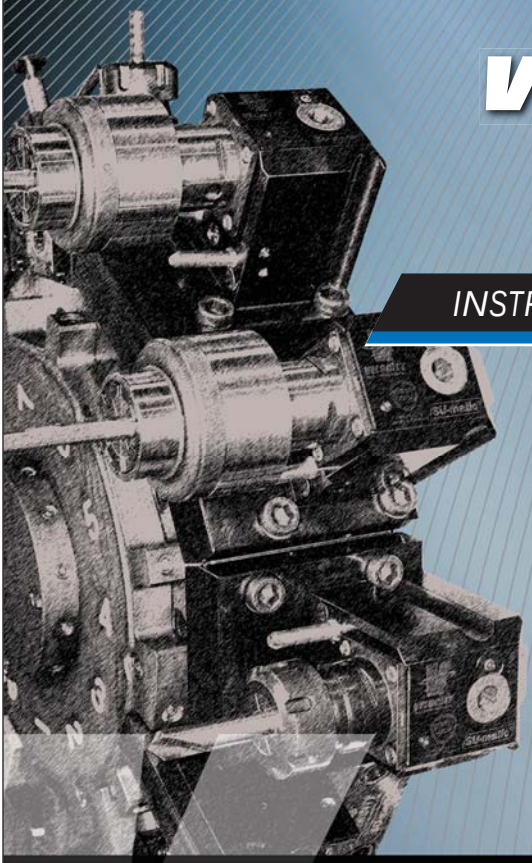
ONLY FOR OKUMA

July 2020

VELOCITY SU-matic®

INSTRUCTION MANUAL



VELOCITY
VELOCITYPRODUCTS.COM

THINC PARTNERS

A Complete Lineup of In-Stock Lathe Tooling for Okuma • Three Year Warranty

VELOCITY / SU-matic Tooling

- Velocity Tooling is designed, engineered, and manufactured in Switzerland and Italy by *SU-matic* - a worldwide leader in tooling technology.
- *SU-matic* is the only lathe tooling manufacturer that focuses almost exclusively on Okuma tooling.
- *VELOCITY / SU-matic* tooling is designed to give years of service under the most demanding applications. The build quality of our tool holders allows us to back them with an unconditional ***Three Year Factory Warranty***. If you have any questions concerning *VELOCITY / SU-matic* tools, please call 256-258-5549.

VELOCITY / SU-matic General Information

- *VELOCITY / SU-matic* tools are delivered ready to use. All driven tools are run-in at the factory and internal coolant tools are pressure tested as a final quality check prior to shipment.
- *VELOCITY / SU-matic* driven tools are CMM inspected and serialized records are kept on file.
- All *VELOCITY / SU-matic* axial driven tools have the center height of the output etched on the tool to allow for quick set-up.

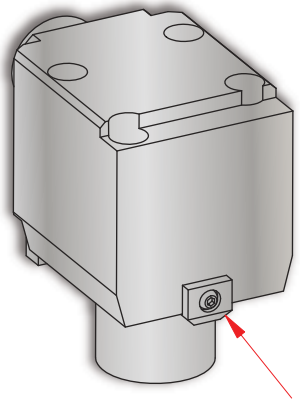
VELOCITY / SU-matic General Procedures

- Check the tool to make sure it was not damaged in shipping.
- Clean the turret and the tool mounting surfaces.
- Lightly grease the turret and the tool mounting surfaces.

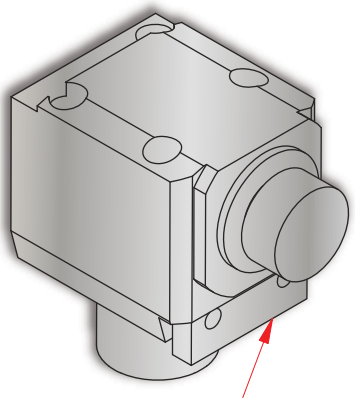
VELOCITY / SU-matic LB2000M, LB3000M, LB4000M, LU3000M, LU4000M, MULTUS U3000, MULTUS U4000, LT3000 Driven Tool Installation

Please consult the **Okuma Operation & Maintenance Manual** prior to mounting tools.

LB-Series M-turret, LU-Series M-turret, MULTUS U-Series, and LT3000 driven tools use a front reference plate that is precision ground at the factory to align the tool output to the Z-axis. A spring loaded back mounting plate fixes the tool in position while the mounting bolts are tightened.



Spring Loaded Back Mounting Plate



Front Reference Plate

VELOCITY / SU-matic LB2000M, LB3000M, LB4000M, LU3000M, LU4000M, MULTUS U3000, MULTUS U4000, LT3000 Driven Tool Installation

1) Loosen the bolt on the back mounting plate on the tool.

2) Place the tool in the turret station two positions above the machining station and install tool mounting bolts - do not tighten mounting bolts yet.

3) Push tool from the front to firmly position the front reference plate against the front of the turret face.

4) Firmly tighten the back mounting plate at the rear of the tool against the back face of the turret.

5) Lightly tighten the ***rear mounting bolts first***, then lightly tighten the front mounting bolts.

6) Firmly tighten the ***rear mounting bolts first***, then firmly tighten the front mounting bolts.

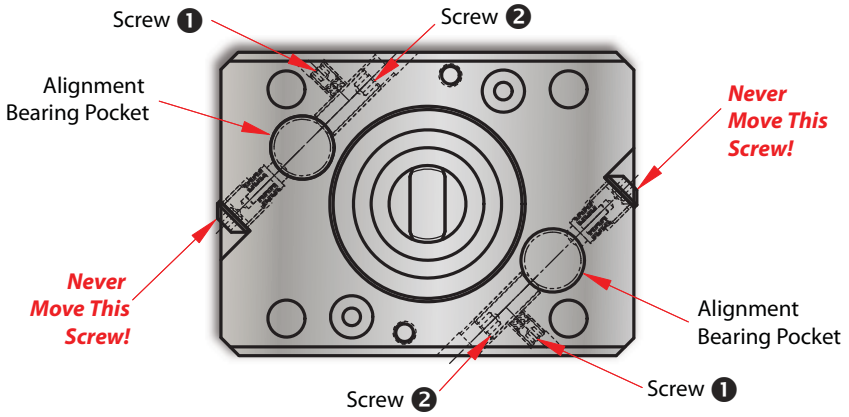
7) Check tool alignment by indicating either the alignment surface on the side of the tool, or indicating a test bar inserted into the tool collet.

8) For further information, please consult the Okuma Operation and Maintenance Manual.

VELOCITY / SU-matic LT2000 Installation

Please consult the **Okuma Operation & Maintenance Manual** prior to mounting tools.

LT2000 driven tools are pre-set at the factory to align the tool output with the Z-Axis.



Tools are pre-aligned at the factory. If any adjustments are required, Loosen screws ❶, then adjust screws ❷.

1) Place the tool in the turret station three positions above the machining station.

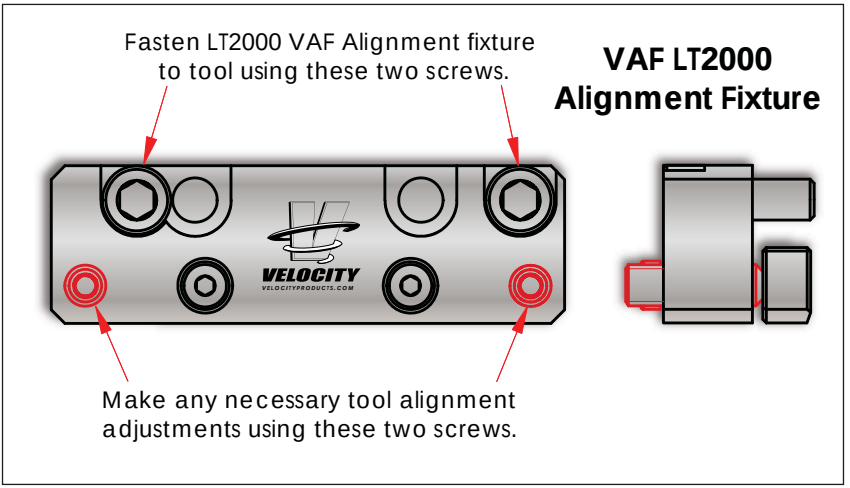
2) Tighten tool mounting bolts in a diagonal sequence starting with bolt closest to the alignment bearing.

3) Check tool alignment by indicating either the alignment surface on the side of the tool, or indicating a test bar inserted into the tool collet.

4) If minor adjustments are required, fasten the Velocity LT2000 VAF Alignment Fixture to the front or back of the tool as shown on the following page.

VELOCITY / SU-matic LT2000 Tool Installation

LT2000 VAF Alignment Fixture



5) Loosen the tool mounting bolts, then align tool to the Z-Axis using the screws shown in red above.

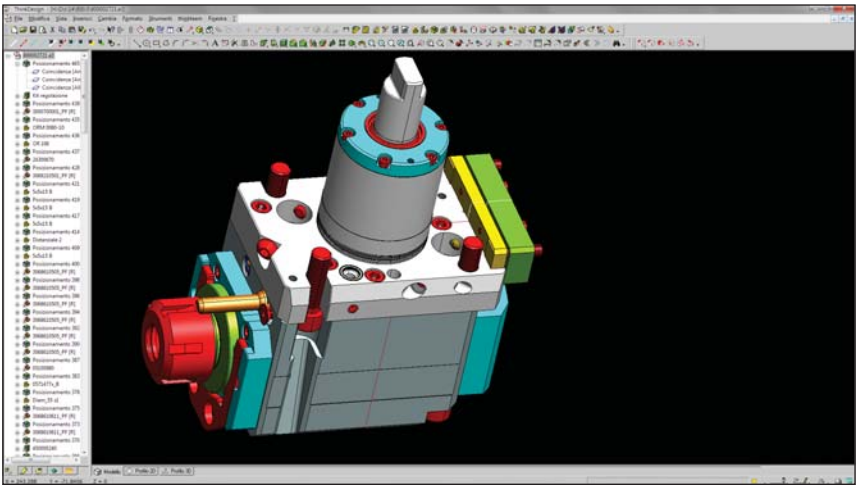
6) If there is not enough play to allow alignment, loosen screw ❶ on the previous page, then loosen screw ❷, then align tool using the screws shown in red above.

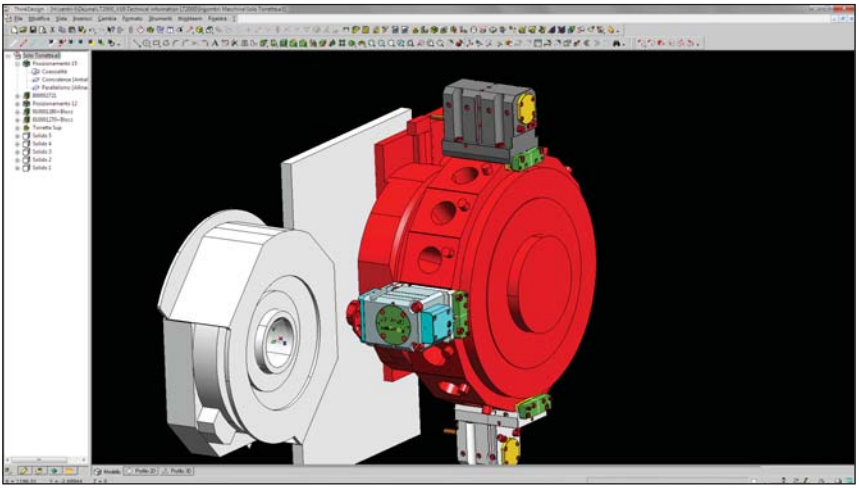
7) Firmly tighten mounting bolts.

8) Remove VAF fixture from tool and use on other LT2000 tools as needed.

VELOCITY / SU-matic LT2000 Tool Installation

LT2000 VAF Alignment Fixture





VELOCITY / SU-matic Coolant Tool Instructions

- All *VELOCITY / SU-matic* internal coolant tools require 30 micron coolant filtration nominal, 50 micron coolant filtration absolute*.
- **Cross/Radial** coolant through tools cannot be run dry! Operating cross/radial coolant through tools without coolant will quickly damage tool seals and bearings*.
- **1,450 psi Face/Axial** coolant through tools ***are equipped with a switch on the back of the tool that allows the tool to be run dry***. This switch completely disengages the internal coolant seals from the tool spindle allowing the tool to be run dry without damaging the tool.

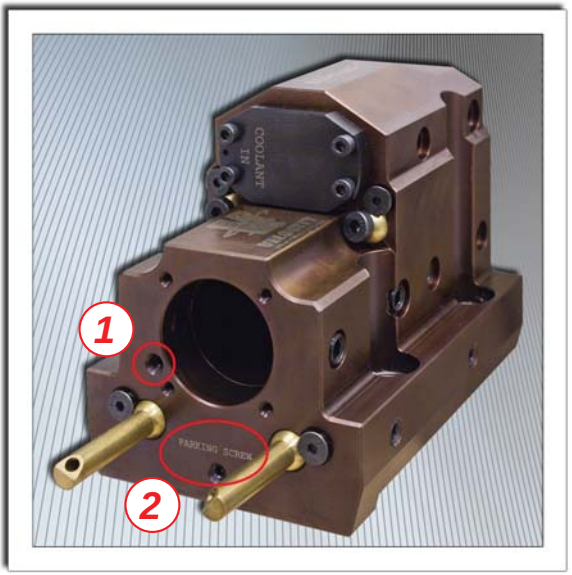
1,450 PSI high pressure axial internal coolant tool with switch on back of tool allowing for dry running operation.

1,450 PSI high pressure axial internal coolant tool with switch on front of tool for directing coolant flow between internal coolant and external coolant.

* Failure to use coolant filtration and internal coolant as described above voids the tool warranty.

VELOCITY / SU-matic Boring Bar Holders

• *VELOCITY / SU-matic* boring bar holders are shipped with coolant through plates installed. Extra nozzle plugs are included with the tool. If the tool is to be run with internal coolant only, replace the nozzles with the nozzle plugs. If the holder is to be run with external coolant only, remove the coolant plate and plug hole ❶ with the screw located in hole ❷ (labeled "Parking Screw"). The same procedure is used with both single and double boring bar holders. Certain *VELOCITY / SU-matic* boring bar holders are equipped with a switch to regulate the flow of coolant between internal and external nozzles.



VELOCITY / SU-matic Cutting Tool Installation

• A spindle locking wrench must always be used in conjunction with the collet nut wrench to ensure that the driven tool spindle is locked when installing cutting tools. Failure to use the spindle wrench could result in damage to the driven tool bearings and drive tang, and also to the turret.

VELOCITY / SU-matic Adjustable Tool Special Instructions

Please consult the **Okuma Operation & Maintenance Manual** prior to mounting tools.

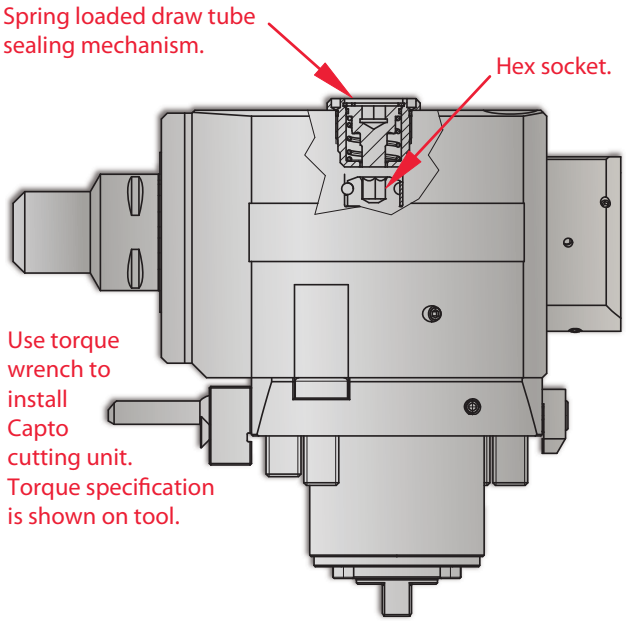
When an adjustable tool is used for milling, the maximum cutter diameter is 1/2 the maximum drill diameter for the tool.

VELOCITY / SU-matic Capto Tools

- *VELOCITY / SU-matic* Capto live tools use a SU-matic designed, sealed draw tube mechanism.
- All *VELOCITY / SU-matic* Capto tools are internal coolant and require 30 micron coolant filtration nominal, 50 micron coolant filtration absolute.

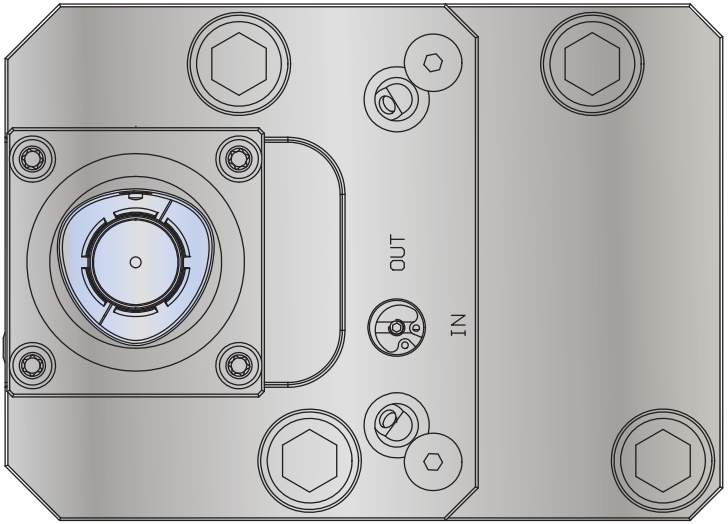
When installing a Capto cutting unit:

1) Set a torque wrench to the number specified on the tool.
2) Push down hard on the torque wrench to make sure the hex drive is fully engaged in the hex socket. Do not use a ball tipped hex drive as this may damage the Capto mechanism.
3) If the seal does not snap back when the torque wrench is removed, wiggle the Capto cutting unit and the seal will snap back into a closed position. The spring loaded seal must snap back into a closed position before the tool is run.



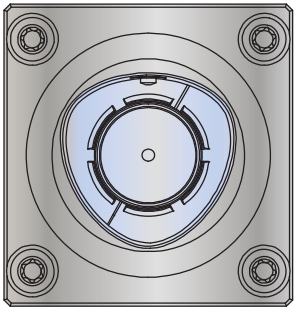
VELOCITY / SU-matic **Capto Tools**

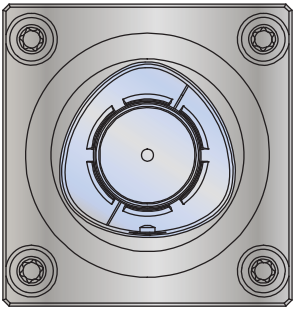
- *VELOCITY / SU-matic* Capto tools use a Sandvik Capto clamping unit installed in the "Right" orientation as standard. If the "Left" orientation is required, the tool holder can be ordered in advance with "Left" orientation, or the clamping unit can be easily rotated by using a Sandvik CC-ET-01extracting tool (C4) and a C4-WDT-02 withdrawal tool. Please contact Velocity for assistance if clamping unit rotation is required.



Right Orientation

Left Orientation

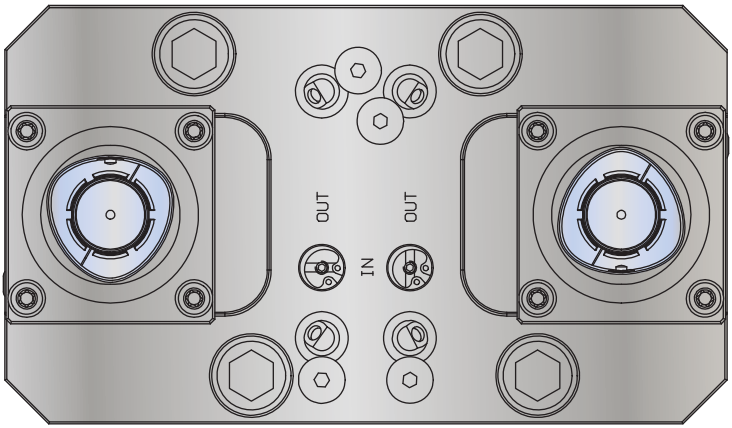




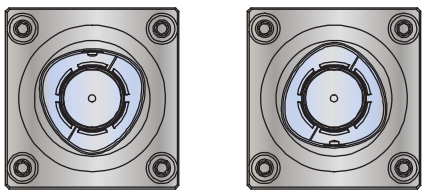
VELOCITY SU-matic®

VELOCITY / SU-matic **Capto Tools**

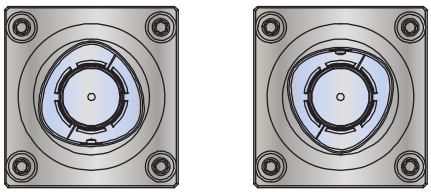
- The example below shows a main/sub spindle Capto OD holder. The orientation of the Capto clamping units can be adjusted so that the Capto cutting units are optimized for chip removal, insert maintenance, or uniformity of cutting units as shown on the next page. The "Right" orientation is standard.



Right Orientation



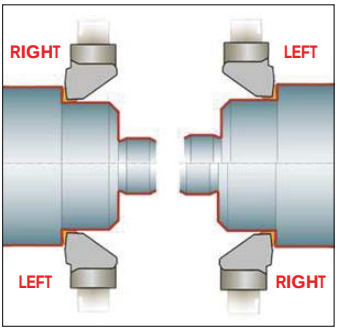
Left Orientation



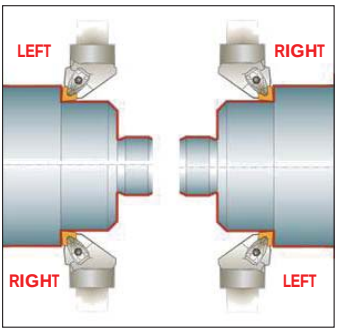
VELOCITY SU-matic®

VELOCITY / SU-matic **Capto Tools**

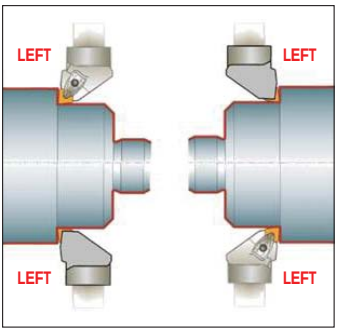
- The examples below show the options available on an Okuma LT2000 twin turret, main/sub spindle lathe for the orientation of the Capto clamping units on the tool holders, and also the choices available for the Capto cutting units.



- This example shows the Capto clamping units oriented on the tool holders for chip optimization. The Capto cutting units were chosen to ensure that the chips all drop in the same direction.



- This example shows the Capto clamping units oriented on the tool holders optimized for insert monitoring. The Capto cutting units were chosen so that the inserts are all facing the front of the machine.

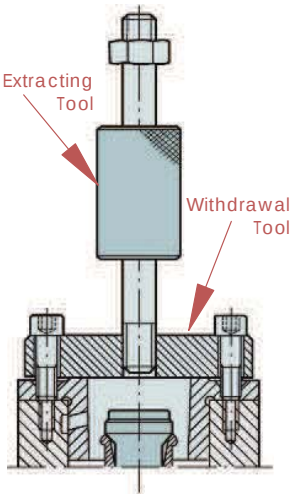


- This example shows the Capto clamping units oriented on the tool holders so that only one type of Capto cutting unit is required.

VELOCITY / SU-matic Capto Tools

- If the Capto clamping unit needs to be rotated, the proper extracting tool and withdrawal tool must be used.

Capto Size	Withdrawal Tool	Extracting Tool
C3	C3-WDT-01M	CC-ET-01
C4	C4-WDT-02	
C5	C5-WDT-02	CC-ET-02
C6	C6-WDT-02	
C8	C8-WDT-02	



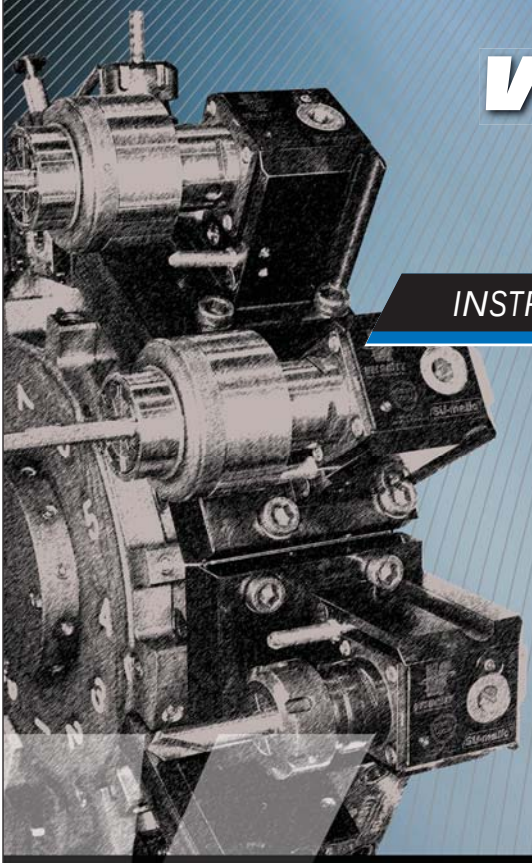
Capto Clamping Unit Rotation Instructions

- Clean the CC sleeve and the cavity in the CC clamping unit.
- Slightly grease the external diameter of the CC sleeve.
- Carefully replace the sleeve (indexed 180° from the previous position) into the cavity. Gently tap down on the CC sleeve and positioning pins until the CC sleeve reaches the face of the CC clamping unit housing.
- Lock the CC sleeve with (4) Torx screws.

ONLY FOR
OKUMA

VELOCITY
SU-matic®

INSTRUCTION MANUAL



VELOCITY
VELOCITYPRODUCTS.COM

THINC PARTNERS

A Complete Lineup of In-Stock Lathe Tooling for Okuma • Three Year Warranty*

Velocity Products • 350 Electronics Blvd, Huntsville, AL 35824 • 256-258-5549
www.velocityproducts.com • sales@velocityproducts.com

**Warranty voided if internal coolant tools are used without coolant and coolant filtration. Exceeding specified maximum cutting tool sizes voids warranty.*