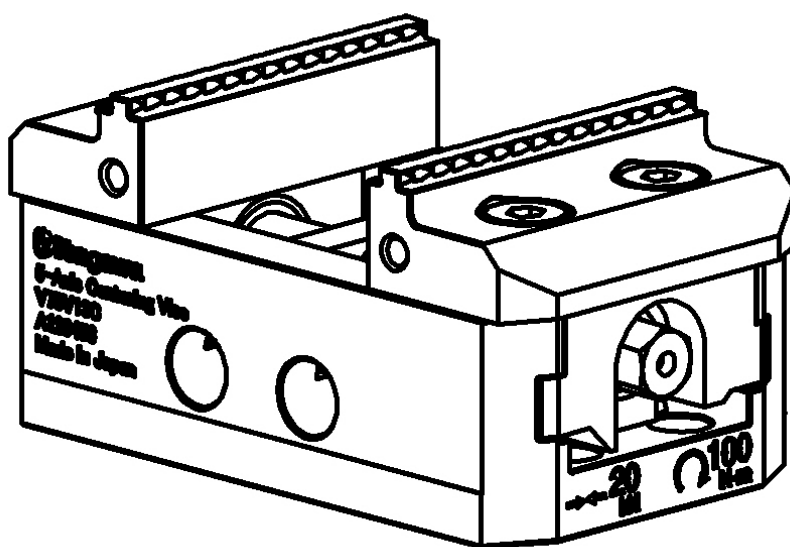


INSTRUCTION MANUAL

V75V13C

V75V17C

Centering Vise



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Before using this product, be sure to read this manual
carefully to understand how to use it correctly.

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1. Preface

1.1. How to Use This Manual

- This manual provides detailed information on this product so that you can understand its performance and functions and use it safely and correctly. Before using this product, be sure to read this manual carefully to understand how to use it correctly.
- This manual has been prepared for intended use for persons in charge of installation, operation, inspection, and maintenance of this product. When the beginners use this product, be sure to receive the guidance from skilled persons, sales agents, or us in advance.
- Store this manual with care in the specified place at hand, and reread it as necessary for correct use of the product.
- This manual is a part of the product. Do not sell or transfer the product to a third party without attaching this manual.
- Read the section "Important Safety Precautions" of this manual especially carefully, which summarizes precautions that particularly you should know or follow.
- Failure to follow the instructions and warnings in this manual could result in serious human accidents. Kitagawa shall not be held liable for human accidents, death, damage, or loss that occurred due to a failure to follow this manual.
- This manual does not predict all potential hazards in installation, operation, maintenance, and inspection under all environmental conditions. Therefore, the matters, unless otherwise mentioned clearly as "can be done" or "may be done" in this manual, should be considered as "cannot be done" or "must not be done".
- Please contact us or our agents if you have an uncertainty about safety when you try to perform installation, operation, inspection, or maintenance of the product.
- The information and product specifications described in this manual are subject to change without notice for the purpose of improvement.

1.2. Signal Word Definition



The triangle shown on the left indicates warning. The warning signs are used to alert you to potential safety hazards. To avoid death or injuries that could occur, follow all the instructions given with the warning signs.

Handling precautions that are considered especially important are classified and indicated as shown below according to the degree of risk that could result.



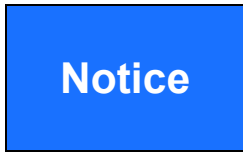
Failure to follow the safety precautions below will result in death or serious injuries.



Failure to follow the safety precautions below could result in death or serious injuries.



Failure to follow the safety precautions below may result in minor or moderate injuries.



Indicates instructions which, if you do not heed given instructions, could result in damage to the product or shortened service life, or damage to peripheral equipment.

The signs are classified and indicated as follows according to the type of risk.



General warning



Fire warning



Fly-out warning



High temperature warning



Rotating part warning



Instruction

1.3. Type Designation

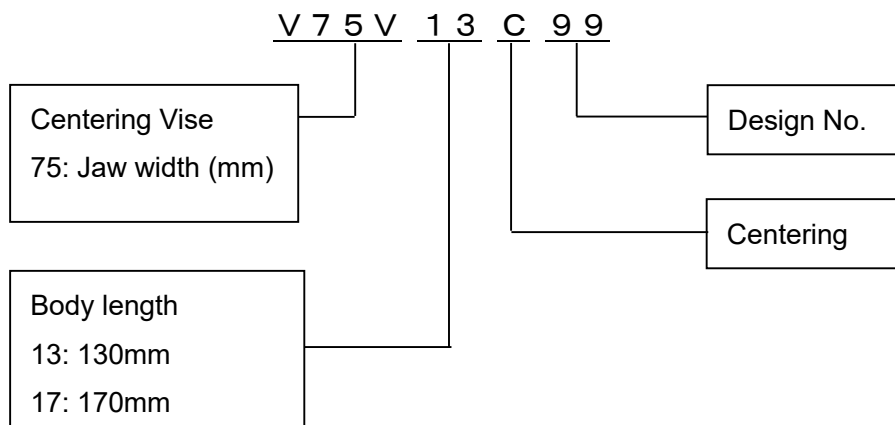


Figure 1 Type designation

1.4. Application Purpose of This Product

Centering vise is fixture mounted on machine tools, such as machining centers, for centering and gripping rectangular workpieces with two jaws that are opened and closed by a spanner. Mainly used in the first process, the grips on the jaws are used to grasp the workpiece with a short gripping length and to machine five surfaces other than the surface on which the workpiece is placed.

1.5. Unacceptable Application Example

The centering vise is not designed for the applications mentioned below for example.

- Mounted on lathe spindles for use.
- To fix an object to be pressed, punched, welded or fused.
- To grasp curved parts of workpieces.
- To grasp the inside diameter of the workpiece.
- To suspend or transfer an object.

1.6. Structural Drawing

Right- and left-hand threads are provided on both sides of the spindle, respectively, so that the two jaws operate symmetrically when the spindle is turned. The grips on the jaws provide a firm grip on the workpiece with a short gripping length. The jaws can also be reversed to grip a wide range of workpiece sizes.

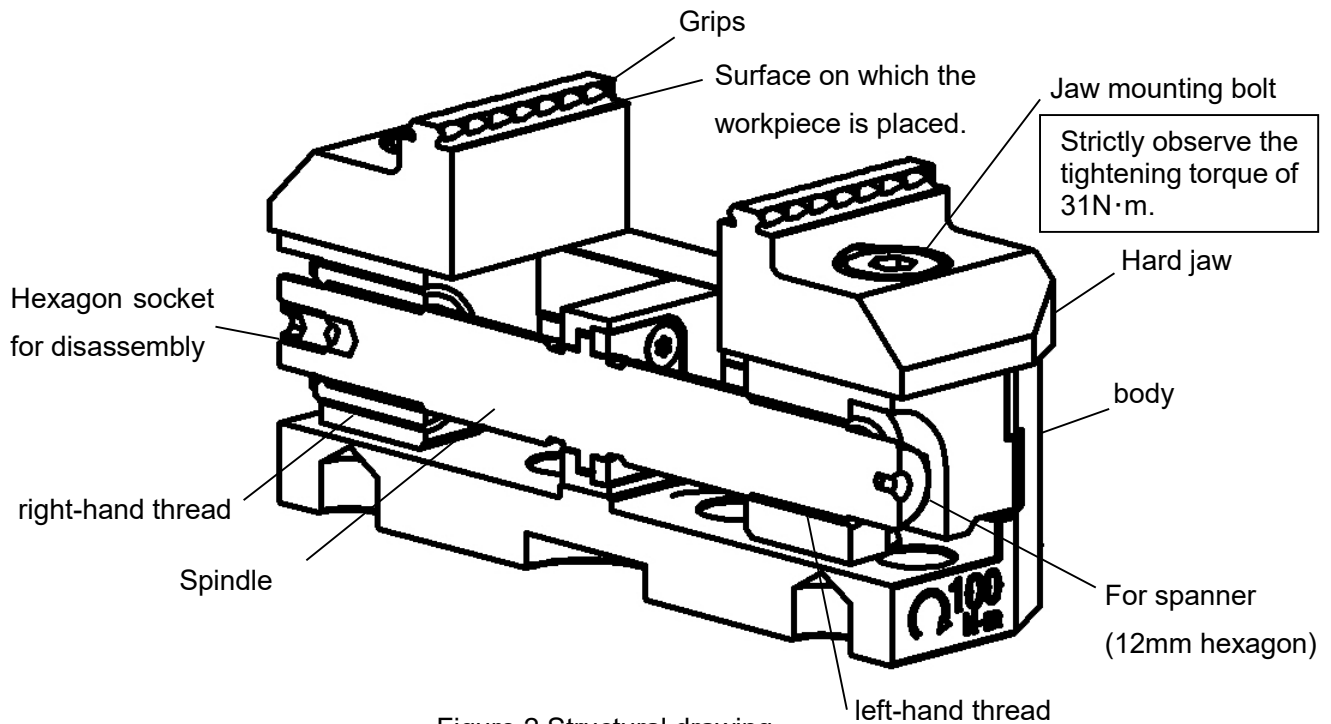


Figure 2 Structural drawing

1.7. Product Range

This is the centering vise instruction manual.

For other peripheral devices, refer to their respective instruction manuals.

1.8. Warranty

The product is warranted for one year after the date of delivery. However, the following cases will void the warranty.

- When parts other than Kitagawa's genuine parts are used.
- When proper maintenance and inspection such as periodic greasing are not performed.
- Other than above, when the product is used in methods not following this manual.

The jaws and jaw mounting bolts are consumables. Wear of the parts is not covered by the warranty.

Please use all parts including consumables genuine parts delivered by Kitagawa.

of non-genuine parts.

Table 1 Standard delivery range

No.	Parts name	Quantity	No.	Parts name	Quantity
1	Body	1	7	Cover	1
2	Master Jaw L (Left-hand thread)	1	8	Stripper bolt	2
3	Master Jaw R (Right-hand thread)	1	9	Countersunk bolt M3×8	4
			10	Button bolt M6×10	1
4	Spindle	1	11	Set screw	1
5	Adjusting nut	1	12	Jaw mounting bolt *2 (MISUMI GMSB10-10)	4
6	Spindle holder	1			

*1: [3] and [5], [4] and [11] are glued.

*2: Consumables

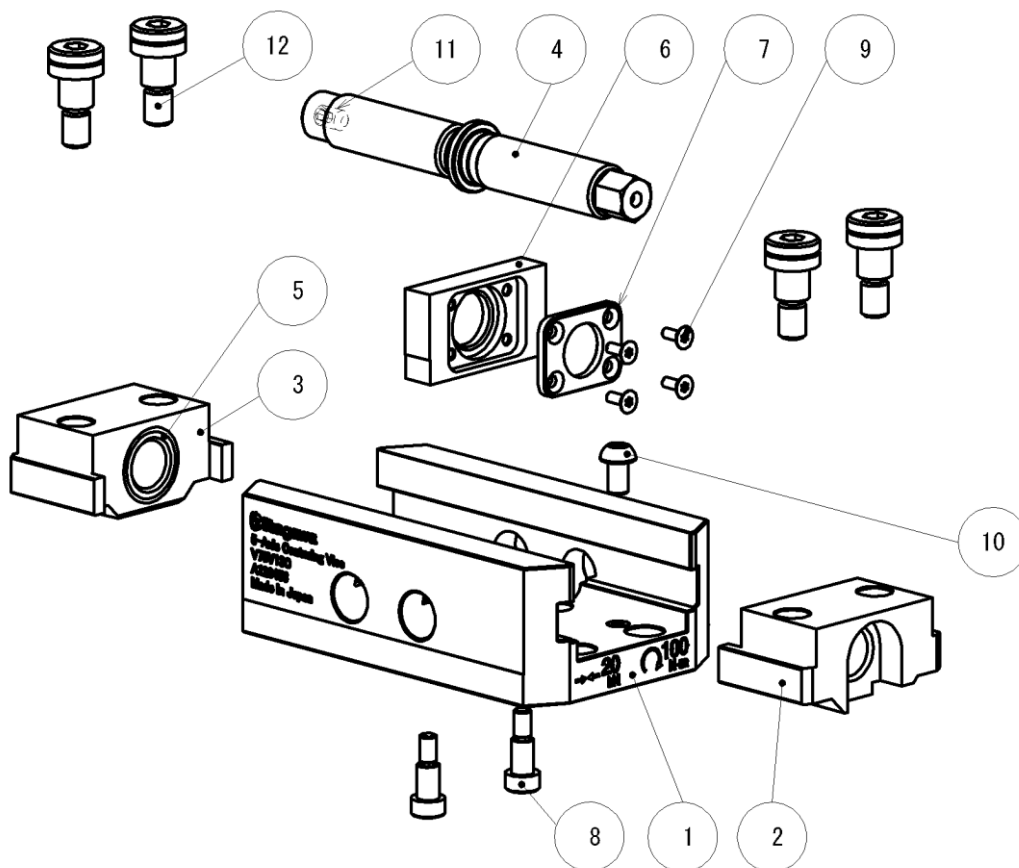


Figure 3 Standard delivery range

Table 2 Optional parts

No.	Parts name	Quantity	No.	Parts name	Quantity
13	Hard jaw with grip *1 61M856676	2	16	Parallel Plate 61M492220	2
14	Flat hard jaw *1 61M856841	2	17	Low head cap screw M5×8	4
15	Combination hard jaw *1 61M856729	2			

*1: Consumables

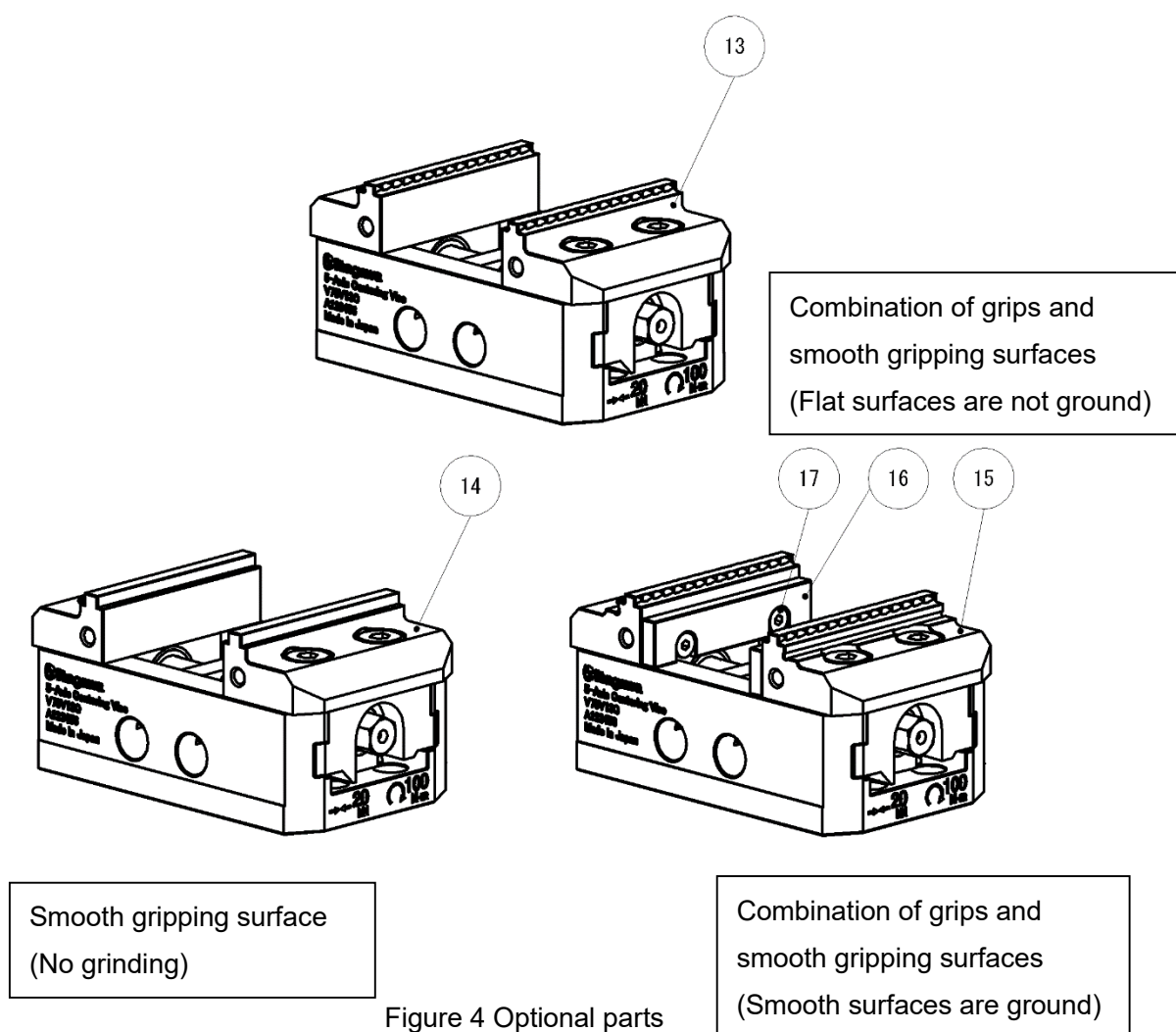


Figure 4 Optional parts

- Replace the jaw mounting bolts [12] every 4000 clamping because they are consumables.
- The smooth parts of the hard jaws with grips [13] are not ground. smooth surface of the combination hard jaws [15] are grounded.
- When a parallel plate [16] is fitted, depending on the fastening torque of the low head cap screws [17], the sliding resistance of the jaws may increase, but this is not a fault.



2. Important Safety Precautions

This chapter summarizes precautions that particularly you should know or follow.

Please read them before starting to use the product.



Danger Failure to follow the safety precautions below will result in death or serious injuries.



Turn off the main power supply of the machine when installing, inspecting, greasing, or replacing the centering vise.

- The tool may rotate unexpectedly and entangle your body or clothing.



Do not rotate the tool with the door open.

Provide an interlock to allow tool rotation only when the door is closed.

- If the door is not closed, the rotating tool may entangle your body or clothing or cause the workpiece to fly out.



Warning Failure to follow the safety precautions below could result in death or serious injuries.



Avoid pinching hands and fingers when grasping workpieces.

Perform tightening operations in a safe position.

- There is a risk of pinching or injury to fingers.



Hold the workpiece in the center of the hard jaw.

- Excessive loads can damage parts and cause workpieces to scatter, which is dangerous.



Hard jaws should be used with the grip tip of the hard jaw biting into the workpiece.

Workpieces with a hardness of HRC 38 or higher should not be grasped by the grips.

- Dangerous if workpiece slips and scatters.



Do not use jaws made by other manufacturers.

- Particularly if the gripping height is high, the parts may be overloaded and damaged, causing workpieces to fly off and creating a hazard.



Do not grasp curved parts of the workpiece.

- Dangerous if workpiece slips and scatters.



Do not grasp near the stroke end.

- Insufficient clamping force causes workpieces to slip and scatter, which is dangerous.



A work-stopper should be used if the machining load is applied perpendicular to the direction of gripping of the hard jaws.


- Dangerous if workpiece slips and scatters.



Use less than the maximum permissible torque and control the torque with torque wrenches or other suitable tool.


Tools that apply impact torque, such as impact wrenches, must not be used.

- Excessive loads are applied to parts, resulting in damage, scattering of workpieces and danger.




Cutting conditions and clamping force shall be determined by the machine manufacturer or user by trial cutting.

- Insufficient clamping force causes workpieces to slip and scatter, which is dangerous.



If a tool or other object crashes due to malfunction or programming error, stop operation immediately, examine each part carefully for damage or cracks, and repair or replace if necessary.

- The impact may have damaged or cracked parts. Continued use of malfunctioning parts may result in damage, and workpieces may scatter, which is dangerous.



Be sure to tighten the bolts with the specified torque listed in Table 3.


Use a proper tool that can control torque such as a torque wrench.

Use only the bolts attached to the product. Do not use other bolts.

- If insufficient bolts are mounted, bolt length is wrong, or tightening torque is improper, the bolts may be damaged, causing workpiece to fly out.


Table 3 Specified torque

Bolt	Strength classification	Tightening torque [N·m]
Jaw mounting bolt [12]	10.9	31
Stripper bolt [8]	10.9	7.5
Cap screw M6×16 (Body mounting bolt. Not in the standard scope of delivery)	12.9	13



Do not carry out additional machining.


- Causes damage and is dangerous due to flying workpieces.



Wear suitable protective equipment for the respective task.


In particular, helmets, safety shoes, safety glasses, etc.

- There is a risk of bruising due to flying or falling workpieces and blindness due to flying chips.




Do not wear clothing or accessories such as gloves and necktie which are easy to be caught in.

- Otherwise, your body or clothing may be entangled.




Do not perform the work after drinking alcohol or taking medicine.

- Impaired judgment or operation mistake may cause serious hazards.




Apply the specified grease and lubricant daily after cleaning. (Refer to 5.2 'Grease and Lubricant Application')

- Danger of workpiece scattering due to reduced clamping force.




Coolant with anti-corrosion properties shall be used. When storing for long periods of time, apply anti-rust treatment.

- Dangerous if rust forms on sliding parts and workpieces scatter due to reduced clamping force.



The jaw mounting bolts must be replaced with new ones every 4000 clamping operations.

- The bolts may be damaged, causing workpiece to fly out.



Do not use for turning. When installing on a rotary table, use at 200min⁻¹ or less.

- Causes damage and is dangerous due to flying workpieces or product.

Caution Failure to follow the safety precautions below may result in minor or moderate injuries.



Do not touch machined workpieces with bare hands.

- Touching workpieces with bare hands may cause a burn because the workpieces may be very hot.

3. Technical Data

3.1. Specifications

Table 4 Specification table

Type		V75V13C	V75V17C
Max. permissible torque	N·m	100	
Max. clamping force *1	kN	20	
Repeatability *2	mm	±0.01	
Mass(Except for hard jaws)	kg	2.3	2.9

*1 Clamping force is proportional to the torque applied to the spindle.

*2 Repeatability is measured center part of the master work grasped by the smooth surface of the combination hard jaws. (Around the arrows in Figure 5) The further away from the center, the greater the repeatability.

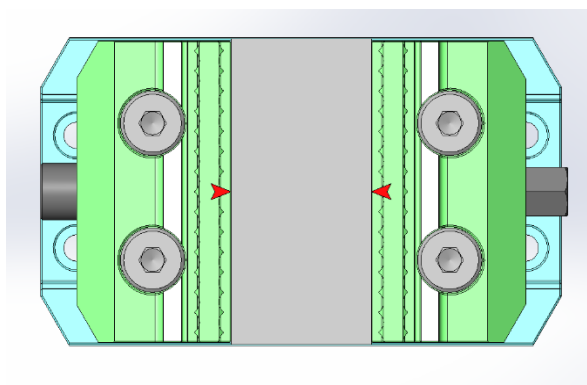


Figure 5 Measured points of repeatability

Table 5 Jaw movable range with optional jaw

Optional jaw	Type				
	V75V13C		V75V17C		
Hard jaw with grip	3.8~60.6	mm	3.8~100.6	mm	Grip tip positions
	59~117		59~157		
Combination hard jaw	0 [12]~56.8	mm	0 [12]~96.8	mm	smooth sections
	55.2~113.2		55.2~153.2		
Flat hard jaw	5~61.8	mm	5~101.8	mm	smooth sections
	60.2~118.2		60.2~158.2		

*1 [] indicates when parallel plates are used.

4. Installation

4.1. Installation of Centering Vise

Design the mounting adaptor with reference to Figure 6.

- For mounting the main unit, hexagon socket head cap screws M6x16 of strength classification 12.9 must be provided separately. Tighten all eight places to the specified torque in Table 3.
- For Positioning, use $\phi 25\text{H7}$ hole and one of the two $\phi 12\text{H7}$ parallel pin holes.

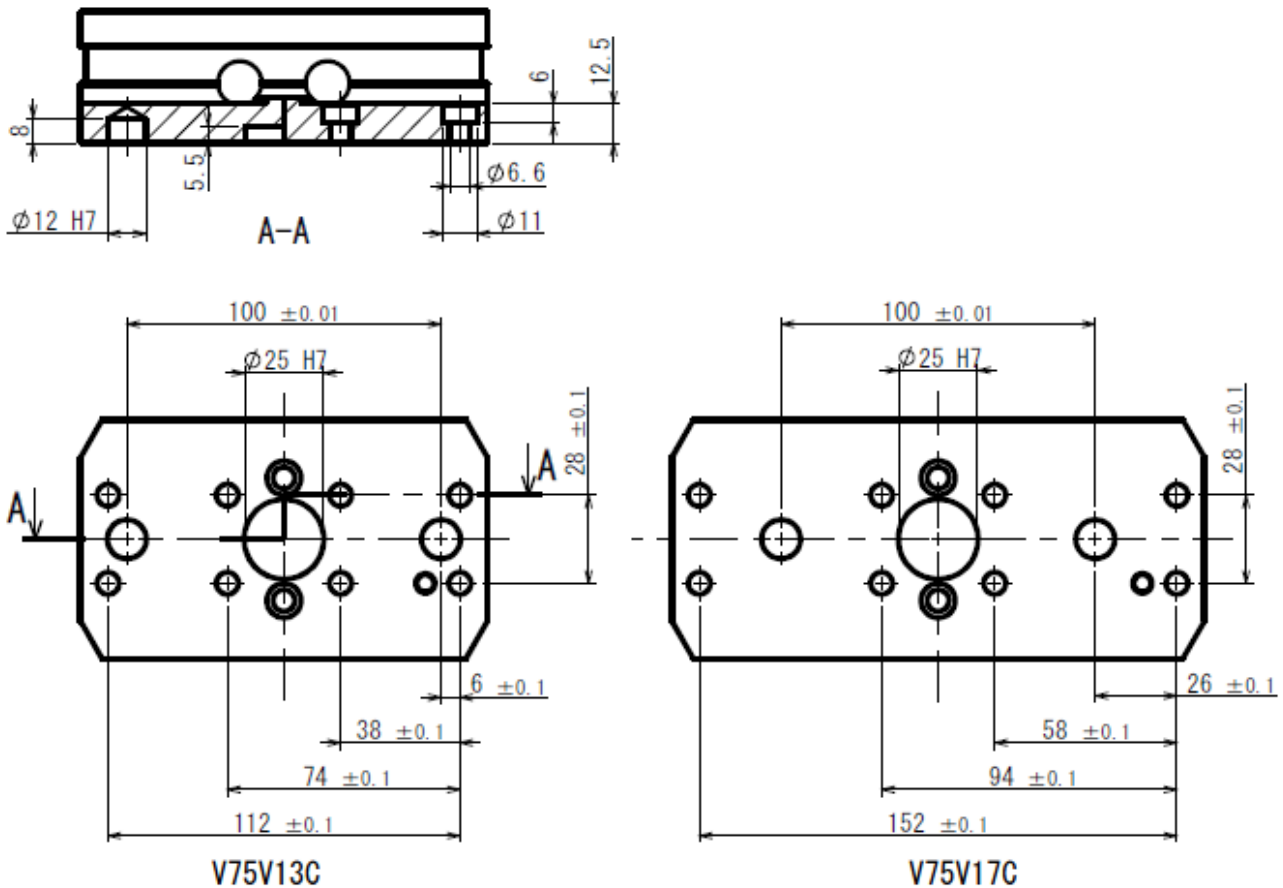


Figure 6 Installation dimensions

4.2. Installation of Hard Jaw

Read the following mounting procedure referring to figure 3 and 4.

- 1) Confirm that the pairs of hard jaws (Not in the standard scope of delivery) have the same identification symbol. (The pair of hard jaws is manufactured with the same height of the surface on which the workpiece is placed)
- 2) Clean the mounting surfaces of the hard jaws (Not in the standard scope of delivery) and body.
- 3) Tighten the hard jaws (Not in the standard scope of delivery) and master jaws [2, 3] temporarily with the jaw mounting bolts [12] and tighten them with the specified torque of 31 [N-m] while pulling them towards the direction where the clamping force is applied by hands.
- 4) Grip the workpiece 10 times with the using torque in order to get jaws to fit.

5. Maintenance and Inspection

5.1. Periodic Inspection

Table 6 Periodic inspection

Interval	Contents
Every day	<ul style="list-style-type: none">● Before work confirm that the hard jaws open and close smoothly.● Before work, visually check for any damage or other abnormalities.● At the end of the work, clean with an air gun or similar and apply grease and lubricant.
Every 4000 clamping	<ul style="list-style-type: none">● The jaw mounting bolts must be replaced with new ones.
Every 3 months	<ul style="list-style-type: none">● Check the bolts of each part for looseness.

5.2. Grease and Lubricant Application

After cleaning with an air gun, apply grease to the spindle threads and lubricant to the sliding surfaces of the body.

- Specified grease : Castrol Tribol GR 100-1 PD
- Specified lubricant : ISO VG68

5.3. Safety Information on Grease, Lubricant and Antirust Oil

Applicable range

- Specified grease
- Specified lubricant
- Antirust agent applied to the product at the delivery

For the grease or lubricant other than the specified one and antirust oil prepared by the customer, refer to the safety data sheet (SDS) prepared for respective oils.

Table 7 First-aid treatment

Aspiration	In case of much aspiration, go to a place where there is fresh air, and cover your body with a blanket to keep your body warm. Consult a doctor if necessary.
Sticking to your skin	Wipe off the oil, and wash your skin with water and soap. If you feel itchy or you get inflamed, consult a doctor immediately.
Entering your eye	Wash your eye with fresh water for at least 15 minutes, and then consult a doctor.
Accidental drinking	Consult a doctor immediately without vomiting forcibly.

5.4. Disassembly

Read the following disassembling procedure referring to figure 3 and 4.

- 1) Before start of work, be sure to turn off the main power of the machine.
 - 2) Remove the jaw mounting bolts [12] and hard jaws (Not in the standard scope of delivery).
 - 3) Remove the body mounting bolts (not in the standard scope of delivery) and remove the body from the machine.
 - 4) Remove the hexagon socket button bolt [10].
 - 5) Turn spindle [4] using the hexagonal hole in set screw [11] and remove master jaws [2, 3].
 - 6) Remove the stripper bolts [8] and take out the spindle unit.
 - 7) Remove the countersunk bolts M3x8 [9] and disassemble the unit into cover [7], spindle [4] and spindle holder [6].
- Disassembled parts should be cleaned and examined closely for damage, wear, cracks, seizures, etc., and repaired or replaced if necessary.
 - Master Jaw R [3] and Adjusting Nut [5] are glued together and cannot be disassembled.

5.5. Reassembly

Reassemble the product through reverse procedure of disassembly.

- Install the spindle holder [6] and spindle [4] with care in terms of orientation.
- Apply the specified grease to the flange and threaded parts of the spindle and lubricant to the sliding surfaces of the body. Refer also 4.2 'Installation of Hard Jaw' and 5.2 'Grease and Lubricant Application'.
- When mounting the master jaws [2, 3] on the spindle, engage the left and right screws simultaneously. If the engagement position of the screws is misaligned, the center will be off when the workpiece is gripped. Ensure that the left and right jaws stroke symmetrically.
- The center is adjusted at the factory and cannot be adjusted by the customer. Therefore, only assemble the unit with parts from the same product and do not combine it with other parts.

6. Troubleshooting

6.1. Troubleshooting

- If a failure is suspected, check the contents in Table 8 again and take necessary measures.
- Please contact your dealer or us for an overhaul for a fee.

Table 8 Troubleshooting

Problem	Cause	Countermeasure
Not move	Parts are damaged.	Repair or replace the parts.
Slow in operation	Chip deposits inside.	Disassemble and clean.
Short stroke length		
Poor repeatability	Chips on sliding or gripping surfaces.	Clean and correct any scratches.
	Jaw mounting bolts are not sufficiently tightened.	Ensure that there are no cracks, elongation or other abnormalities in the bolts and tighten them to the specified torque. (Refer to Table 3) Because of consumables, it must be replaced with new ones every 4000 clamping operations.
	Immediately after jaw installation, the repeatability is not stable.	Grip the workpiece 10 times with the using torque in order to get jaws to fit.



Warning

Failure to follow the safety precautions below could result in death or serious injuries.



If any signs of malfunction or abnormality are observed, stop operation immediately and repair or replace the unit.

- Continued use of a faulty product can cause serious personal injury.

6.2. Contact Information In Case Problem Occurs

Please get in touch with our sales agent from which you purchased the product or our office of the address given when the fails.

7. Others

7.1. Marking of Product

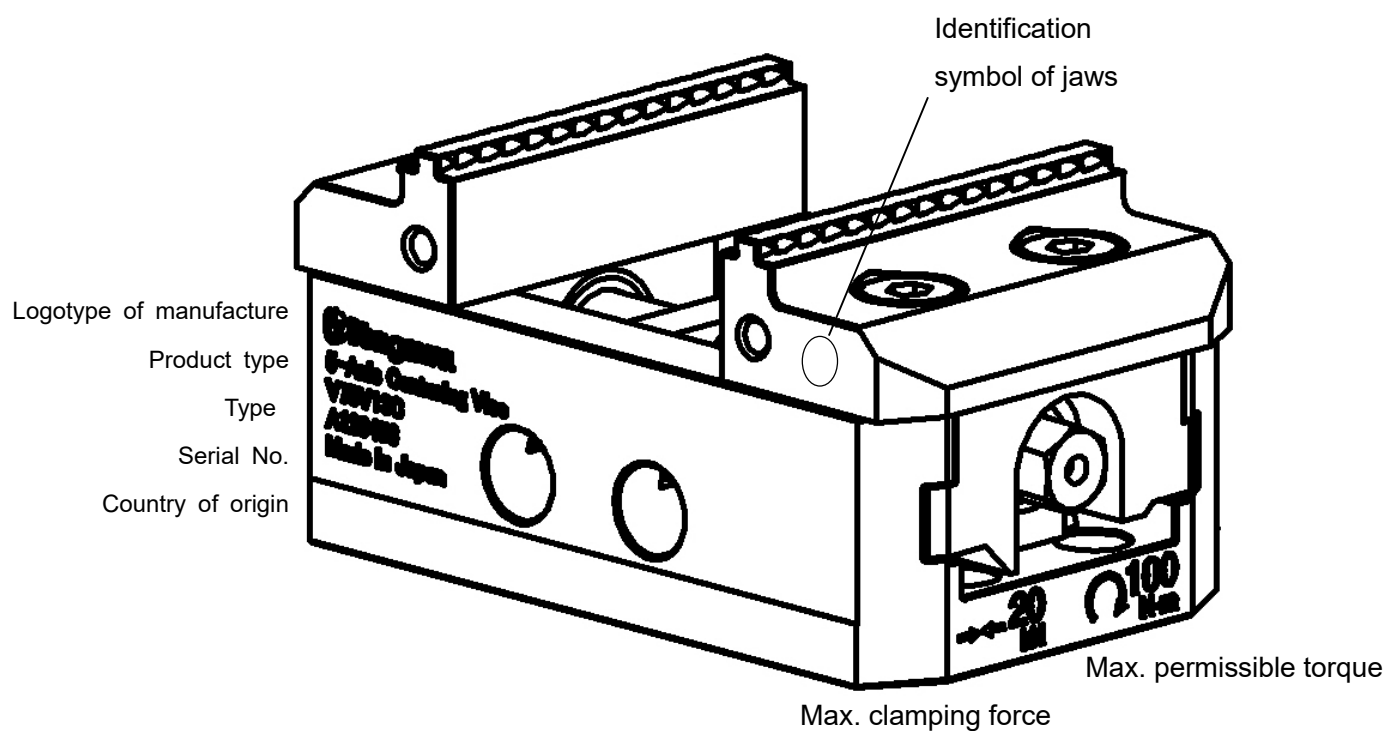


Figure 7 Marking

7.2. Disposal

Dispose of this unit in accordance with the laws and regulations of your country.

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