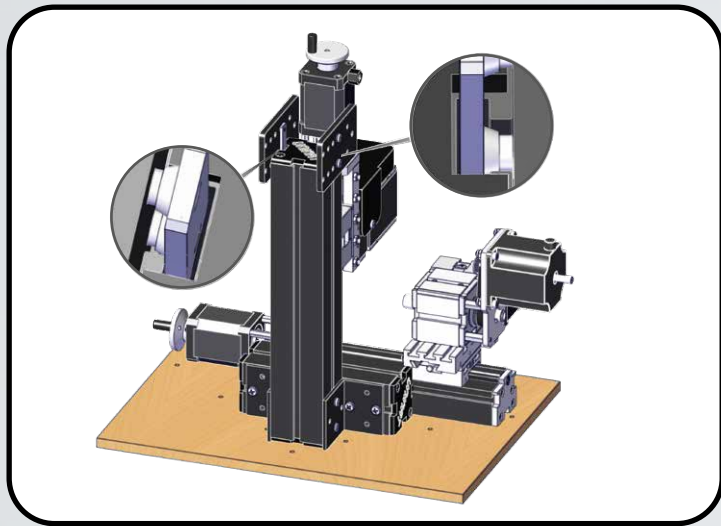




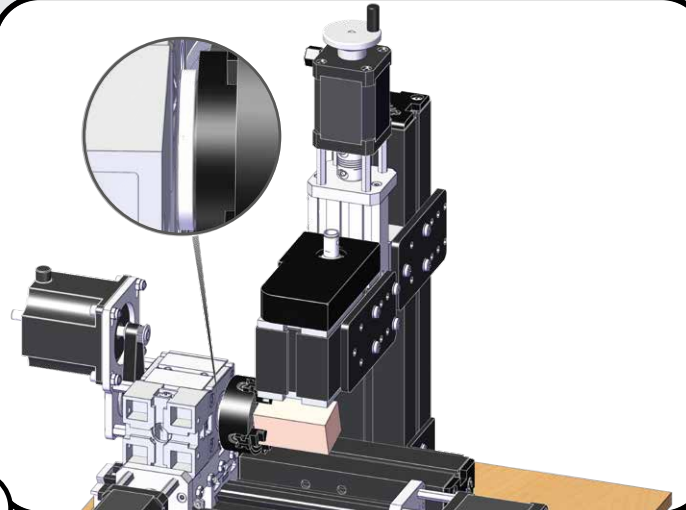
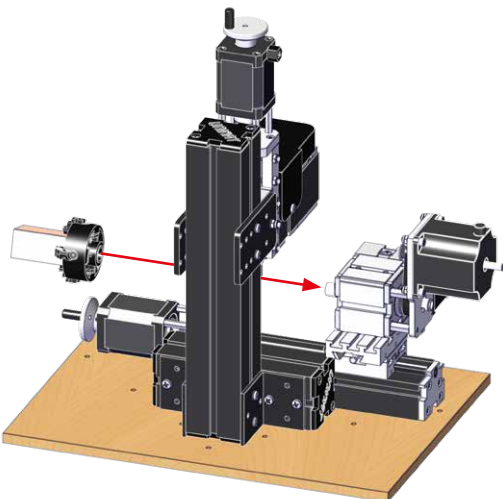
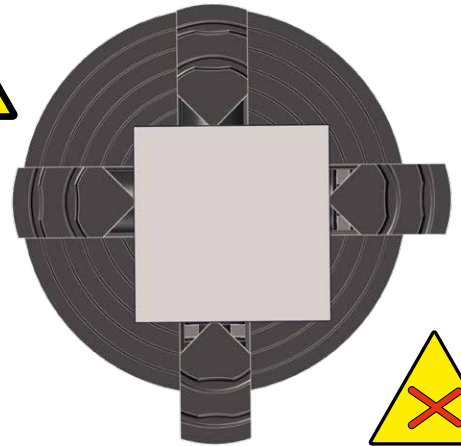
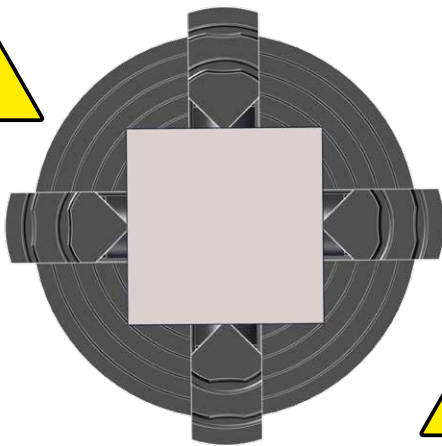
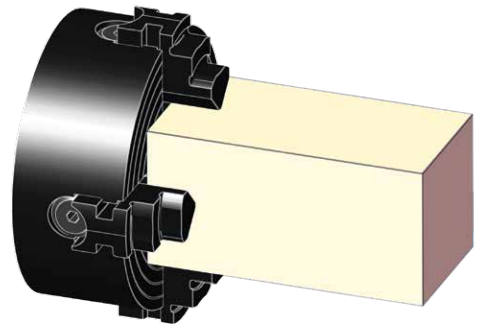
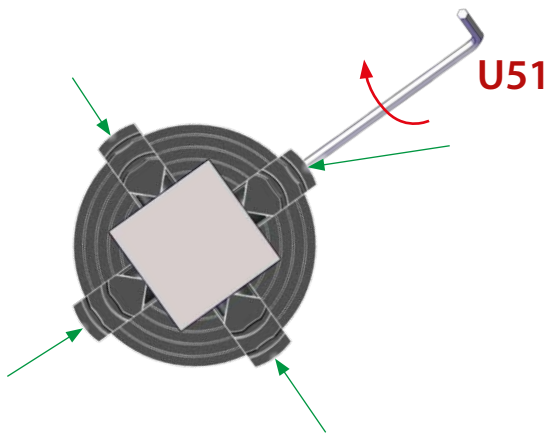
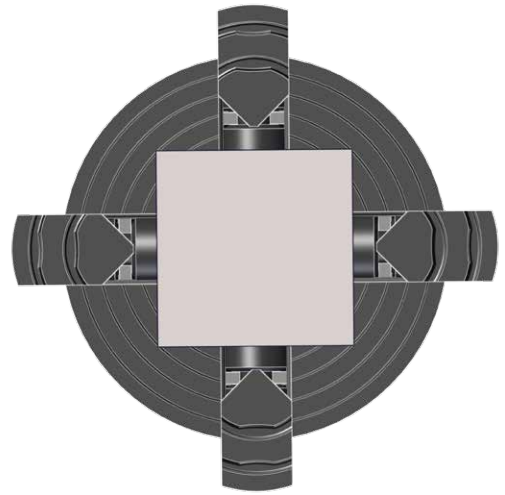
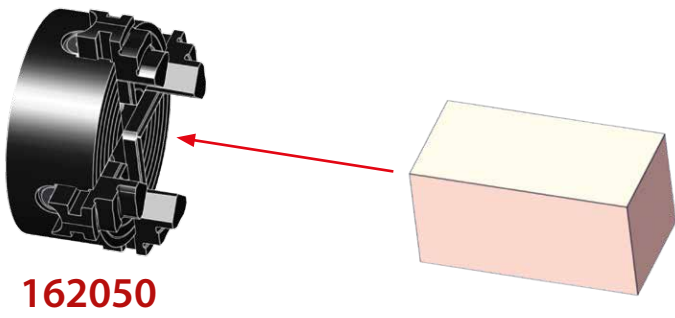


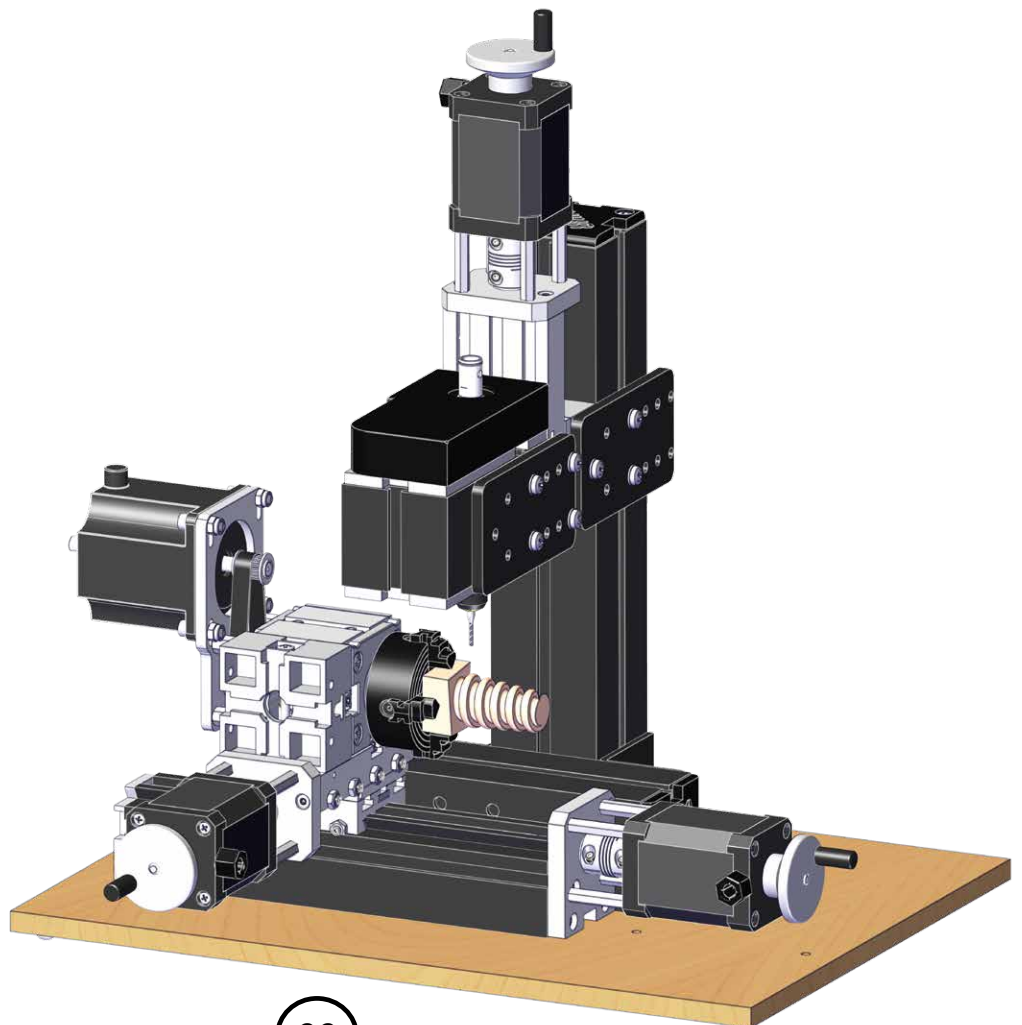
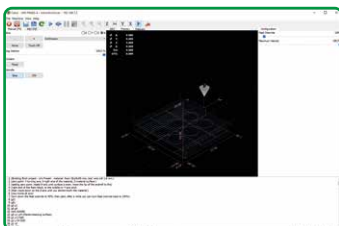
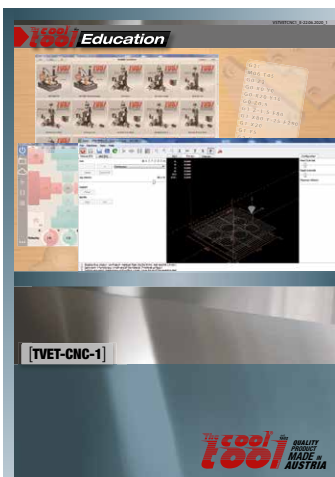
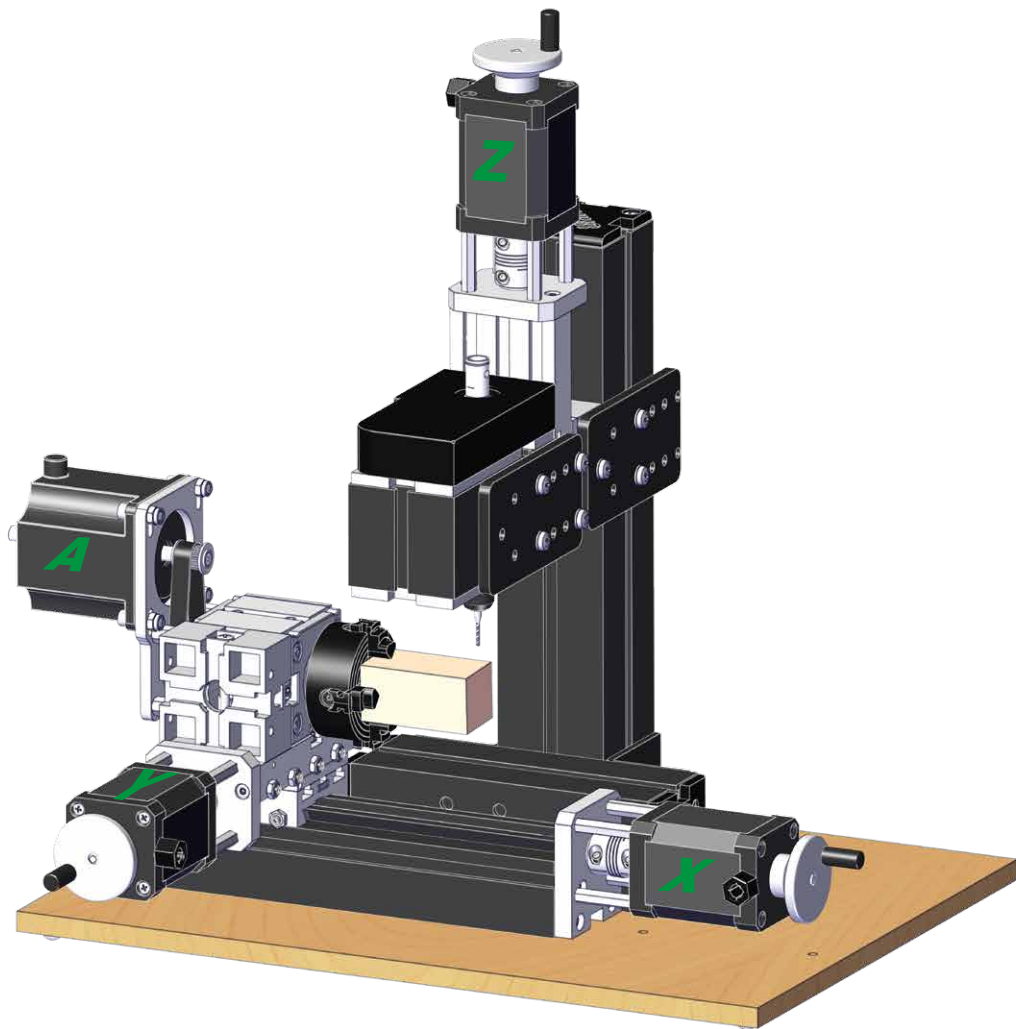












**Inhalt • contents • contenu • contenido • 内容 • содержание:**
**1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

Frässhäum • milling foam • mousse de fraisage •

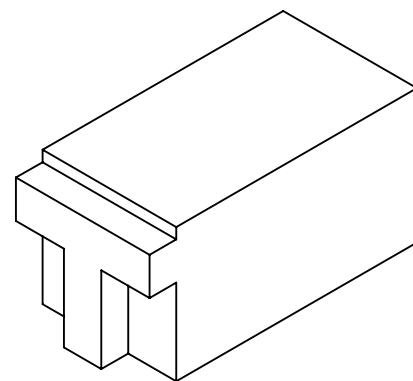
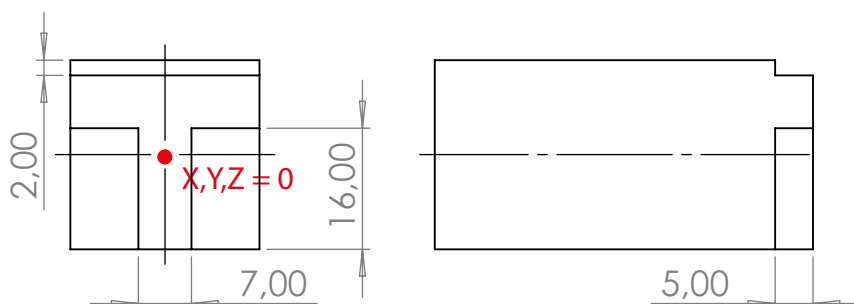
espuma de molienda • 研磨泡沫 • фрезерная пена ---- 25x25x50 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертёж

**3) Lösungsvorschlag • proposed solution • solution proposée • solución propuesta •**

建议的解决方案 • Предложенное решение


**Projekt • project • projet • proyecto • 项目 • Проект**

Schaftfräser • end mill • fraise en bout • molino de extremo •

 立铣刀 • Фреза концевая:  $\varnothing_{\max}$  1,6 mm

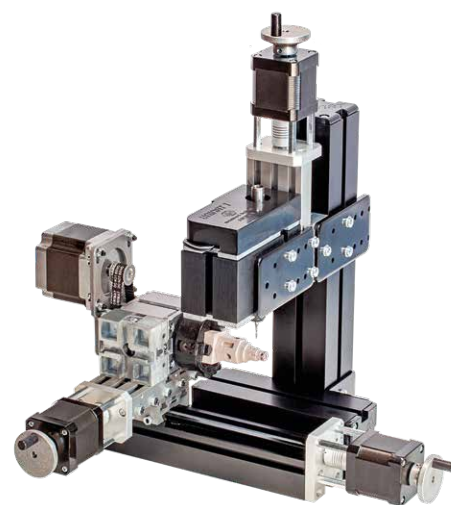
 $F_{\max.}$ : 250 mm/min

Maximale Schnitttiefe • maximum depth of cut •

profondeur de coupe maximale • profundidad

máxima de corte • 最大切削深度 •

максимальная глубина резания: 1,0 mm



UNI-FRAES-4



g21  
 g0 z15  
 g0 a0  
 g0 x-4.2 y14.5  
 g1 z10.5 f50  
 g1 y-14.5 f250  
 g0 x-3.2  
 g1 y14.5  
 g0 -2.2  
 g1 y-14.5  
 g0 x-0.2  
 g1 y14.5  
 g0 x0.6

g1 y-14.5  
 g0 z15  
 g0 x2  
 g0 a90  
 g0 x-4.2  
 g1 z8 f50  
 g1 y2.7 f150  
 g1 x2  
 g0 y1.7  
 g1 x-3.2  
 g1 y-14.5  
 g0 x2.2  
 g1 y0.7

g1 x2  
 g0 y-0.3  
 g1 x1.2  
 g1 y-14.5  
 g0 x0.2  
 g1 y-1.3  
 g1 x2  
 g0 y-14.5  
 g0 x-4.2  
 g1 z3.5 f50  
 g1 y2.7 f150  
 g1 x2  
 g0 y1.7

g1 x-3.2  
 g1 y-14.5  
 g0 x2.2  
 g1 y0.7  
 g1 x2  
 g0 y-0.3  
 g1 x1.2  
 g1 y-14.5  
 g0 x0.2  
 g1 y-1.3  
 g1 x2  
 g0 z15  
 g0 a270

g0 y-14.5  
 g0 x-4.2  
 g1 z8 f50  
 g1 y2.7 f150  
 g1 x2  
 g0 y1.7  
 g1 x-3.2  
 g1 y-14.5  
 g0 x2.2  
 g1 y0.7  
 g1 x2  
 g0 y-0.3  
 g1 x1.2

g1 y-14.5  
 g0 x0.2  
 g1 y-1.3  
 g1 x2  
 g0 y-14.5  
 g0 x-4.2  
 g1 z3.5 f50  
 g1 y2.7 f150  
 g1 x2  
 g0 y1.7  
 g1 x-3.2  
 g1 y-14.5  
 g0 x2.2

g1 y0.7  
 g1 x2  
 g0 y-0.3  
 g1 x1.2  
 g1 y-14.5  
 g0 x0.2  
 g1 y-1.3  
 g1 x2  
 g0 z15  
 m02



# UNIMAT CNC

**4 Achsen Vertikalfräse**

**4 axis vertical milling machine**

**4 axes Fraiseuse verticale**

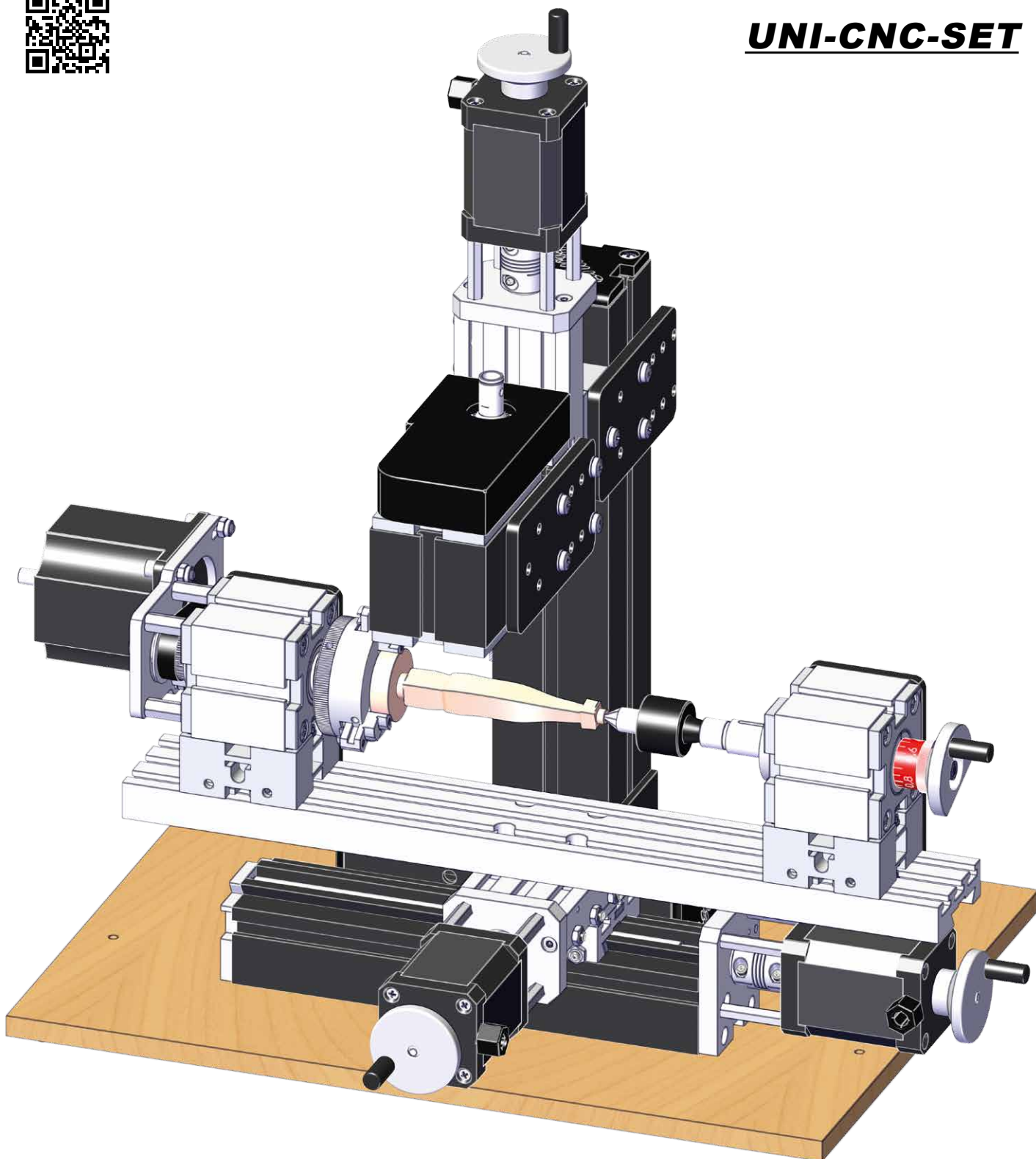
**4 ejes Fresadora vertical**

**4 轴 立式 铣床**

**4оси Вертикальный фрезерный станок**

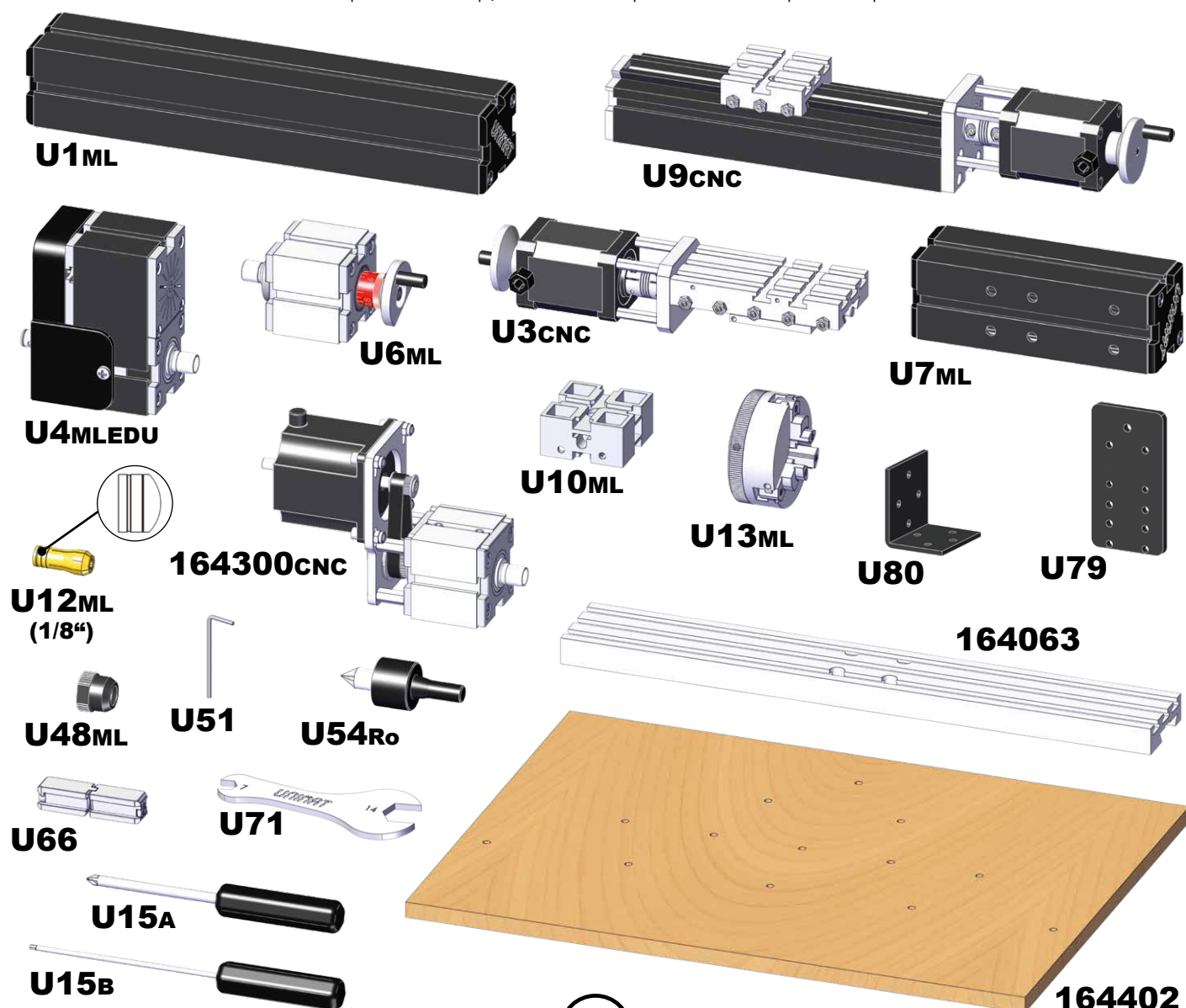


**UNI-CNC-SET**



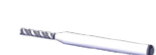
|         |   | DE                         | EN                          | FR                                   | ES                                 | 中国 (ZH)      | RU                                       |                |
|---------|---|----------------------------|-----------------------------|--------------------------------------|------------------------------------|--------------|------------------------------------------|----------------|
| U1ML    | 1 | Maschinenbett, lang        | Machine bed, long           | Banc, grand                          | Bancada grande                     | 长机座          | Станина длинная                          | A1A 020 000 SW |
| U3CNC   | 2 | CNC Querschlitzen          | CNC Cross slide             | CNC Chariot, petit                   | CNC Carro, pequeño                 | CNC 全金属小滑块   | CNC Салазки поперечные                   | 164 060 NCNC   |
| U4MLEDU | 1 | Antriebseinheit ML         | Drive unit ML               | EDU-Moteur                           | EDU-Motor                          | EDU-马达       | EDU-Двигатель                            | 164 420        |
| U6ML    | 1 | Reitstock                  | Tailstock                   | Poupée mobile                        | Contrapunta                        | 全金属尾座        | Бабка задняя                             | A1M 040 000    |
| U7ML    | 1 | Maschinenbett, kurz        | Machine bed, short          | Banc, petit                          | Bancada pequeña                    | 全金属短机座       | Станина короткая                         | A1A 010 000SW  |
| U9CNC   | 1 | CNC Längsschlitten         | CNC Longitudinal slide      | CNC Chariot, grand                   | CNC Carro, grande                  | 全金属长滑块       | Салазки продольные                       | 164 480 NCNC   |
| U10ML   | 3 | Zwischenstück              | Intermediate piece          | Pièce intermédiaire                  | Pieza intermedia                   | 全金属中介块       | Проставка                                | A1M 000 100    |
| U12ML   | 1 | Spannzange 1/8"            | Collet 1/8"                 | Pince 1/8"                           | Pinza 1/8"                         | 金属夹头 1/8"    | Цанги 1/8"                               | 162 460 31/8   |
| U13ML   | 1 | Dreibeckenfutter           | Three-jaw chuck             | Mandrin à trois mors                 | Mandril de tres mordazas           | 3爪夹头         | Патрон 3-кулачковый                      | 162 430 MH     |
| U15A    | 1 | Schraubendreher #2         | Screwdriver #2              | Tourne-vis #2                        | Destornillador #2                  | 螺丝刀 #2       | Отвертка Philips № 2                     | ZWZ 980 030    |
| U15B    | 1 | Inbusschraubendreher       | Screwdriver allen key 2.5mm | Tourne-vis hexagonale 2,5mm          | Destornillador allen 2,5mm         | 内六角扳手 2.5 mm | Отвертка 6-гранная 2,5 мм                | ZWZ 980 075    |
| U48ML   | 1 | Spannzangenhalter          | Collet holder               | Porte-pinces                         | Porta-pinza                        | 固定铜帽         | Гайка зажимная для цанг                  | A1A 000 073    |
| U51     | 1 | Inbusschlüssel 2 mm        | Allen key 2 mm              | Clé hexagonale 2 mm                  | Llave allen 2 mm                   | 内六角扳手 2 mm   | Ключ 6-гранный 2 мм                      | ZWZ 110 200    |
| U54R0   | 1 | Präzisions Rollkörper      | Precision live center       | Contre-pointe tournante précision    | Contra punto giratorio precisión   | 精密活顶尖        | Центр вращающийся                        | 164 450 MH     |
| U66     | 8 | Verbindungselement         | Connection piece            | Pièce de connexion                   | Elemento de conexión               | 连接件          | Сухарь соединительный                    | A1A 00 ZINSK   |
| U71     | 1 | Gabelschlüssel 7 / 14 mm   | Fork wrench 7 / 14 mm       | Clé de fourche 7 / 14 mm             | Llave de furca 7 / 14 mm           | 扳手 7 / 14 mm | Ключ гаечный 7 / 14 мм                   | ZWZ 400 700    |
| U79     | 5 | Fixierplatte klein         | Stabilizing plates small    | Plaques de fixation petits           | Platos de fijación pequeños        | 小固定片         | Пластина стабилизирующая малая           | A1Z 470 000    |
| U80     | 2 | Befestigungswinkel         | Stabilizing angle           | Angle de fixation                    | Escuadra de fijacion               | 直角固定座        | Угольник стабилизирующий                 | A1Z 480 000    |
|         | 1 | Drehtisch CNC              | Rotary table CNC            | Table rotative CNC                   | Mesa giratoria CNC                 | 轮盘 CNC       | Поворотный стол CNC                      | 164 300 CNC    |
|         | 1 | Querplatte - Querschlitzen | Cross plate - cross slide   | Plaque transversale - Chariot, petit | Placa transversal - Carro, pequeño | 横板 - 全金属小滑块  | Поперечная пластина - Салазки поперечные | 164 063        |
|         | 1 | Grundplatte CNC            | Mounting plate CNC          | Plaque de montage CNC                | Plancha basico CNC                 | 固定底板 CNC     | Монтажная пластина CNC                   | 164 402        |

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



|                                                                                   |    | DE                  | EN                  | FR                   | ES                    | 中国 (ZH)    | RU                       |             |
|-----------------------------------------------------------------------------------|----|---------------------|---------------------|----------------------|-----------------------|------------|--------------------------|-------------|
| U31                                                                               | 16 | Schraube M4x10      | Screw M4x10         | Vis M4x10            | Tornillo M4x10        | 螺钉M4x10    | Винт M4x10               | ZSR M40 410 |
| U37                                                                               | 12 | Schraube M4x8       | Screw M4x8          | Vis M4x8             | Tornillo M4x8         | 螺钉M4x8     | Винт M4x8                | ZSR M40 408 |
| U38                                                                               | 6  | Schraube M4x6       | Screw M4x6          | Vis M4x6             | Tornillo M4x6         | 螺钉M4x6     | Винт M4x6                | ZSR M40 406 |
| U43S                                                                              | 1  | Sicherungsmutter M4 | Locking nut M4      | Ecrou sécurité M4    | Tuerca M4 seguridad   | 防松螺母M4     | Гайка M4 самоконтрящаяся | ZMU 340 120 |
| U46                                                                               | 8  | Nutstein            | Slot nut            | Boulon en «T»        | Pernos "T"            | 单孔螺母       | Гайка пазовая            | A1A 060 040 |
| U47                                                                               | 10 | Klemmplatte         | Camping plate       | Élément en «T»       | Elemento "T"          | 双孔螺母       | Гайка пазовая двойная    | A1A 010 020 |
| U50                                                                               | 1  | Schraube M4x70      | Screw M4x70         | Vis M4x70            | Tornillo M4x70        | 螺钉M4x70    | Винт M4x70               | ZSR M40 470 |
| U52                                                                               | 2  | Stift               | Rod                 | Cheville             | Perno                 | 锁杆         | Вороток                  | ZST 110 345 |
| U56CNC                                                                            | 1  | 1,6 mm Fräser       | 1.6 mm Milling head | 1,6 mm Fraise        | 1,6 mm Fresa          | 铣刀头 1.6 mm | Фреза концевая 1,6 mm    | F2470 1.60  |
| U69                                                                               | 4  | Schraube M4x12      | Screw M4x12         | Vis M4x12            | Tornillo M4x12        | 螺钉M4x12    | Винт M4x12               | ZSR M40 412 |
| U74                                                                               | 26 | Beilagscheibe       | Plain washer        | Rondelle             | Arandela              | 垫片         | Шайба                    | ZSB 250 430 |
|                                                                                   | 4  | Gummipuffer         | Elastic buffer      | Butoir élastique     | Amortiguador elástico | 弹性缓冲       | Эластичный буфер         | 166 EP      |
| ohne Abbildung   without picture   sans figure   sin ilustración 无图   без рисунка |    |                     |                     |                      |                       |            |                          |             |
|                                                                                   | 1  | Netzteil 14,4V      | 14.4V adaptor       | 14,4V Transformateur | 14,4V Transformador   | 变压器 14.4 V | Трансформатор 14,4 В     | 161 31x     |

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



**U56CNC**



**U47**



**U74**



**U52**



**U46**



**U43s**



**166EP**

**1:1**



**M4x6**



**M4x8**



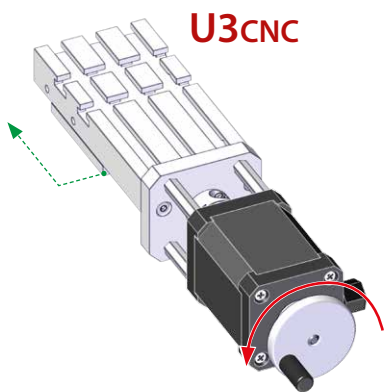
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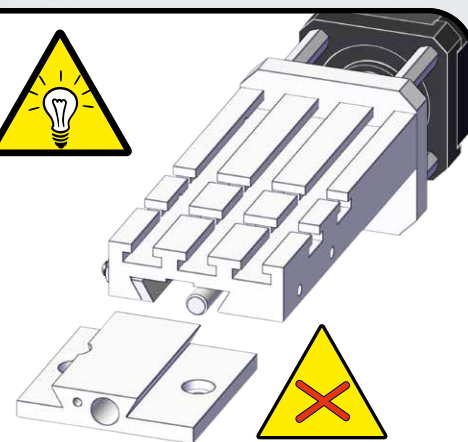
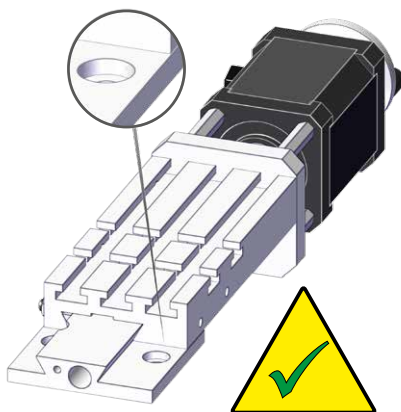
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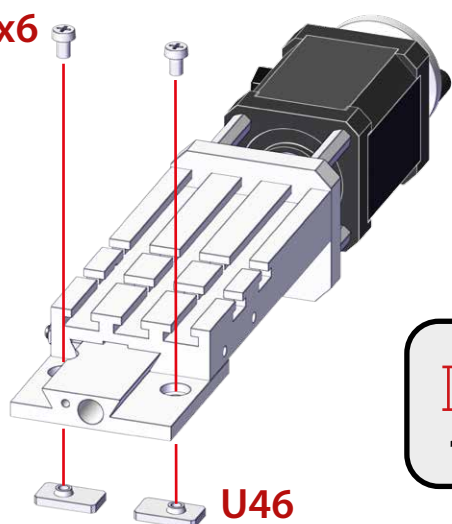
**M4x70**



**U3CNC**



**M4x6**



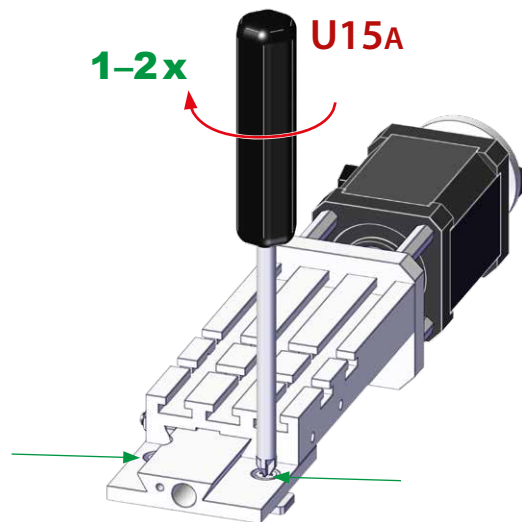
**U46**



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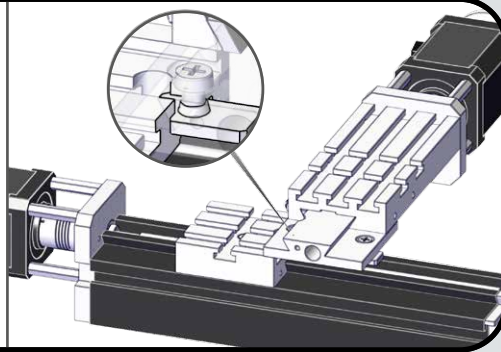
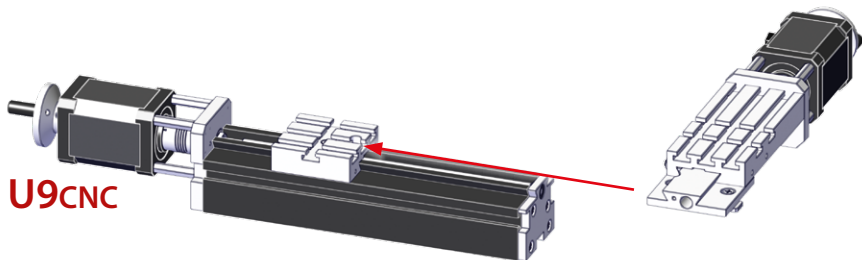
**1-2x**

**U15A**

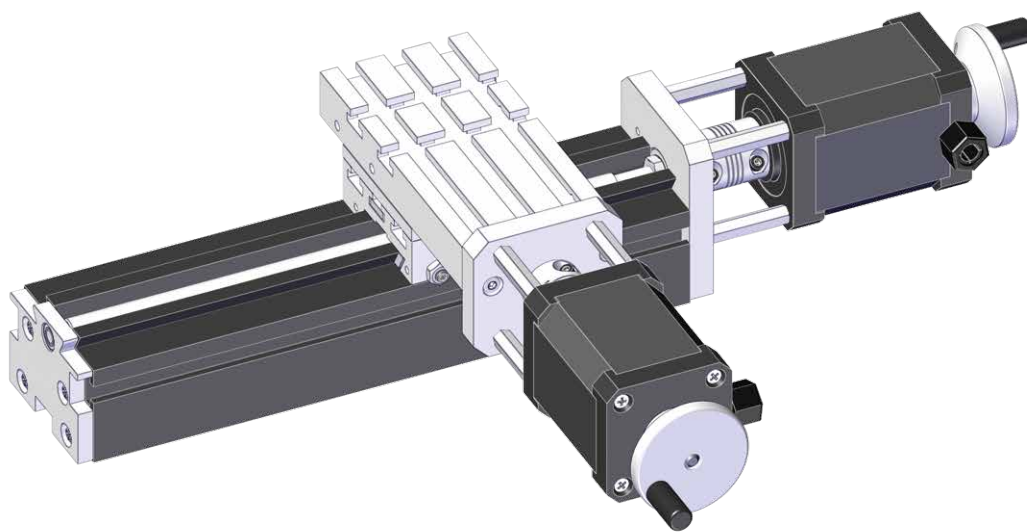
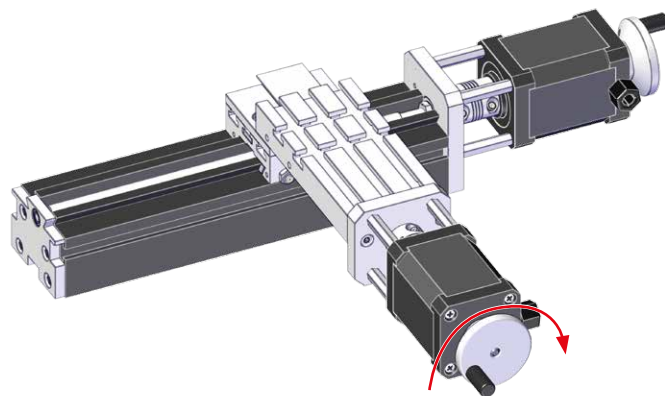
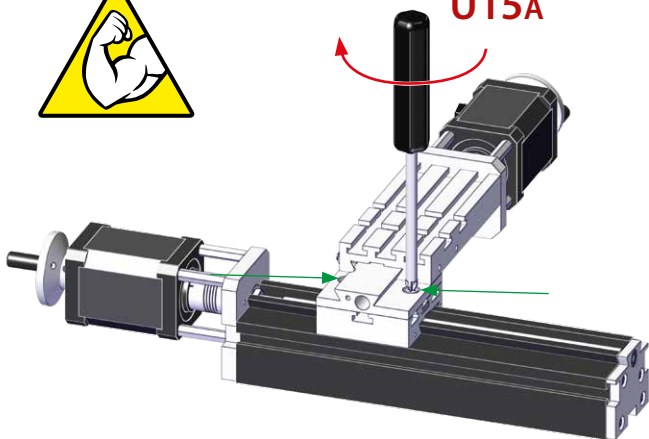




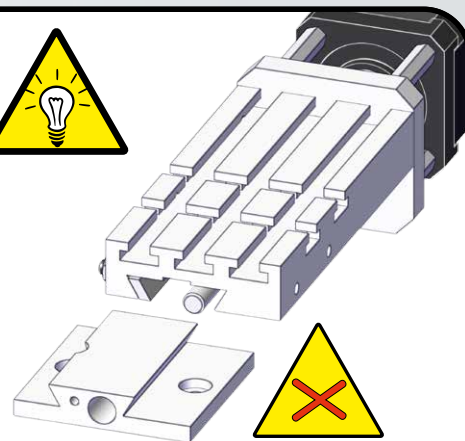
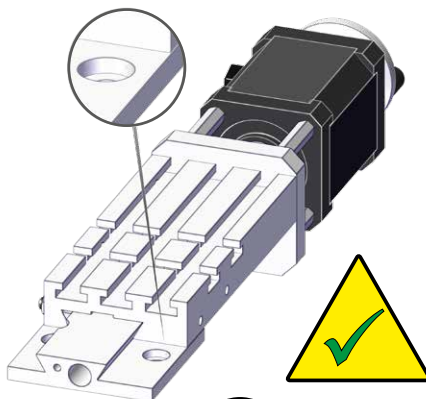
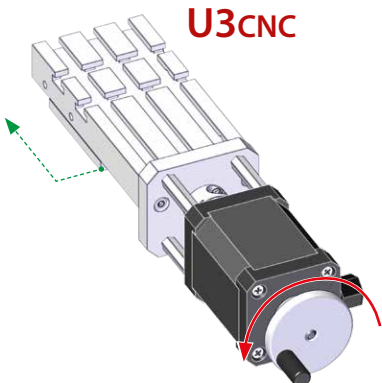
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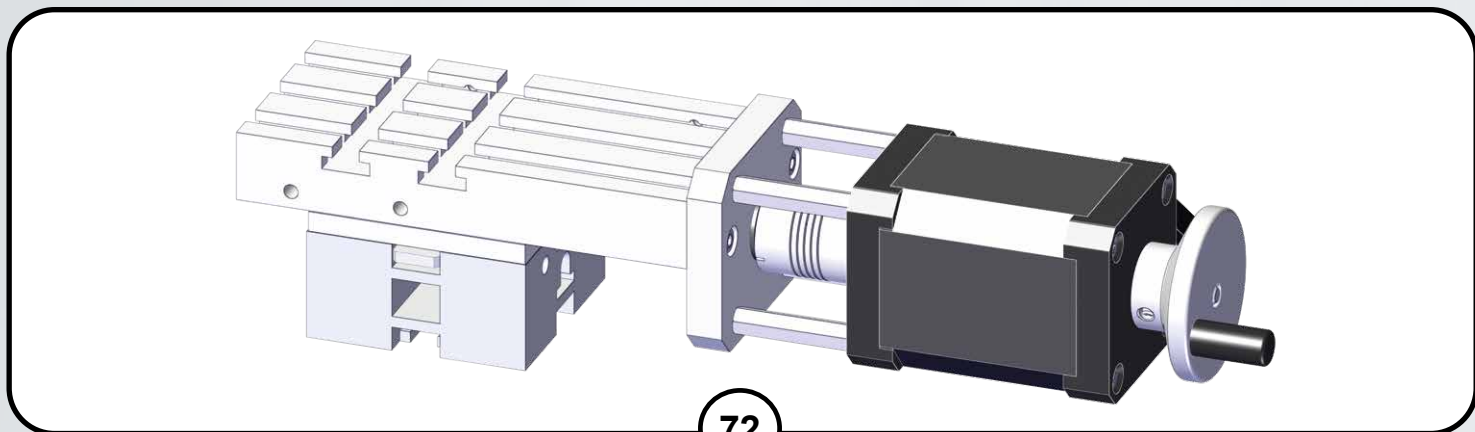
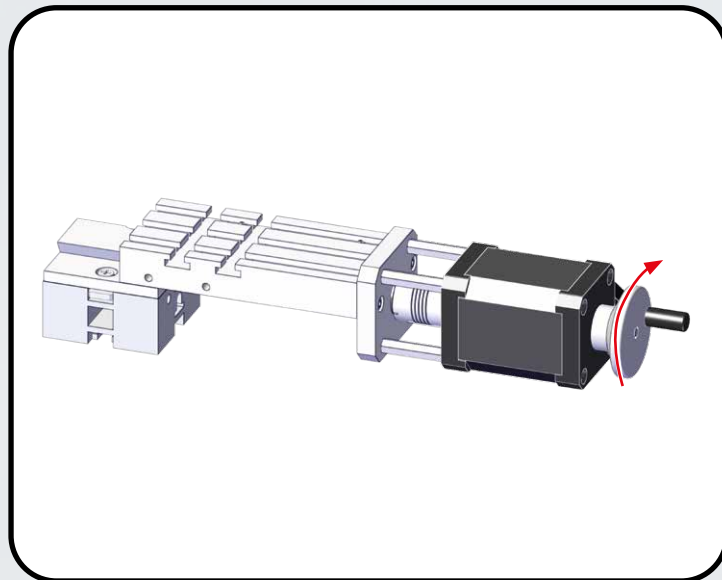
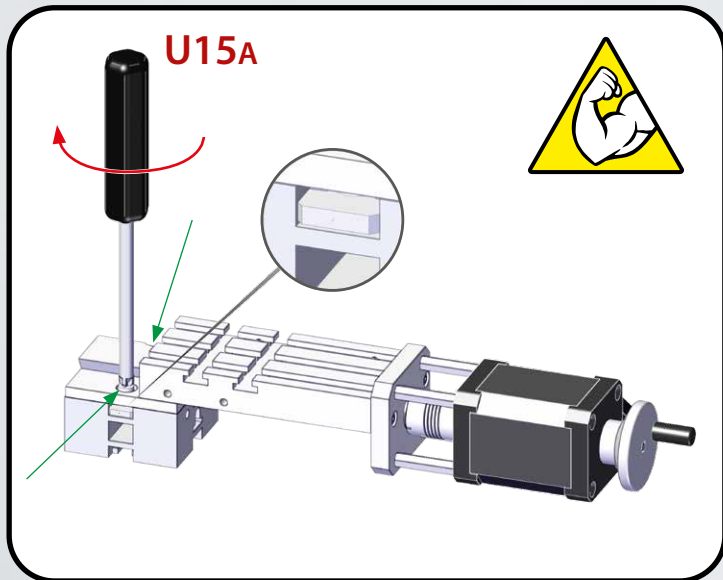
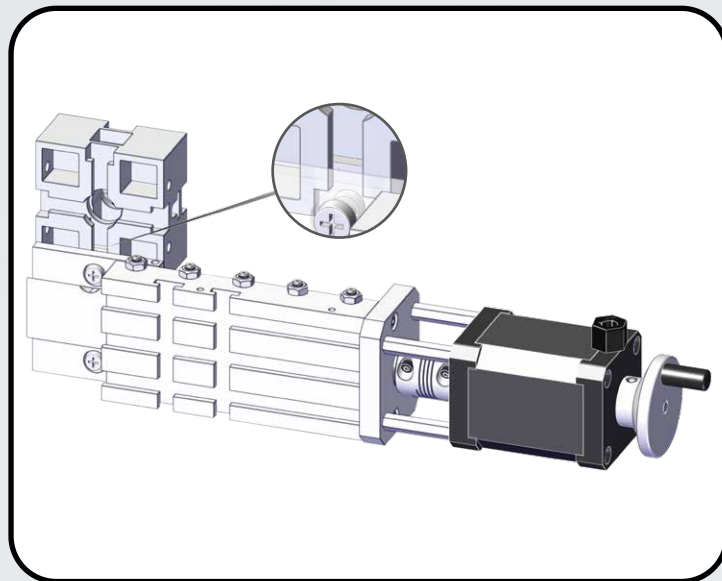
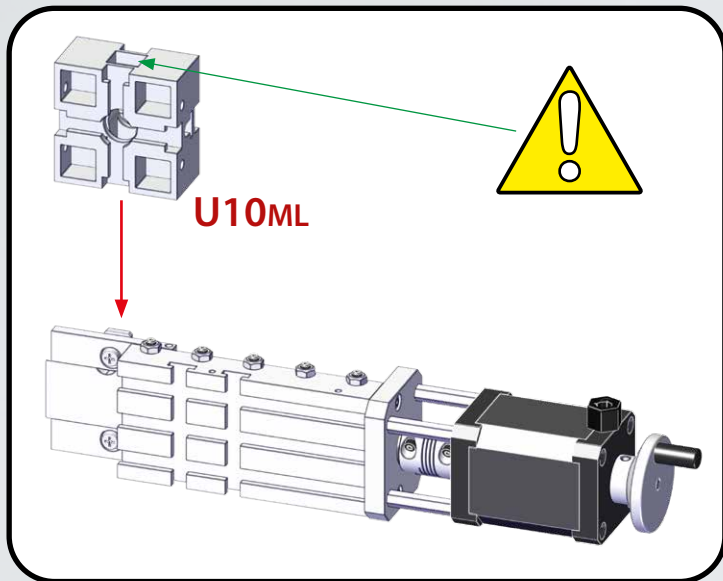
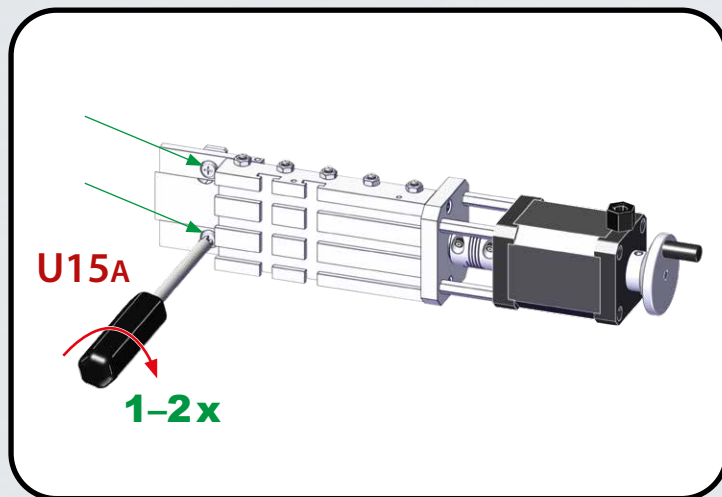
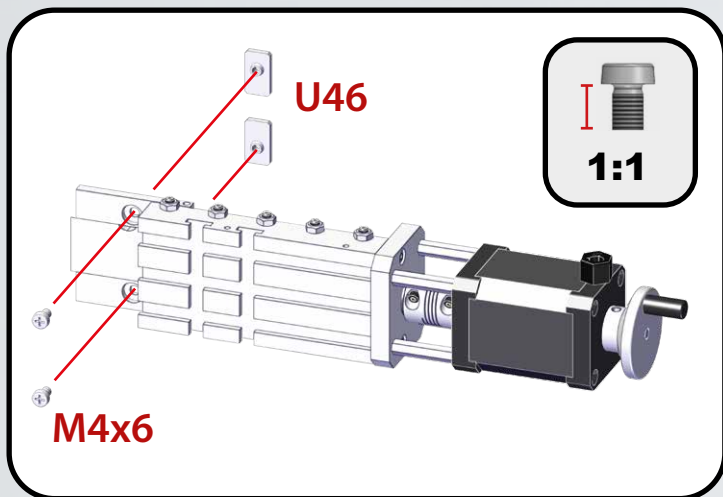


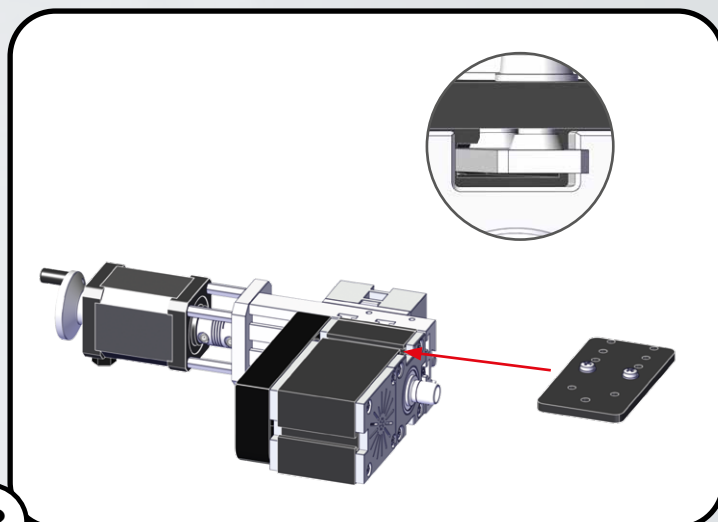
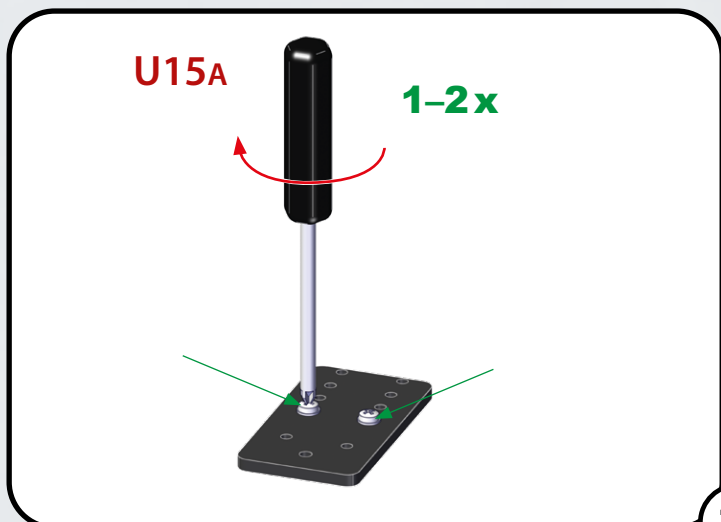
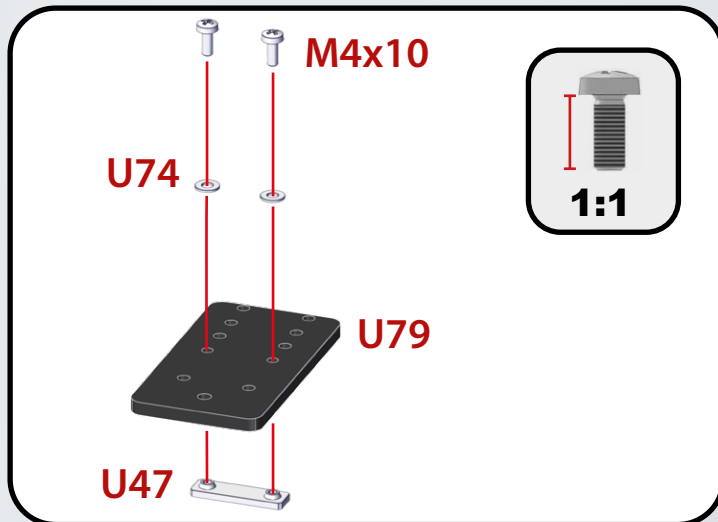
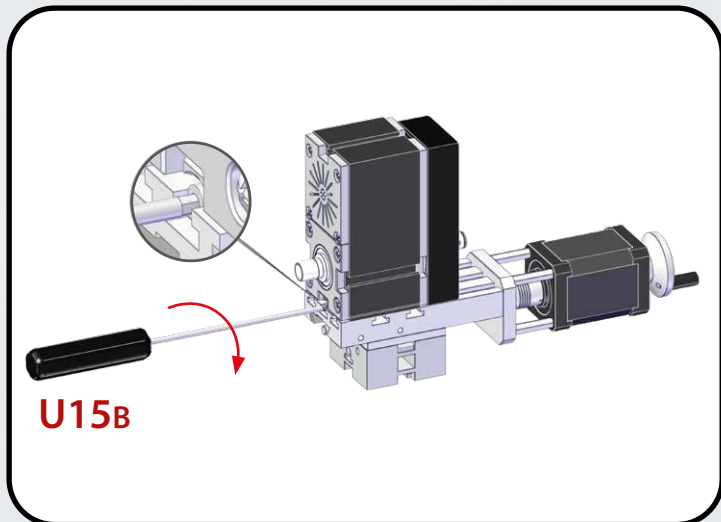
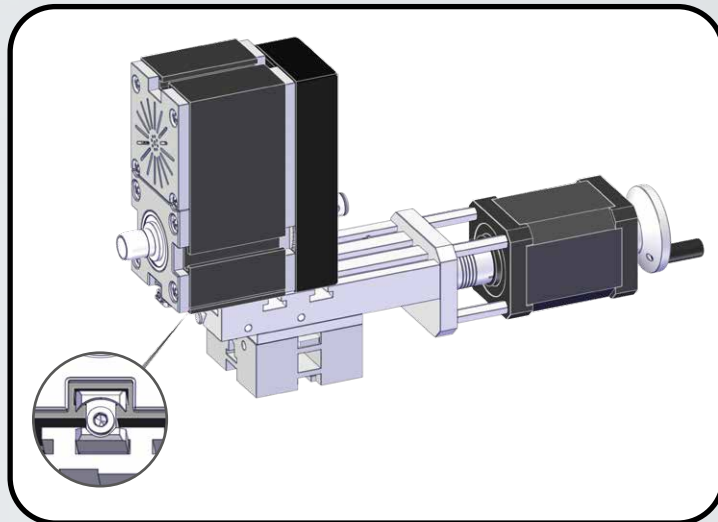
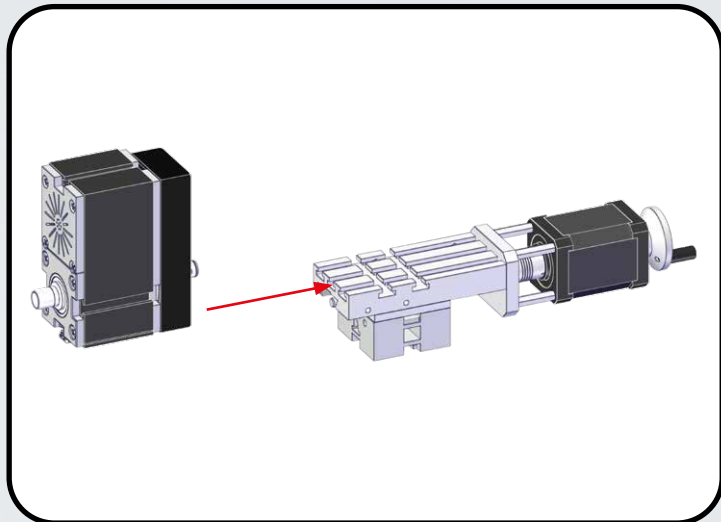
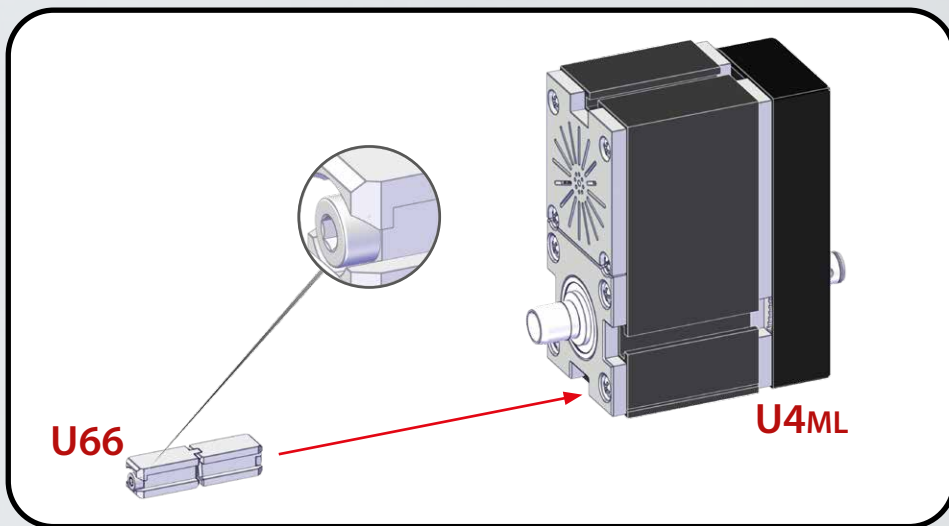
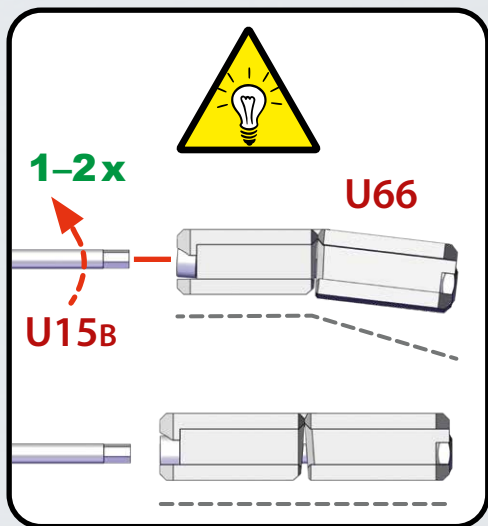
U15A



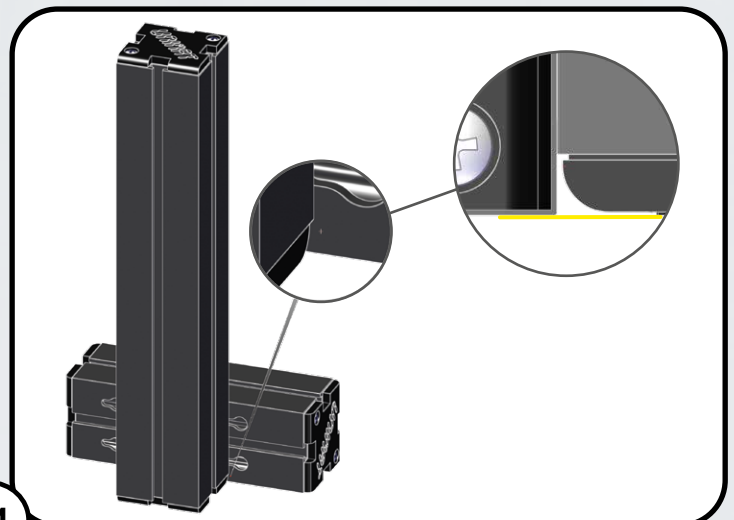
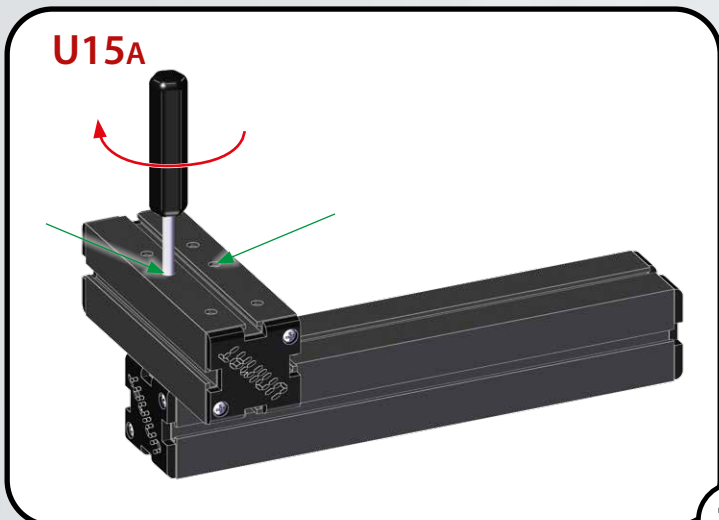
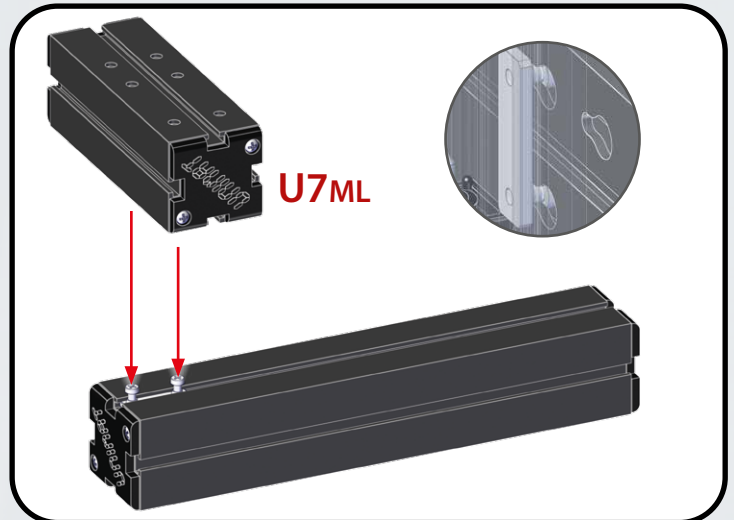
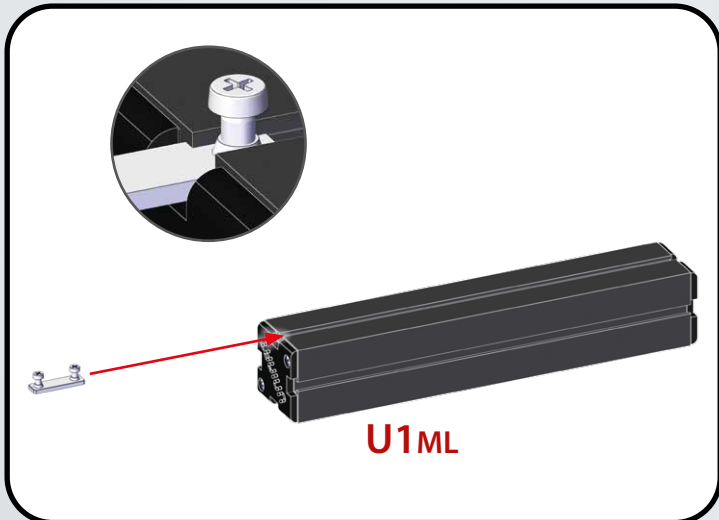
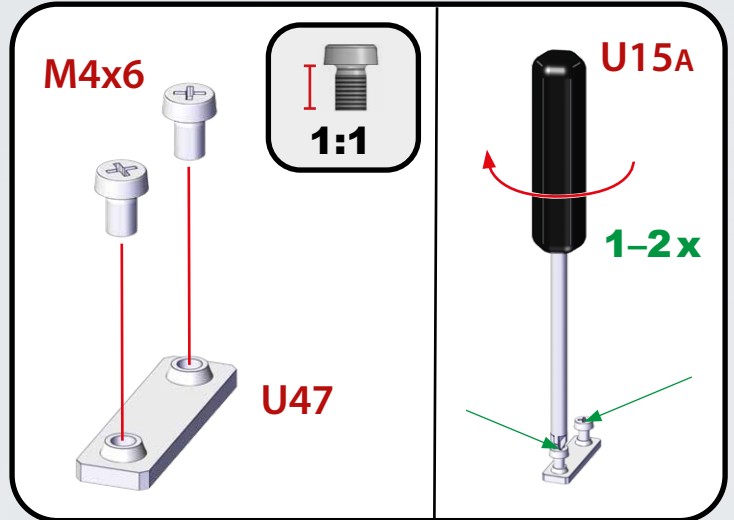
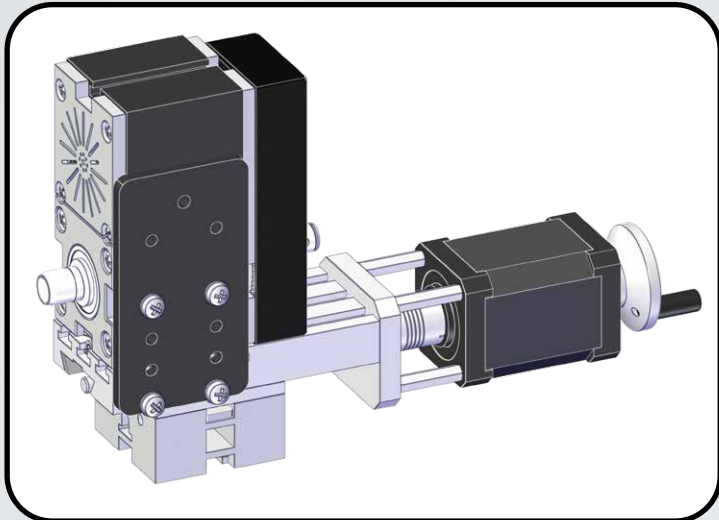
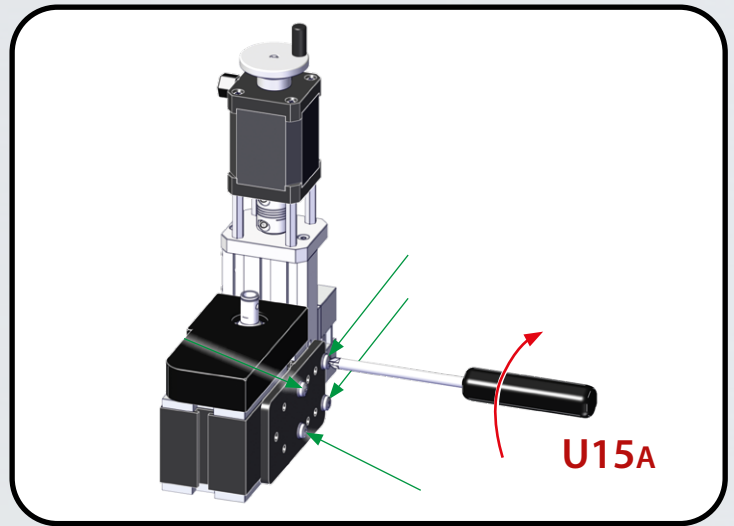
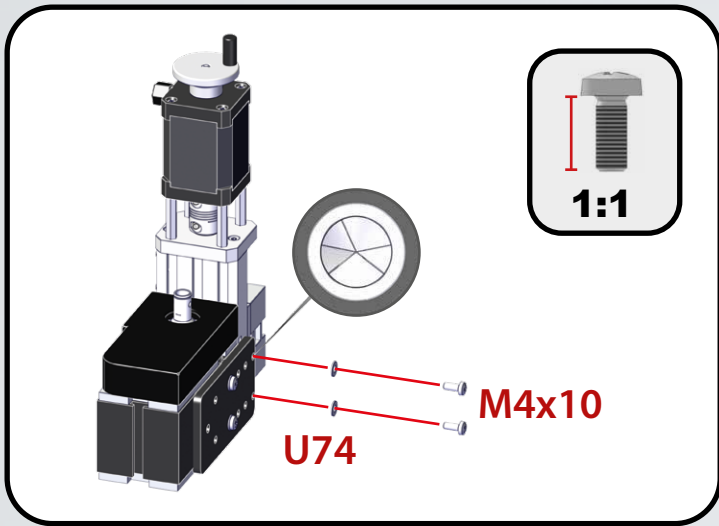
U3CNC



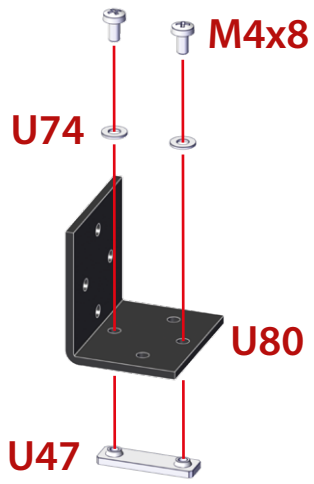






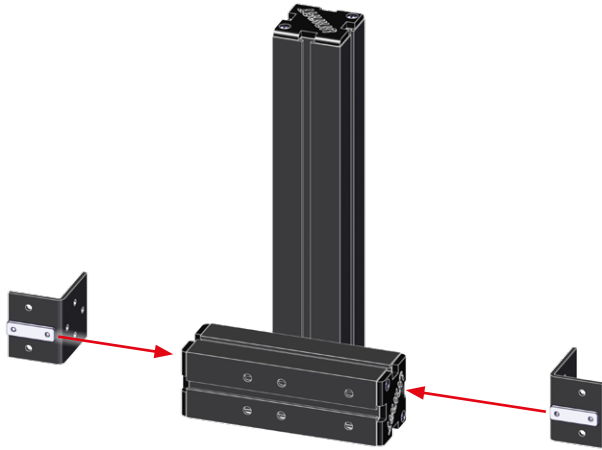
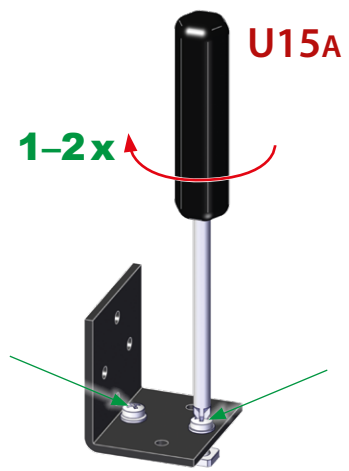


2x

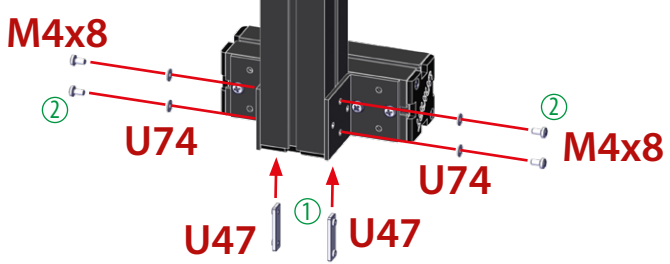


1:1

2x

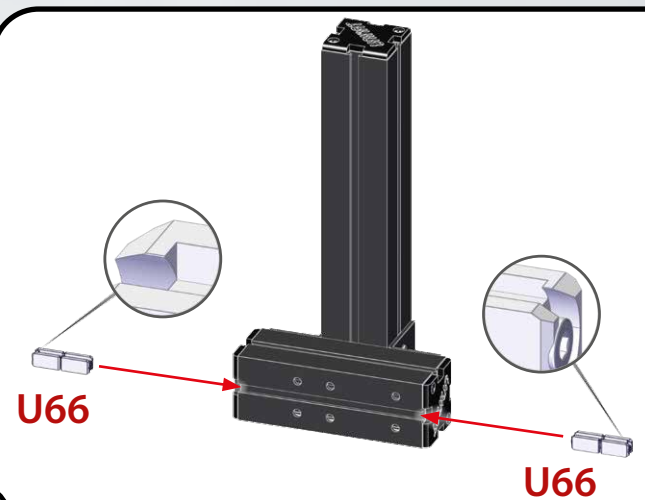
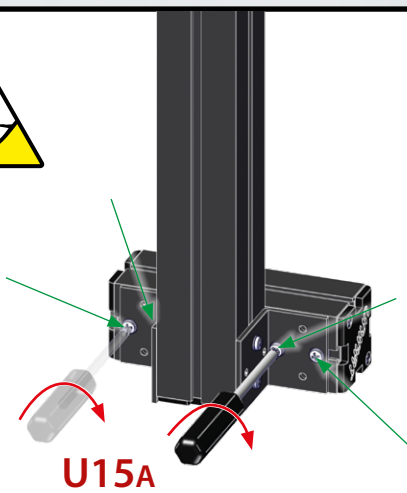
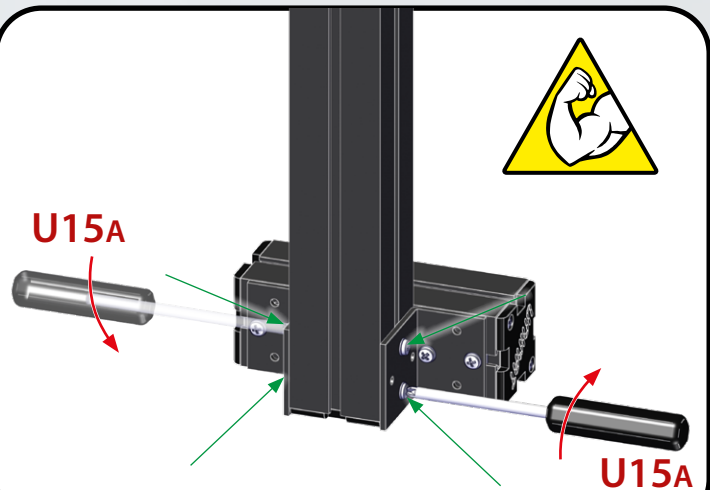


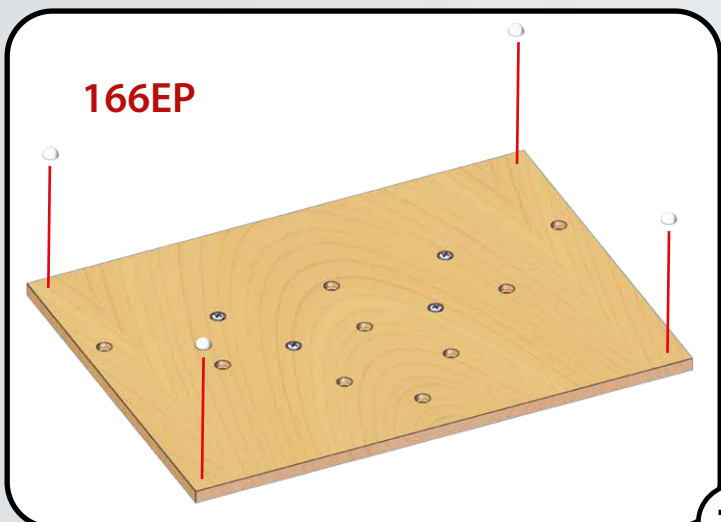
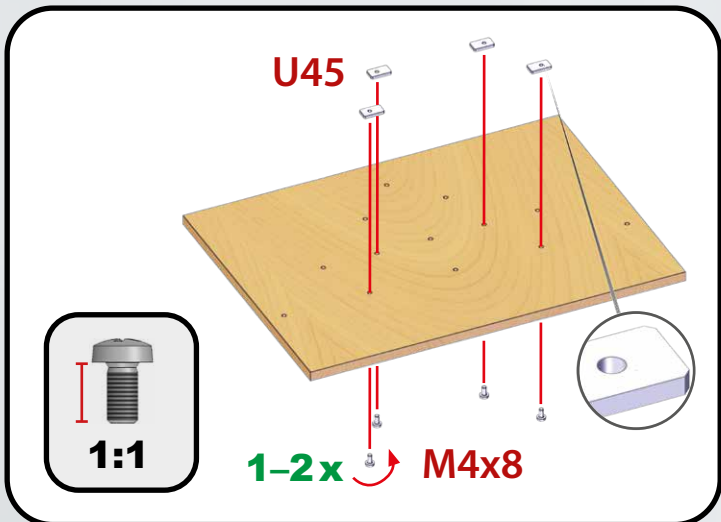
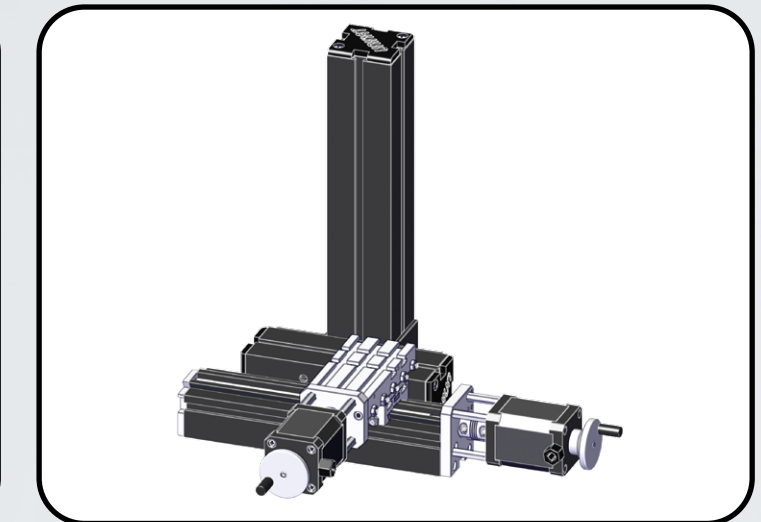
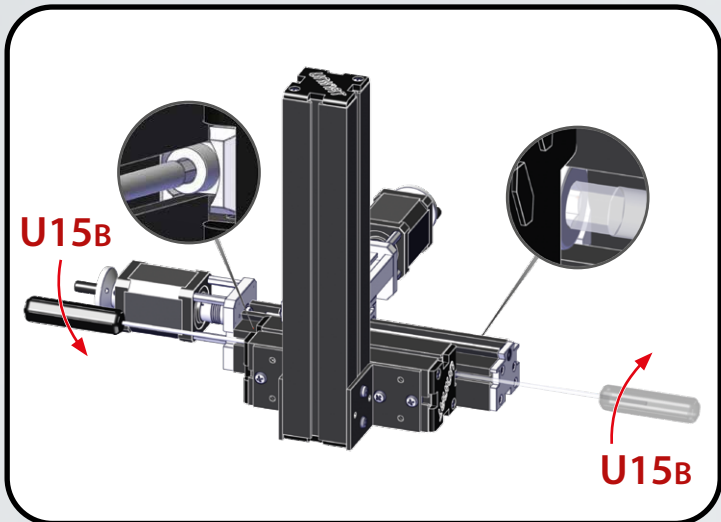
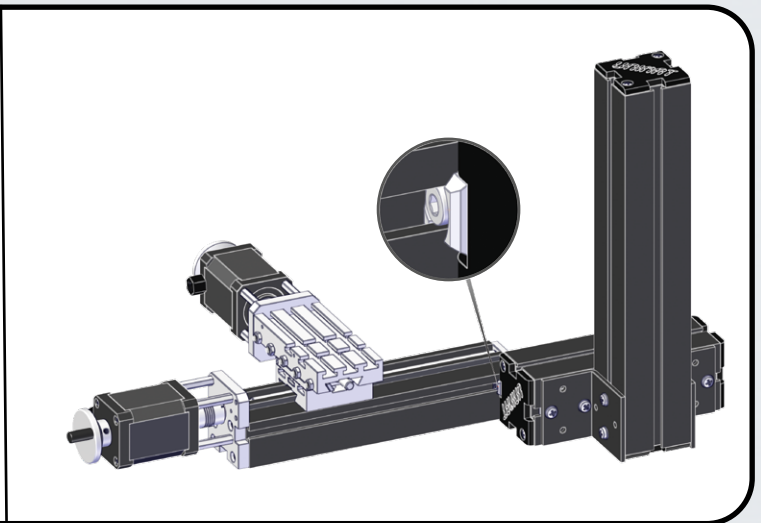
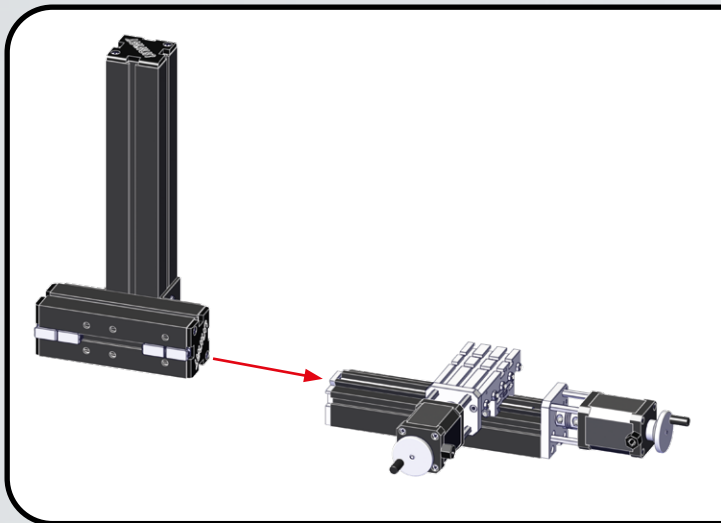
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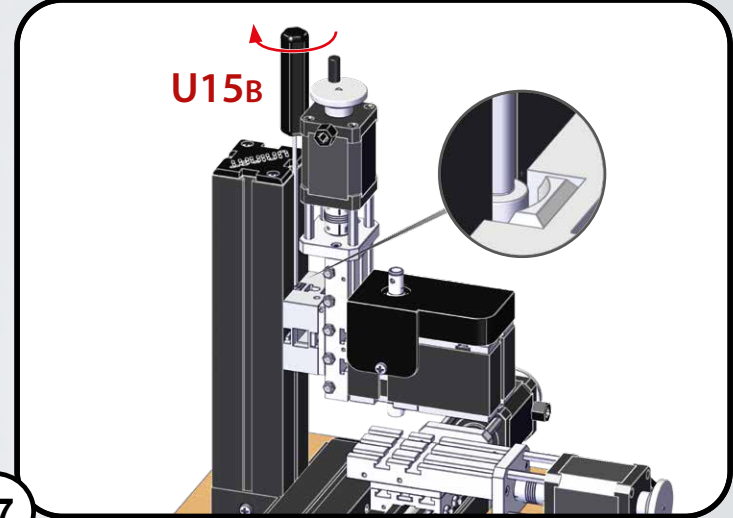
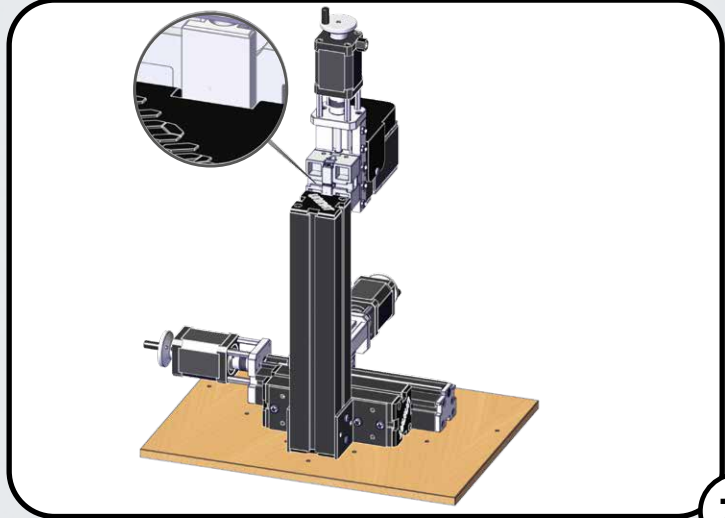
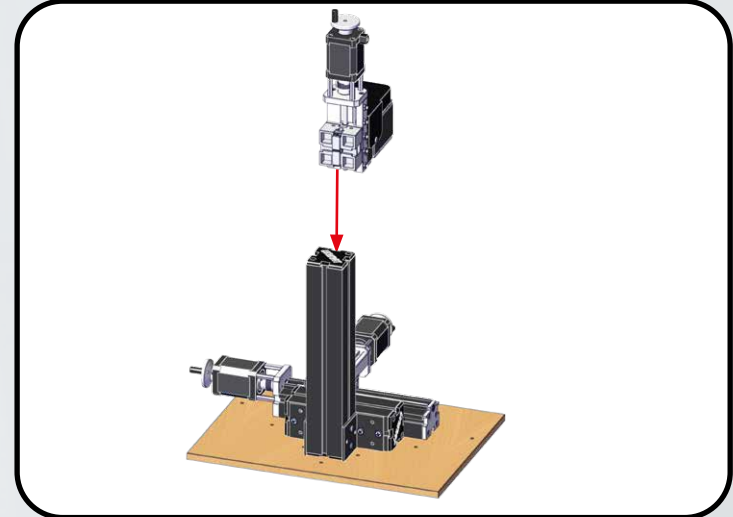
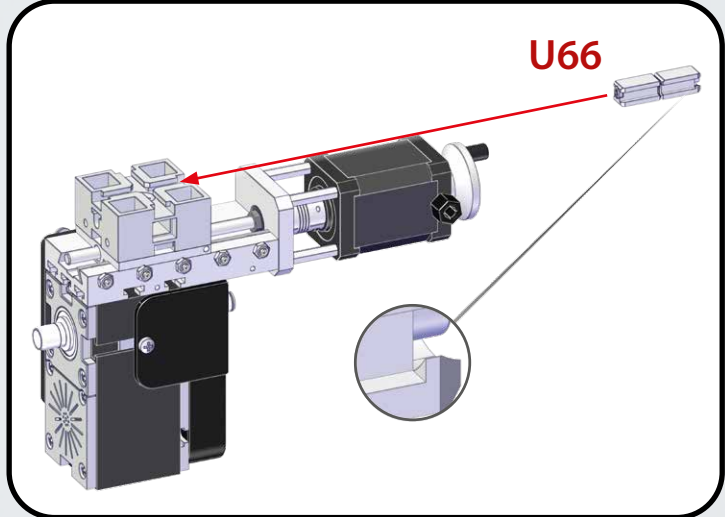
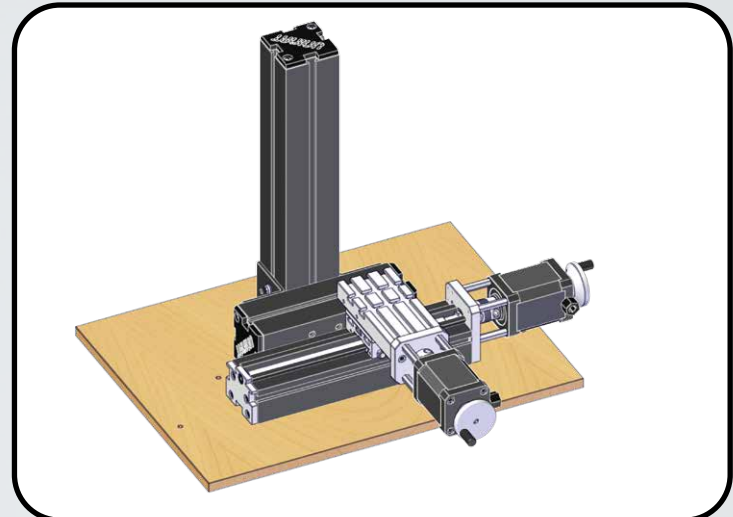
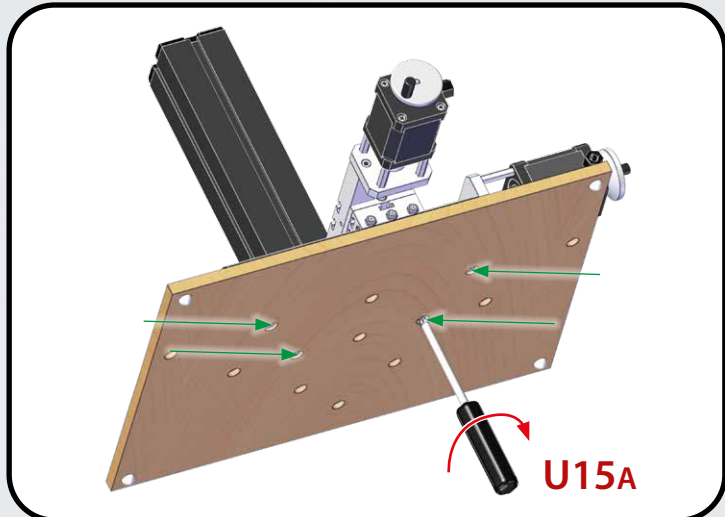
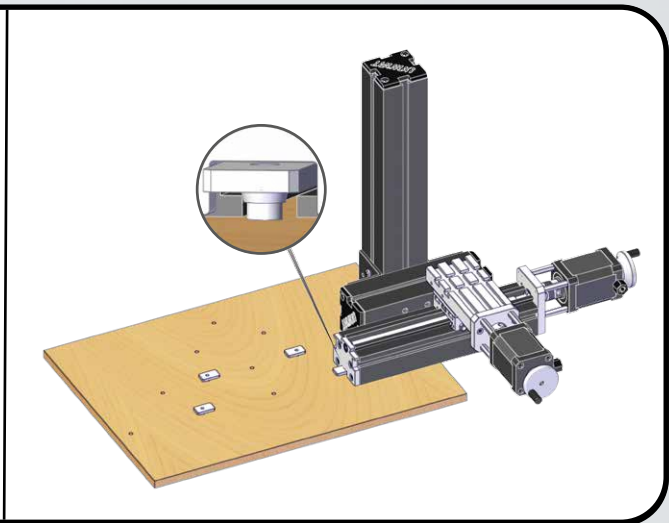
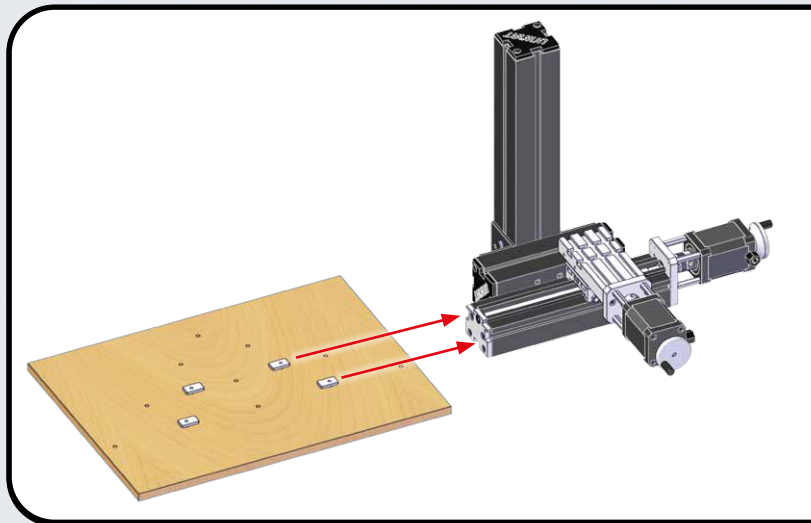
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U15A

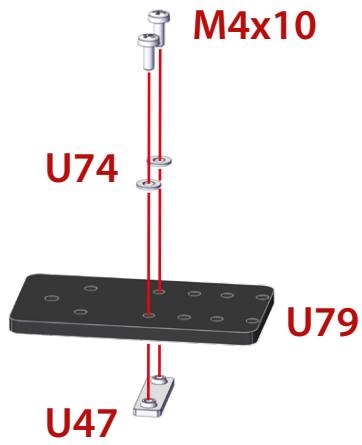




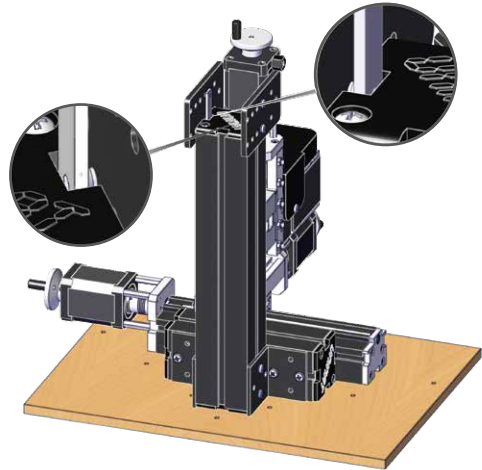
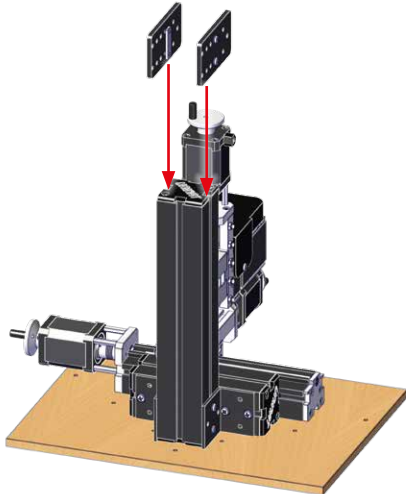
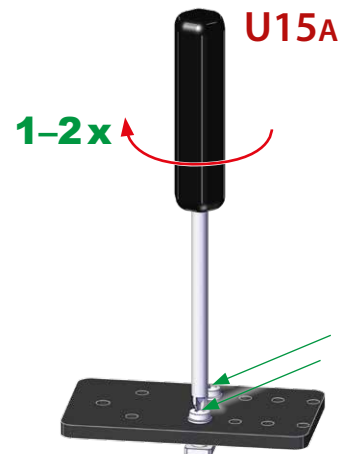




2x



2x



M4x70

U74

U43s

U74

1:1

U15A

U15A

U71°

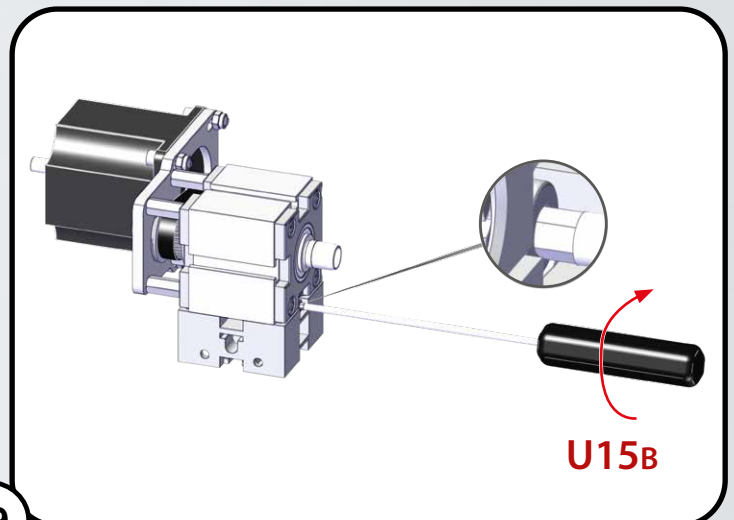
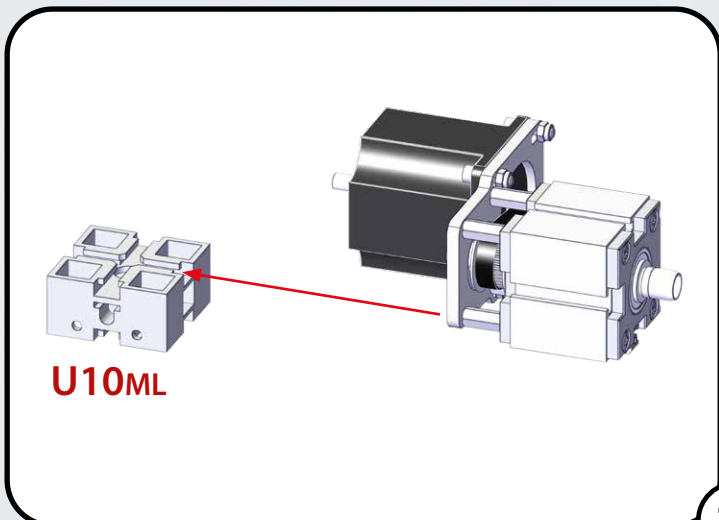
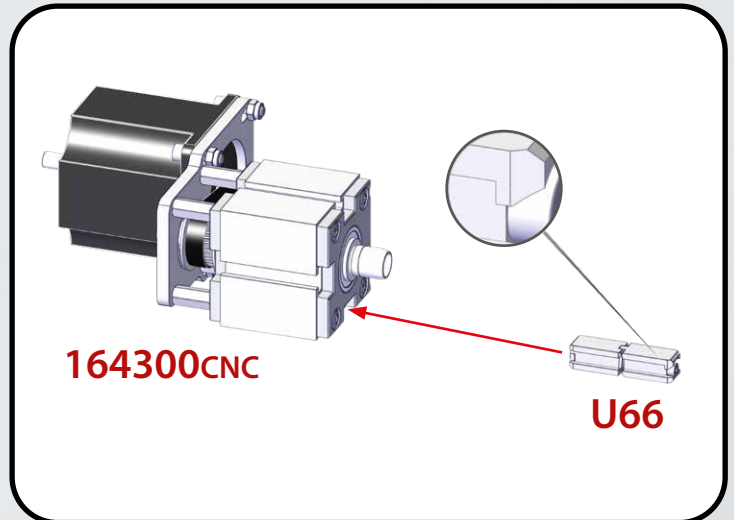
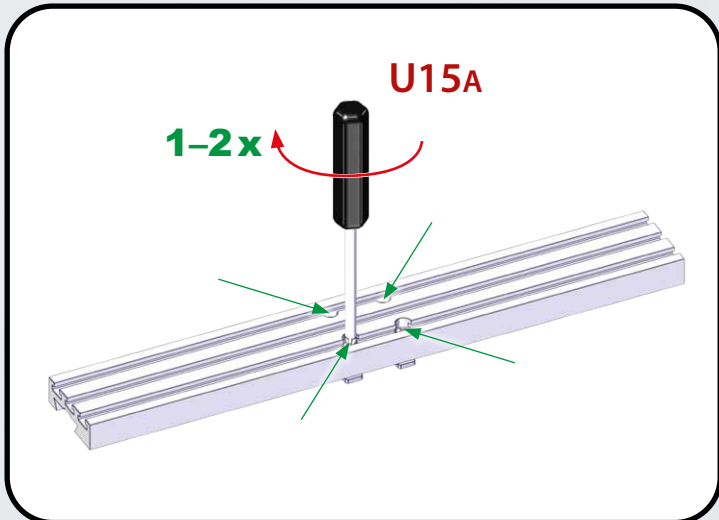
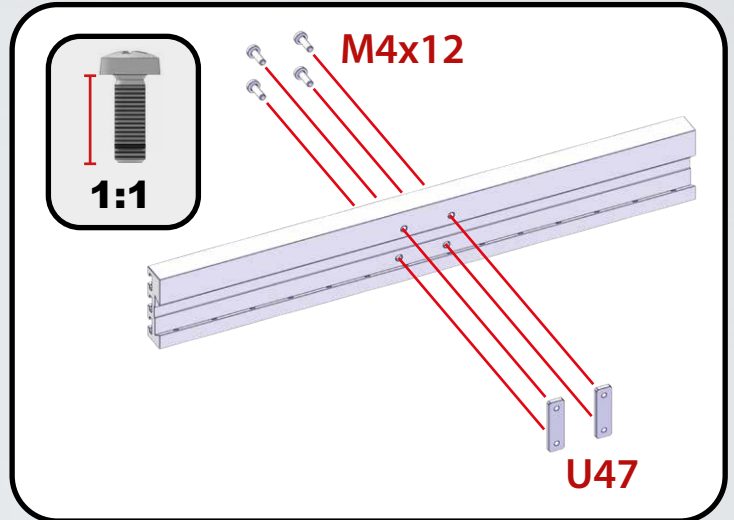
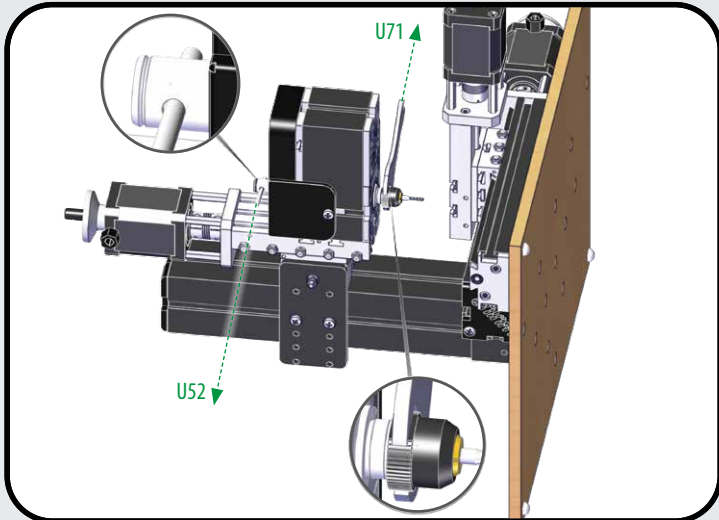
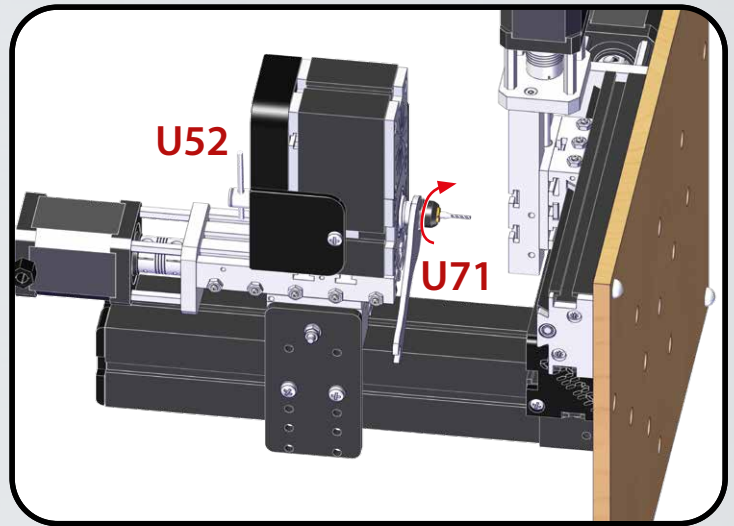
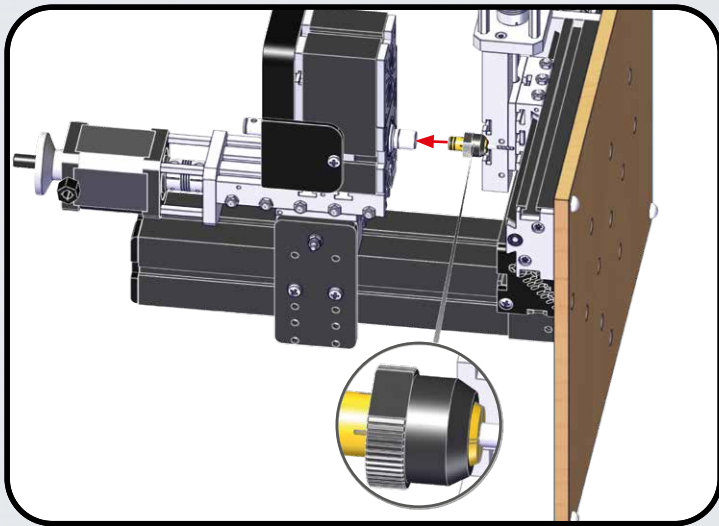
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1/8"

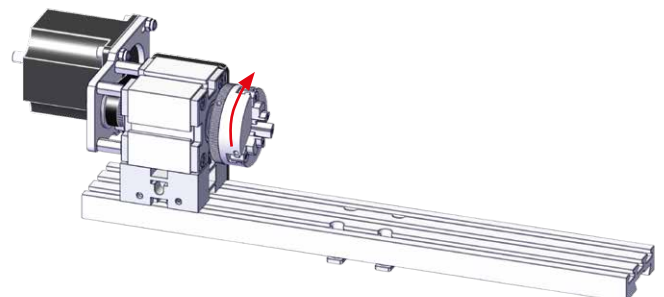
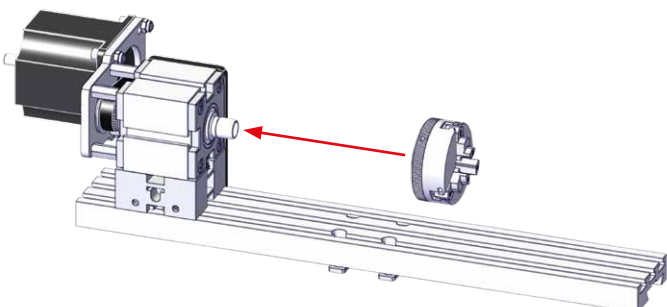
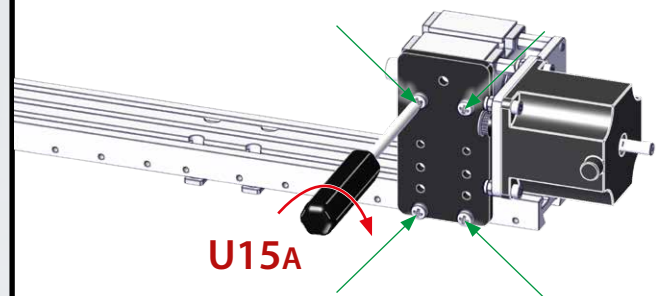
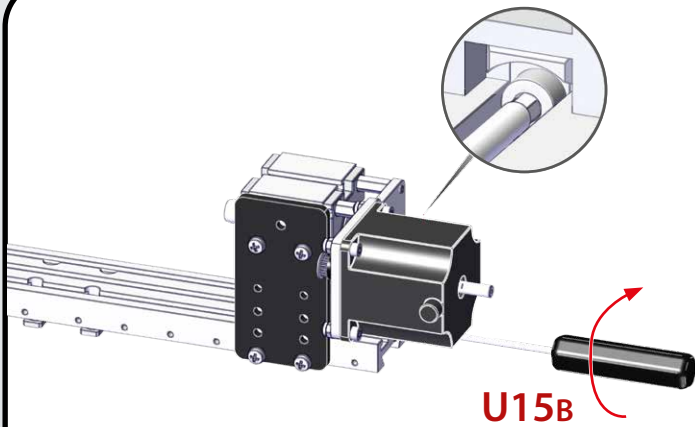
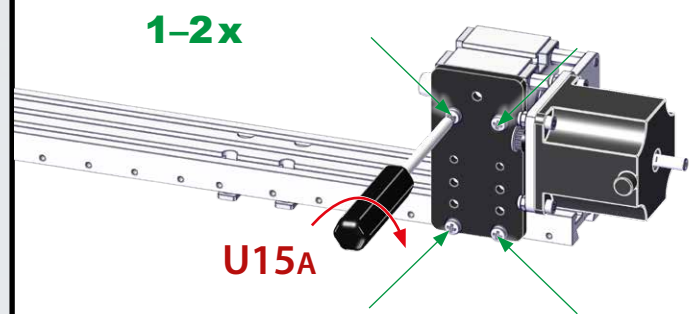
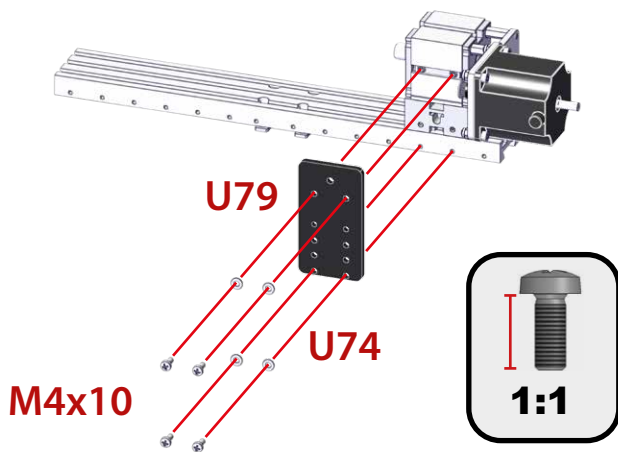
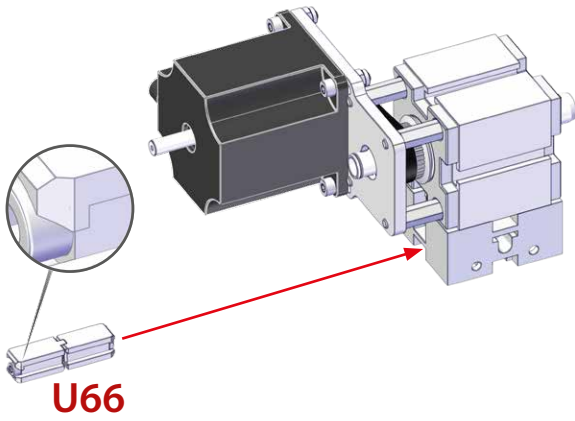
U12ML  
(1/8")

U48ML

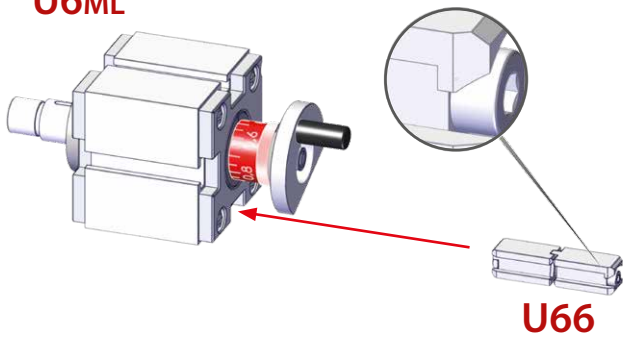
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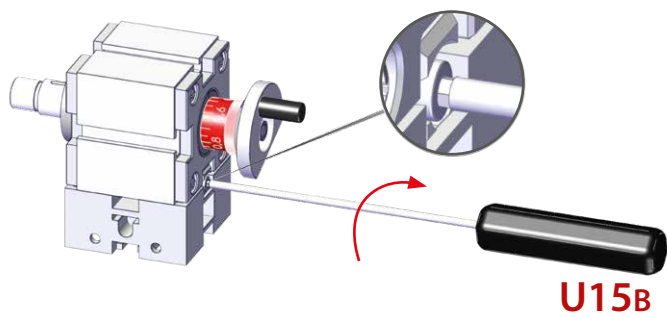
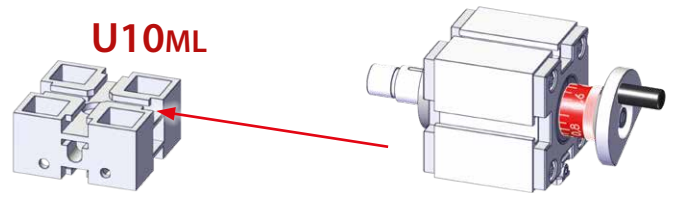


U6ML



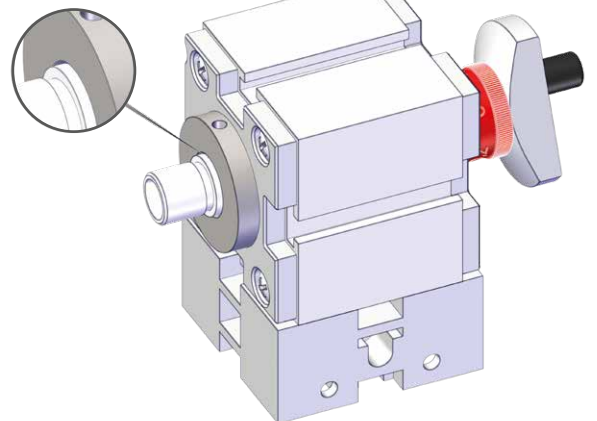
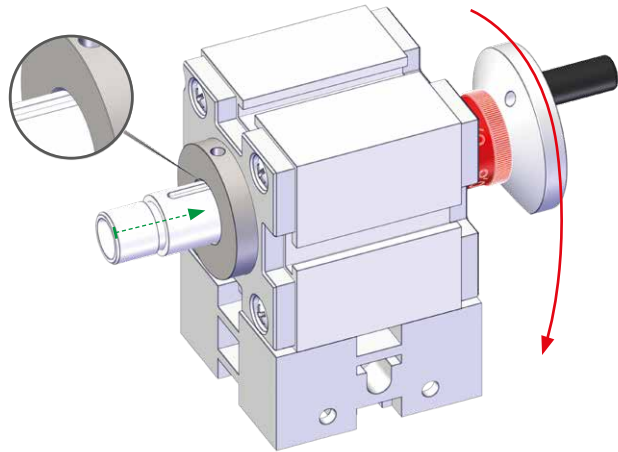
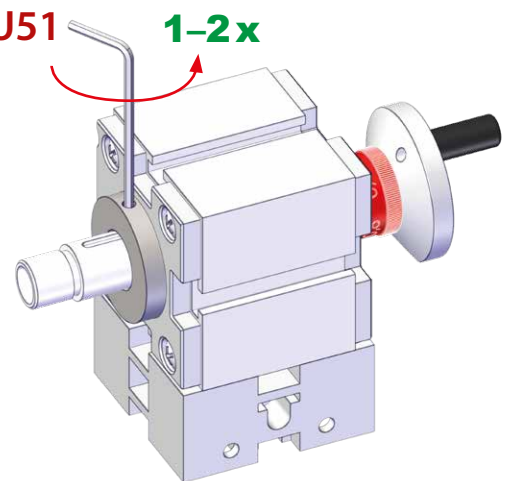
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U10ML

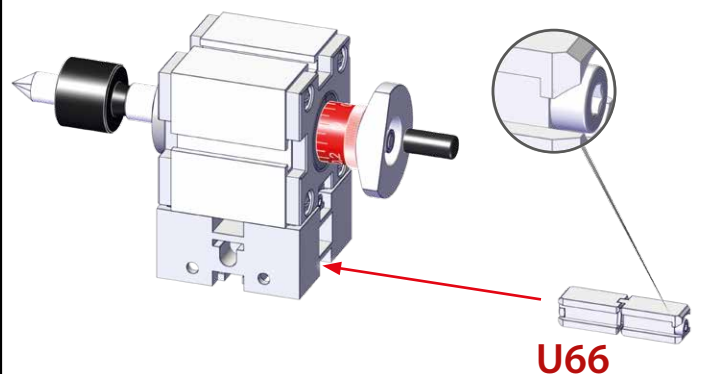
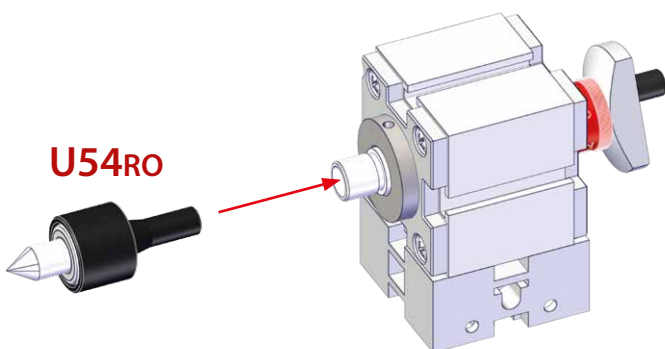


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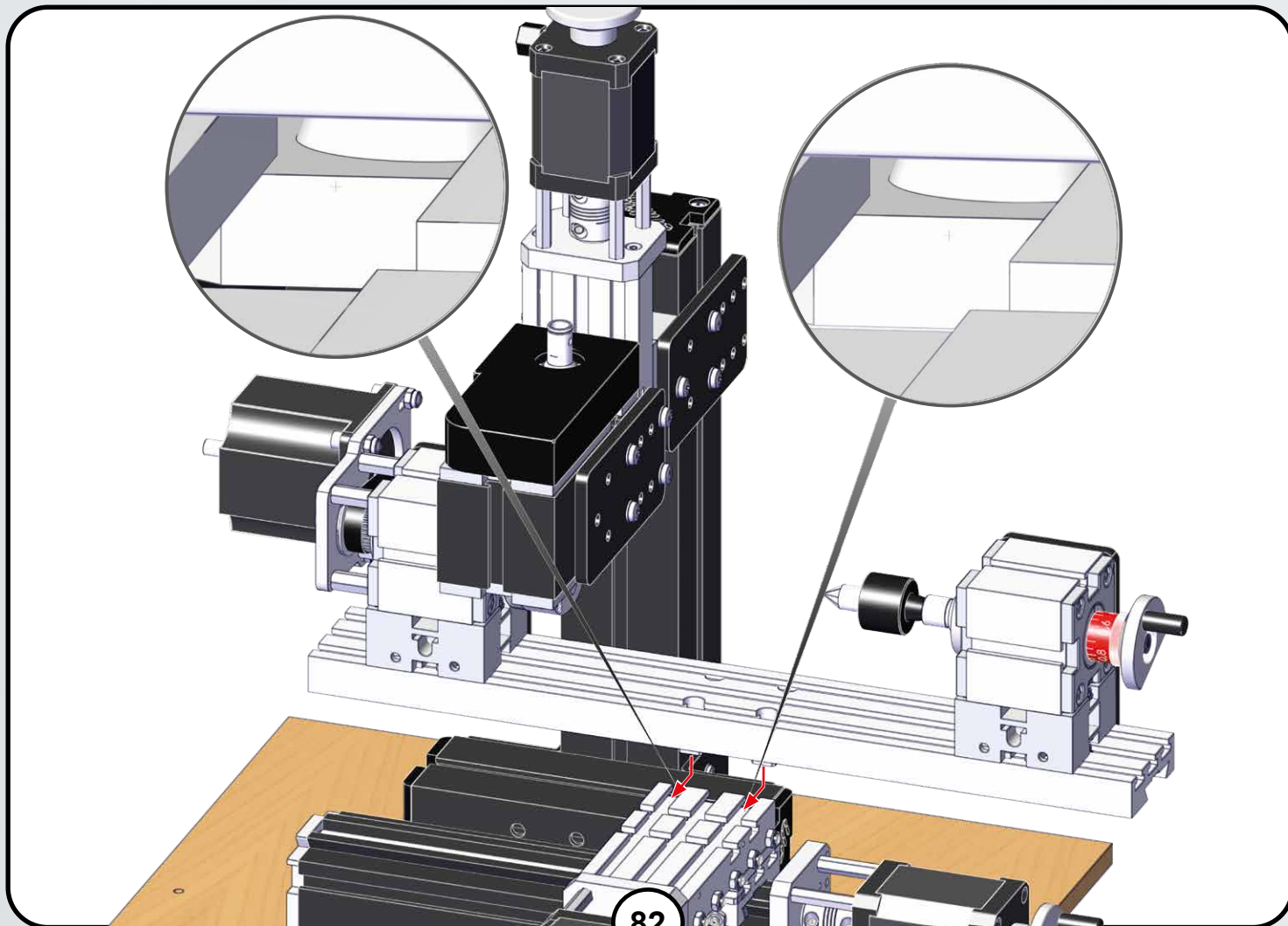
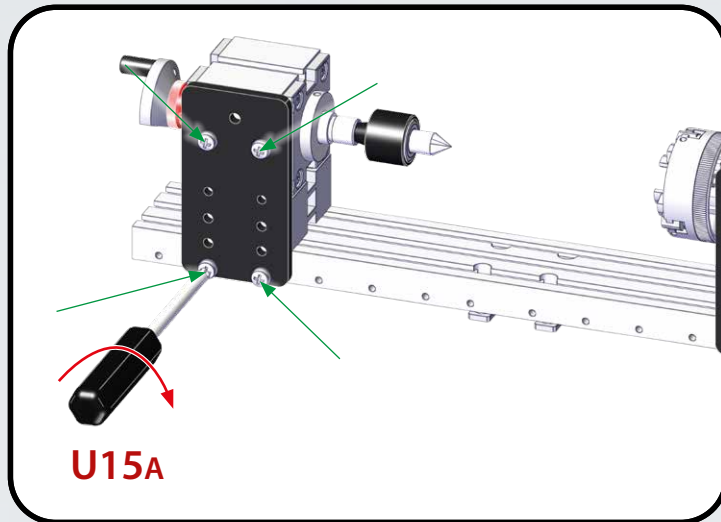
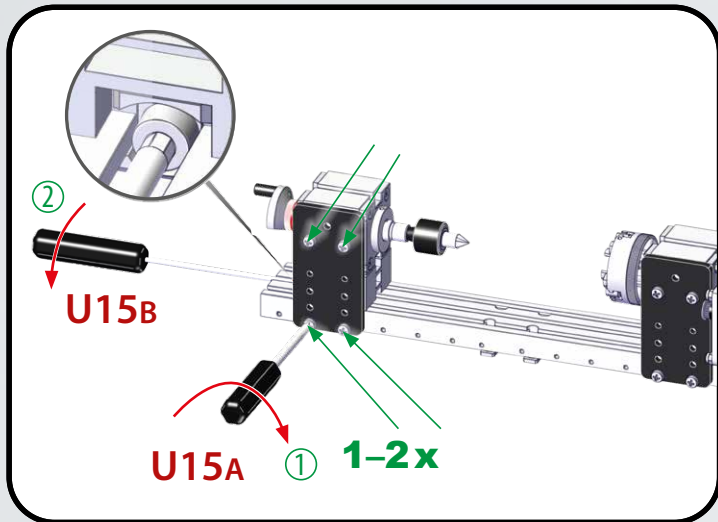
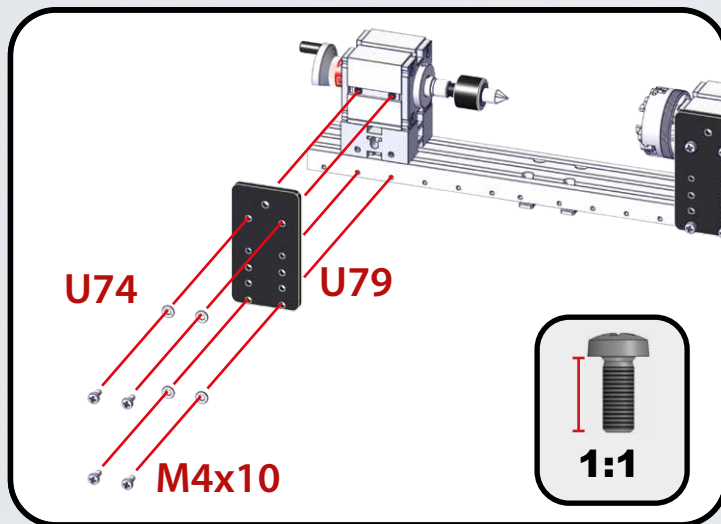
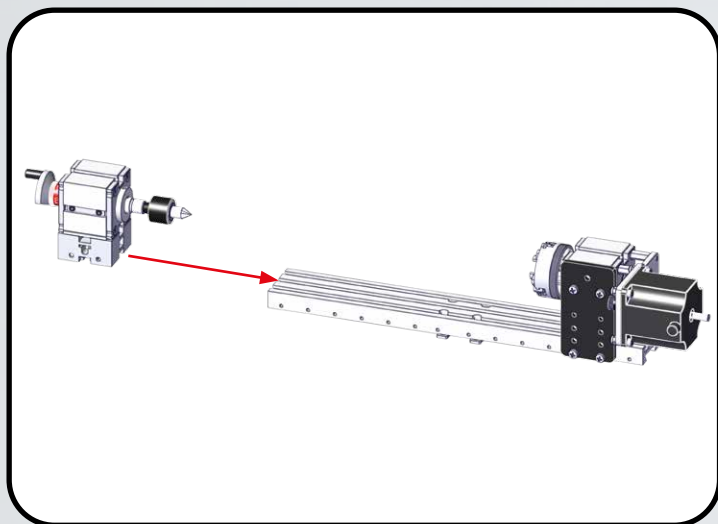
U51 1-2x



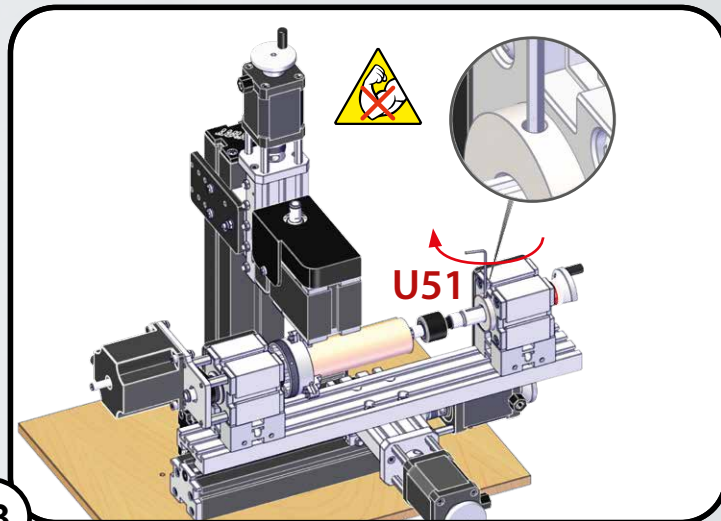
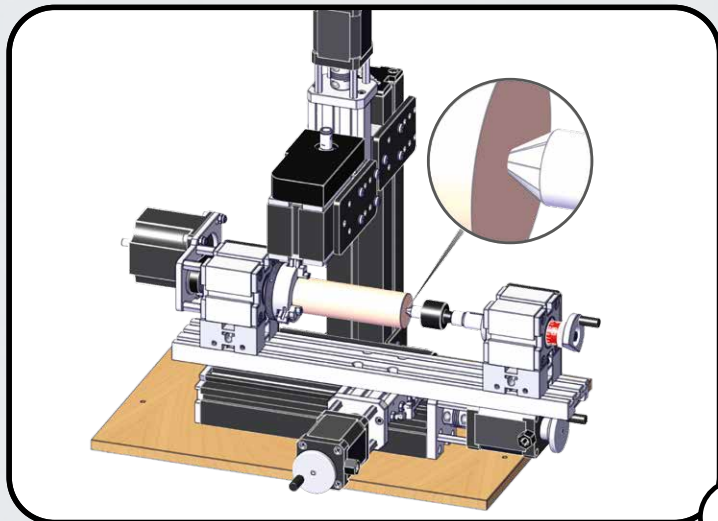
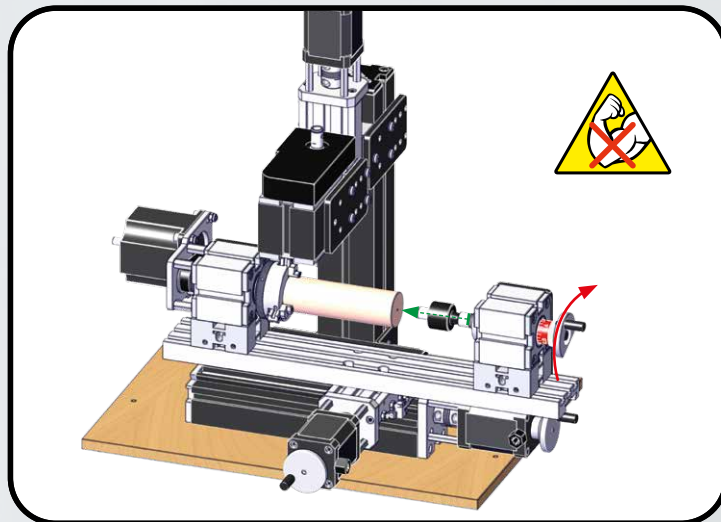
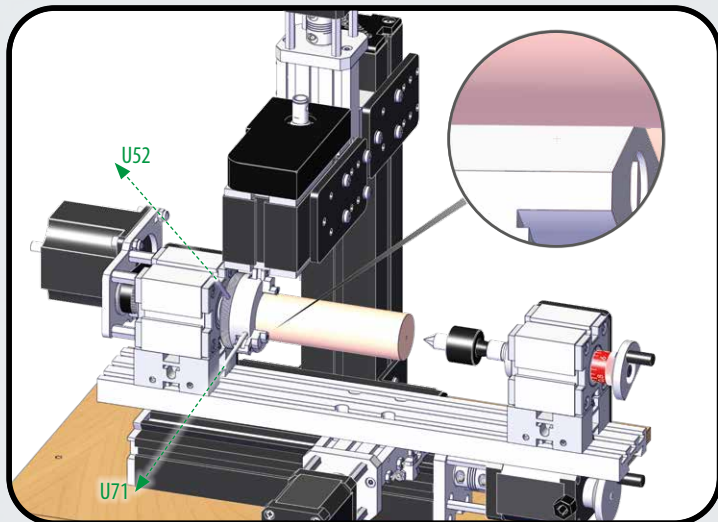
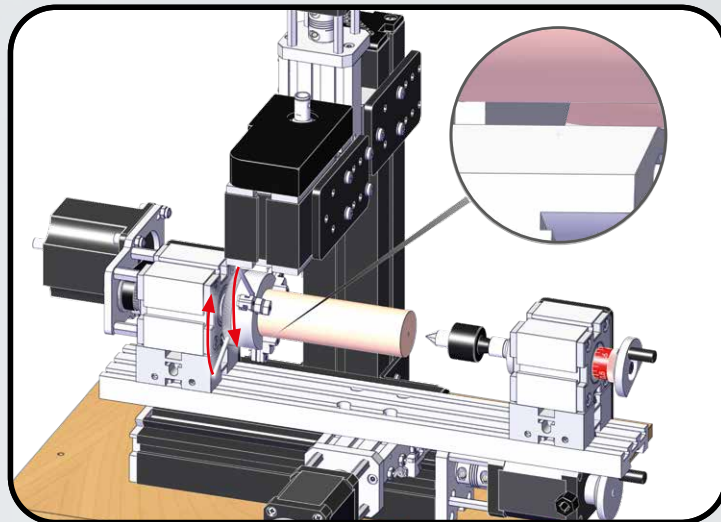
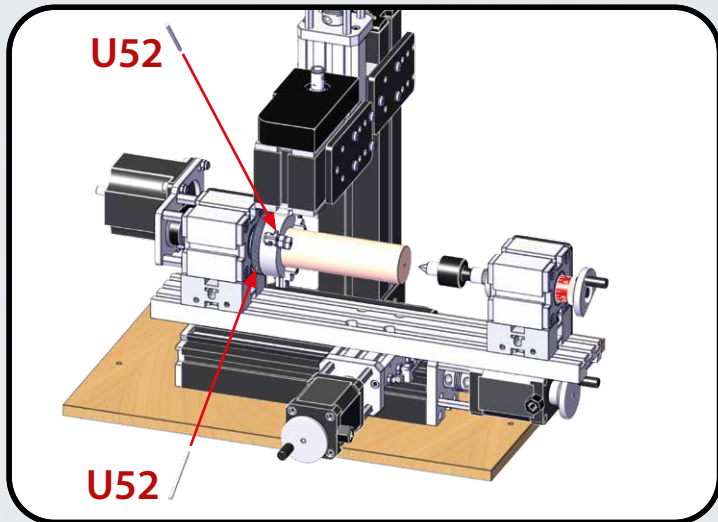
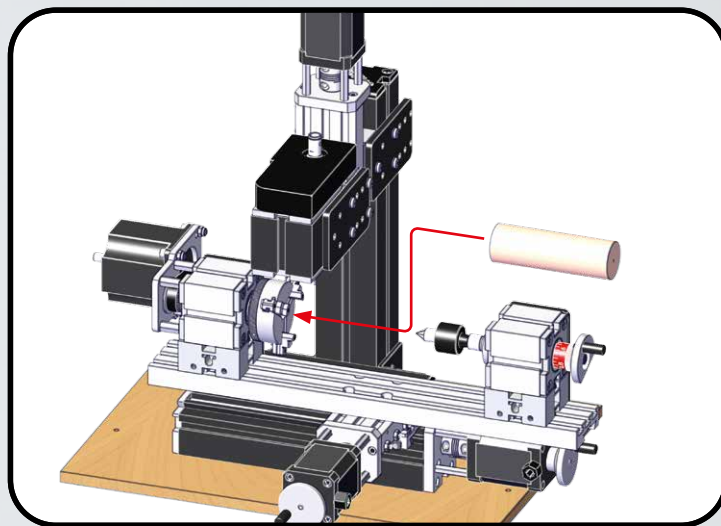
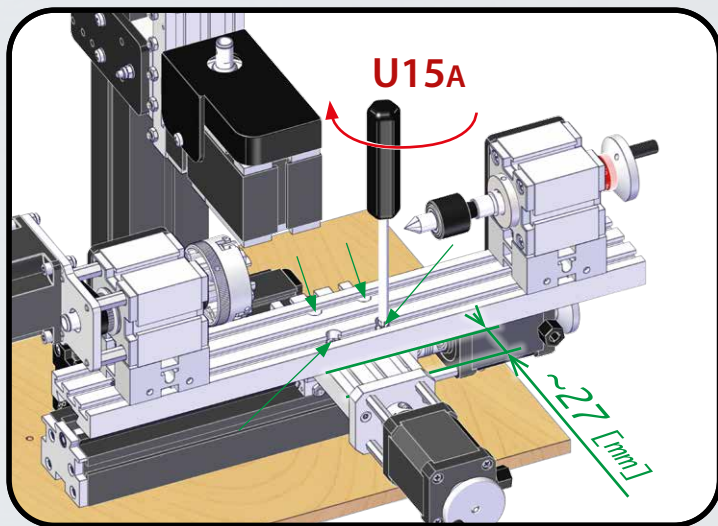
U54RO

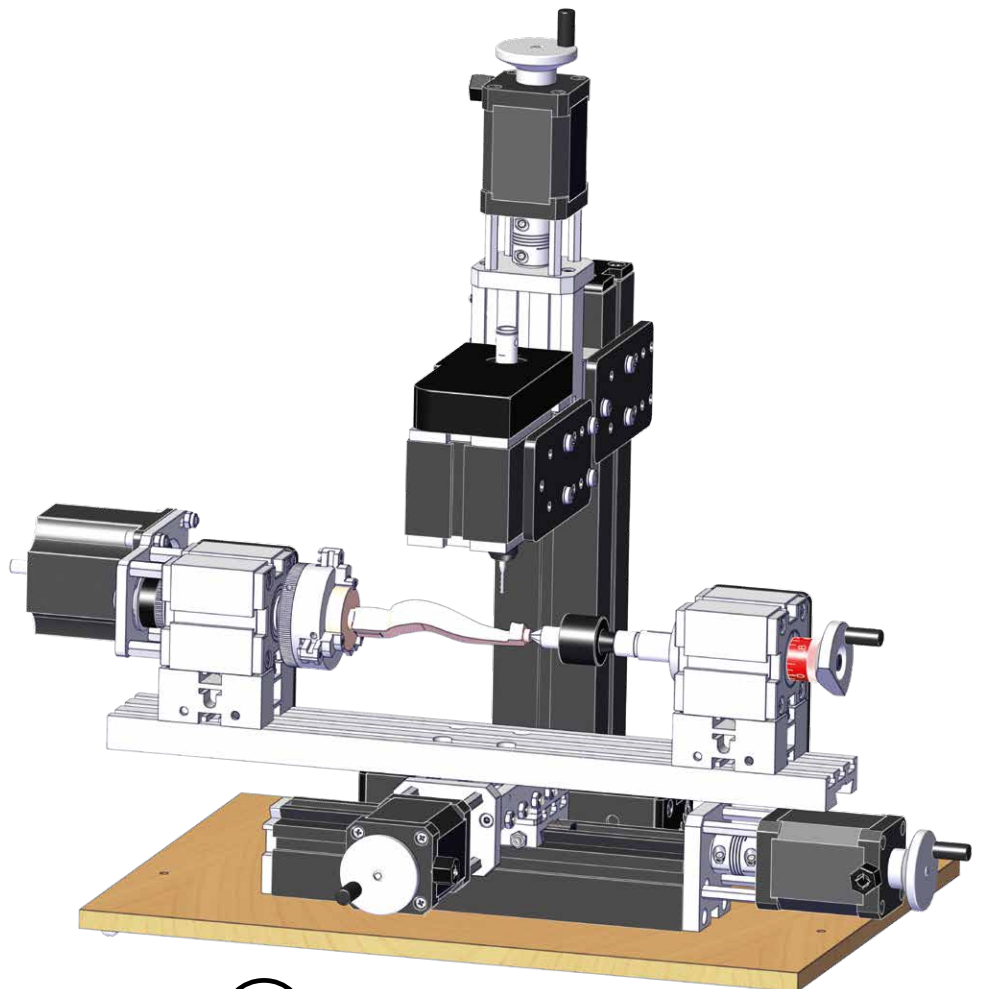
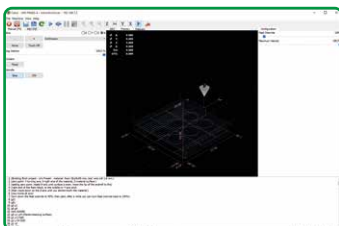
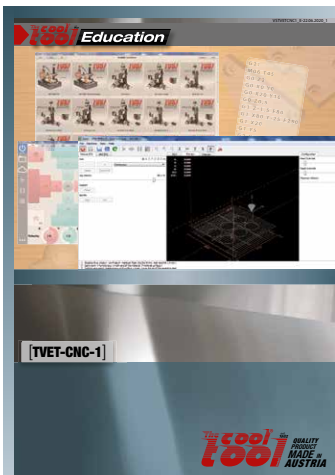
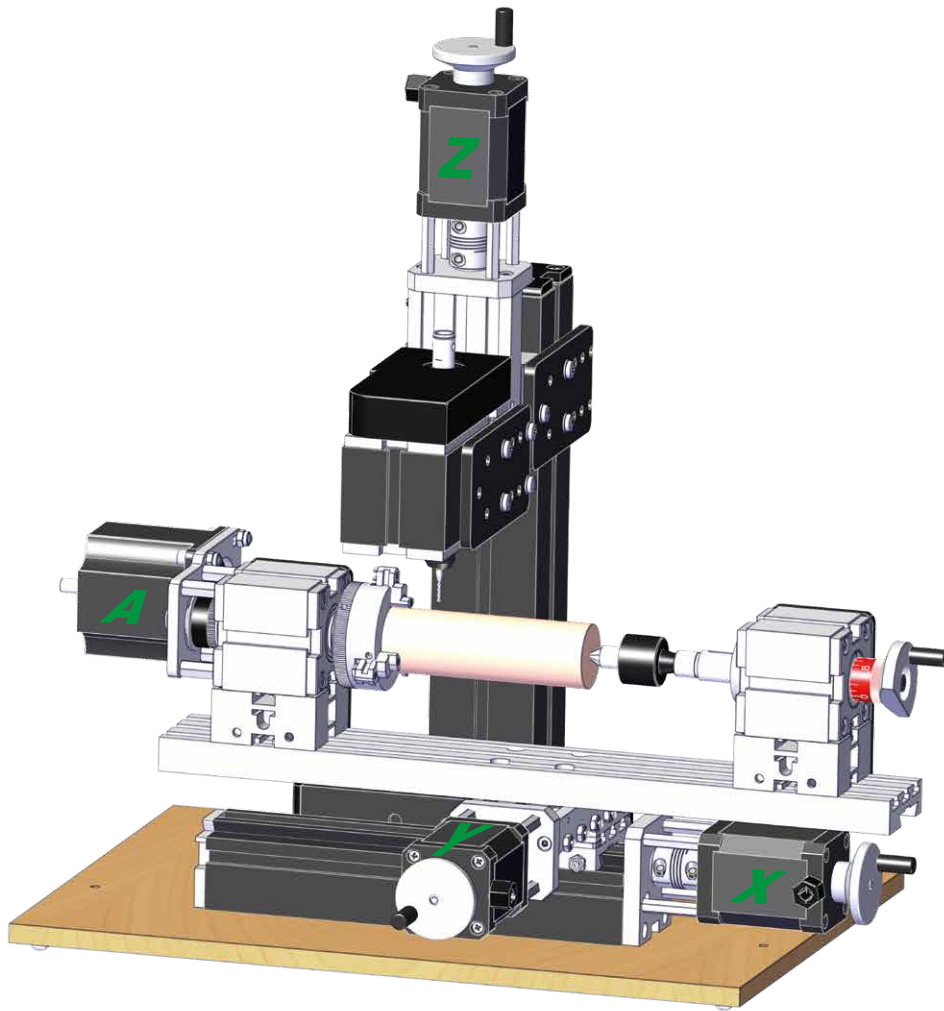


U66









**Inhalt • contents • contenu • contenido • 内容 • содержание:**

**1) Rohmaterial • Matière première • materia prima • 原料 • Сырье:**

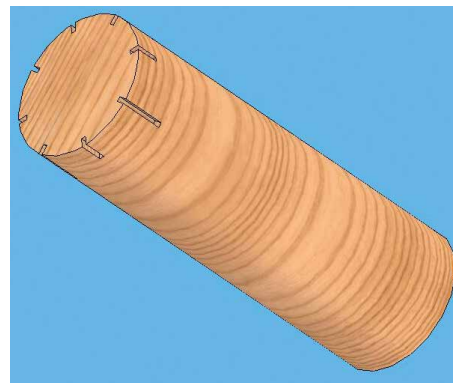
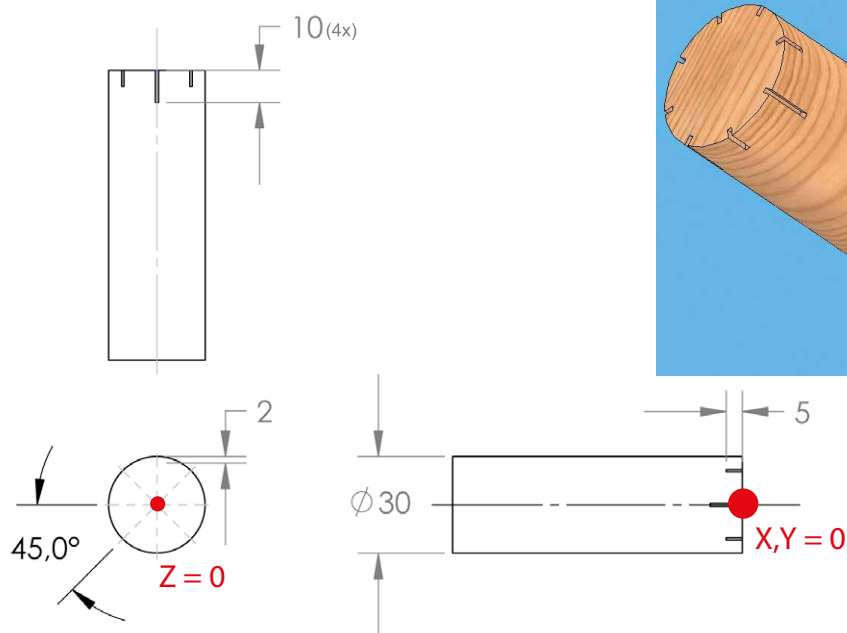
Buche • beech • hêtre • haya • 山毛榉 • бук ---- Ø 30 x 90 mm

**2) Technische Zeichnung • technical drawing • dessin technique • dibujo técnico •**

技术图纸 • Технический чертеж

**3) Lösungsvorschlag • proposed solution • solution proposée • solución propuesta •**

建议的解决方案 • Предложенное решение



**Projekt • project • projet • proyecto • 项目 • Проект**

Schaftfräser • end mill • fraise en bout • molino de extremo •

立铣刀 • Фреза концевая: Ø<sub>max</sub> 1,6 mm

F<sub>max.</sub>: 150 mm/min

Maximale Schnitttiefe • maximum depth of cut •

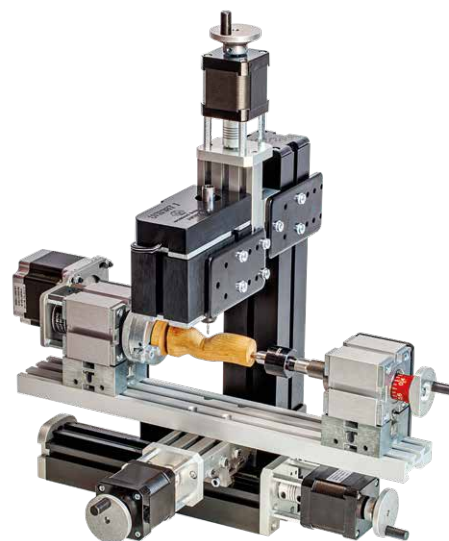
profondeur de coupe maximale • profundidad

máxima de corte • 最大切削深度 •

максимальная глубина резания: 2,0 mm



|             |         |         |           |
|-------------|---------|---------|-----------|
| g21         | g0 a90  | g0 a225 | g0 a0 z20 |
| g0 z20      | g1 x-10 | g1 x-5  | m02       |
| g0 x2 y0 a0 | g0 x2   | g0 x2   |           |
| g0 z13      | g0 a135 | g0 a270 |           |
| g1 x-10 f70 | g1 x-5  | g1 x-10 |           |
| g0 x2       | g0 x2   | g0 x2   |           |
| g0 a45      | g0 a180 | g0 a315 |           |
| g1 x-5      | g1 x-10 | g1 x-5  |           |
| g0 x2       | g0 x2   | g0 x2   |           |



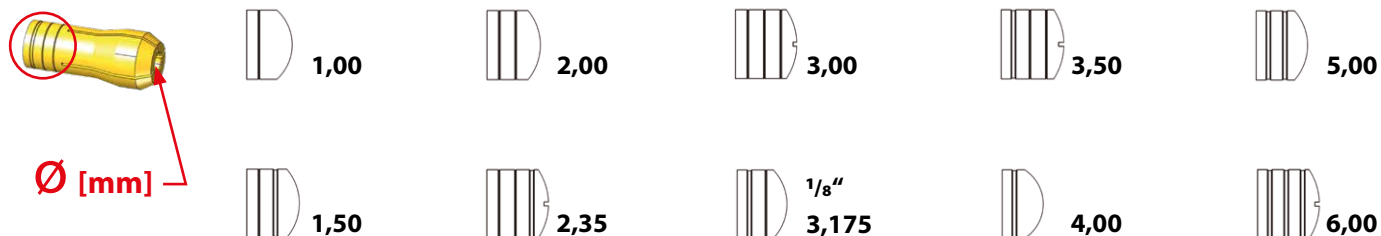
UNI-CNC-SET



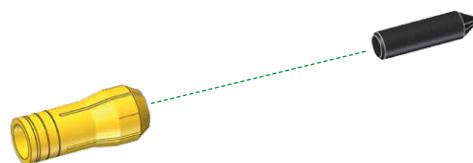
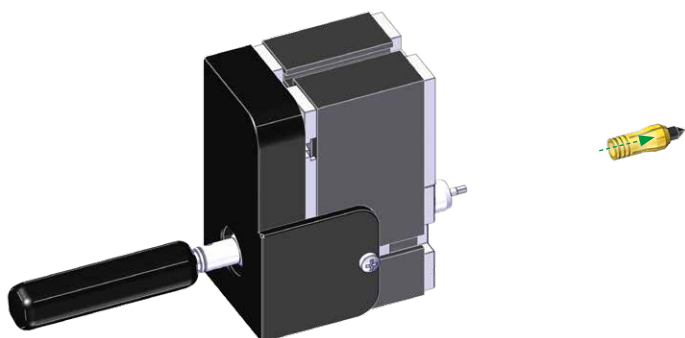
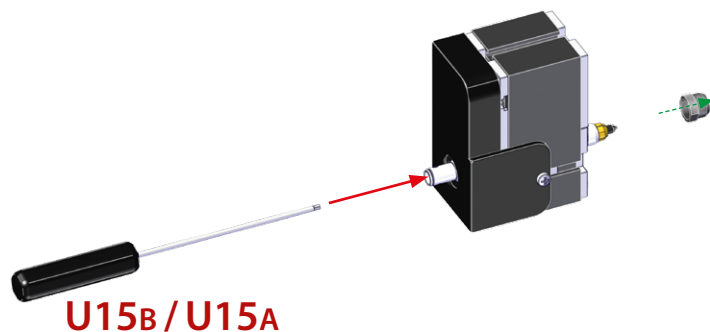
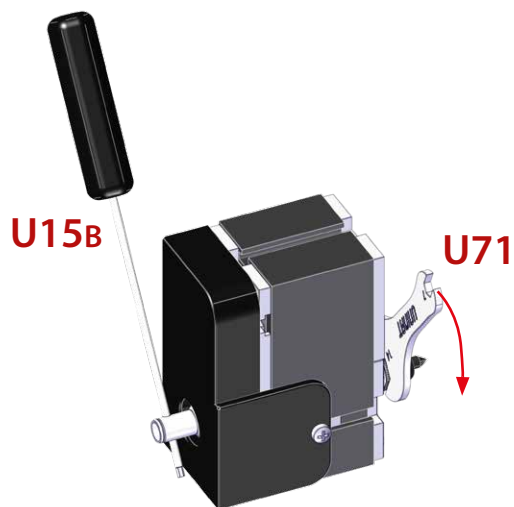
**TIPPS UND TRICKS**  
**TIPS AND HINTS**  
**TRUCS ET ASTUCES**

**CONSEJOS Y TRUCOS**  
**技巧和窍门**  
**секреты и уловки**

**U12ML: Ø-Code • Ø-code • Ø-Code • Ø-Código • 代码-Ø • Код-Ø**



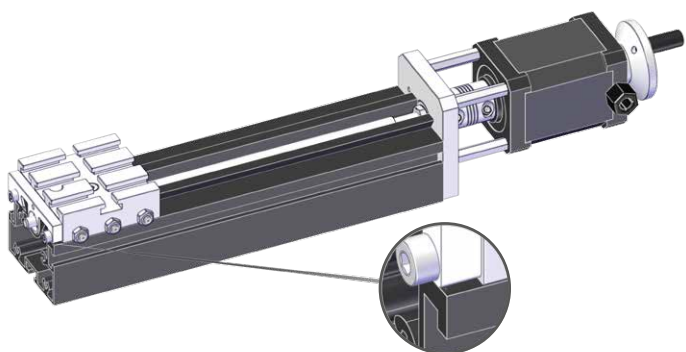
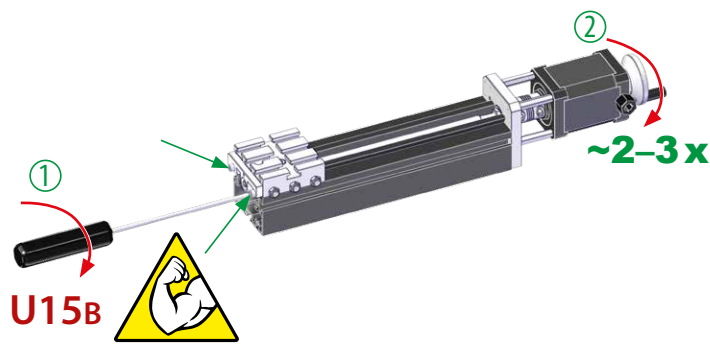
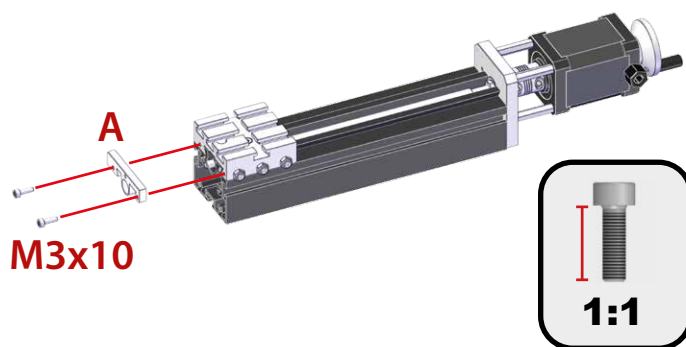
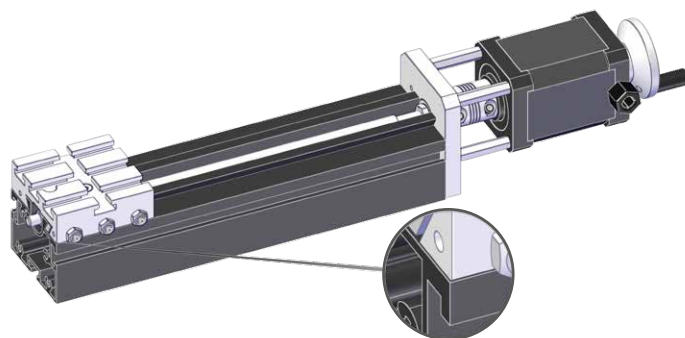
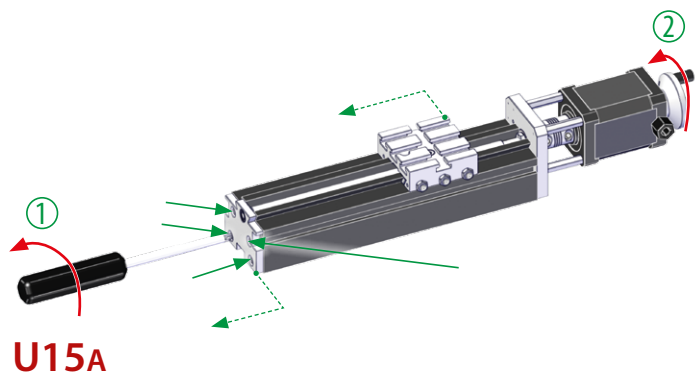
**Spannzange entfernen • Remove the collet • Retirer la pince • Retire el collar • 取下夹头 • СНИМИТЕ ЦАНГУ**



# 164 480 NCNC

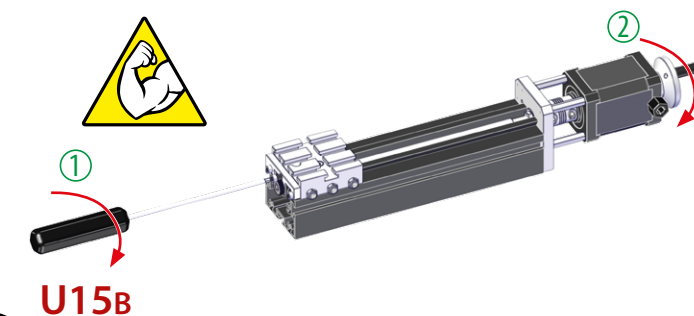
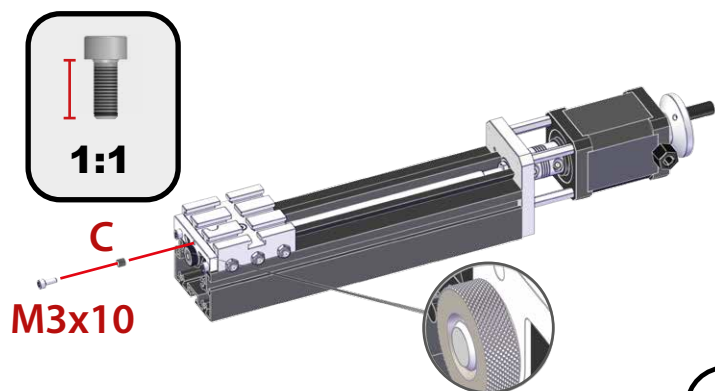
## Umkehrspiel einstellen • Backlash adjustment • Réglage du jeu • Ajuste de holgura • 间隙调整 • Регулировка люфта

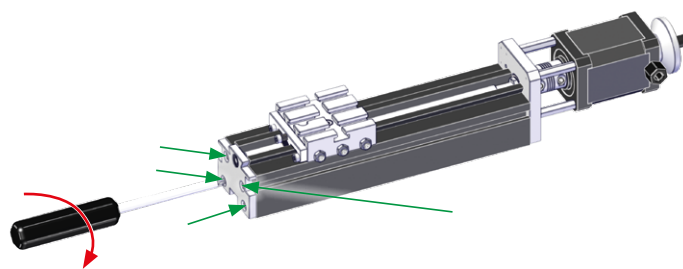
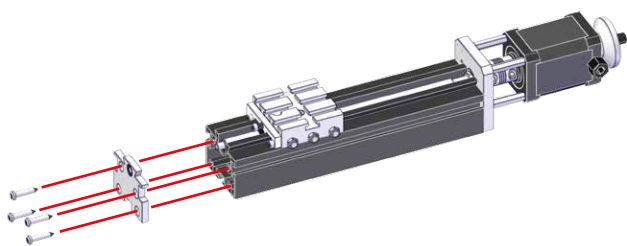
|   |   | DE                           | EN                        | FR                           | ES                            | 中国 (ZH)            | RU                              |                 |
|---|---|------------------------------|---------------------------|------------------------------|-------------------------------|--------------------|---------------------------------|-----------------|
| A | 1 | Aufnahme für A1M050024/26CNC | Guide for A1M050024/26CNC | Guideur pour A1M050024/26CNC | Guía para A1M050024/26CNC     | 指南 A1M050024/26CNC | руководство для A1M050024/26CNC | A1M 050 028 CNC |
| B | 1 | Justiermutter 164480NCNC     | Backlash nut 164480NCNC   | Écrou de jeu 164480NCNC      | Tuerca de juego 164480NCNC    | 齿隙螺母 164480NCNC    | Люфтовая гайка 164480NCNC       | A1M 050 024 CNC |
| C | 1 | Fixierung für A1M050024CNC   | Fixation for A1M050024CNC | Fixation pour A1M050024CNC   | Fijación para A1M050024CNC    | 的固定装置              | Фиксация для A1M050024CNC       | A1M 050 026 CNC |
|   | 1 | Inbusschraube M3x8           | Allen key screw M3x8      | Vis à clé Allen M3x8         | torrillo de llave allen M3x8  | 内六角螺丝 M3x8         | Винт M3x8                       | ZSR M308 ISKT   |
|   | 2 | Inbusschraube M3x10          | Allen key screw M3x10     | Vis à clé Allen M3x10        | torrillo de llave allen M3x10 | 内六角螺丝 M3x10        | Винт M3x10                      | ZSR M310 ISKT   |



Schlitten wird blockieren • Slide will jam • La glissière se bloquera •  
La diapositiva se atascará • 幻灯片会卡住 • Слайд будет заедать

Keine Reduktion • No reduction • Pas de réduction •  
Sin reducción • 不減價 • Без сокращения

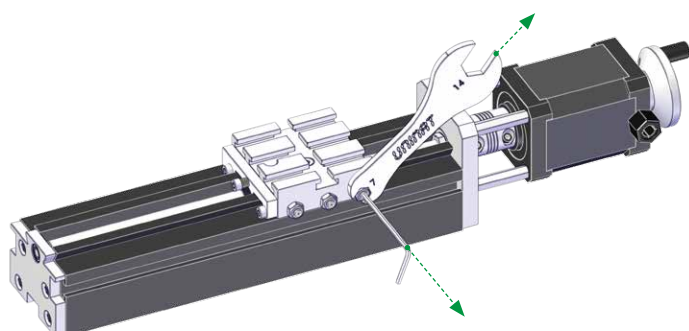
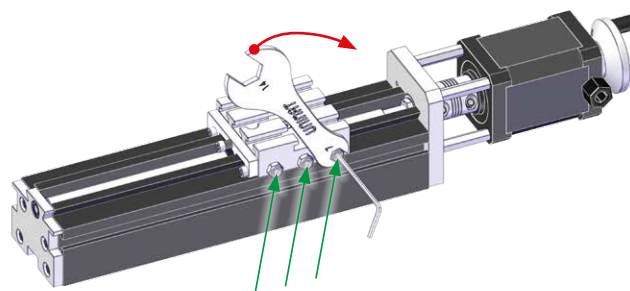
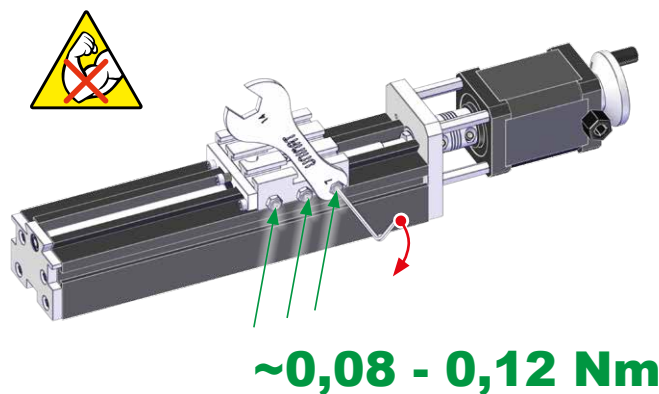
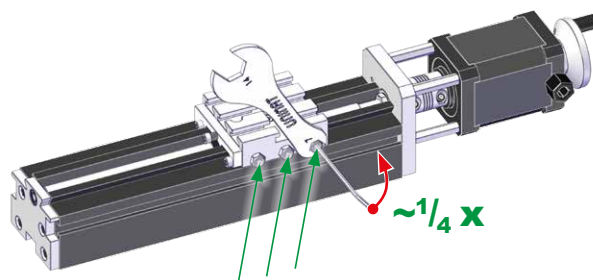
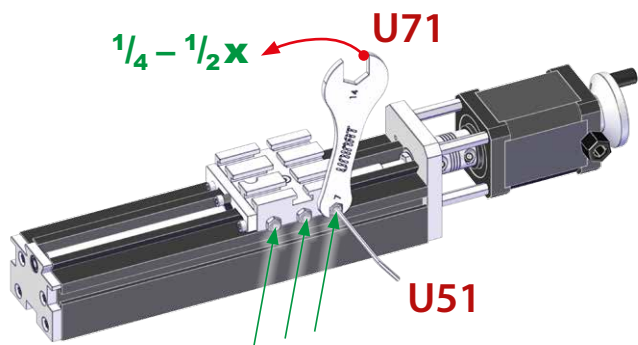




U15B

## 164 480 NCNC

**Schlitten einstellen • Slide adjustment • Glissière de réglage •  
Ajuste deslizante • 滑块调整 • Регулировка слайда**



Die Schlitten regelmäßig warten und reinigen: mit einer kleinen Bürste Späne und anderes entfernen und nachfetten.  
Maintain the slides at regular intervals: clean with a brush and lubricate the gliding surface.

Nettoyez les chariots périodiquement: avec petit pinceau.

Mantener y limpiar periódicamente todos los carros con un cepillo pequeño.

保持滑块正常的活动范围: 用刷子清洁, 在燕尾槽表面加润滑油。

Регулярно чистите салазки жесткой кистью и смазывайте трущиеся поверхности.

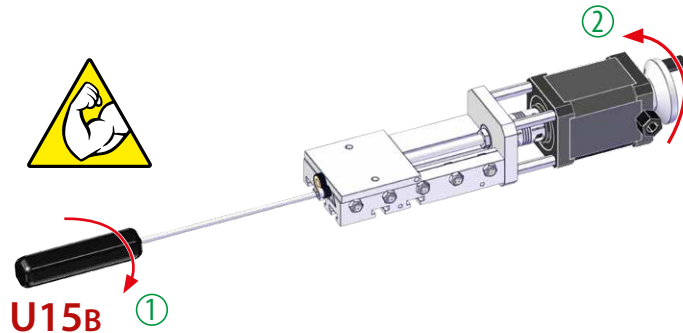
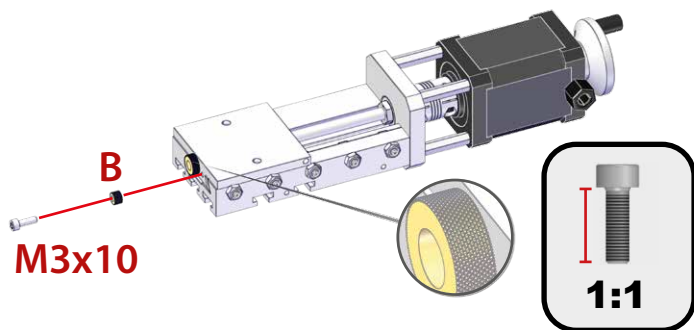
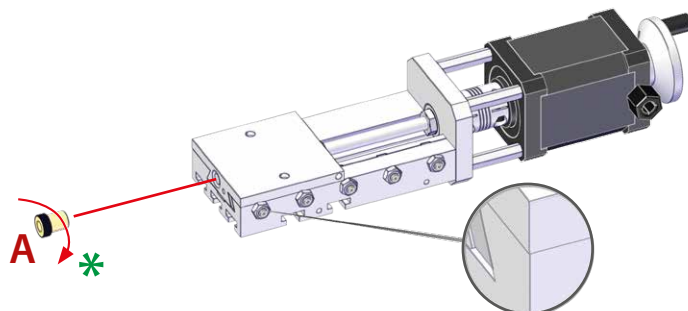
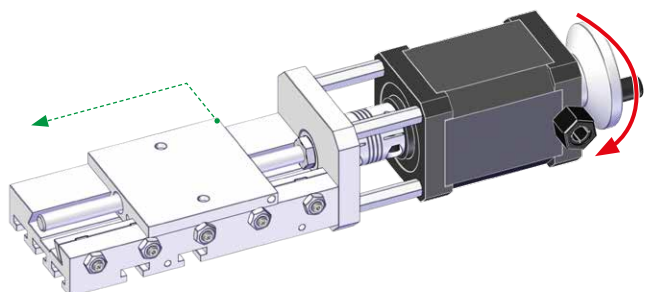


optional / optional / en option / opcional / 选配件 / опционально

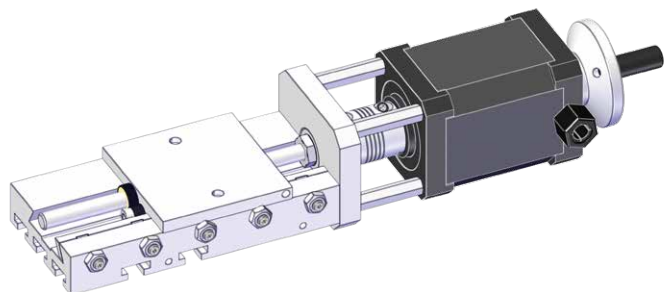
## 164 060 NCNC (164 068 CNC)

**Umkehrspiel einstellen • Backlash adjustment • Réglage du jeu •  
Ajuste de holgura • 间隙调整 • Регулировка люфта**

|   |   | DE                         | EN                        | FR                         | ES                            | 中国 (ZH)         | RU                        |                 |
|---|---|----------------------------|---------------------------|----------------------------|-------------------------------|-----------------|---------------------------|-----------------|
| A | 1 | Justiermutter 164060NCNC   | Backlash nut 164060NCNC   | Écrou de jeu 164060NCNC    | Tuerca de juego 164060NCNC    | 齿隙螺母 164060NCNC | Люфтовая гайка 164060NCNC | A1M 060 024 CNC |
| B | 1 | Fixierung für A1M060024CNC | Fixation for A1M060024CNC | Fixation pour A1M060024CNC | Fijación para A1M060024CNC    | 的固定装置           | Фиксация для A1M060024CNC | A1M 060 026 CNC |
|   | 1 | Inbusschraube M3x10        | Allen key screw M3x10     | Vis à clé Allen M3x10      | Tornillo de llave allen M3x10 | 内六角螺丝 M3x10     | Винт M3x10                | ZSR M310 ISKT   |

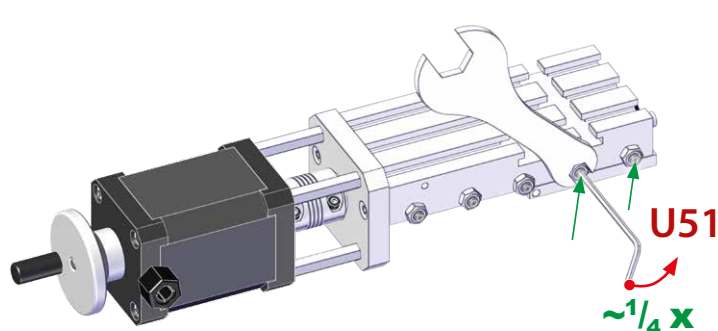
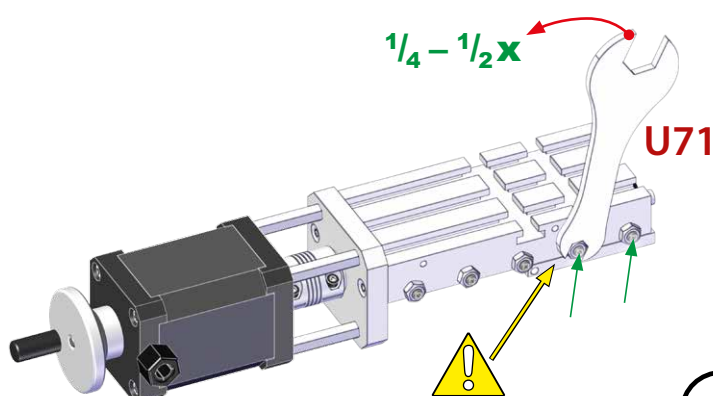


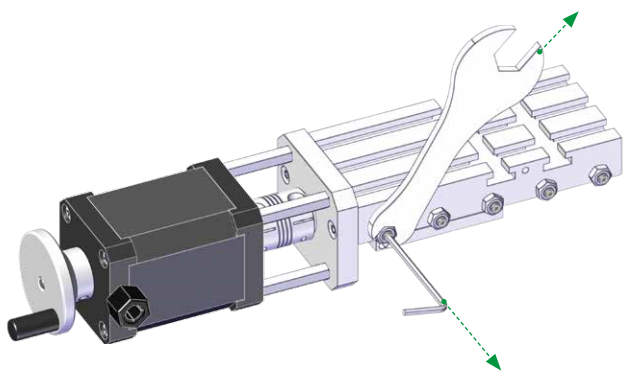
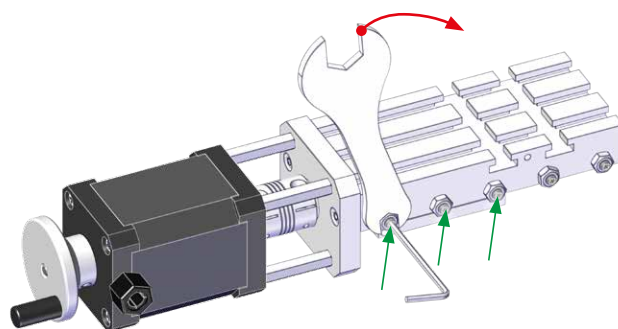
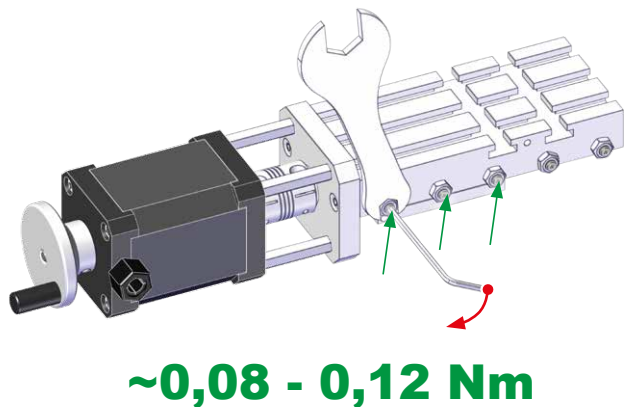
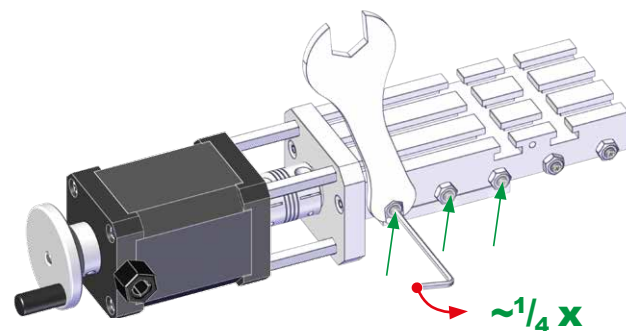
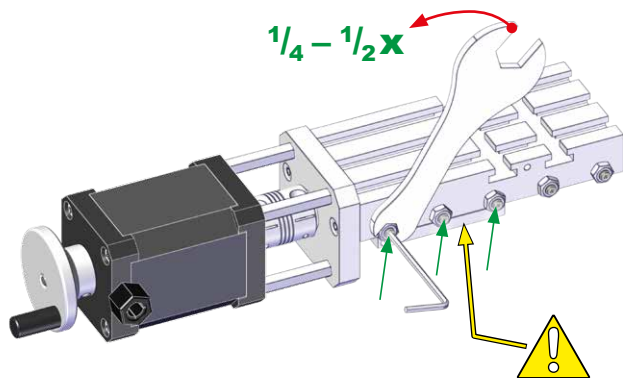
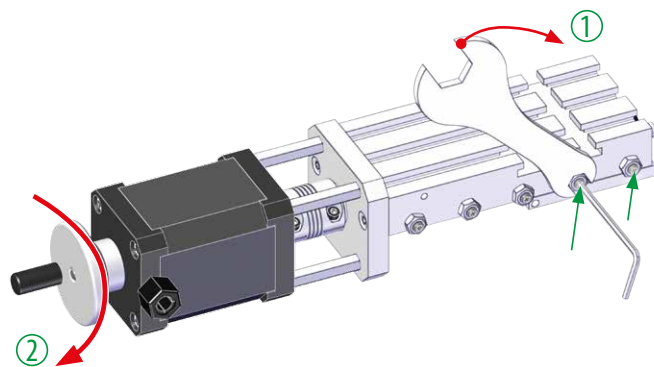
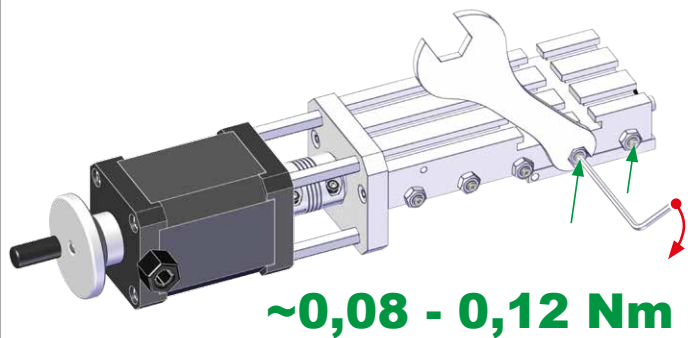
- \*  
 Schlitten wird blockieren • Slide will jam • La glissière se bloquera • La diapositiva se atascará • 幻灯片会卡住 • Слайд будет заедать  
 Keine Reduktion • No reduction • Pas de réduction • Sin reducción • 不减价 • Без сокращения



## 164 480 NCNC

**Schlitten einstellen • Slide adjustment • Glissière de réglage •  
Ajuste deslizante • 滑块调整 • Регулировка слайда**





Die Schlitten regelmäßig warten und reinigen: mit einer kleinen Bürste Späne und anderes entfernen und nachfetten.

Maintain the slides at regular intervals: clean with a brush and lubricate the gliding surface.

Nettoyez les chariots périodiquement: avec petit pinceau.

Mantener y limpiar periódicamente todos los carros con un cepillo pequeño.

保持滑块正常的活动范围: 用刷子清洁, 在燕尾槽表面加润滑油。

Регулярно чистите салазки жесткой кистью и смазывайте трущиеся поверхности.

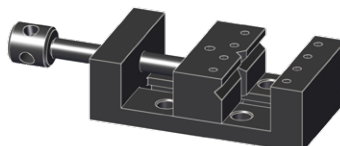
## Spannmittel • Clamping devices • Dispositifs de serrage • Dispositivos de sujeción • 夹紧装置 • зажимные устройства



A1A 000 090



164 080

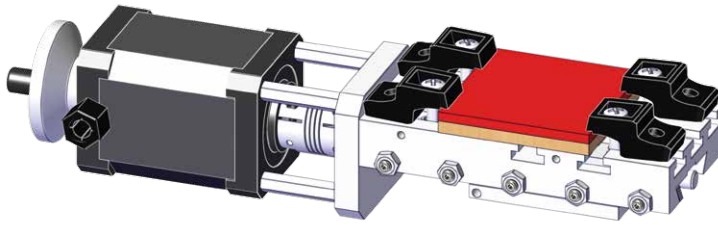


164 090

optional / optional /  
en option / opcional /  
选配件 / опционально

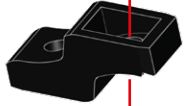
## U49 - A1A 000 090

Spannklaue • Clamping jaw • Mors de serrage •  
Brida de sujeción • 夹板 • Прихват Прихват

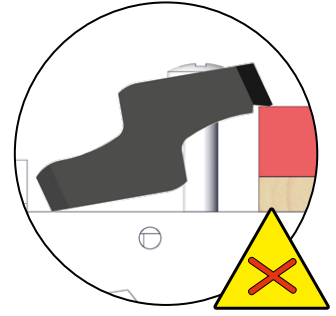
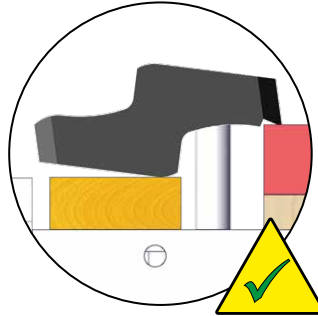
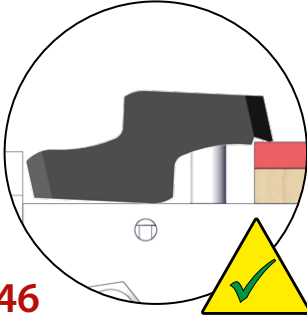


M4

U49

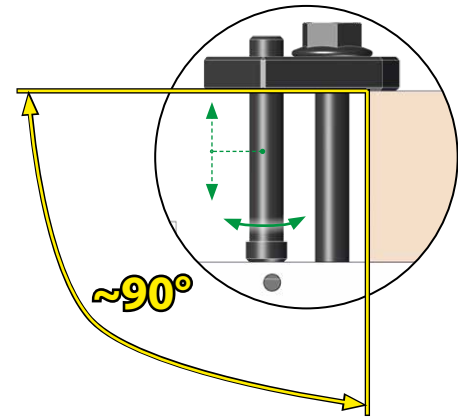
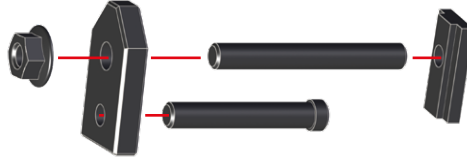
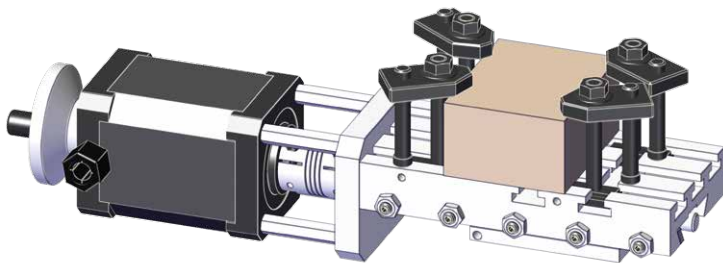


U46

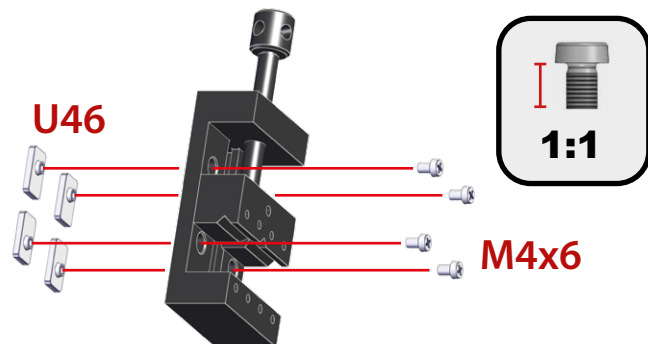


## U49<sub>ML</sub> - 164 080

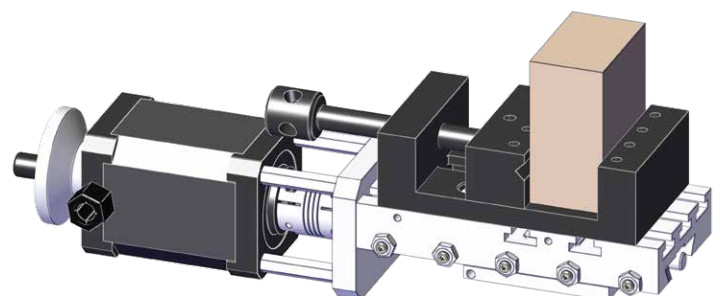
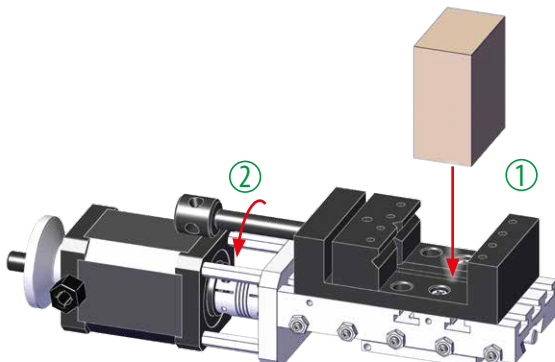
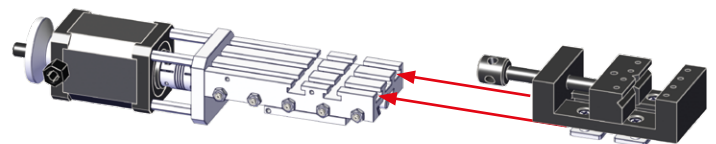
Spannklaue ML • Clamping jaw ML • Mors de serrage ML •  
Brida de sujeción ML • 夹板 ML • Прихват Прихват ML



## 164 090 Frässhraubstock aus Stahl • Milling vise (steel) • Étau métallique • Mordaza metálica • 选配零件虎钳 (钢制) • стальные тиски



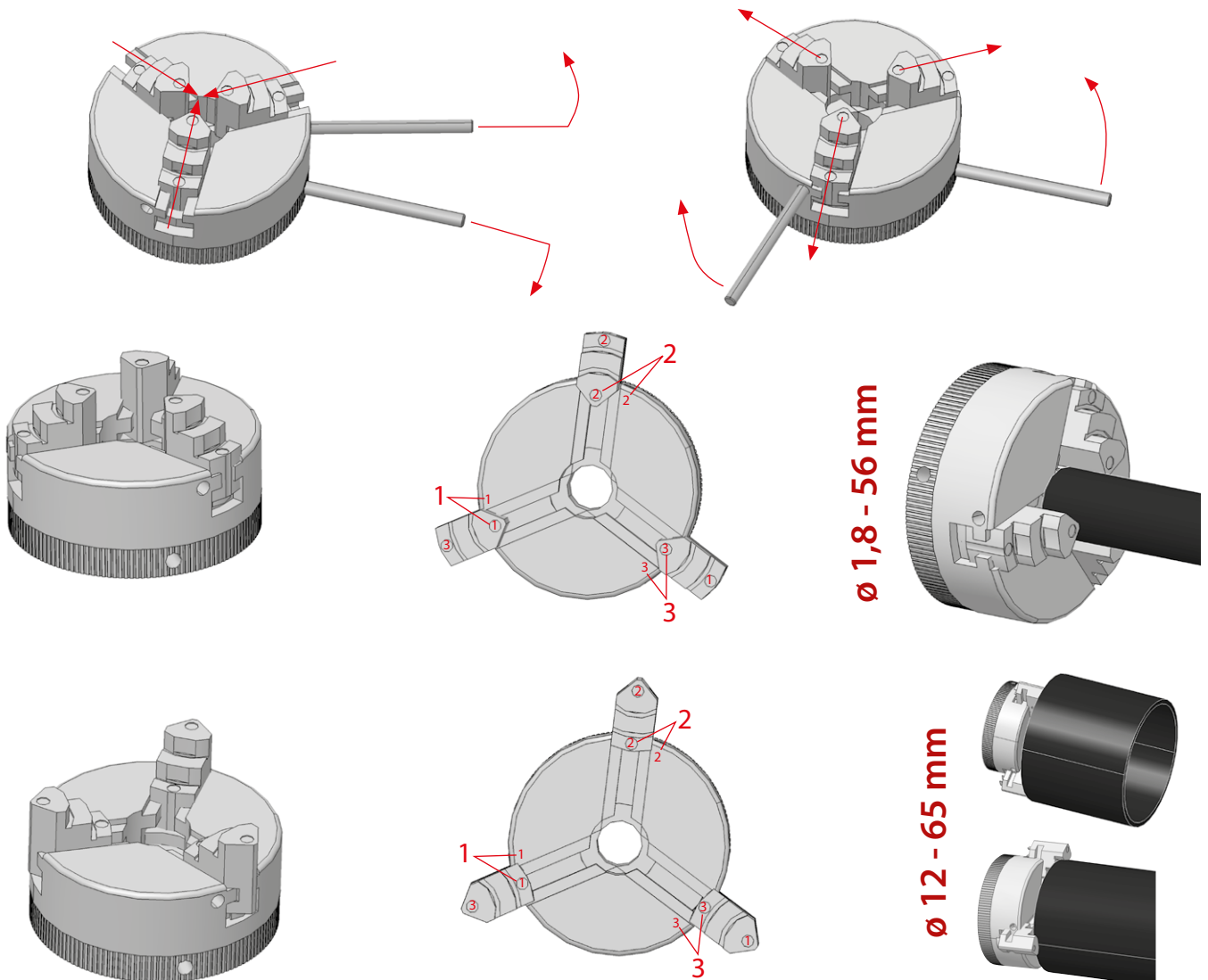
M4x6





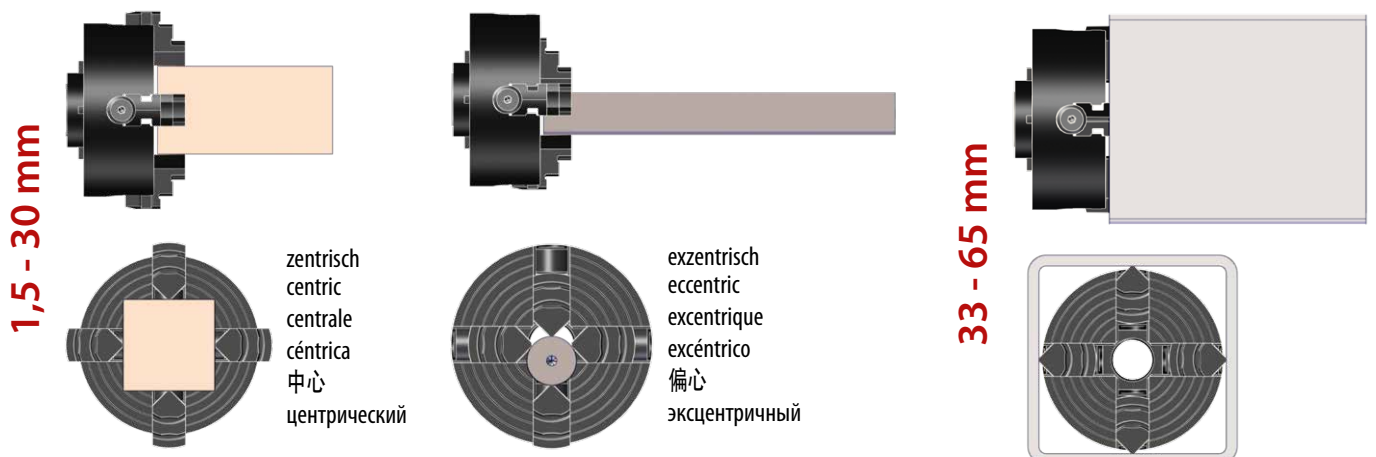
## A1A 071 000

**Dreibackenfutter • Three-jaw chuck • Mandrin à trois mors •  
Mandril de tres mordazas • 3爪卡盤 • Патрон 3-кулачковый**



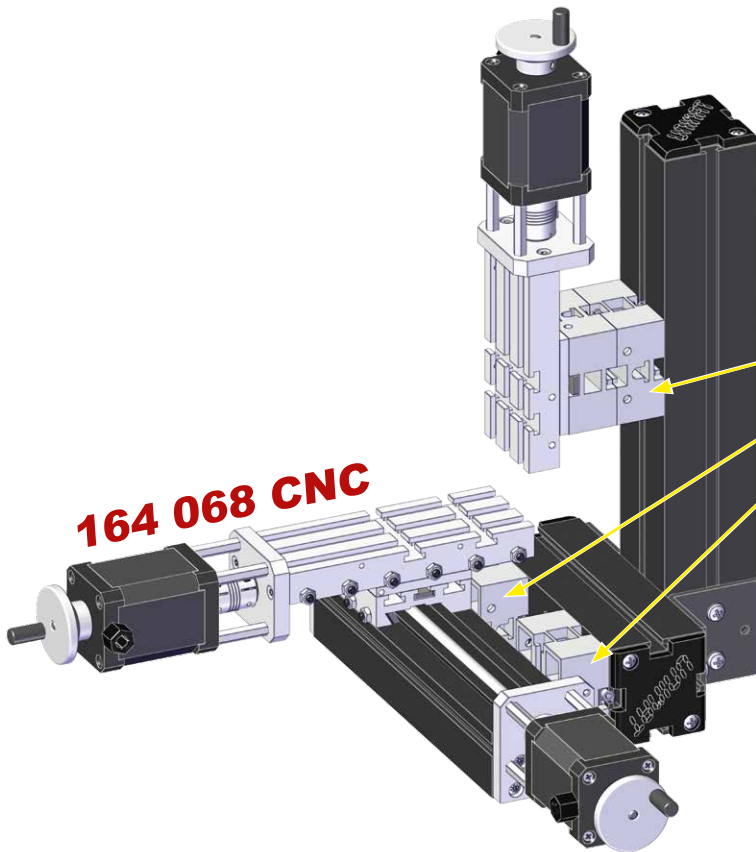
## 162 050

**Vierbackenfutter • Four-jaw chuck • Mandrin à quatre mors •  
Mandril de cuatro mordazas • 4爪卡盤 • Патрон 4-кулачковый**



optional / optional / en option / opcional / 选配件 / опционально

**Vergrößerter Arbeitsbereich • Increased workspace • Espace de travail accru • Mayor espacio de trabajo • 增加工作空间 • Увеличенное рабочее пространство**



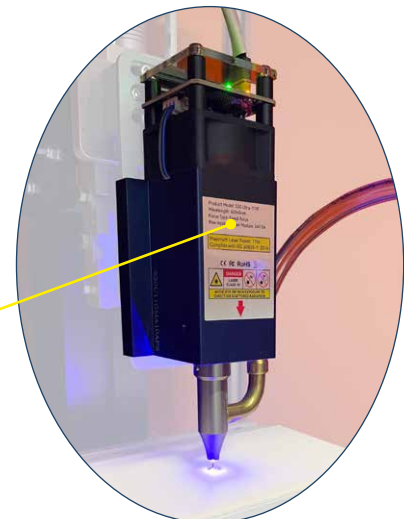
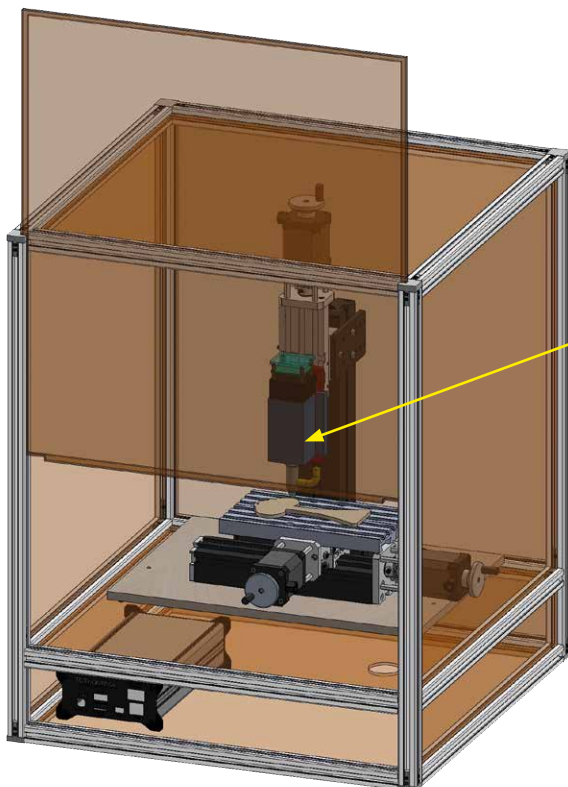
**U10ML + U66**

**164 060 NCNC + 164 480 MH**  
[YxX] 50x145 mm

**164 068 CNC + 164 480 MH**  
[YxX] 80x145 mm

optional / optional / en option / opcional / 选配件 / опционально

**Laser-upgrade • Laser-upgrade • Mise à niveau laser • Actualización láser • 激光升级 • Лазерное обновление**



Kompatibel mit allen Varianten der Uimat CNC Vertikalfräsen  
(3- u. 4 Achsenmaschinen).

Compatible with all variants of the Uimat CNC vertical milling machines  
(3 and 4 axis machines).

Compatible avec toutes les variantes des fraiseuses verticales CNC Uimat  
(machines 3 et 4 axes).

Compatible con todas las variantes de las fresadoras verticales Uimat CNC  
(máquinas de 3 y 4 ejes).

与 Uimat CNC 立式铣床的所有型号兼容 (3 轴和 4 轴机器)。

Совместим со всеми вариантами вертикально-фрезерных станков с  
ЧПУ Uimat. (3-х и 4-х осевые станки).

**SET STÜCKLISTEN**  
**SET PART LISTS**  
**SET LISTES DE PIÈCES**

**SET LISTAS DE PIEZAS**  
**SET 零件清单**  
**SET списки деталей**

| <b>Drehbank / lathe</b> |   |                              | <b>art.no.: UNI-DREH</b>      |                 |
|-------------------------|---|------------------------------|-------------------------------|-----------------|
| U1ML                    | 1 | Maschinenbett, lang          | Machine bed, long             | A1A 020 000 SW  |
| U3CNC                   | 1 | Querschlitzen CNC            | CNC Cross slide               | 164 060 NCNC    |
| U4MLEDU                 | 1 | Antriebseinheit ML           | Drive unit ML                 | 164 420         |
| U6ML                    | 1 | Reitstock                    | Tailstock                     | A1M 040 000     |
| U9CNC                   | 1 | Längsschlitten CNC 200mm     | CNC Longitudinal slide 200 mm | 164 480 NCNC    |
| U10ML                   | 2 | Zwischenstück                | Intermediate piece            | A1M 000 100     |
| U12ML                   | 1 | Messingspannzange 5 mm       | Collet 5 mm                   | 162 460 50      |
| U13ML                   | 1 | Dreibackenfutter             | Three-jaw chuck               | 162 430 MH      |
| U15A                    | 1 | Schraubendreher PH2          | Screwdriver #2                | ZWZ 980 030     |
| U15B                    | 1 | Inbusschraubendreher         | Screwdriver allen key 2.5mm   | ZWZ 980 075     |
| U31                     | 8 | Schraube M4x10               | Screw M4x10                   | ZSR M40 410     |
| U37                     | 4 | Schraube M4x8                | Screw M4x8                    | ZSR M40 408     |
| U38                     | 2 | Schraube M4x6                | Screw M4x6                    | ZSR M40 406     |
| U40                     | 2 | Drehstahlunterlage 0,1 mm    | Small part 0.1 mm             | A1A 000 170     |
| U41                     | 2 | Drehstahlunterlage 0,4 mm    | Small part 0.4 mm             | A1A 000 190     |
| U42                     | 2 | Drehstahlunterlage 1,0 mm    | Small part 1.0 mm             | A1A 0001 80     |
| U46                     | 7 | Nutenstein                   | Slot nut                      | A1A 060 040     |
| U47                     | 3 | Klemmplatte                  | Camping plate                 | A1A 010 020     |
| U48ML                   | 1 | Spannzangenhalter            | Collet holder                 | A1A 000 073     |
| U51                     | 1 | Inbusschlüssel 2 mm          | Allen key 2 mm                | ZWZ 110 200     |
| U52                     | 2 | Stift                        | Rod                           | ZST 110 345     |
| U53                     | 1 | Außendrehstahl               | Tool for outs. turning        | A1A 000 080     |
| U54                     | 1 | Körnerspitze                 | Center                        | A1A 0001 30     |
| U54PRO                  | 1 | Präzisions Rollkörner        | Precision live center         | 164 450         |
| U65                     | 1 | Inbusschlüssel 2,5 mm        | Allen key 2.5 mm              | ZWZ 110 250     |
| U66                     | 6 | Verbindungselement           | Connection piece              | A1A 000 ZIN SK  |
| U67                     | 2 | Fixierplatte groß            | Stabilizing plates            | A1Z 470 010     |
| U70                     | 1 | Schraube M4x40               | Screw M4x40                   | ZSR M44 01S KT  |
| U61                     | 1 | Gabelschlüssel 7/14 mm       | Fork wrench 7 / 14 mm         | ZWZ 400 700     |
| U74                     | 9 | Beilagscheibe                | Plain washer                  | ZSB 250 430     |
|                         | 1 | Mehrfachstahlhalter          | 2 position tool post          | A1M 000 091 MTG |
|                         | 1 | Inbusschlüssel 3 mm          | Allen key 3 mm                | ZWZ 110 300     |
|                         | 1 | Netzteil 14,4V               | 14.4 V adaptor                | 161 316         |
|                         | 1 | Grundplatte CNC              | Mounting plate CNC            | 163 402         |
|                         | 4 | Gummipuffer                  | Elastic buffer                | 166 EP          |
|                         | 1 | Aufnahme für A1M050024/26CNC | Guide for A1M050024/026CNC    | A1M 050 028 CNC |
|                         | 1 | Inbusschraube M3x8           | Allen key screw M3x8          | ZSR M308 ISKT   |
|                         | 3 | Inbusschraube M3x10          | Allen key screw M3x10         | ZSR M310 ISKT   |



| <b>3-Achsen Fräse / 3-axis mill</b> |    |                                   |                               | <b>art.no.: UNI-FRAES3</b> |
|-------------------------------------|----|-----------------------------------|-------------------------------|----------------------------|
| U1ML                                | 1  | Maschinenbett, lang               | Machine bed, long             | A1A 020 000 SW             |
| U3CNC                               | 2  | Querschlitzen CNC                 | CNC Cross slide               | 164 060 NCNC               |
| U4MLEDU                             | 1  | Antriebseinheit ML                | Drive unit ML                 | 164 420                    |
| U7ML                                | 1  | Maschinenbett, kurz               | Machine bed, short            | A1A 010 000 SW             |
| U9CNC                               | 1  | Längsschlitten CNC 200mm          | CNC Longitudinal slide 200 mm | 164 480 NCNC               |
| U10ML                               | 1  | Zwischenstück                     | Intermediate piece            | A1M 000 100                |
| U12ML                               | 1  | Messingspannzange 1/8" (3,175 mm) | Collet 1/8"                   | 162 460 31/8               |
| U15A                                | 1  | Schraubendreher PH2               | Screwdriver #2                | ZWZ 980 030                |
| U15B                                | 1  | Inbusschraubendreher              | Screwdriver allen key 2.5mm   | ZWZ 980 075                |
| U31                                 | 8  | Schraube M4x10                    | Screw M4x10                   | ZSR M40 410                |
| U37                                 | 12 | Schraube M4x8                     | Screw M4x8                    | ZSR M40 408                |
| U38                                 | 6  | Schraube M4x6                     | Screw M4x6                    | ZSR M40 406                |
| U43S                                | 1  | Sicherungsmutter M4               | Locking nut M4                | ZMU 340 120                |
| U46                                 | 12 | Nutenstein                        | Slot nut                      | A1A 060 040                |
| U47                                 | 8  | Klemmplatte                       | Camping plate                 | A1A 010 020                |
| U48ML                               | 1  | Spannzangenhalter                 | Collet holder                 | A1A 000 073                |
| U49                                 | 4  | Spannklaue                        | Clamping jaw                  | A1A 000 090                |
| U50                                 | 1  | Schraube M4x70                    | Screw M4x70                   | ZSR M40 470                |
| U51                                 | 1  | Inbusschlüssel 2 mm               | Allen key 2 mm                | ZWZ 110 200                |
| U52                                 | 1  | Stift                             | Rod                           | ZST 110 345                |
| U56CNC                              | 1  | Fräser 1,6 mm                     | 1.6 mm Milling head           | F24 701 ,60                |
| U65                                 | 1  | Inbusschlüssel 2,5 mm             | Allen key 2.5 mm              | ZWZ 110 250                |
| U66                                 | 4  | Verbindungselement                | Connection piece              | A1A 000 ZIN SK             |
| U69                                 | 4  | Schraube M4x12                    | Screw M4x12                   | ZSR M40 412                |
| U61                                 | 1  | Gabelschlüssel 7/14 mm            | Fork wrench 7 / 14 mm         | ZWZ 400 700                |
| U74                                 | 18 | Beilagscheibe                     | Plain washer                  | ZSB 250 430                |
| U79                                 | 3  | Fixierplatte, klein               | Stabilizing plates small      | A1Z 470 000                |
| U80                                 | 2  | Befestigungswinkel                | Stabilizing angle             | A1Z 480 000                |
|                                     | 1  | Frässhraubstock aus Stahl         | Milling vise (steel)          | 164 090                    |
|                                     | 1  | Spannpratzenset ML                | Clamping jaw set ML           | 164 490                    |
|                                     | 1  | Netzteil 14,4V                    | 14.4 V adaptor                | 161 316                    |
|                                     | 1  | Grundplatte CNC                   | Mounting plate CNC            | 163 402                    |
|                                     | 4  | Gummipuffer                       | Elastic buffer                | 166 EP                     |
|                                     | 1  | Aufnahme für A1M050024/26CNC      | Guide for A1M050024/026CNC    | A1M 050 028 CNC            |
|                                     | 1  | Inbusschraube M3x8                | Allen key screw M3x8          | ZSR M308 ISKT              |
|                                     | 4  | Inbusschraube M3x10               | Allen key screw M3x10         | ZSR M310 ISKT              |

| <b>1/2 3-Achsen Fräse erweitert / 3-axis mill enlarged</b> |    |                                    |                                          | <b>art.no.: UNI-FRAES3EXT</b> |
|------------------------------------------------------------|----|------------------------------------|------------------------------------------|-------------------------------|
|                                                            | 1  | <b>3-Achsen Fräse</b>              | <b>3-axis mill</b>                       | <b>UNI-FRAES3</b>             |
| U3CNC                                                      | -2 | Querschlitzen CNC                  | CNC Cross slide                          | 164 060 NCNC                  |
|                                                            | +2 | Querschlitzen CNC 80 mm            | CNC Cross slide 80 mm                    | 164 068 NCNC                  |
| U4MLEDU                                                    | -1 | Antriebseinheit ML                 | Drive unit ML                            | 164 420                       |
|                                                            | +1 | Fräs- Gravierspindel CNC gesteuert | Milling/Engraving spindle CNC controlled | 164 420 CNC                   |
| U10ML                                                      | +3 | Zwischenstück                      | Intermediate piece                       | A1M 000 100                   |

| <b>2/2 3-Achsen Fräse erweitert / 3-axis mill enlarged</b> |           |                     |                          | <b>art.no.: UNI-FRAES3EXT</b> |
|------------------------------------------------------------|-----------|---------------------|--------------------------|-------------------------------|
| U66                                                        | <b>+3</b> | Verbindungselement  | Connection piece         | A1A 000 ZIN SK                |
| U79                                                        | <b>-1</b> | Fixierplatte, klein | Stabilizing plates small | A1Z 470 000                   |
|                                                            | <b>-1</b> | Netzteil 14,4V      | 14.4 V adaptor           | 161 316                       |

| <b>1/2 4-Achsen Fräse / 4-axis mill</b> |           |                                   |                               | <b>art.no.: UNI-FRAES4</b> |
|-----------------------------------------|-----------|-----------------------------------|-------------------------------|----------------------------|
| U1ML                                    | <b>1</b>  | Maschinenbett, lang               | Machine bed, long             | A1A 020 000 SW             |
| U3CNC                                   | <b>2</b>  | Querschlitzen CNC                 | CNC Cross slide               | 164 060 NCNC               |
| U4MLEDU                                 | <b>1</b>  | Antriebseinheit ML                | Drive unit ML                 | 164 420                    |
| U7ML                                    | <b>1</b>  | Maschinenbett, kurz               | Machine bed, short            | A1A 010 000 SW             |
| U9CNC                                   | <b>1</b>  | Längsschlitzen CNC 200mm          | CNC Longitudinal slide 200 mm | 164 480 NCNC               |
| U10ML                                   | <b>2</b>  | Zwischenstück                     | Intermediate piece            | A1M 000 100                |
| U12ML                                   | <b>1</b>  | Messingspannzange 1/8" (3,175 mm) | Collet 1/8"                   | 162 460 31/8               |
| U15A                                    | <b>1</b>  | Schraubendreher PH2               | Screwdriver #2                | ZWZ 980 030                |
| U15B                                    | <b>1</b>  | Inbusschraubendreher              | Screwdriver allen key 2.5mm   | ZWZ 980 075                |
| U31                                     | <b>8</b>  | Schraube M4x10                    | Screw M4x10                   | ZSR M40 410                |
| U33                                     | <b>1</b>  | Schraube M4x50                    | Screw M4x50                   | ZSR M40 450                |
| U37                                     | <b>12</b> | Schraube M4x8                     | Screw M4x8                    | ZSR M40 408                |
| U38                                     | <b>6</b>  | Schraube M4x6                     | Screw M4x6                    | ZSR M40 406                |
| U43S                                    | <b>1</b>  | Sicherungsmutter M4               | Locking nut M4                | ZMU 340 120                |
| U45                                     | <b>1</b>  | Zwischenblech                     | Intermediate plate            | A1A 000 160                |
| U46                                     | <b>12</b> | Nutenstein                        | Slot nut                      | A1A 060 040                |
| U47                                     | <b>8</b>  | Klemmplatte                       | Camping plate                 | A1A 010 020                |
| U48ML                                   | <b>1</b>  | Spannzangenhalter                 | Collet holder                 | A1A 000 073                |
| U49                                     | <b>4</b>  | Spannklaue                        | Clamping jaw                  | A1A 000 090                |
| U50                                     | <b>1</b>  | Schraube M4x70                    | Screw M4x70                   | ZSR M40 470                |
| U51                                     | <b>1</b>  | Inbusschlüssel 2 mm               | Allen key 2 mm                | ZWZ 110 200                |
| U52                                     | <b>1</b>  | Stift                             | Rod                           | ZST 110 345                |
| U56CNC                                  | <b>1</b>  | Fräser 1,6 mm                     | 1.6 mm Milling head           | F24 701 ,60                |
| U65                                     | <b>1</b>  | Inbusschlüssel 2,5 mm             | Allen key 2.5 mm              | ZWZ 110 250                |
| U66                                     | <b>6</b>  | Verbindungselement                | Connection piece              | A1A 000 ZIN SK             |
| U61                                     | <b>1</b>  | Gabelschlüssel 7/14 mm            | Fork wrench 7 / 14 mm         | ZWZ 400 700                |
| U74                                     | <b>18</b> | Beilagscheibe                     | Plain washer                  | ZSB 250 430                |
| U79                                     | <b>3</b>  | Fixierplatte, klein               | Stabilizing plates small      | A1Z 470 000                |
| U80                                     | <b>2</b>  | Befestigungswinkel                | Stabilizing angle             | A1Z 480 000                |
|                                         | <b>1</b>  | CNC Drehtisch                     | CNC Rotary table              | 164 300 CNC                |
|                                         | <b>1</b>  | 4-Backenfutter                    | Four-jaw-chuck                | 162 050 MH                 |
|                                         | <b>1</b>  | Spannpratzenset ML                | Clamping jaw set ML           | 164 490                    |
|                                         | <b>1</b>  | Netzteil 14,4V                    | 14.4 V adaptor                | 161 316                    |
|                                         | <b>1</b>  | Grundplatte CNC                   | Mounting plate CNC            | 163 402                    |
|                                         | <b>4</b>  | Gummipuffer                       | Elastic buffer                | 166 EP                     |
|                                         | <b>1</b>  | Aufnahme für A1M050024/26CNC      | Guide for A1M050024/026CNC    | A1M 050 028 CNC            |
|                                         | <b>1</b>  | Inbusschraube M3x8                | Allen key screw M3x8          | ZSR M308 ISKT              |
|                                         | <b>4</b>  | Inbusschraube M3x10               | Allen key screw M3x10         | ZSR M310 ISKT              |

| <b>2/2 4-Achsen Fräse SC/ 4-axis mill SC</b> |          |                                    | <b>art.no.: UNI-FRAES4SC</b>             |                   |
|----------------------------------------------|----------|------------------------------------|------------------------------------------|-------------------|
|                                              | <b>1</b> | <b>4-Achsen Fräse</b>              | <b>4-axis mill</b>                       | <b>UNI-FRAES4</b> |
| U3CNC                                        | -1       | Querschlitzen CNC                  | CNC Cross slide                          | 164 060 NCNC      |
|                                              | +1       | Querschlitzen CNC 80 mm            | CNC Cross slide 80 mm                    | 164 068 NCNC      |
| U4MLEDU                                      | -1       | Antriebseinheit ML                 | Drive unit ML                            | 164 420           |
|                                              | +1       | Fräs- Gravierspindel CNC gesteuert | Milling/Engraving spindle CNC controlled | 164 420 CNC       |
| U79                                          | -1       | Fixierplatte, klein                | Stabilizing plates small                 | A1Z 470 000       |
|                                              | -1       | Netzteil 14,4V                     | 14.4 V adaptor                           | 161 316           |

| <b>1/2 4-Achsen Dreh- Fräsepaket / 4-axis turn- mill package</b> |    |                                   | <b>art.no.: UNI-CNC-SET</b>   |                |
|------------------------------------------------------------------|----|-----------------------------------|-------------------------------|----------------|
| U1ML                                                             | 1  | Maschinenbett, lang               | Machine bed, long             | A1A 020 000 SW |
| U3CNC                                                            | 2  | Querschlitzen CNC                 | CNC Cross slide               | 164 060 NCNC   |
| U4MLEDU                                                          | 1  | Antriebseinheit ML                | Drive unit ML                 | 164 420        |
| U6ML                                                             | 1  | Reitstock                         | Tailstock                     | A1M 040 000    |
| U7ML                                                             | 1  | Maschinenbett, kurz               | Machine bed, short            | A1A 010 000 SW |
| U9CNC                                                            | 1  | Längsschlitzen CNC 200mm          | CNC Longitudinal slide 200 mm | 164 480 NCNC   |
| U10ML                                                            | 3  | Zwischenstück                     | Intermediate piece            | A1M 000 100    |
| U12ML                                                            | 1  | Messingspannzange 1/8" (3,175 mm) | Collet 1/8"                   | 162 460 31/8   |
| U12ML                                                            | 1  | Messingspannzange 5 mm            | Collet 5 mm                   | 162 460 05     |
| U13ML                                                            | 1  | Dreibackenfutter                  | Three-jaw chuck               | 162 430 MH     |
| U15A                                                             | 1  | Schraubendreher PH2               | Screwdriver #2                | ZWZ 980 030    |
| U15B                                                             | 1  | Inbusschraubendreher              | Screwdriver allen key 2.5mm   | ZWZ 980 075    |
| U31                                                              | 16 | Schraube M4x10                    | Screw M4x10                   | ZSR M40 410    |
| U33                                                              | 1  | Schraube M4x50                    | Screw M4x50                   | ZSR M40 450    |
| U37                                                              | 12 | Schraube M4x8                     | Screw M4x8                    | ZSR M40 408    |
| U38                                                              | 6  | Schraube M4x6                     | Screw M4x6                    | ZSR M40 406    |
| U40                                                              | 2  | Drehstahlunterlage 0,1 mm         | Small part 0.1 mm             | A1A000170      |
| U41                                                              | 2  | Drehstahlunterlage 0,4 mm         | Small part 0.4 mm             | A1A000190      |
| U42                                                              | 2  | Drehstahlunterlage 1,0 mm         | Small part 1.0 mm             | A1A000180      |
| U43S                                                             | 1  | Sicherungsmutter M4               | Locking nut M4                | ZMU 340 120    |
| U45                                                              | 1  | Zwischenblech                     | Intermediate plate            | A1A 000 160    |
| U46                                                              | 12 | Nutenstein                        | Slot nut                      | A1A 060 040    |
| U47                                                              | 10 | Klemmplatte                       | Camping plate                 | A1A 010 020    |
| U48ML                                                            | 1  | Spannzangenhalter                 | Collet holder                 | A1A 000 073    |
| U49                                                              | 4  | Spannklaue                        | Clamping jaw                  | A1A 000 090    |
| U50                                                              | 1  | Schraube M4x70                    | Screw M4x70                   | ZSR M40 470    |
| U51                                                              | 1  | Inbusschlüssel 2 mm               | Allen key 2 mm                | ZWZ 110 200    |
| U52                                                              | 2  | Stift                             | Rod                           | ZST 110 345    |
| U53                                                              | 1  | Außendrehstahl                    | Tool for outs. turning        | A1A 000 080    |
| U54                                                              | 1  | Körnerspitze                      | Center                        | A1A 000 130    |
| U54PRO                                                           | 1  | Präzisions Rollkörner             | Precision live center         | 164 450        |
| U56CNC                                                           | 1  | Fräser 1,6 mm                     | 1.6 mm Milling head           | F24 701 ,60    |
| U65                                                              | 1  | Inbusschlüssel 2,5 mm             | Allen key 2.5 mm              | ZWZ 110 250    |
| U66                                                              | 8  | Verbindungselement                | Connection piece              | A1A 000 ZIN SK |
| U67                                                              | 2  | Fixierplatte                      | Stabilizing plates            | A1Z 470 010    |
| U69                                                              | 4  | Schraube M4x12                    | Screw M4x12                   | ZSR M40 412    |
| U70                                                              | 1  | Schraube M4x40                    | Screw M4x40                   | ZSR M44 01S KT |
| U61                                                              | 1  | Gabelschlüssel 7/14 mm            | Fork wrench 7 / 14 mm         | ZWZ 400 700    |
| U74                                                              | 26 | Beilagscheibe                     | Plain washer                  | ZSB 250 430    |



**2/2 4-Achsen Dreh- Fräsepaket / 4-axis turn- mill package art.no.: UNI-CNC-SET**

|     |   |                              |                            |                 |
|-----|---|------------------------------|----------------------------|-----------------|
| U79 | 5 | Fixierplatte, klein          | Stabilizing plates small   | A1Z 470 000     |
| U80 | 2 | Befestigungswinkel           | Stabilizing angle          | A1Z 480 000     |
|     | 1 | CNC Drehtisch                | CNC Rotary table           | 164 300 CNC     |
|     | 1 | Mehrfachstahlhalter          | 2 position tool post       | A1M 000 091 MTG |
|     | 1 | Inbusschlüssel 3 mm          | Allen key 3 mm             | ZWZ 110 300     |
|     | 1 | 4-Backenfutter               | Four-jaw-chuck             | 162 050 MH      |
|     | 1 | Spannpratzenset ML           | Clamping jaw set ML        | 164 490         |
|     | 1 | Querplatte Querschlitzen     | Cross plate - cross slide  | 164 063         |
|     | 1 | Netzteil 14,4V               | 14.4 V adaptor             | 161 316         |
|     | 1 | Grundplatte CNC              | Mounting plate CNC         | 163 402         |
|     | 4 | Gummipuffer                  | Elastic buffer             | 166 EP          |
|     | 1 | Aufnahme für A1M050024/26CNC | Guide for A1M050024/026CNC | A1M 050 028 CNC |
|     | 1 | Inbusschraube M3x8           | Allen key screw M3x8       | ZSR M308 ISKT   |
|     | 4 | Inbusschraube M3x10          | Allen key screw M3x10      | ZSR M310 ISKT   |

**optional / optional / en option / opcional / 选配件 / опционально**

**inkludiert in • included in • inclus dans • incluido en • 包括在 • включен в**

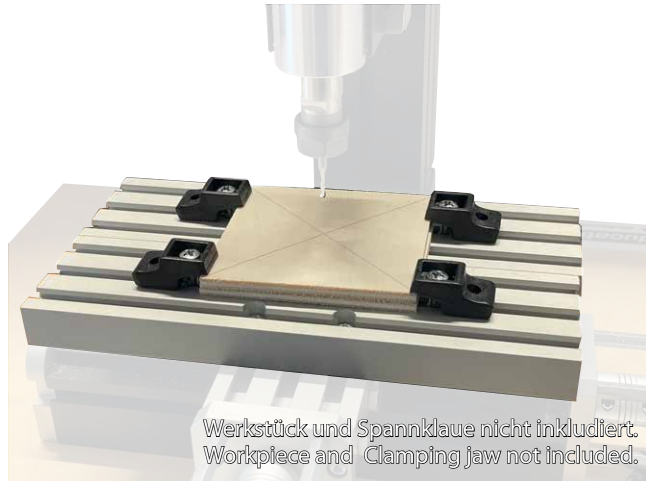
**UNI-DREHS, UNI-FRAES3S, UNI-FRAES3EXTS, UNI-FRAES4S, UNI-FRAES4SCS, UNI-CNC-SETS**

**TCTControl 4-axis art.no.: TCTCONT4**

|  |   |                                |                                |                 |
|--|---|--------------------------------|--------------------------------|-----------------|
|  | 1 | TCT Control 4 axis             | TCT Control 4 axis             | MCB CONT 4      |
|  | 1 | USB Kabel für TCT Controller   | USB cable for TCT control      | TCT USB CAB     |
|  | 1 | Netzteil 24V/5A                | Power adapter 24V/5A           | 161 610         |
|  | 1 | Kabel für Netzteil 24V/5A      | Cabel for power adapter 24V/5A | 161 610 xxx     |
|  | 1 | Manual techn. Ausbildung-CNC-1 | Manual TVET-CNC-1              | VST VET CNC 1 x |



**164 510**  
Laser-Modul-CNC  
Laser-Module-CNC



**164 065**  
Frästischplatten  
Milling table plates

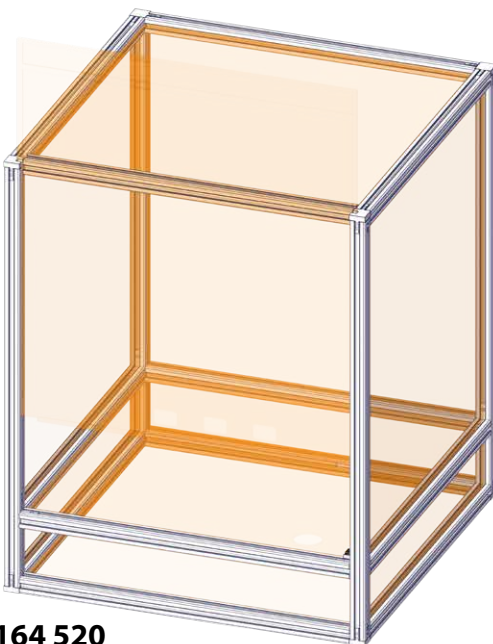
Werkstück und Spannklaue nicht inkludiert.  
Workpiece and Clamping jaw not included.



**164 530**  
Luftpumpe  
Air pump



**164 066**  
Wabentisch für Laser  
Honeycomb table for Laser



**164 520**  
Unimat CNC Gehäuse  
Unimat CNC enclosure



**Uni-Cut-3D**  
Heizdrahtschneider 3D  
Hot wire cutter 3D

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе



**164 425 CNC**  
Notaus/Relais-Box CNC  
E-stop/Relay module CNC



**164 420 CNC**  
Unimat CNC Fräs - und Gravierspindel  
Unimat CNC Milling and Engraving Spindle



**F900 1010**  
Fräusersatz 1/8" Schaft 10 Stk  
End mill set 1/8" shank 10 pcs



**164 090**  
Frässhraubstock aus Werkzeugstahl  
Milling - Vice made of tool steel



**166 ALU S**  
Automatenaluminium ø12x100 mm  
Aluminium ø12x100 mm, center drilled



**166 COR S**  
Corian (Kunststein) 50x50x12 mm  
Corian (artificial stone) 50x50x12 mm



**166 FOAM S**  
Spezial-Frässchaum ~25x25x50 mm  
Special milling foam ~25x25x50 mm



**166 PLEX S**  
Spezial-Acryl färbig 50x50x3 mm  
Special colored Acrylic 50x50x3 mm

nicht im Maßstab | not in scale | pas à l'échelle | no es a escala | 不按比例 | не в масштабе

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