

!

強制

请将此安装说明书交给使用者。
非常感谢您使用本公司的产品。
使用TCG系列产品之前，请认真阅读此说明书并妥善保管。若有不明之处，请与我公司联系。

1. 安全事项

1.1 警告标识说明

本说明书中，为了防止因误安装引起的事故，都添加了标识，标识的意思有以下几种。

!

警告

如果无视此标识进行安装，有可能导致使用者的死亡或重伤。

!

注意

如果无视此标识，有可能导致使用者的负伤及物品的损坏。

此外，**注意** 记载的事项也可能根据具体情况不同，引发其他的严重问题，2种标识都记载着相当重要的信息，请务必仔细阅读。

■记号的说明

记号	说 明	记号	说 明
<div><div>!</div></div>	强制执行	<div><div>⊘</div></div>	禁止执行

1.2 关于搬运

!

注意

!

在搬运时请务必确保以下事项

●

本产品为精密机械，请勿撞击或跌落。
○可能会导致产品在使用中发生故障。

●

跌落时很可能对身体部位造成损伤，请确认好本产品的型号与重量后再进行搬运。

2. 安装

2.1 注意事项

!

警告

!

请在产品规格参数范围内使用

●

使用本系列产品前，请务必进行选型计算。请在规格参数范围内使用本产品。
○可能导致运作不良或损坏。

!

请务必设计紧急停止回路

●

在紧急情况下必须立即停止，请进行紧急断电及安全性功能的设计。

⊘

请勿安装已有破损的产品

○

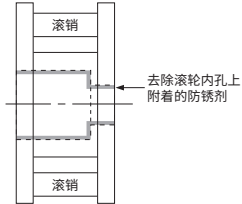
可能导致设备损坏、人员伤亡及二次灾害。

!

请去除涨套安装部的防锈剂

●

安装涨套时，请务必使用酒精、煤油等去除涨套与滚轮内孔部位的防锈剂。（防锈剂可能导致打滑）



3. 使用注意事项

3.1 运作中・接入电源时的注意点

!

警告

⊘

请勿触碰可动部件

●

请勿在产品运作中靠近可动部件，请小心防止衣物卷入。
○可能造成伤害。

⊘

请勿急停运作中的驱动轴

●

在运行中急停可能会产生超出允许范围的负载，请勿急停驱动部。
○可能导致产品损坏、人身伤害、二次伤害等情况出现。

⊘

请勿触碰运行中的设备

●

请勿靠近或触碰运行中的设备及旋转部分。

!

注意

⊘

请勿在有水/油环境下使用

●

本产品非防水/防滴款式，请勿在有水/油环境下使用。
○可能导致运转不良或损坏。

●

有水/油环境下，请务必使用盖板等保护产品本体。

4. 维护·检修

4.1 异常情况处理方法

!

警告

!

异常停止时请断电

●

停电及有可能发生危险时，请务必切断电源。
○再次通电后可能引发设备失控，十分危险。

●

再启动设备时请勿过于靠近设备。
○设备在启动后可能会产生不可预期的动作，十分危险。

!

注意

●

如发生过载，撞击等异常情况，请联系本公司。
○可能因铁粉或润滑油脂劣化等引发无法预估的二次灾害。

!

注意

!

确保固定

●

请务必确保产品在使用时已经固定。请确认安装方法与使用条件及本体重量相匹配。
○安装或运行中可能会脱落，引发二次灾害。

●

请确保各部分螺栓已经紧固。
○齿圈组件选择加装盖板时，盖板是进行假装配后出货的。请先拆下盖板，齿面上涂抹润滑油脂后再将盖板装回。

!

请保护本体

●

无表面处理的齿条&滚轮是未做防锈处理的，请在需要进行防锈的部位涂抹防锈剂或润滑油脂等。
○可能因保存状态、环境等导致产品生锈。

●

请根据实际使用环境的差异，选择不同的保护方式（如盖板等）。请务必做好本体保护。
○可能导致运作不良或损坏。
○齿圈组件的盖板为安全舱盖，不能作为防尘舱盖使用。

!

请去除防锈剂

●

本产品在出货时会涂布防锈剂暂时防锈。
组装时请用酒精或煤油等进行擦拭，将防锈膜去除之后再行使用。
擦拭过后，偶尔会出现齿底表面处理部分（黑色镀铬皮膜）微微发白的现象，此状况对防锈效果无任何影响。

!

请涂抹润滑油

●

请在齿条、齿圈、齿圈组件的齿面上涂抹润滑油脂。
选择带有盖板的齿圈组件时，请拆下盖板并在齿面上涂抹润滑油脂。
○可能会造成磨损。

●

若购买TLS，则无需涂抹润滑油脂。

⊘

请勿强行旋转

●

产品安装完毕后请勿强行旋转。
○可能造成破坏。

⊘

请勿撞击产品或对产品施加蛮力

●

请勿撞击本产品。请确保产品负载在规格参数范围内。
○可能造成损坏。

4.2 维护·检修

!

注意

!

安全保管

●

请勿在以下场所存放机械设备及附属品。

!

请定期涂抹润滑油脂

●

请定期为齿条&齿圈涂抹润滑油脂。
涂抹周期为齿条&齿圈200万次往复/旋转或6个月（以先到达为标准）。
齿圈组件中的交叉滚子轴承部分，也请以同样的周期，使用极压性锂化系润滑油进行涂抹润滑。
●若使用TLS，则无需初期给油或定期维护。

⊘

禁止拆解

●

不得拆解，改造本产品。
○否则不保证正常的运行。

●

若要拆卸本产品，请务必在切断电源，待温度下降，并确保周围环境安全后再进行。

●

使用有机溶剂擦拭本体涂层面或标签，可能会导致涂层脱落或印刷文字消失，请注意。

●

请勿剥离产品本体上的标签。若标签脱落，请与我公司联系并换取新标签。
○无标签可能会导致无法进行正规维保。

5. 其他

关于保修（**!** 请确认保修期及保修内容）

●TCG系列的免费保修期为：在样本条件下使用的前提下，出货后1年或实际使用2500小时。（以先达到时间的准）●在保修期内、确是由于TCG的品质问题引起的故障、本公司对此进行无偿维修，但不负担拆卸工时及相关费用。●对于使用人无端进行改造，解体等情况，本公司无法进行无偿服务。●关于产品的长期保存，请联系本公司或相关代理商。●请不要剥离本体上的标签，如无标签可能无法进行正规的维保。

关于售后

●本产品因技术改良，时常有式样变更的情况，请您知晓。●如需产样本录及其他技术资料，请联系本公司销售部门。●我们还提供产品选型技术咨询等服务。

维修委托

●问题产品・维修等，请联系本公司销售部或相关代理商。

关于废弃

●请将本产品作为一般工业废弃物处理。

加茂精工株式会社

kamo

Yes We can! Yes I can!


本社営業部
〒470-0424 愛知県豊田市御作町亀割1166番地
TEL 0565-76-0029(営)
URL www.kamo.co.jp

KAMO FA(韓国)
ソウル特別市神川區加山洞550-1 A.P.T.形工場IT CASTLE1 洞216号
TEL 02-761-5621
URL www.kamofa.co.kr E-mail kamofa@kamofa.co.kr

加茂佐藤科技(南京)有限公司(中国)
南京市秦淮区太平南路166号远洋国际中心北区3幢1单元901室 邮编:210001
TEL 025-5223-0890
URL www.kamoasia.com E-mail ztc@kamoasia.com

Manual For Handling the Device With Safety

(Handbook for using TCG Series correctly and safely)




強制


Deliver the manual to those who actually use the device.
We sincerely appreciate purchase of our products. Read the manual before using the device correctly and keep it carefully for future reference. Contact us if you found something not understandable.


1. Note for safety.


1.1 Description of signs

The manual includes notices marked by signs in order to prevent accident from being occurred due to incorrectly using the device.



- 

This sign means that there is a possibility of getting damaged or fatally injured if used incorrectly by ignoring the warning.
- 


This sign means that there is a possibility of getting injured or doing damage on other material if used incorrectly by ignoring the caution.
- 


* Note that the sign designated by  involves a grave consequences. Abide by the rule designated at the signs because they contain important descriptions.

■ What symbols mean

pictograph	meaning
	This sign includes content which notifies to force and instruct to do.
	This sign notifies to prohibit to do.

1.2. Transportation


- 





Positively hold in place upon transportation.
 - Device is precision instrument. Don't give strong impact on device and don't drop it on the ground.
 - If otherwise, it becomes a main cause of troubles.
 - If device drops, it may hurt your hand, foot or other part of your body. Because device is heavy, be very careful when carrying it.


2. Setting


2.1 Handling procedures

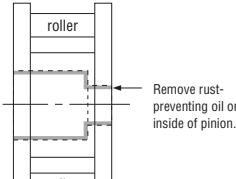
- 



Use device as stipulated in specification.
 - Never fail to calculate selection upon using device. Use device within load and number of rotation stipulated inspecification.
 - If otherwise, it may invite malfunction or breakage.
- 


Provide emergency stoppage circuit.
 - Design with an emphasis placed on safety so that the power supply is instantaneously cut at the time of emergency.
- 


Don't install broken device.
 - Don't install the device when it is broken.
 - If otherwise, it may invite breakage or injury or secondary disaster.
- 


Remove rust-preventing agent from mounting surface to which clamping tool is attached.
 - Upon attaching clamping tool, use solvent(thinner etc.) to wipe off rust-preventing agent from mounting surface to which clamping tool is attached. If otherwise, it may invite slippage.
- 


3. Caution for Usig Device


3.1 Caution in use —Attention is paid when operating with device connected to power source.


- 





Don't touch moving elements.
 - Don't approach moving elements upon operating device. Be careful for clothes not to be caught in.
 - If otherwise, it may cause injury.
- 

Don't stop driving shaft suddenly while operating device.
 - Don't do that for the fear that it may impose load greater than designed when driving shaft stops suddenly upon operating device.
 - If otherwise, it may invite injury or breakage or secondary disaster.
- 


Don't touch device when it is in operation.
 - Never approach or touch any rotating element when device is in operation.
- 





Don't use devise doused with water and oil.
 - No measure is taken for device to attach water proof and dust proof equipments. Don't use device underenvironment that device may be doused with water or oil.
 - If otherwise, it may invite malfunction or breakage.
 - Protect device with cover or the like when used under environment that device may be doused with water oroil.
4. Check and Maintenance
- 4.1 How to cope with abnormal conditions
- 




Disconnect device from power source when emergency stoppage occurs.
 - Make sure to cut power source circuit when power failure or dangerous condition is supposed.
 - If otherwise, it may cause intractable situation to invite dangerous situation when reenergized.
 - Don't approach device upon reenergizing.
 - If otherwise, it may cause unexpected movement to invite dangerous situation depending on device.




- Contact us when abnormal condition occurs due to overload or impact on device.
 - Ferrous powder or deteriorated grease may cause unexpected secondary disaster.
- 




Positively fix device.
 - Upon setting device, fix it positively.
 - Mount device in accordance with requirements in manual and weight of device.
 - If otherwise, device may fall during operation and mounting process resulting into secondary disaster.
 - Check each bolt and screw for looseness.
 - When the device is ordered with the cover on option for Cam Ring Unit, the device is shipped out with the cover temporarily fastened. Remove the cover, apply grease to the ring gear teeth, and reattach the cover.




Protect device.
 - Rust-preventing treatment is not provided to Cam Rack and Roller Pinion (not surface-treated). To those portions that requires rust-preventing treatment, apply rust-preventing oil or grease.
 - Depending on atmosphere and storage conditions, rust may appear.
 - Be sure to protect the device with the cover or the like according to the usage environment.
 - Otherwise, malfunction or break would be caused.
 - The optional cover for Cam Ring Unit is a safety cover, not a dustproof cover.





Remove rust-preventing agent.
 - Rust-preventing agent is coated on device as a temporal rust-preventing purpose upon delivery. Upon assembling device, use device after removing rust-preventing layer from device. Upon removing the rust-preventing layer, wipe the layer gently by cloth with remover, such as ethyl alcohol-dipped or kerosine-laden cloth. In rare cases, the surface treatment (black chromium film treatment) of bottom land may appear thin and whitish after swabbing, but this does not affect the rust-preventing effect at all. Notice; Do not use thinner when wiping.




Lubrication.
 - Lubricate the gear teeth of Cam Rack or Cam Ring with grease or the like.
 - The gear teeth of Cam Ring Unit are unlubricated as of shipping. Apply grease or the like to the gear teeth. When the cover is ordered on option, remove the cover, and apply grease to the gear teeth of Cam Ring.
 - Otherwise, wear or the like would be caused.
 - When the TLS option is used, grease application to the tooth surface is not required.
- 


Don't forcibly turn device.
 - Don't forcibly turn with device attached to machine.
 - If otherwise, it may cause breakage.




Don't give impact or force on device.
 - Don't give impact or the like. Be careful upon imposing load on device.
 - If otherwise, it may cause breakage.
- 4.2 Check and maintenance
- 




Take safety measure upon storing device.
 - Upon keeping unused devices and accessories in a place, don't keep them in the following places.





Where is accessed by child, where they are easily taken out ,where temperature and humidity change abruptly, where is in high humidity environment ,where admits direct sunshine, and where volatile liquid substance is deposited.



Lubrication.
 - Lubricate the gear teeth of Cam Rack or Cam Ring with grease or the like at regular intervals.
 - The reference timing of lubrication is when the reciprocal motion (rotation) of Cam Rack or Cam Ring has reached 2 million times or it has passed 6 months, whichever comes earlier.
 - For Cam Ring Unit, apply extreme pressure lithium-based grease also to the cross roller bearing at the same timing of lubrication.
 - When the TLS option is used, both of the initial lubrication and the periodical lubrication are not required.



Don't disassemble.
 - Don't disassemble and improve the device.
 - If otherwise, we can't guarantee normal operation of the device as stipulated in specification.
 - Upon installing and removing device, make sure to cut driver circuit. After confirming that temperature has sufficiently dropped, start working while paying attention around working place.
 - When wiped by organic solvent, label and seal may come off or their legend may disappear.
 - Don't remove label and seal. When label and seal are likely to peel off, contact us and replace them with new ones.
 - If otherwise, we may fail to insure normal guarantee.
5. Other notice
- 5.1 Guarantee(Check the terms & contents of guarantee)
- On the understanding that the device (TCG Cam rack & Cam ring) is used in accordance with our specification, we guarantee the period to repair the device free of charge until a time which earlier relapses after operating 2500 hours or within one year after delivery.
 - If trouble or defect appears within the guaranteed period of time obviously due to deteriorated quality of TCG Camrack & Camring device, we guarantee to repair the device free of charge.
 - Note that we charge device-related expenditures and expenses arisen from steps of detaching parts from and attach parts to the device.
 - If the device is repaired, disassembled or improved at customers' side, repair free of charge should be outside our guaranteed requirements.
 - We don't have oversea maintenance and technological support in connection with the device.
 - If the device is unused long, please contact us before use.
- 5.2 After-Sales-Service
- For the sake of quality improvement, the specification may be subject to change without notice.
 - As for our catalogue and other technological documents, contact sales department of our company.
 - We are always ready to arrange technological inquiry and meeting. Contact us by telephone without hesitation.
- 5.3 Repair and trouble
- In case of trouble or inquiry for repair, contact sales department of our company.
- 5.4 Disposal
- Dispose the device as general industrial wastes.
- 

Yes We can! Yes I can!
- KAMO SEIKO CORPORATION
- HEAD OFFICE
1166 Kamewari, Mitsukuri-cho, Toyota-city, Aichi-prefecture 470-0424, JAPAN
Tel., +81-565-76-0029
URL www.kamo.co.jp

KOREA
KAMO FA 1Dong-216Ho IT Castle* Gasan-dong, Geumcheon-gu, Seoul, Rep of KOREA
Tel., +82-2-761-5621
URL www.kamofa.co.kr E-mail kamofa@kamofa.co.kr

CHINA
KAMO DT RA901, BLK3, North Ocean Int'l Center, 166 South Taijing Road, Nanjing, China ZIP-210001
Tel., +86-25-5223-0890
URL www.kamosia.com E-mail ztc@kamosia.com