



LU型

水平锁紧卡盘

LEVEL LOCK CHUCK

INSTRUCTION MANUAL

使用说明书

重要

Important

- ◇ 本使用说明书以负责产品操作的生产技术人员以及产品维护人员为对象。初次使用本产品时，务必事先接受熟悉本产品操作的人员、经销商或本公司的指导。
- ◇ 使用本产品前，务必仔细阅读使用说明书正文中的警告事项部分，充分理解其内容。对于因未遵守本使用说明书的警告事项而造成的不良状况或事故，本公司概不负责。
- ◇ This manual is prepared for production engineers and maintenance service men to operate the products. If a beginner operates the products, he should be trained by either a skilled man, the agent you purchased the products from or Kitagawa Technical Department prior to the operation.
- ◇ Carefully read the warning items in this manual and understand them thoroughly prior to the operation. Warranty does not cover any damage or accident caused without following the warning items.

本说明书请妥善保管，以备今后随时使用。

Please read this manual thoroughly before saving it carefully.

衷心感谢您选用“KITAGAWA”的水平锁紧卡盘。
希望通过本使用说明书，使您能够正确理解水平锁紧卡盘的使用方法，并对贵公司的生产有所帮助。

Keep this manual handy for easy reference as it will help you use many controls to their full advantage.

安全警告标记

这是行业的“安全警告标记”。该标记提醒您在使用该装置时，对于可能会对您或他人造成危险的事项及操作应加以注意。请阅读这些信息，严格遵守有关指示。
组装或使用该装置前，应仔细阅读指示事项及安全基准。

SAFETY ALERT SYMBOL

This is the industry " Safety Alert Symbol." This symbol is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment. Please read these messages and follow these instructions carefully.
It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

警告事项



表示若未加以避免，可能会发生死亡或重伤的紧迫危险状态。
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



表示若未加以避免，可能会发生死亡或重伤的潜在危险状态。
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



表示若未加以避免，可能会发生轻伤或中等程度伤害的潜在危险状态。
Indicates a potentialy hazardous situation which, if not avoided, may result in minor or moderate injury.

留意事项



应预先了解的有关产品性能及容易出错的事项
Instructions for chuck performance and avoiding errors or mistakes.

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1. 结构图及零件表

1. Drawing and Parts list

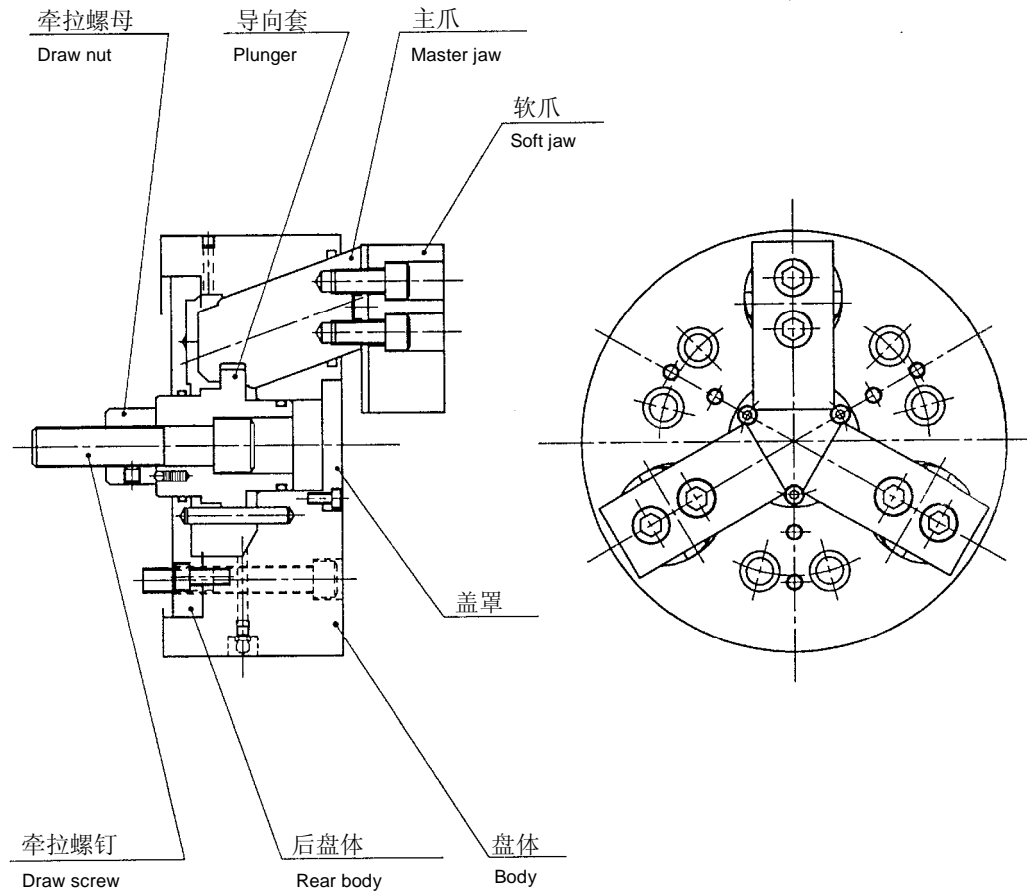
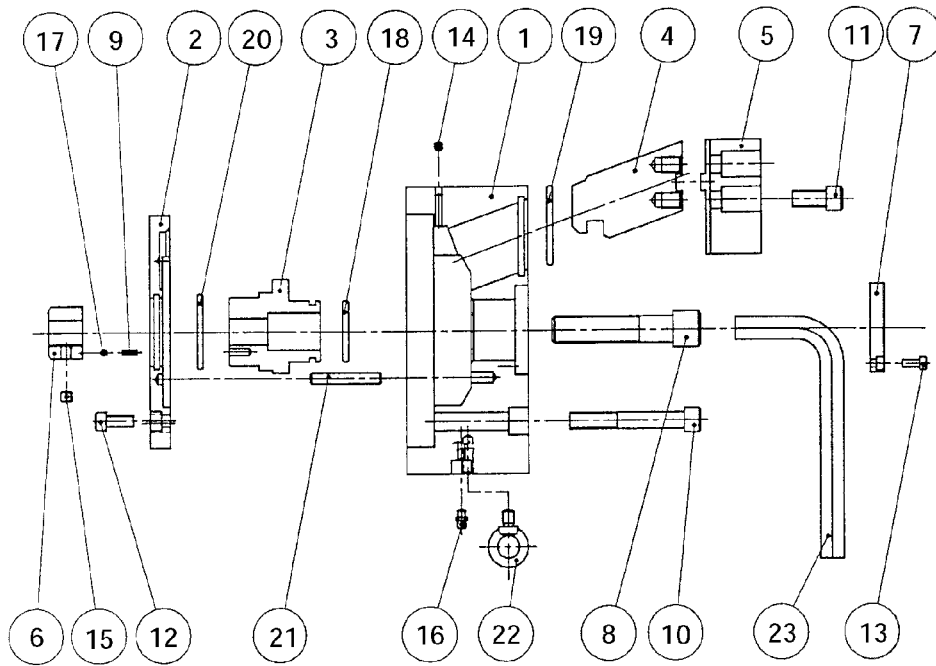


Fig.1 水平锁紧卡盘

Drawing of open Center Level Lock Chucks



■零件表 Parts list

编号	零件名称	Name of parts	数量	编号	零件名称	Name of parts	数量
01	盘体	Body	1	14	内六角固定螺钉	Hexagon socket set screw	1
02	后盘体	Rear body	1	15	内六角固定螺钉	Hexagon socket set screw	1
03	导向套	Plunger	1	16	加油脂嘴	Grease nipple	1
04	主爪	Master jaw	3	17	钢珠	Steel ball	1
05	软爪	Soft jaw	3	18	O形环	O ring	1
06	牵拉螺母	Draw nut	1	19	O形环	O ring	3
07	盖罩	Cover	1	20	O形环	O ring	1
08	牵拉螺钉	Draw screw	1	21	平行锚	Parallel pin	3
09	螺旋弹簧	Spring	1	22	起吊螺栓(附件)	Eyebolt (Accessory)	1
10	卡盘安装螺栓	Chuck mounting bolt	6	23	六角扳手(附件)	Hexagon socket screw key(accessory)	1
11	卡爪安装螺栓	Jaw mounting bolt	6				
12	内六角螺栓	Hexagon socket head cap screw	3				
13	内六角螺栓	Hexagon socket head cap screw	3				

注)10"以上卡盘标准配备起吊螺栓。

Note) Eyebolt is standard supplied for 10" or more.

■消耗品 Consumables

编号	品名 Consumables	LU-08	LU-10	数量 Quantity
18	O形环 O ring	JIS B 2401 P 39	JIS B 2401 P 44	1
19	O形环 O ring	JIS B 2401 P 50	JIS B 2401 P 60	3
20	O形环 O ring	JIS B 2401 G 50	JIS B 2401 G 60	1

使用时的安全注意事项

我们总结了用户使用前特别需要了解及遵守的事项。请务必阅读。
对于因未遵守本使用说明书的警告事项而造成的不良状况或事故，本公司概不负责。

FOR SAFE OPERATION

Please read this manual and follow instructions carefully.

We cannot assume responsibility for damage or accidents caused by misuse of the chuck, through noncompliance with the safety instructions.

! **DANGER**
危险

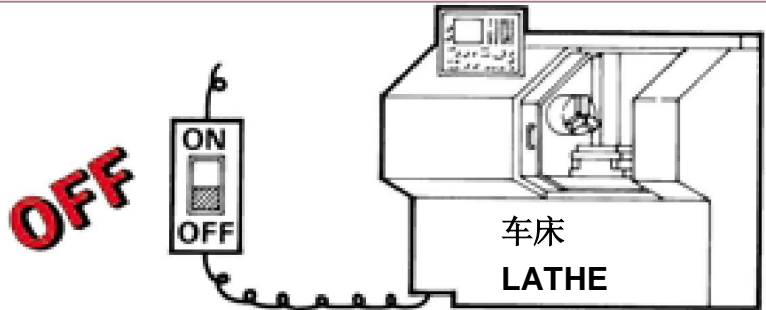


进行卡盘的安装、检查、注油、更换时，应切断电源。

SWITCH OFF power before setting, inspecting, lubricating or changing the chuck.

否则，身体的一部分或衣物可能会被卷入。

Danger by catching of operator in a machine.



卡盘旋转时不可操作转换阀。

Never operate selector valve and solenoid valve during spindle rotation.



若在旋转时操作，夹紧的工件会飞出，非常危险。

Danger by discharges of clamped work during spindle rotation.

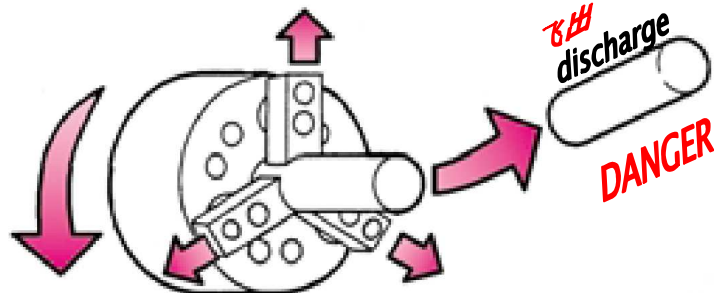


卡盘的转速不可超过对应最大容许推拉力的转速限值！（参见 ）

Do not exceed recommended speed of chuck related with Max permissible input force. (See page)

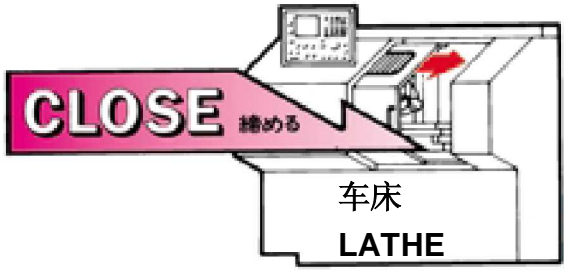
否则，卡盘或工件会飞出，非常危险。

Danger by discharge of chuck or work piece.



WARNING
警告

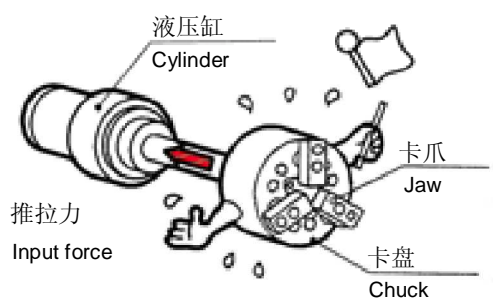
切勿在未关门的状态下起动主轴。
Never start the machine with door open.



若未关门，可能会碰到旋转中的卡盘，或发生工件或卡爪飞出的事故，非常危险。
Workpiece or jaw may discharge with door open.

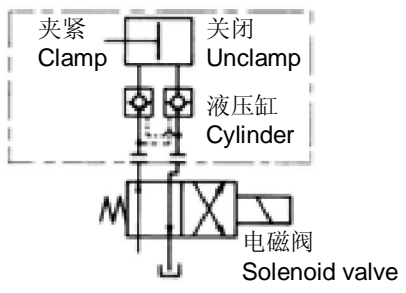
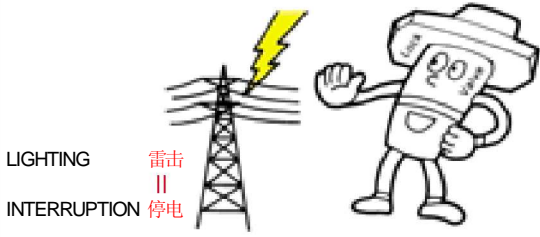
最大容许推拉力不可超过容许值！（参见 ）
Do not exceed input force limit related with max. permissible input force. (See page)

否则，会损坏卡盘，造成卡盘或工件飞出，非常危险。
Danger by discharges of chuck or workpiece in case of damaging chuck.



操作液压缸应使用锁紧阀内置型的产品。
另外，电磁阀应作为未通电时进行夹紧的回路。
In cases of power failure Kitagawa cylinders are fitting with check valves and pressure release valves. When power is restored the solenoid valve resumes its normal function.

雷击、停电会造成夹紧的工件飞出，非常危险。
Gripped workpiece may discharge by lighting or interruption.

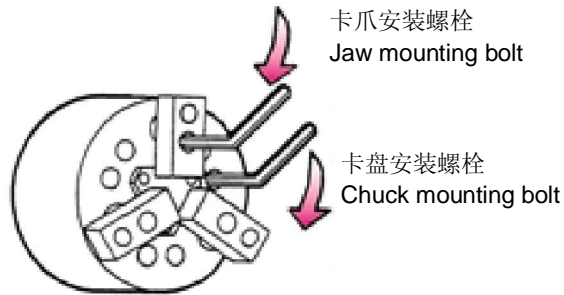


应保持夹紧口位置
Set work to correct gripping position.

务必按规定扭矩紧固螺栓。(参见)
Secure clamp bolts with correct torque. (See page)

否则, 会损坏卡盘, 造成卡盘或工件飞出, 非常危险。

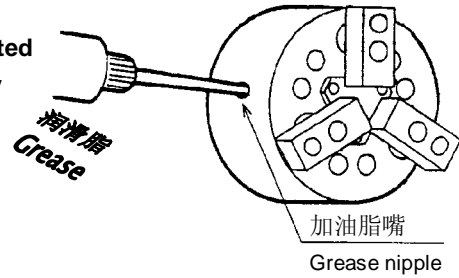
Danger by discharge of chuck or workpiece in case of damaging of chuck.



务必可靠注脂! (参见③1)
Do not forget to grease chuck! (See page ③1)

●注脂不足会引起夹紧力降低, 造成工件飞出, 非常危险。

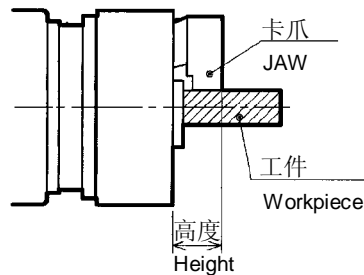
Danger by discharge of workpiece related with lowering gripping force caused by insufficient lubrication.



请勿使用比标准软爪更高的卡爪或外径夹紧直径更大的卡爪。
Never use the jaw higher or outer dia. gripping jaw larger than the standard soft jaw.

否则, 会损坏卡盘, 造成卡盘或工件飞出, 非常危险。

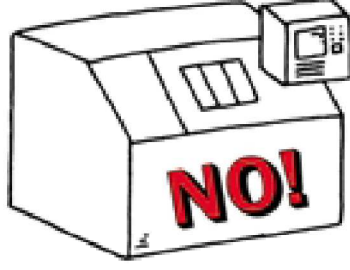
Danger by discharge of chuck or workpiece in case of damaging of chuck.




WARNING
警告

 **不可在饮酒或服药后进行操作。**
Never attempt to operate a machine while under the influence of alcohol or drugs.


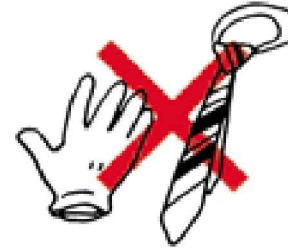
否则，会因判断力降低或误操作而造成危险。
Danger by operational fault and lowering judgement.


 

酒精 Alcohol 药物 Drugs


 **不可戴着手套、领带等进行操作。**
Gloves and ties should not be worn when operating a machine.

否则会卷入机床，非常危险
Danger by catching in a machine.

 **请勿随意改造。**
Do not attempt to modify chuck.

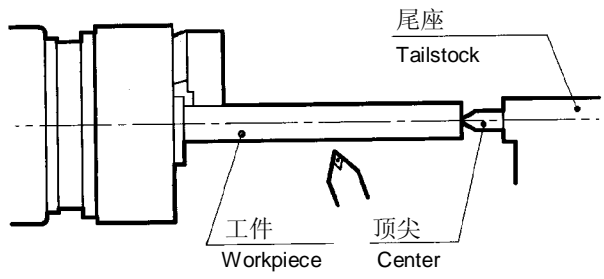
否则，会损坏卡盘，造成卡盘或工件飞出，非常危险。
Danger by discharges of chuck or workpiece in case of damaging of chuck.



NO! 损坏 Break!



伸出较长时应使用顶尖进行支承。(参见⑳)
When machining a long work piece, support it with a center of tailstock. (See page ⑳)



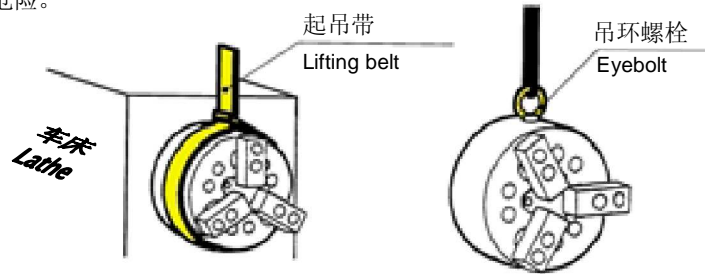
若伸出长度过长，会造成工件飞出，非常危险。
Danger by discharge of workpiece, if it is too long.

CAUTION
注意



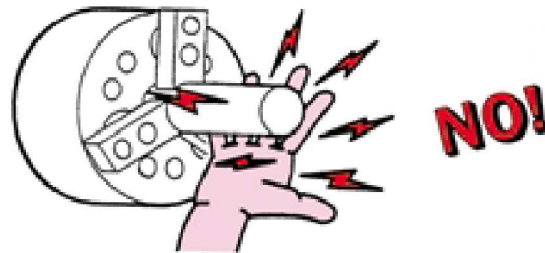
从机床拆装卡盘时，应使用吊环螺栓或起吊带。（参见 28）
When lifting chuck, use eyebolt or lifting belt. (See page 28)

否则，会因掉落而造成危险。
Danger by dropping.



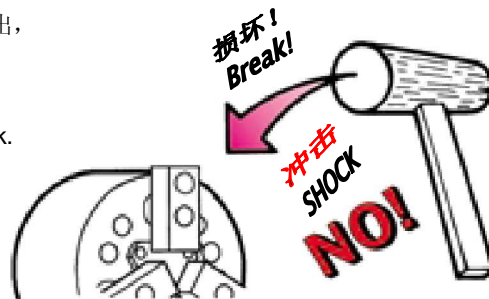
夹紧工件时，注意别夹住手。
When gripping workpiece, make sure your hand is out of gripping area.

否则，可能会压碎或切断手指。
Danger of finger broken or cut.



不可撞击卡盘、卡爪以及工件。（参见 28）
Never hammer chuck, jaws or gripped workpiece.
(See page 28)

否则，会损坏卡盘，造成卡盘或工件飞出，非常危险。
Danger by discharges of chuck or workpiece in case of damaging of chuck.



3.规格

3-1. 规格表

3.Specification

3-1 Specification

项目 Item	型号 Model	LU-08	LU-10
导向套行程 Plunger stroke	mm	10	15
卡爪行程 (直径) Jaw stroke (In dia.)	mm	7.2	10.8
最大容许推拉力 Max. permissible input force	kN (kgf)	25 (2549)	35 (3569)
※1) 最大静态夹紧力 Max. static gripping force	kN (kgf)	45 (4589)	60 (6118)
最大容许液压力 Max. permissible oil pressure	MPa (kgf/cm ²)	2.5 (25.5)	3.3 (34.0)
※2) 最高容许转速 Max. permissible speed	Min ⁻¹ (rpm)	3000	2500
夹紧范围 Gripping dia.	mm	40~210	50~254
重量 (含标准软爪) Mass (with standard soft jaws)	kg	26	45.5
惯性矩 Moment of Inertia	kg · m ²	0.143	0.373
使用液压缸 Operating cylinder		Y1225R	Y1225R

(1kN=101.97kgf 1MPa=10.197kgf/cm²)

3-2 夹紧力与转速的关系

※1) 最大静态夹紧力

最大静态夹紧力是指停止时的夹紧力，因注脂状态、所用润滑脂、卡爪高度等的不同而异。因此，规格中记载的最大静态夹紧力为以下状态时的值。(参见 Fig.2)

- (1) 卡爪使用 KITAGAWA 的标准软爪，在主爪行程的 1/2 位置处接触定位座，在软爪高度的 1/2 位置处用北川夹紧力测力计测得的数值。
- (2) 注脂使用北川卡盘润滑脂。(第 31 页)
- (3) 卡爪安装螺栓的紧固扭矩按规定扭矩紧固。
(参见第 页)
- (4) 将作用于导向套的推拉力作为最大容许推拉力。
- (5) 液压源使用排出容量为 20 l/min 以上的可变量型泵，压力设定由泵本身的压力控制装置或另置的减压阀进行。
使用配管直径 3/8" (内径 9mm) 进行配管。

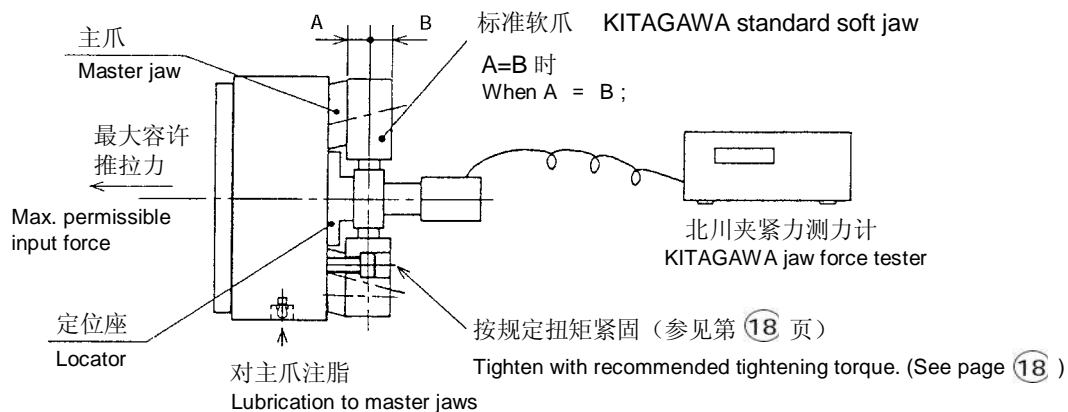
3-2 Relation between total gripping force and revolutional speed

※1) Maximum static gripping force

The static gripping force will vary depending on the condition of lubrication, the brand of grease, the height of jaw and other factors. Our standard values written in the above specification table are based on the following conditions. (See Fig.2.)

- (1) Use KITAGAWA standard soft jaw and place Kitagawa jaw force tester against the locator face the centre point of the master jaw's stroke and at a half of the soft jaw's height, and read the value of the gripping force.
- (2) Kitagawa chuck grease is lubrication for obtaining the maximum efficiency of the chuck.
(See page 31)
- (3) Mounting bolts of jaw are tightened with specified torque. (See page)
- (4) The input force of the plunger equals the maximum input force.
- (5) For hydraulic oil supply, the variable capacity type pump which has the discharge capacity of 20 liters or more is used. Oil pressure is set with pump's own control device or a reduction valve which is provided separately from the system.
Flexible hose 3/8 inch (inner dia. 9mm) should be used.

图 2
Fig 2



※2) 最高容许转速


最高容许转速按以下条件动态夹紧力(旋转时的夹紧力)为最大静态夹紧力的约 1/3 时的实测值表示。


- (1) 导向套位于行程中央。
- (2) 卡爪采用标准软爪的未成型品。
- (3) 静止时的卡盘夹紧力为最大夹紧力。

※2) Max. permissible speed

Maximum chuck permissible speed is measured under the following conditions. Thus, it is actual value when dynamic gripping force during rotation is reduced by about one third (1/3) of max. static gripping force.

They are on the condition that the plungers are located the center of stroke, the jaws are of the standard soft jaws and the static chuck gripping force is at maximum.

 CAUTION 注意	<p>○关于夹紧力的注意事项</p> <p>确定切削条件等时，请参见第 页～第 页。</p> <p>但应注意，夹紧力会因泵和减压阀的性能、配管状态以及所用润滑脂的性能等的不同而异。尤其是使用调压性能差的液压装置时，会产生很大的冲击压力，使夹紧力增大，导致各零件损坏、耐久性降低，因此应尽量使用挠性软管等，以减小冲击压力。</p>	<p>○Reference for gripping force</p> <p>Refer to pages from to when determining cutting conditions. However, gripping force varies according to the performance of pump and reducing value, piping conditions, grease, etc. Especially, when pressure regulators of the pump or the reducing valve are not performing correctly, excessive surge pressure will be raised, thus increasing the gripping force. As a result, parts will be damaged and chuck durability reduced. Therefore, it is recommended to provide a throttle valve to lower the surge pressure.</p>
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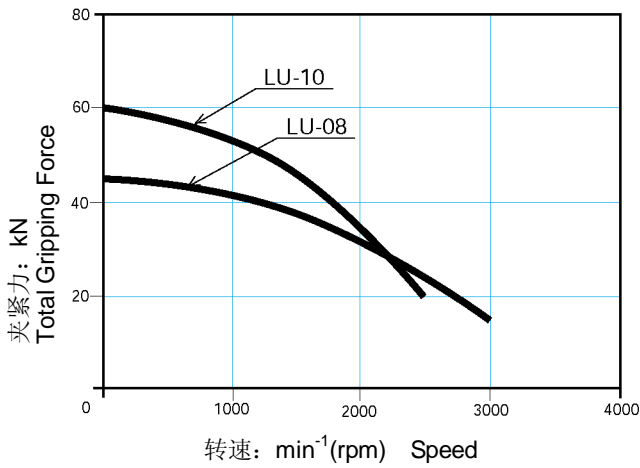
 WARNING 警告	<p>高速旋转时的重切削可能会造成工件滑移或飞出，应充分加以注意。应定期确认使用压力，检查在使用中是否保持设定夹紧力。</p> <ul style="list-style-type: none"> ● 旋转液压缸的最高转速较低时，应与该转速一致。 	<p>Since high speed machining with heavy cutting can cause slippage or discharge the workpiece, extreme care must be taken. Periodically check that gripping force is adequate.</p> <ul style="list-style-type: none"> ● Maximum speed will always be the lower speed on either the cylinder or chuck.
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转速上升，作用在卡爪上的离心力将增加，导致夹紧力降低。图中记载的曲线为采用标准软爪时的情况。根据卡爪大小、形状及安装位置的不同会有很大差异，转速较快时，应考虑使用北川夹紧力测力计进行实测。

Centrifugal force which acts on jaws occurs by increasing chuck rotation, thus reducing gripping force. The diagram shows data using te standard soft jaws. The gripping force is varied by the size, shape and position of jaw. Consequenty, if chuck speed is high, it is necessary to measure with Kitagawa jaw force tester.

3-2 夹紧力与转速的关系

3-2 Relation between total gripping force and rotational speed



条件

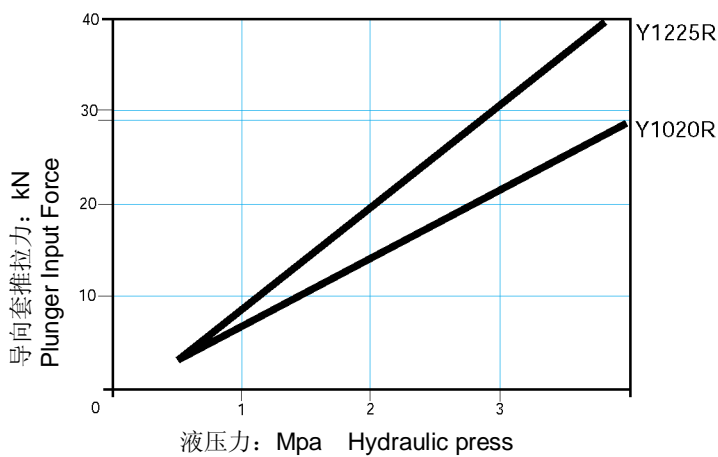
- 使用 KITAGAWA 夹紧力测力计
- 导向套位于行程中央
- 标准软爪的未成型品

Conditions

- Kitagawa gripping force tester is used.
- Plungers are located on the center of stroke.
- Jaws are of standard soft jaws.

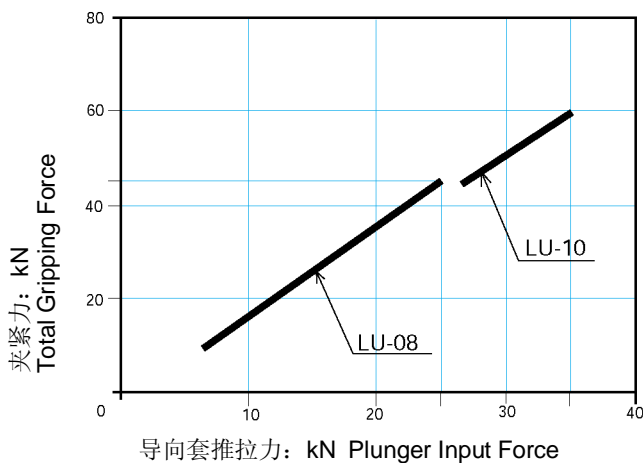
3-3 导向套推拉与液压力的关系

3-3 Relation between plunger input force and hydraulic pressure



3-4 夹紧力与导向套推拉力的关系

3-4 Relation between total gripping force and plunger input force

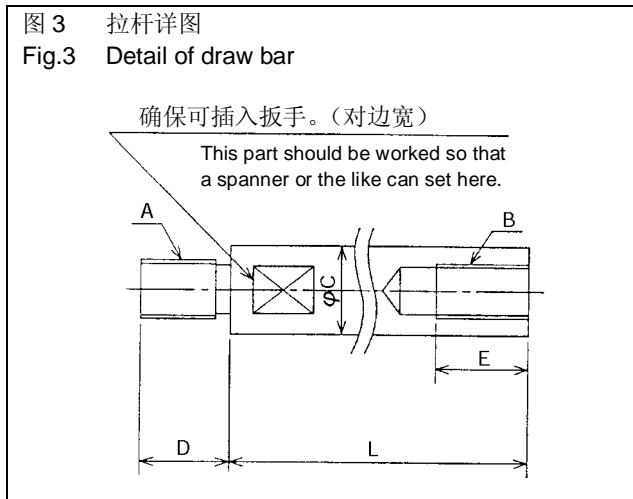


4. 安装

4-1 拉杆的制作

请按以下方法确定拉杆的长度。

其中，假定与北川制 Y 型液压缸组合使用。

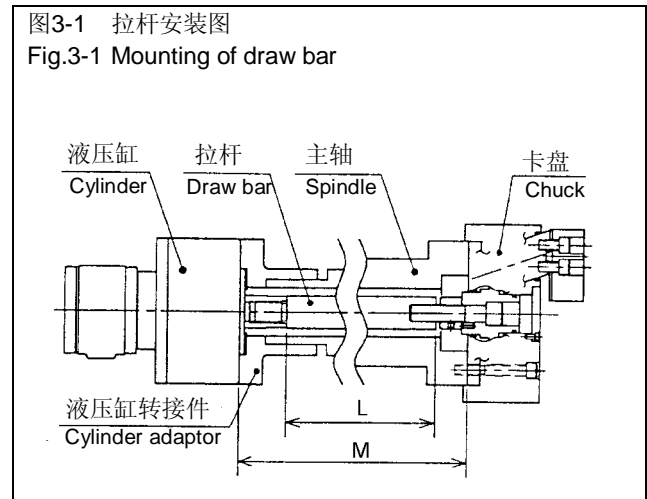


4. Mounting

4-1 Manufacture of draw bar

The following Fig's. 3, 3-1 and table indicate how to determine the length of the drawbar.

Upper calculation is combination with Kitagawa Y type cylinder.



mm

型号 Model	液压缸 Cylinder	A	B	C	D	E	L
LU-08	Y1225R	M24	M20	35	35	35	M-84
LU-10	Y1225R	M24	M24	35	35	45	M-88

○根据表，若确定了液压缸转接件与主轴端面的距离 M (Fig.3-1)，即可确定 L 尺寸 (Fig.3)。

(例) ●LU-08 与 Y1225R 组合使用、液压缸转接件与主轴端面的距离 M=800mm 时，拉杆全长 $L=M-84=800-84=716$ (mm)。

●进行 A 部螺纹加工时，请与液压缸活塞杆的螺纹相一致，并采用 JIS 6H 及 6h、6g 精度。

○The "L" dimension can be found by the above table when the distance M between the cylinder adaptor and the back plate is given. (See Fig's. 3 and 3-1)

Example)

●When the distance M between the cylinder adaptor and the spindle end face is 800mm with chuck LU-08 combine with cylinder Y1225R.the total length of the draw bar is $L=M-84=800-84=716$ (mm)

●Thread the part "A" to JIS standard 6H. 6h. 6g. corresponding to the thread of cylinder piston rod.



WARNING

警告

○拉杆应具有充足的强度。若因强度不足导致断裂，夹紧力会在瞬间丧失，造成工件飞出，非常危险。


○若螺纹的咬合松动，可能会造成振动及强度不足。

○Increase the thickness of draw bar to secure strength. The gripping force is lost if the chuck is broken because of insufficient strength. As a result, the workpiece discharges, thereby causing danger.

○Insecure threads will cause the drawbar to vibrate.


4-2 卡盘的安装步骤

4-2 Mounting steps of chuck

 CAUTION 注意	<ul style="list-style-type: none">●将卡盘安装到主轴上时，应确认主轴端部的嵌合是否适当，以免影响夹紧精度。
	<ul style="list-style-type: none">● When mounting the chuck on the spindle, confirm that the spindle nose fitting is appropriate because it affects gripping accuracy.


- ①将拉杆安装在液压缸上。
 - 将拉杆拧入液压缸的活塞杆时，应在活塞杆拉入的状态下进行。（若在中间位置紧固，会损坏活塞的止转装置。）
- ②将液压缸安装在主轴（液压缸转接件）上。
 - 检查液压缸的跳动，确认正常后再安装液压配管。以低压(0.4~0.5MPa、4~5kgf/cm²)动作 2~3 次，将活塞杆置于前进端后切断电源。
- ③将卡盘连接在拉杆上。（参见 Fig.4）
 - 请在卡盘的导向套拉入的状态下进行。（出厂状态）
 - 请将卡盘的卡爪、盖罩或定位座拆下。
 - 请用起重机等吊起卡盘，使卡盘的轴心对准车床的主轴轴心。

- ①Connect the draw bar to the cylinder.
 - Screw the draw bar into the cylinder piston rod with the rod retracted as far as it will go. (If it is tightened at the intermediate position, the locking pin of the piston may be damaged.)
- ②Mount the cylinder to the spindle (cylinder adapter).
 - Chuck that the run-out of cylinder is minimized before routing the hydraulic piping.
Move the piston at low pressure (0.4~0.5MPa, 4 ~ 5kgf/cm²) two or three times and set the piston at the forward end before switching power off.
- ③Connect the chuck to the drawbar (See fig.4)
 - Plunger of the chuck must be drawn inside as it was delivered.
 - Remove jaws, cover or locator.
 - lift the chuck using a crane etc., and locate the chuck centre to the spindle centre of the lathe.

 CAUTION 注意	<ul style="list-style-type: none">○从机床拆装卡盘时，应使用吊环螺栓或起吊带用起重机将其吊起。（8 英寸以下的卡盘不附带吊环螺栓。） （参见第⑩页）○使用后务必拆下。
	<ul style="list-style-type: none">○When mounting or removing the chuck, lift it with the crane, using an eyebolt or lifting belt. (For a chuck of 8 inches or less, eyebolt is not attached.) (See page⑩)○Be sure to remove the eyebolt from the chuck after mounting or removing.

- 将六角扳手插入卡盘中心孔，边旋转牵拉螺钉边与连接拉杆。
- 拧入牵拉螺钉，直至卡盘安装面与车床的主轴安装面（背板面）吻合。

- Insert the hex. socket screw key to the chuck center hole and fit the chuck to the draw bar by screwing the draw screw.
- Screw in the draw screw until the chuck fitting face contacts the spindle face (backplate face.)

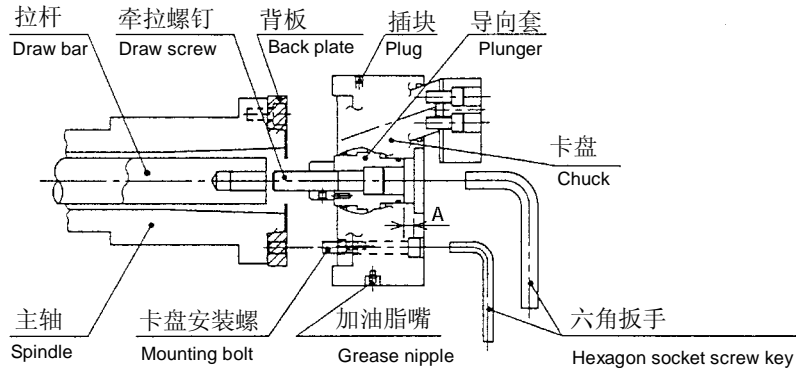
 CAUTION 注意	<ul style="list-style-type: none">○若无法拧入至安装面吻合，或旋转 2 ~ 3 圈吻合后无法继续拧入，则需要检查拉杆长度。○连接牵拉螺钉与拉杆时，若无法顺畅拧入，则应检查螺钉芯轴有无倾斜等。若强行连接，会造成导向套烧结、夹紧精度不良等。
	<ul style="list-style-type: none">○The drawbar length may need adjusting when the drawnut cannot be screwed correctly to spindle face.○If the connecting of the chuck and drawbar is difficult, check the thread. If connected by force, the plunger will be damaged, thus resulting in poor accuracy.

**WARNING****警告**

○若拉杆相对于牵拉螺钉的拧入深度不足，螺纹损坏后夹紧力会在瞬间丧失，造成工件飞出，非常危险。

○If the draw bar is insufficiently screwed into draw screw, the thread will be damaged, thus eliminating the gripping force momentarily. It will result danger due to discharge of workpiece.

图4
Fig.4



④将卡盘贴合主轴安装面后进行安装。

○旋转六角扳手，使卡盘与车床的主轴安装面完全贴合。

○均等地紧固卡盘安装螺栓。(Fig. 5)

1→2→3→4→5→6 (紧固不均匀会造成跳动。)

(安装螺栓的规定紧固扭矩参见第 页)

(4) Mount the chuck to the spindle

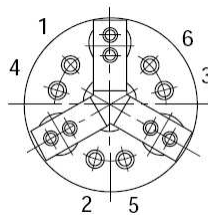
○Turn the hex.socket screw key so that the chuck is properly attached to the spindle mounting face of lathe.

○Uniformly tighten chuck mounting bolts in the order of 1, 2, 3, 4, 5, and 6 as shown in fig. 5.

(Uneven tightening will cause run-out. For specified torque of mounting bolts, refer to page .)

图5 螺栓紧固步骤

Fig.5 Bolt tightening steps

**WARNING****警告**

○卡盘安装螺栓必须按规定紧固扭矩紧固。扭矩不足或过大会损坏螺栓，造成卡盘或工件飞出，非常危险。另外，使用时应定期检查螺栓有无松动。

○使用非本公司附带的安装螺栓。若要使用其他螺栓，应使用强度类别 12.9 (M22 以上为 10.9) 以上的螺栓，并充分注意其长度。

○Tighten chuck mounting bolts at the specified tightening torque. If the tightening torque is insufficient or too strong, bolts will be damaged and the check or workpiece may fall. Periodically check that bolts are not loosened.

○Use only attached Kitagawa brand bolts. In an unavoidable case, use bolt with strength code 12.9 (M22 or more: 10.9) or more and sufficient length.

螺栓尺寸 Bolt size	紧固扭矩 Tightening Torque
M5	7.5 N· m
M6	13 N· m
M8	33 N· m
M10	73 N· m
M12	107 N· m
M14	171 N· m
M16	250 N· m

⑤调整导向套的位置。

○逆时针旋转牵拉螺钉，转到底后再顺时针旋转150~210°，在棘轮起作用的位置停止。

另外，确认A尺寸是否位于表中所示的尺寸范围内。

型号	A (mm)
LU-08	9~10
LU-10	10.5~11.5

(5) Adjust the plunger to the correct position.

○Turn the draw screw countir-clockwise up to the full stop, and after this, turn it clockwise for about 150~210 to stop it at the position where ratcht hooks.

Confirm that the dimension A is within the range shown in the table below.

Model	A (mm)
LU-08	9~10
LU-10	10.5~11.5

CAUTION
注意

若上述调整不充分，可能无法达到所定的卡爪行程，也可能会损坏零件。

If this adjustment is made improperly, the desired jaw stroke will not be obtained or the parts will be damaged.

⑥安装卡爪、盖罩或定位座，检查卡盘的跳动。

○卡盘的外圆跳动、端面跳动应控制在0.02mm以下。

(6) Remount the jaw and cover or locator and check run-out of the chuck.

○Make peripheral run-out and face run-out the chuck to 0.02mm or less.

CAUTION
注意

液压缸的有关事项请参见液压缸的使用说明书。

For the cylinder, refer to the instruction Manual.

5.短圆锥安装

5-1水平锁紧卡盘尺寸

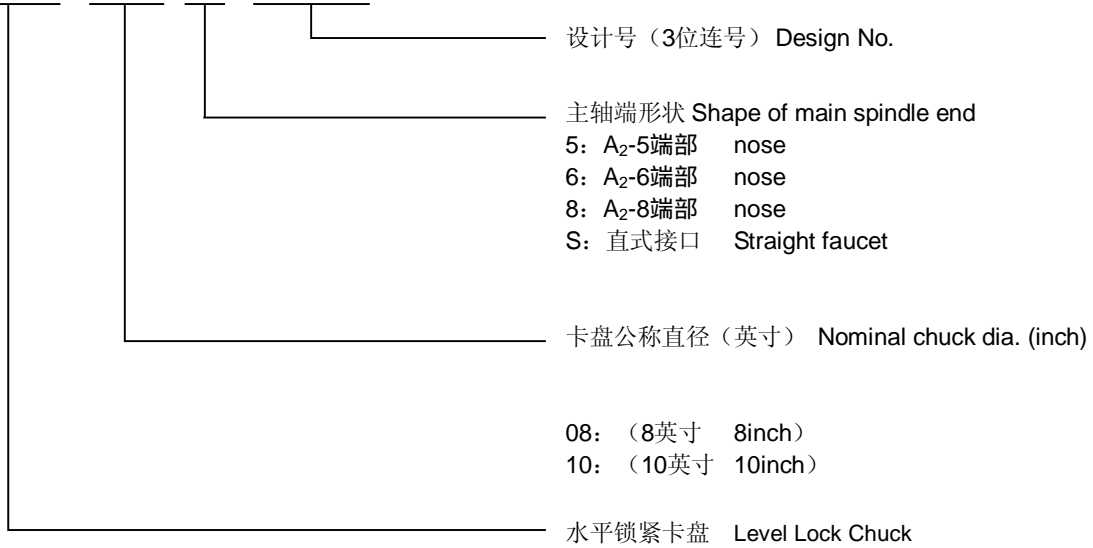
○型号说明如下所示。

5.Short-Tapered Spindle

5-1 Level Lock Chuck dimensions

○Type expression of chucks.

LU-08 6-123



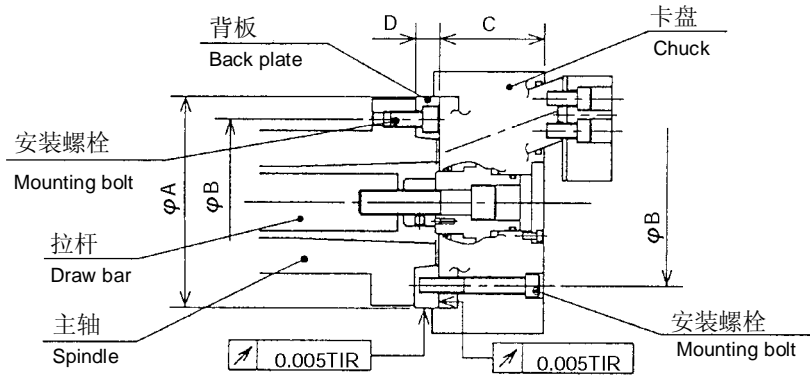
5-2 背板的制作及安装

- 请在对主轴进行实测后，再加工背板的嵌合直径。
- 背板的跳动会直接影响卡盘的精度，因此端面跳动及接口跳动应控制在 0.005mm 以下。
- 加工卡盘安装接口部及表面时，若装在所安装的机床上进行加工，可提高精度。
- 背板的卡盘安装接口部请根据以下基准尺寸 A 按目标值 A-0.03mm 进行加工。
- Fig.6 所示为 JIS 短圆锥标准。

5-2 Manufacture and mounting of back plate

- Actually measure the spindle before machining the close fit diameter of back plate.
- As the run-out of the back plate will influence chuck accuracy, the run-out of end face and that of socket and spigot part should be less than 0.005mm.
- Machine the socket and spigot part mounting the chuck and face with the chuck set to the setting equipment to increase accuracy.
- Machine the chuck mounting socket and spigot part on the back plate to the value A-0.03 mm as per reference size A in the table below.
- Fig. 6 shows JIS short tapered spindle.

图 6
Fig.6



		mm	
型式 Model		LU-08	LU-10
項目 Item			
A (H6)		170	220
B		133.4	171.4
C		85	105

注) A尺寸(接口直径)符合DIN标准。

Note) A" Dimension mounting recess diameter is according to DIN standard.



WARNING

警告

- 背板安装螺栓应具有充分的强度(直径、根数、材质)，并且按规定紧固扭矩紧固。(参见第 页)
- 扭矩不足或过大会损坏螺栓，造成卡盘飞出，非常危险。

- Mount the back plate with bolts which have sufficient strength (dia., pcs., and material) and tighten it with specified torque. (See page)
- If tightening torque is insufficient or too strong, bolts are broken. Also, the workpiece discharges thus resulting in danger.

5-3 拉杆的制作

请按以下方法确定拉杆的长度。

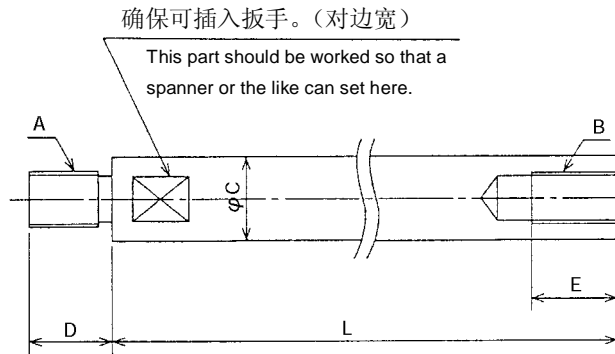
其中，假定与北川制 Y 型液压缸组合使用。

5-3 Manufacture of draw bar

Determine the draw bar length as follows.

Upper calculation is only in combination with Kitagawa Y type cylinder.

图7 拉杆详图
Fig.7 Detail of draw bar



型号 Model	液压缸 Cylinder	A	B	C	D	E	L
LU-08	Y1225R	M24	M20	35	35	35	M+N-84
LU-10	Y1225R	M24	M24	35	35	45	M+N-88

○根据表，若确定了液压缸转接件与主轴端面的距离 M 以及背板厚度 N (Fig.8)，即可确定 L 尺寸 (Fig.7)。

(例)

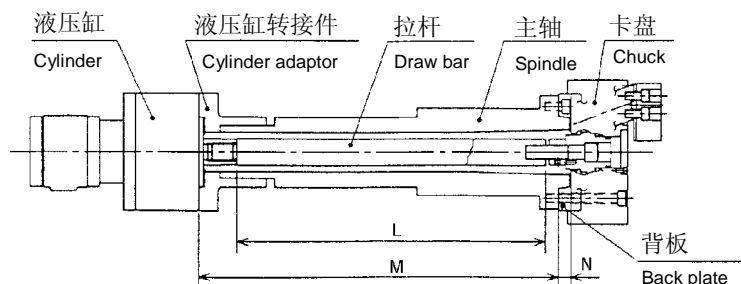
- LV-08 与 Y1225R 组合使用、液压缸转接件与主轴端面的距离 M=800mm、背板厚度 N=20mm 时，拉杆全长 $L=M+N-84=800+20-84=736$ (mm)。
- 进行 A 部螺纹加工时，请与液压缸活塞杆的螺纹相一致，并采用 JIS 6H 及 6h、6g 精度。

○Dimension "L" (fig. 7) is determined by the distance "M" between the cylinder adaptor and the spindle end face, and the backplate thickness "N" (fig. 8)

Example)

- Distance "M" between the cylinder adaptor and the spindle end face: 800mm
Backplate thickness "N" 15mm
Draw bar whole length: $L=M+N-84=800+20-84=736$ (mm)
- Thread the part "A" to JIS standard 6H. 6h. 6g. corresponding to the thread of cylinder piston rod.

图8 拉杆安装图
Fig.8 Mounting of draw bar



6. 试运转

6. Test run



CAUTION

注意

- 将插块面朝上后停止，拆下插块，然后用螺丝刀等工具在孔内附着的润滑脂中开空气孔。
 - 将动作压力设定为低压（0.4~0.5MPa、4~5kgf/cm²），进行卡盘动作及卡爪开闭。
 - 此时，若从插块孔排出润滑脂，将其擦除。
（出厂时已封入规定量的润滑脂）
 - 若润滑脂大量排出，则用滑脂枪从另一侧的加油脂嘴注脂。
 - 将插块按原样锁紧。
 - 以上步骤若无异常，则进入下一阶段。
- Set the chuck with the plug facing up and remove the plug and make an air hole through the grease by using a screw driver.
 - Set the oil pressure to a low level (0.4~0.5MPa, 4~5Kgf/cm²) and ensure the jaws open and close.
 - If excessive grease comes out of the plug through the grease nipple on the opposite by using a grease gun, remove the ring.
 - If too much grease leaks, apply some grease through the grease nipple on the opposite side by using a grease gun.
 - Retighten the plug as ever.
 - If no particular abnormal condition is observed, go the next step.



WARNING

警告

- 以 100~200min⁻¹ 的转速旋转车床主轴，然后逐渐提高转速。若旋转振动过大，则需再次检查液压缸、卡盘及拉杆的跳动。
 - 进行卡盘卡爪的开闭后，可能会从卡盘外圆的加油脂嘴、盘体与主爪的滑动部流出润滑脂。请将润滑脂擦除后再旋转主轴。
 - 以上步骤若无异常，则可使用。
- Set the lathe spindle speed at 100~200min⁻¹, and increase the speed gradually. When excessive vibrations are observed, it is necessary to re-chuck the run-outs of cylinder, chuck and draw bar.
 - While operating the jaw of the chuck, the grease may be leaked out from the grease nipple provided on the chuck O.D. face or from the sliding parts between the main body and the master jaw. Wipe off the leaked grease before starting the spindle.
 - If no particular abnormal condition is observed during the above procedures, the unit can be put into regular operation.

IMPORTANT NOTE-NOTICE

留意事项

- 即使封入了定量的润滑脂，若偏向插块一侧，也很可能溢出。
 - 只要稍作旋转，润滑脂就会偏向外圆附着，很容易溢出。
- The possibility that grease overflows increases if more grease is to the plug side.
 - The possibility that grease overflows increases after rotating the chuck because more grease is moved to the periphery of the chuck.

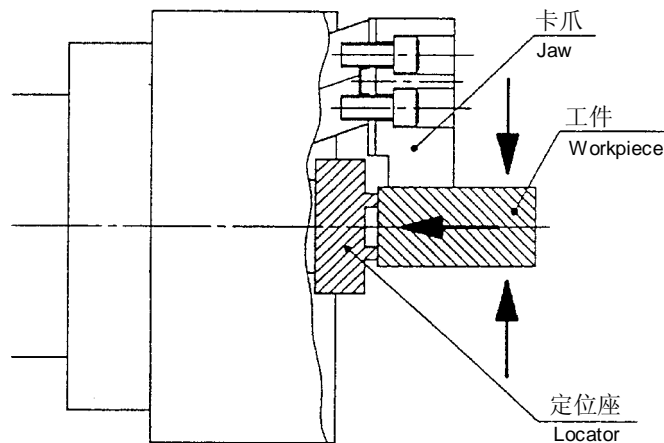
7.软爪成型及定位座制作

- 请考虑工件的形状、尺寸、材质、表面粗糙度以及切削条件等，使用适合的软爪及定位座。
- 请在导向套行程的中央附近进行夹紧。
- 卡盘的使用方法为：轴向用定位座设定基准位置，径向用卡爪夹紧。因此，“软爪的成型方法”和“定位座的制作”会对夹紧精度产生很大影响。

7. Forming of soft jaws and manufacture of locator

- Use the best suitable jaw and locator,taking into account the shape, size, material and surface roughness of the workpiece as well as cutting conditions.
- It is most desirable that a workpiece is chucked at the central part of the plunger stroke.
- In using the chuck,the locator sets the datum position for the workpiece in axial direction while the jaws grip the workpiece in radial direction. Therefore, it is “forming of soft jaws” and “manufacture of locator” which influence the gripping accuracy.

图9
Fig.9



WARNING 警告

○夹紧工件时主爪应尽量位于行程中央并在适当的行程范围内使用，这样结构最稳定，并可实现高精度。若在行程末端附近夹紧，可能无法夹紧工件，造成工件飞出，非常危险。

卡爪安装螺栓应具有充分的强度，并按规定紧固扭矩紧固。（参见第 页）

紧固扭矩不足或过大会损坏螺栓，造成卡爪或工件飞出，非常危险。

○It is the most desirable that the workpiece is gripped at mid stroke of the master jaws. To grip the workpiece correctly, avoid gripping at stroke end because it is danger due to discharges of workpiece.

Mount the jaw with bolts which have sufficient strength and tighten it with specified torque. (See page)

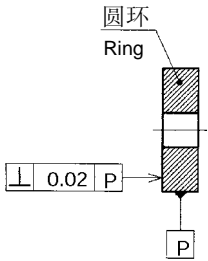
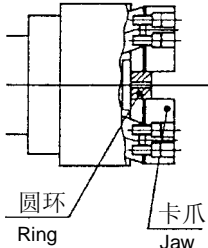
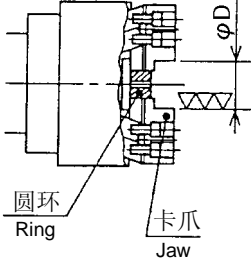
If tightening torque is insufficient or too strong, bolts are broken. Also, the workpiece discharges thus resulting danger.

7-1 软爪成型

软爪成型请根据下表进行。

7-1 Forming of soft jaws

Forming of soft jaws should be done in the following procedures.

<p>●准备成型用圆环。</p> <p>请使用外径精加工为▽▽▽、厚度无变形的圆环。(参见 Fig.10)</p> <p>注) 设定圆环的外径尺寸时, 应确保在卡爪行程的中央夹紧。</p> <p>注) 在圆环中心孔加工螺孔、用螺栓进行导向较为方便。</p>		<p>●Prepare the ring for forming.</p> <p>Forming outer dia, of ring is limited to ▽▽▽ finishing. Ensure the ring is strong with a suitable wall thickness. (See Fig. 10)</p> <p>Note) Set the forming outer dia, of ring dimension to grip around the middle of the jaw stroke.</p> <p>Note) It is recommended to tap the center hole of ring and insert the bolt.</p>
<p>●将卡盘设定液压设定为使用状态, 夹紧圆环。</p> <p>此时, 为防止圆环倾斜, 应将圆环压住卡盘正面后夹紧, 确保不会产生跳动。</p>		<p>●Set the hydraulic pressure to the working condition, and grip the ring, then push the ring to the chuck evenly so that the ring does not tilt.</p>
<p>●在夹紧圆环的状态下对工件夹紧部(ØD)进行成型。</p> <p>ØD 部应加工成与工件的夹紧部直径相同 (H7 左右), 表面粗糙度为 6S 以下。</p> <p>●成型时的压力应设定为与工件加工时相同或略高。</p> <p>注) 若圆环发生变形, 请增加其厚度。</p>		<p>●Form the part ØD For gripping the workpiece with the ring still gripped. Machine the part ØD to the same diameter (H7) as the workpiece and surface roughness less than 6S.</p> <p>●Set the gripping pressure for the jaws to the approximately the same as when the workpiece is gripped.</p> <p>Note) If the ring distorted, alternatively use a stronger ring with additional wall thickness.</p>

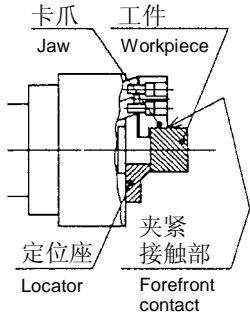
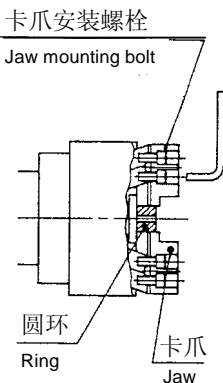
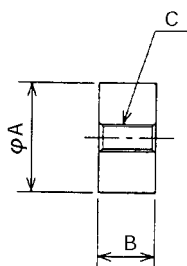
<ul style="list-style-type: none"> ●成型结束后，取下圆环。 ●安装定位座。 ●夹紧工件后检查卡爪的行程。 ●进行试切削，检查加工精度及有无滑移等。 ●卡爪的夹紧接触部越强劲，工件的端部跳动越小，夹紧越牢靠。 		<ul style="list-style-type: none"> ●After forming jaws, remove the ring workpiece with the ring still. ●Mount the locator. ●Grip the workpiece to check the jaw stroke. ●Perform trial cutting to inspect machining accuracy, etc. ●When the gripping contact of the jaw is stronger in its forefront part, the workpiece can be gripped better with less vibrations at end of the workpiece.
<ul style="list-style-type: none"> ●将拆下的卡爪再次安装时，请注意以下事项。 ●用安装螺栓初步紧固卡爪。 ●将卡盘设定液压设定为低压（0.4~0.5MPa、4~5kgf/cm²），夹紧圆环。此时，为防止圆环倾斜，应将圆环压住卡盘正面后夹紧，确保不会产生跳动。 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>CAUTION 注意</p> <p>夹紧圆环时，若初步紧固不充分，卡爪可能会上浮，导致无法正确安装，请加以注意。</p> </div> <ul style="list-style-type: none"> ●在此状态下，按规定扭矩紧固卡爪安装螺栓。 		<ul style="list-style-type: none"> ●In case of re-installing for the remove jaws, note the following points. ●Fix the jaws temporarily with jaw mounting bolts. ●Set the hydraulic pressure to 0.4~0.5 MPa, 4~5 kgf/cm², and grip the ring, then push the ring to the chuck evenly so that the ring does not tilt. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>CAUTION 注意</p> <p>If the temporary jaw fixing is not tight enough, the jaws are lifted when gripping the ring. The ring will not be set correctly.</p> </div> <ul style="list-style-type: none"> ●Tighten the jaw mounting bolts to the standard torque when gripping the ring.

图 10
Fig.10



		mm	
型式Model	LU-08	LU-10	
项目Item			
A	32	40.6	
B	17	20	
C	M8	M10	

※ 上述尺寸为使用标准软爪时的参考尺寸。

※ Above dimensions show the reference dimensions using the standard soft jaws.

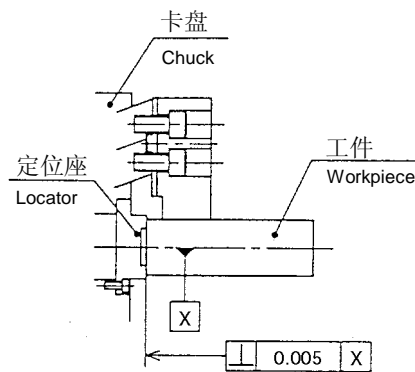
7-2 定位座制作

●在卡盘所具有的拉入效应作用下，工件被拉近并靠住定位座后夹紧，因此基准端面的端面跳动会对工件垂直度和平行度的精加工精度产生很大的影响。应确保基准端面具有充分的硬度和精度。

7-2 Manufacture of locator

●Workpiece is gripped while it is strongly pressed against the locator by pulling force of the chuck. Therefore, the run-out of the datum surface greatly influences finish accuracy of the workpiece in terms its perpendicularity and parallelness. The datum face should have sufficient hardness and accuracy.

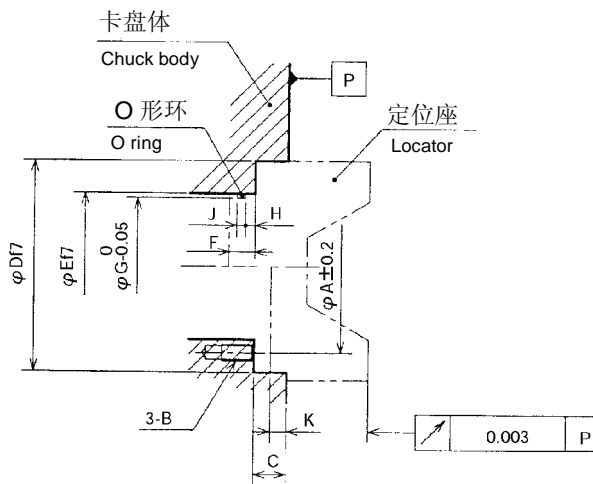
图 11
Fig.11



●尺寸请参见下表。

●For dimensions, refer to the table below.

图 12
Fig.12



mm

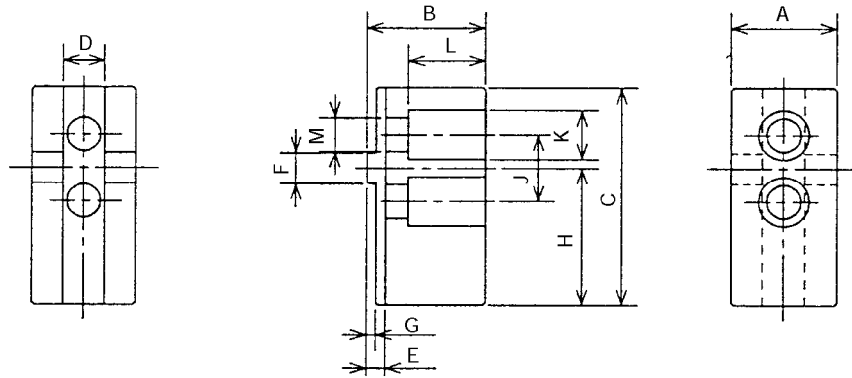
项目Item 型式Model	卡盘侧尺寸 Chuck dimensions			定位座侧尺寸 Locator dimensions						O形环O ring 尺寸Size (制造商) (Maker)	
	A	B	C	D	E	F	G	H	J		K
LU-08	53	M5深10 M5 Depth 10	10	65	45	8	42	3	2.7	5	S 42 (NOK)
LU-10	62	M5深12 M6 Depth 12	12	75	50	9	47.2	3	2.7	5	S 46 (NOK)

8. 软爪尺寸

8. Soft jaw dimensions

图 13

Fig.13



mm

项目Item 型式Model	A	B	C	D	E	F	G	H	J	K	L	M
LU-08	40	44.5	84	16	7	12	3.5	53	26	19	29	13
LU-10	50	49.5	100	18	7	15	3.5	62	32	22	32	15

9. 使用注意事项

9. Precautions



WARNING

警告

- 切换卡爪时，为保持跳动精度，应仔细清洁啮合部。另外，卡爪初步安装后，应夹紧工件并按规定扭矩紧固卡爪安装螺栓。
 - 应根据工件的形状及切削条件设定液压。若用很高的压力紧固管状工件，可能会发生变形。
 - 请勿用锤子等敲击夹紧的工件，否则会降低精度及功能，并大幅缩短使用寿命。
 - 夹紧长工件时，务必使用尾座及稳定座等，牢靠支承自由端。
- When replacing the jaw, clean the fit-in part carefully in order to maintain the running accuracy. After provisional mounting of the jaw, let it grip the workpiece and fasten the jaw mounting bolt with specified torque.
 - Set the hydraulic pressure to the shape of a workpiece and to the cutting conditions. If a pipe-like workpiece is chucked by high pressure, it may be strained.
 - Never strike a workpiece, which is kept on the chuck, by a hammer or the likes. If struck, the working accuracy and functions of the machine will be much damaged. And the life of the machine will be also shortened remarkably.
 - When chucking a long-sized workpiece, use a tail stock or steady rest. And support the free end of the workpiece without fail.



DANGER

危险

- 旋转时切勿进行卡盘的开闭操作，否则会导致夹紧的工件飞出。
 - 卡盘的最高转速请勿超出规格指示的范围。
 - 卡盘的安装、检查、注油、更换应在切断电源后进行。
- Never run the chuck during operation. Otherwise the workpiece may be disengaged and thrown off.
 - Max. speed of the chuck should be kept within the specified range during operation.
 - Cut off the power supply when chucking, greasing or changing to chuck.



WARNING

警告

- 长时间停用机床时，应将工件从卡盘上取下。
 - 夹紧工件时主爪应尽量位于行程中央，这样结构最稳定，可实现高精度。在行程末端附近进行夹紧不安全，应加以避免。
 - 因误操作、冲突错误等，造成刀具或冲突碰触卡盘或工件、发生冲击时，应立即停止旋转，检查主轴、卡盘有无异常以及夹紧精度有无变化等。
- When resting the machine for a long time, remove a workpiece from the chuck.
 - It is most desirable that a workpiece is chucked at the central part of the stroke of each master jaw. And in this case, the most stabilized high accuracy can be obtained at the standpoint of the mechanism. Avoid chucking at the near part of the stroke end in view of the safety.
 - When maloperation and tape error cause a cutter and cutter holder contact the chuck, immediately stop the machine to reChuck the spindle, chuck, and gripping accuracy.



WARNING

警告

- 夹紧工件的卡爪在旋转时受离心力的直接作用，不必要地增加其大小是非常危险的。
- 卡盘的容许推力请勿超出规格指示的范围。否则，会缩短使用寿命、造成损坏，非常危险。
- 加工工件时若发生停电或压力源故障等，可能会造成供给压力异常降低、工件飞出。因此，若用 4 通 2 位电磁操作阀进行液压缸切换，应确保液压回路可在电磁操作阀消磁的状态下夹紧工件。

(参见 Fig.14)

- 夹紧不平衡的工件时，应保持适当的转速，并采取增加平衡配重、防止振动及工件飞出等措施。
- 在卡盘体表面安装定位座或夹具时，应在追加加工允许范围内进行攻丝或钻孔。(参见 Fig.15)

注) 追加加工及安装夹具后会造成不平衡，请加以注意。不平衡会产生振动等，影响工件精度。

- Since the jaw gripping the workpiece receives the influence of centrifugal force directly during rotation, unnecessarily large jaw can be dangerous.
- The chuck thrust should be kept within the specified allowable range during operation. To operate with excessive thrust can be dangerous, as it will deteriorate service life and cause failure.
- When abnormal stop of the supplied pressure is caused by power failure or breakdown of pressure source during work machining, the workpiece may be disengaged and thrown off. In case the change-over of cylinder is made by use of the 4-port 2-position solenoid controlled valve, the hydraulic circuit should be so designed as to grip the workpiece when solenoid controlled valve is demagnetized. By so doing, the above danger can be avoided.
(See fig.14)

- When gripping an unbalanced workpiece, turn the chuck with adequate speed. When mounting the locator or jig to the chuck, bore and tap it within additional machining range.
(See fig.15)
- Note) Take care so as not to unbalance the workpiece for additional machining or jig mounting. If unbalanced, it will cause vibration, etc., thus reducing the workpiece accuracy.

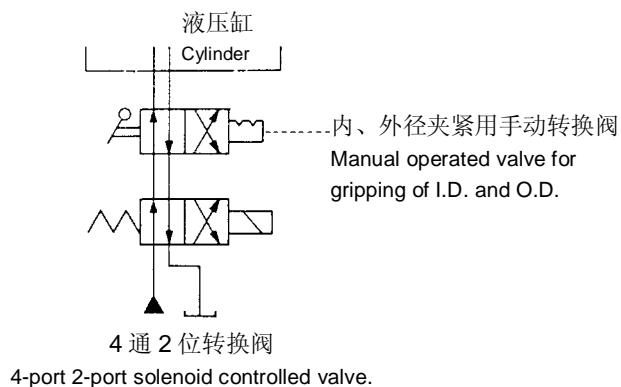
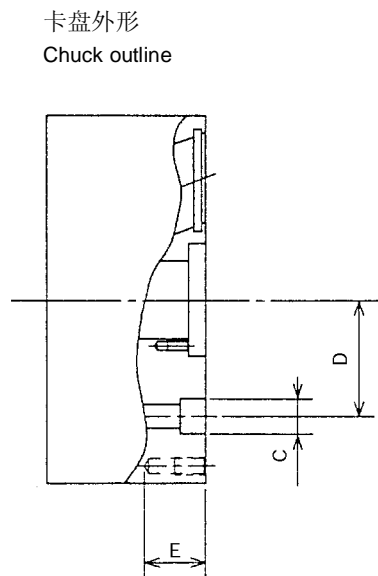
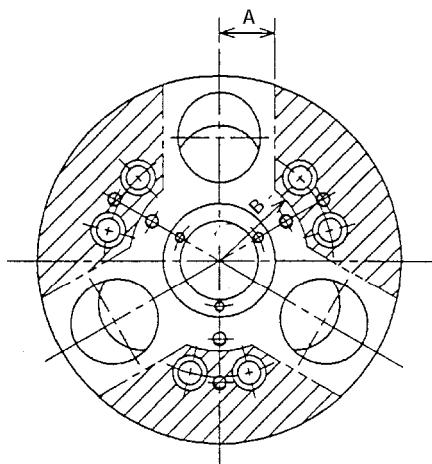


图 14
Fig.14

图 15
Fig.15



斜线部分为追加加工允许范围
Shaded area: It is possible to bore or tap additionally



		mm				
项目Item 型式Model	A	B	C	D	E	
LU-08	32.5	52	20	66.7	35以下 or iess	
LU-10	40	62	25	85.7	45以下 or iess	

A、B、C: 不可追加加工的尺寸
E: 攻丝或钻孔允许深度

A,B,C: Additional tapping or boring are not allowed.
E : Possible depth for tapping or boring.



WARNING
警告

○安装定位座或夹具时，应采取防止因离心力而飞出的措施（定位销等），并用强度充足的螺栓紧固。

○For the locator or jig, prevent discharging caused by centrifugal force with dwell pin, etc., and tighten it with bolts having sufficient strength.

10. 维护检查

10. Maintenance and Inspection



WARNING

警告

- 为了长期以最佳状态使用卡盘，润滑注脂非常重要。若润滑不良，会造成低液压力下的动作不良、夹紧精度降低、异常磨损、烧结等故障。另外，夹紧力降低会造成工件飞出，非常危险。因此，应可靠进行润滑注脂。
- 润滑注脂请按试运转时的章节（第 22 页）中所述的方法进行。
- 润滑注脂时，请取下盘体外圆的内六角固定螺钉，从加油脂嘴进行注脂。从固定螺钉孔注脂，直至润滑脂连续喷出，然后拧入固定螺钉，使卡盘卡爪动作 2~3 次。

- To maintain the chuck for a long period if time, it is necessary to lubricate the chuck on a regular basis. Inadequate lubrication causes malfunction at low hydraulic pressure, reduces gripping force and affects gripping accuracy, securely lubricate the chuck.
- Refer to the procedure shown on the Test Operation (p- 22) when greasing the chuck.
- When lubricating chuck with grease, remove a hex. socket set screw from chuck periphery and emerges from which the set screw was removed. After that, replace the set screw and actuate the chuck jaws several times.

注脂位置	所用润滑脂	注脂次数
盘体 请用滑脂枪从外圆部的加油脂嘴进行注脂。	北川 卡盘润滑脂或 MOLYKOTE EP 润滑脂 (东丽 DOW CORNING (株))	每 1 个月 但高速旋转、大量使用水溶性切削液时，应根据使用条件增加注脂次数。

- 作业结束时，务必用空气枪等清洁卡盘体及滑动面。
- 若不使用具有防锈作用的切削液，卡盘内部可能会生锈，造成夹紧力降低。请加以注意。

Section to be lubricated	Grease useds	Lubrication cycle
Apply grease from the grease nipple at the periphery end of body with a grease gun.	KITAGAWA Chuck Grease or Moly Kote EP Grease (Dow Corning Toray Co., Ltd)	Once a month, However, when the machine is operated at high speed rotation or a large amount of water soluble cutting oil is used, more of lubrication is needed according to service conditions.

- After machining, clean the chuck body slideway with air gun, etc.
- Use rust prevention oil so that rust does not reduce gripping force.



CAUTION

注意

- 卡盘应至少每半年或每 10 万次动作（切削铸件等应每 2 个月 1 次以上）拆解清洁 1 次，仔细检查零件有无磨损或裂痕，需要时进行更换。
- 检查后，应边充分注脂边进行组装。

- Disassemble and clean the chuck at least once per 6 months or every 100,000th used (once every two months for the casting). See if parts are worn or cracked and replace it if required.
- Lubricate the chuck before reassembling.

拆解步骤（参见第④页）

- 为安全起见，请使用起吊带或起吊螺栓，在充分固定、确保不会掉落的前提下进行作业。
 - ① 松开卡爪安装螺栓，拆下卡爪。
 - ② 从卡盘表面拆下定位座。
 - ③ 松开卡盘安装螺栓的同时，用六角扳手松开牵拉螺钉，脱离与拉杆的连接后拆下卡盘。
 - ④ 拆下后盘体。
 - ⑤ 拔出平行锚。
 - ⑥ 将导向套完全压入后旋转约 60°，解除与主爪的组合后拔出。
 - ⑦ 拔出主爪。
- 拆解后，用清洗油等仔细清洗后干燥。清除盘体内部、导向套及主爪滑动部的切屑、烧结、擦痕后，涂上润滑脂。此时，请使用添加了二硫化钼的北川卡盘润滑脂。根据润滑脂种类的不同，可能会发生夹紧力减半的情况，使用低质量的润滑脂甚至会发生烧结等故障。
- 组装请按与拆解相反的步骤进行。此时，请充分注意 O 形环有无损坏。
 - ⑧ 组装后，向卡盘内注入足够的润滑脂。

Disassembling steps (See page ④)

- For safety's use lifting belt or lifting eyebolt in order to fix the chuck fully and prevent its dropping during the job.
 - ① Loosen jaw-fixing bolts to remove the jaw.
 - ② Remove the locator from the chuck surface.
 - ③ While loosening the chuck mounting bolt, unfasten the draw screw using the hex. socket screw key and disconnect the draw bar. Then, dismount the chuck.
 - ④ Remove rear body.
 - ⑤ While keeping the plunger at the innermost position, turn it about 60° to disjoin from the master jaw. Then, pull out the plunger.
 - ⑦ Pull out the master jaw.
- After disassembly, perform cleaning carefully with washing oil and dry the system. Remove clips, seizures and scuffs from the sliding faces of inside of the body, the plunger and the master jaw. Then, feed the fresh grease. In that instant, use Kitagawa molybdenum disulfide added chuck grease. Depending upon grease used, chucking force may be reduced to a half, or poor quality grease may cause seizure.
- Re-assembly should be done in the reverse order of the disassembly procedures. Check O-ring damage carefully.
 - ⑧ After re-assembly, feed fresh grease sufficiently inside of the chuck.

11. 故障和修理

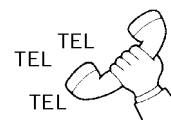
请停止车床，再次确认以下事项后采取相应措施。

不良状况	原因	措施
卡盘不动作。	卡盘内部已损坏。	拆解后更换。
	滑动部烧结。	拆解后，用油石等修整烧结零件的烧结部，或将其更换。
	液压缸未动作。	检查配管及电气系统，若无异常，将液压缸拆解后清洁。（参见液压缸的使用说明书）
卡爪行程不足	切屑大量进入内部。	拆解清洁。
	拉杆松动。	拆下拉杆后重新拧紧。
工件发生滑移。	主爪行程不足。	应确保在夹紧工件后，主爪位于行程的中央附近。 将软爪的成型位置靠近开侧。
	夹紧力不足。	检查是否达到设定液压。
	卡爪的成型直径与工件直径不符。	检查成型方法是否正确。
	切削力过大。	计算切削力，确认是否与卡盘的规格相符。
	主爪及各滑动部缺油。	从加油脂嘴注脂后，在不夹持工件的状态下进行数次卡爪的开闭操作。
	转速过高。	将转速降至可获得所需夹紧力的大小。
	由于中心架、尾座等的中心不一致，引起摆动。	进行精确的中心对准，消除摆动。
精度不良。	卡盘的外圆发生跳动。	确认外圆及端面跳动后，拧紧螺栓。
	卡爪的安装面附着垃圾。	拆下卡爪后，仔细清洁各安装面。
	卡爪的安装螺栓未完全拧紧。	按规定扭矩紧固卡爪的安装螺栓。但注意不要过度拧紧。
	软爪的成型方法不当。	确认成型插块相对于卡盘端面是否平行、插块是否因夹紧力而产生变形。另外，检查成型时的液压、成型部的表面粗糙程度等。
	卡爪的高度过高、卡爪变形，或卡爪安装螺栓伸出。	降低卡爪的高度。（更换为标准尺寸。）检查夹紧接触面，确保均匀接触。
	夹紧力过大，导致工件变形。	在加工允许范围内，降低液压、防止变形。

故障的修理

请与 KITAGAWA 的经销商或 KITAGAWA 的分店联系。

- 简单故障当场予以修理。需要较长时间处理的故障将通知您预定时间。
- 不便带来时，请电话与我们联系。
- 请与购买本产品的经销店或封底的本公司分店联系。



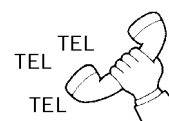
11. Troubleshooting

If the chuck malfunctions, stop the lathe and try the following countermeasures.

Problem	Possible Reasons	Counter measures
Chuck will not operate	The inside of the chuck is broken.	Disassemble and replace part.
	Slideway seizes.	Disassemble and replace part with oil stone or replace it.
	Hydraulic cylinder is not operating.	Check that pressure reduction valve, change over valve and horse system are correct. (Refer to Instruction Manual for cylinder)
Insufficient master jaw strokes	Too much swarf in chuck.	Disassemble and clean.
	Draw bar is loose.	Remove and retighten it.
Workpiece slip-page	Insufficient master jaw stroke.	Position master jaw so that it is in stroke center when workpiece is gripped.
	Insufficient clamping force.	Check hydraulic pressure adequately set.
	Formed dia. of jaw does not match work-piece dia.	Reform jaw according to correct method.
	Cutting force is too high.	Calculate cutting force and reduce it up to chuck specifications.
	Insufficient lubrication on master jaws and each slideway.	Lubricate from grease nipple and grip and grip again jaws without workpiece in chuck.
	Speed is too high.	Reduce speed up to necessary gripping force.
	Whirling is found by mis-alignment such as steady rest, tailstock, etc.	Secure alignment to eliminate whirling.
Poor accuracy	Periphery of chuck is run out.	Tighten chuck bolts correctly.
	Swarf and dust is attached on the jaw's fitting faces.	Remove the jaws and clean each face.
	Jaw mounting bolts are inadequately tightened.	Tighten bolts to correct torque.
	Forming of jaws is inadequate.	Check that forming plug is parallel to chuck end face and plug is not deformed due to gripping force. Also, check hydraulic pressure while forming and face, roughness.
	Jaw is deformed and jaw bolts are extended because jaw is too high.	Reduce height of jaw replacing with standard size jaw.
	Workpiece is deformed by too much gripping force.	Reduce gripping force to prevent deformation.

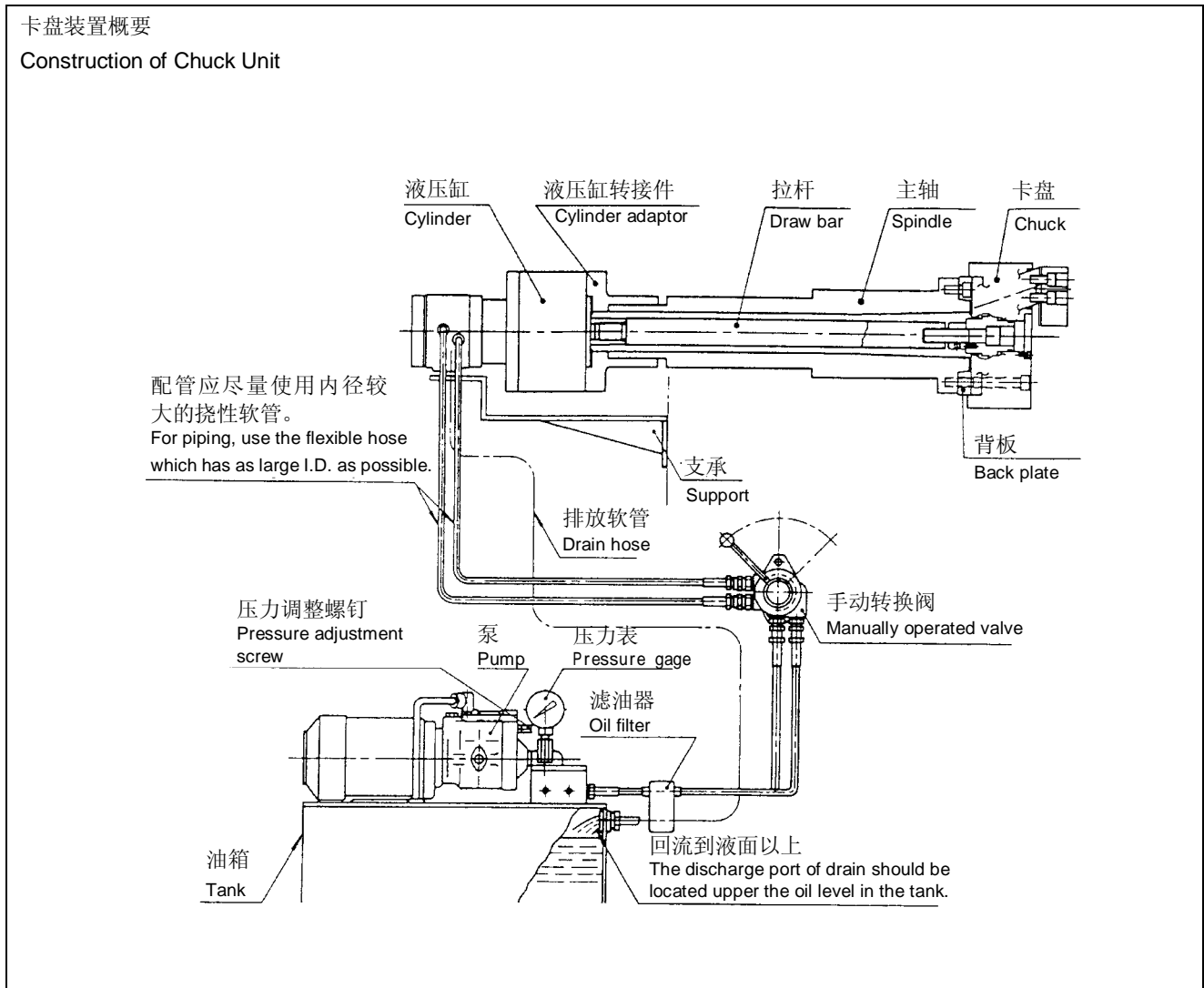
For service and maintenance

- Please contact your local distributor or agent.
If no distributor or agent locally, then contact KITAGAWA Japan.
Domestic offices are listed on the back page.
- On receipt of the product, we will inform you immediately of repair schedule.
- Please telephone us if you find any difficulties.



12. 安装概图

12. Assembly drawing



- 卡盘装置由卡盘、旋转液压缸、转换阀、液压装置构成。将卡盘安装在车床的主轴前部、将旋转液压缸安装在后部，两者之间用拉杆连接。

- The chuck unit consists of a chuck, rotary hydraulic cylinder, directional control valve and hydraulic unit. The chuck is mounted at the front of the lathe spindle and the rotary hydraulic cylinder at the rear thereof; both are linked with a draw bar.

备忘录

备忘录

备忘录

■国内

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