# Boost Master
# Instruction Manual

**BMA**

Thank you very much for purchasing NT products. This instruction manual provides the description of the correct usage and precautionary remarks on handling. Read this manual thoroughly and use the product in the correct manner.

## Safety Instructions

To use the product correctly for your safety and to avoid hazardous conditions and property damages, this instruction manual provides various safety information and warning.

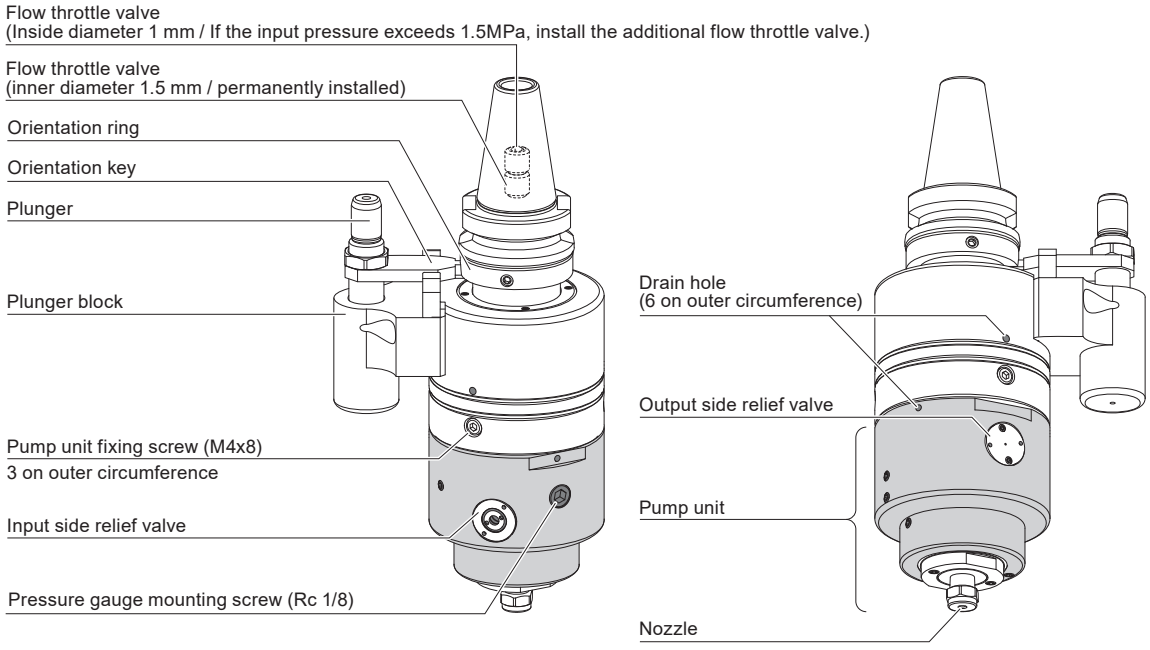
### ⚠ WARNING
**Indicates hazardous conditions that, if not followed,could result in death or serious injury.**

- Please install all parts correctly
  Failure to do so may cause the parts or components to drop or fly off during operation, resulting in injury.
- Mount the Boost Master to the M/C correctly.
  Follow the description in the instruction manual of the M/C. Failure to do so may cause the Boost Master to drop or fly off during machine operation, and may consequently cause injury.
- If there is abnormal heat generation, abnormal noise generation, or increased vibration, stop the machine center immediately.
  For repair, contact your nearest dealer or NT TOOL.
- Do not use the machine without running coolant.
  Operating without running coolant may cause the internal seal to heat up, causing damage to the holder, burns, or fire.
- Do not disassemble or modify the product.
  This product is designed and constructed to meet the specifications of the machine in which it is used. Unnecessary disassembly or modification may cause malfunction.

### ⚠ CAUTION
**Indicates hazardous conditions that, if not faithfullyfollowed, may result in injury or property damages.**

- Do not touch the product while it is in operation.
  Do not attach or detach this product until you confirm that operation and coolant discharge have completely stopped. Touching the product while it is operating may cause injury if you get caught.
- Do not touch the discharged coolant.
  Coolant discharged from the nozzle is under high pressure and direct contact may cause injury.
- Use protective covers and safety glasses/goggles during use.
  Chips may fly off causing injury.
- Do not apply force to the plunger for a long time when not in use. Doing so may reduce the life of the product.
- Do not adjust the relief valve.
  The relief valve is factory-set at 15 MPa. Adjusting the relief valve will change the set pressure and cause a drop in discharge pressure or a failure.
- Always use an input pressure of 7 MPa or less.
  If the input pressure exceeds 7 MPa, the pump may be damaged.
  *If the input pressure exceeds 1.5MPa, install the additional flow throttle valve (Included in the box).

## Part Names



## Boost Master Specifications

### Recommended Operating Conditions

| | | |
|---|---|---|
| Input (M/C output) | Recommended operating speed*1 | 6,000min$^{-1}$ |
| | Coolant filtration filter | 10μm or less recommended |

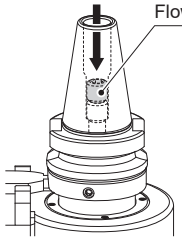
*1 Maximum operating speed is up to 8,000min$^{-1}$.
Oil skimmer or other oil removal equipment is recommended.

### Specifications (standard specs)

| | | |
|---|---|---|
| Input (M/C output) | Coolant input pressure | 7 MPa or less |
| | Coolant inflow rate | 3 l/min or more |
| | Coolant temperature | 40°C or less |
| Output | Maximum coolant discharge pressure | 15MPa |
| | Discharge flow rate (at 15MPa) | 1.23L/min |
| | Standard nozzle hole diameter | 0.4mm |
| Other specifications | Pump unit life | 250h |
| | Coolant used | Water soluble only (dilution concentration 10% or less) |

Do not use under conditions other than those specified. Damage to the holder may occur.

If the coolant input pressure exceeds 1.5 MPa, install the second flow throttle valve (included) (inner diameter 1 mm) from the shank side and tighten until the wrench stops turning.

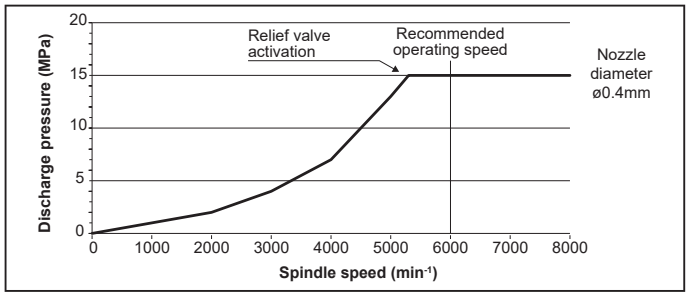



| interface | wrench size | screw size |
|---|---|---|
| BT30~50, WBT30~50 | M10 P=1.5 | 5.0 |
| HSK50A, HSK63A | M 5 P=0.8 | 2.5 |
| HSK100A | M10 P=1.5 | 5.0 |
| UTS6350(High pressure) | M 5 P=0.8 | 2.5 |
| SK40,50 | M10 P=1.5 | 5.0 |
| CAT40,50 | M10 P=1.5 | 5.0 |

*The low pressure UTS6350 does not come with a flow throttle valve.

Do not use on materials that generate fine dust when cutting. (Quartz glass, ceramic, magnesium, carbon, graphite, etc.) Using in an environment where fine dust is generated may significantly reduce the product's lifespan.

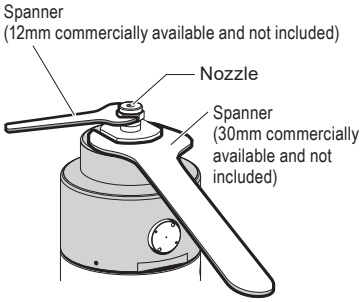
**Correlation between spindle speed and coolant discharge pressure**



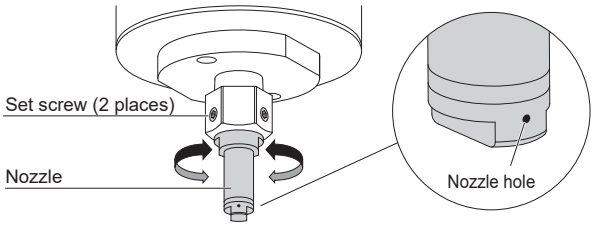

## How to replace the nozzle

When replacing the nozzle, use a wrench to stop the nozzle from turning.

When using a non-standard nozzle, note that a change in the nozzle shape will change the discharge characteristics.




## Adjusting the discharge direction of the 90° nozzle (sold separately)




Adjusting the discharge direction of the 90° nozzle (sold separately)
The direction of coolant discharge for the 90° nozzle (sold separately) can be adjusted by loosening the set screw (2 places) on the nozzle body with a 2.5 mm hex wrench.

Do not pull out the set screw.
They can easily be lost.

After adjustment, be sure to tighten the set screw (2 places) on the nozzle body.

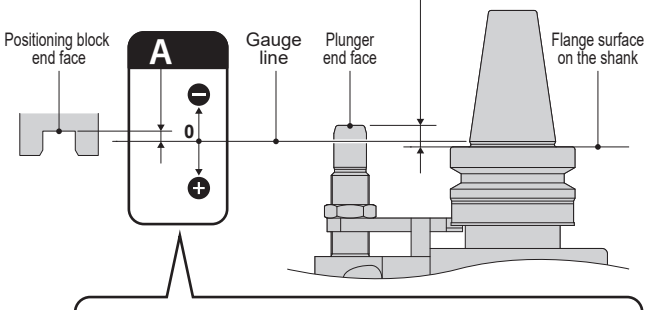
## Adjustment of plunger protrusion length (L1 dimension)

Adjust the position of the plunger end face of this product according to the positioning block mounted on the M/C to be used.

1. Calculate dimension L1, the distance from the flange surface on the shank to the plunger end face, from dimension A of the positioning block.

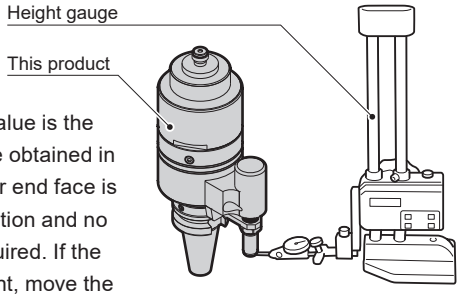
   Dimension A: Distance from gauge line to the inner surface of the positioning block.
   Dimension L1: Distance from the flange surface on the shank to plunger end face

**L1**
**BT30 : A-7 ㎜ / BT40 : A-8 ㎜ / BT50 : A-9 ㎜**
**WBT30 : A-6 ㎜ / WBT40 : A-7 ㎜ / WBT50 : A-7.5 ㎜**
**HSK50A : A-5 ㎜ / HSK63A : A-6 ㎜ / HSK100A : A-6 ㎜**
**UTS6350：A-6 ㎜ / SK40,50：A-9.2 ㎜ / CAT40,50：A-9.175 ㎜**



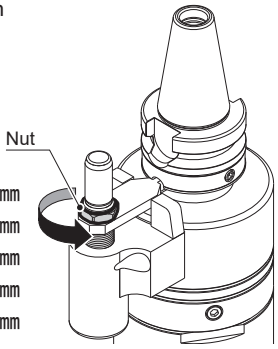

The value of dimension A is
plus (+) when the plunger end face is on the work side and minus (-) when the plunger end face is on the shank side, with the gauge line as the reference (0).

2. Use a height gauge to measure the distance (L1) from the end face of the shank flange to the end face of the plunger.




If the measured value is the same as the value obtained in step 1, the plunger end face is in the correct position and no adjustment is required. If the values are different, move the plunger end face to the correct position by following the steps below.

3. Loosen the nut of the plunger section with a wrench.



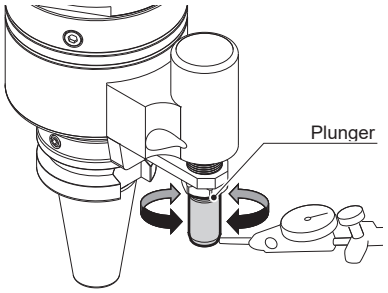

Spanner size list

| | |
|---|---|
| BT30, WBT30, HSK50A | Width 17㎜ |
| BT40~50, WBT40~50 | Width 24㎜ |
| HSK63A, HSK100A | Width 24㎜ |
| UTS6350, SK40~50 | Width 24㎜ |
| CAT40~50 | Width 24㎜ |

4. Adjust the plunger by turning it while measuring with a height gauge so that the L1 dimension becomes the value obtained in step 1.

When measuring the L1 dimension, make sure that the orientation key is fitted in the R groove of the orientation ring.

When turning the plunger, if the thread is too tight, use pliers to turn the plunger.




5. Tighten the nut with a spanner to fix the plunger height in place.

Press the plunger with your finger to confirm that the plunger operates smoothly.

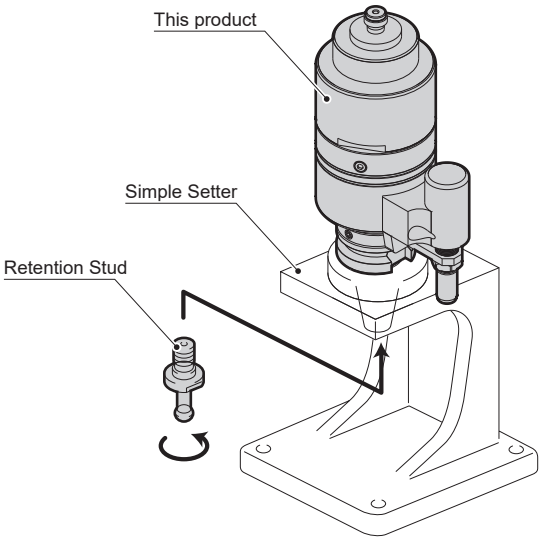
## Installation of retention studs（BT、WBT、SK、CAT）

1. Fix the Boost Master to a simple setter or other fastening jig.

2. Attach the retention stud to the Boost Master.

   • Select a retention stud that matches the specifications of the M/C spindle to be installed.

   • Refer to the instruction manual of the retention stud for detailed installation method.



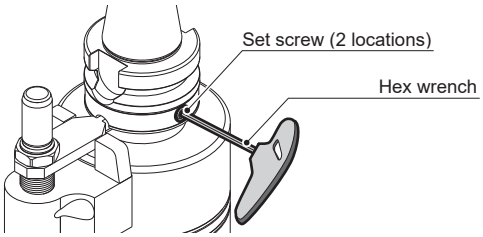

## Plunger angle adjustment

Align the drive key groove of the M/C spindle with the drive key of this product, and align the positioning block with the plunger.

1. Loosen the two set screw on the orientation ring with a 2.5 mm hex wrench outside the machine.

   Hex wrench size
   BT30~40, WBT30~40, HSK50A~100A, UTS, SK40, CAT40：2.5 ㎜
   BT50, WBT50, SK50, CAT50：3 ㎜

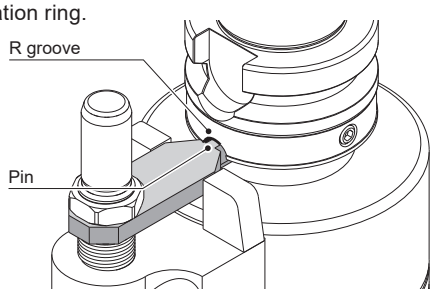
Do not pull out the set screw. They can easily be lost.




2. Clean the inside diameter taper of the M/C spindle and the shank taper of this product with a waste cloth.

Dust and oil may cause the product to come off.

3. Fit the pin part of the orientation key into the R groove of the orientation ring.



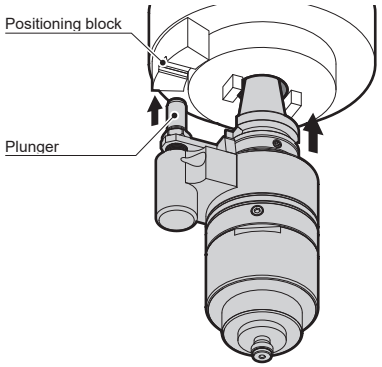

4. Orient the M/C spindle to the ATC position. Failure to do so may cause the drive key and positioning block to be out of alignment and the product may drop.

Be sure to perform the work in 4. If neglected, the position of the drive key and the positioning block may not match and the product may fall.

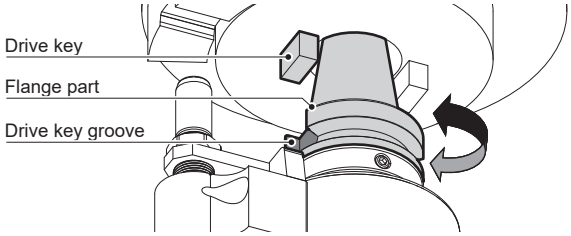
5. Align the plunger with the positioning block and insert the product into the spindle by hand.

At this point do not draw in the retention stud.

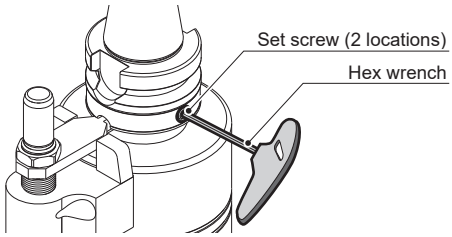
Be careful not to drop the product when installing it in the spindle.



6. Turn the flange by hand to fine-tune the spindle so that the drive key of the spindle fits into the drive key groove of the product.



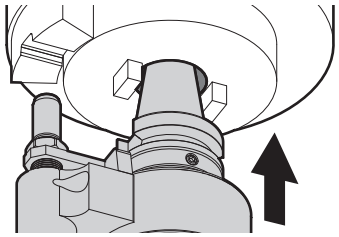

7. After making the adjustment, remove the product from the spindle and tighten the set screw (2 places) on the orientation ring with a 2.5mm hex wrench.




8. Manually insert the product into the spindle again and retract the retention stud.

! At this time, check that the drive key fits smoothly into the drive keyway and that the plunger fits correctly in the positioning block.

! Be careful not to drop the product when installing it into the spindle.



9. When the product is correctly set, check if the tool change can be done smoothly by ATC.

## Maintenance

**If the product will not be used for a long period of time**

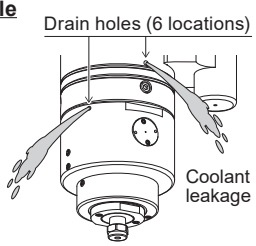
! Remove all dirt and moisture from the product in advance, and apply rust prevention oil to the outside of the product. Clean the inside of the product by air blow and do not allow rust-preventive oil inside the product. Storing the product with rust, oil film, dust, etc. remaining on the product may cause sticking, resulting in malfunction.

**When reusing after long-term storage**

! Before use, press the plunger with your finger to make sure it works smoothly.

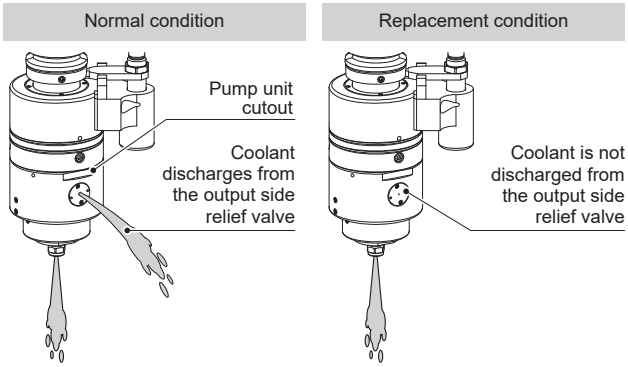
**When coolant leaks from the drain hole**

Replace the pump unit because the seal in the pump unit is worn out.




**When coolant stops discharging from the output side relief valve**

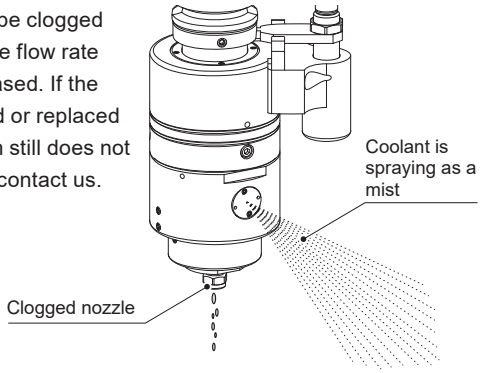
The discharge capacity of the pump has dropped to less than 15MPa, so replace the pump unit.




! The output side relief valve is located directly below the pump unit cutout. Be careful not to mistake it for the input side relief valve.

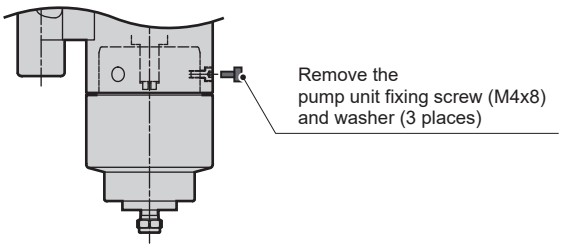
**When the coolant discharages as a mist**

The nozzle may be clogged and the discharge flow rate may have decreased. If the nozzle is cleaned or replaced and the symptom still does not improve, please contact us.

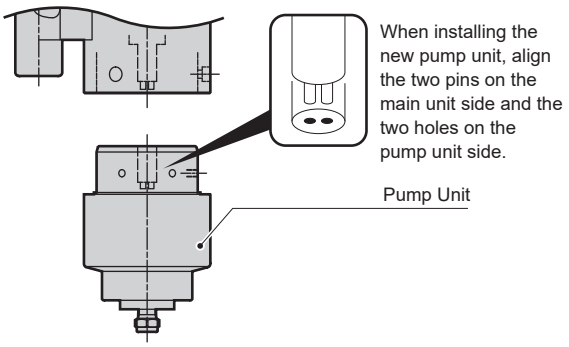



## Pump unit replacement procedure

1. Remove the pump unit fixing screw (M4x8) and washer.




2. Remove the pump unit and replace it with a new one.




3. After reinstalling all three screws removed in step 1, the replacement is complete.
*Recommended tightening torque 6.0Nm

! When using the pump unit for the first time after replacement, start with a low rpm and gradually increase the rpm.