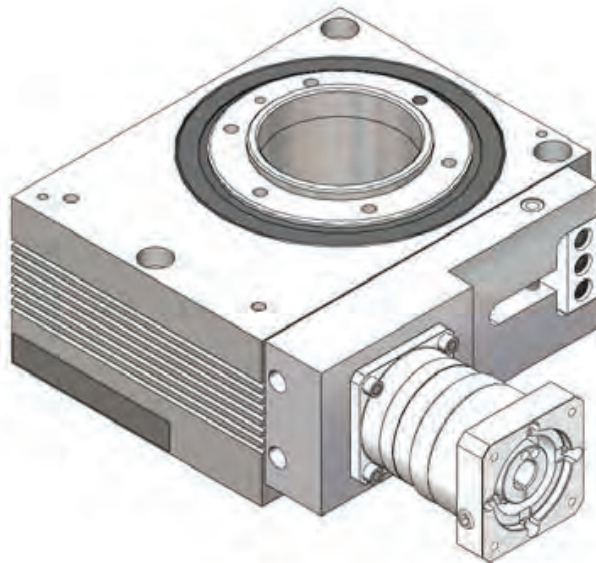


Nidec

Ultra-High Precision Indexer

STR-Series

Reducer Installation Manual



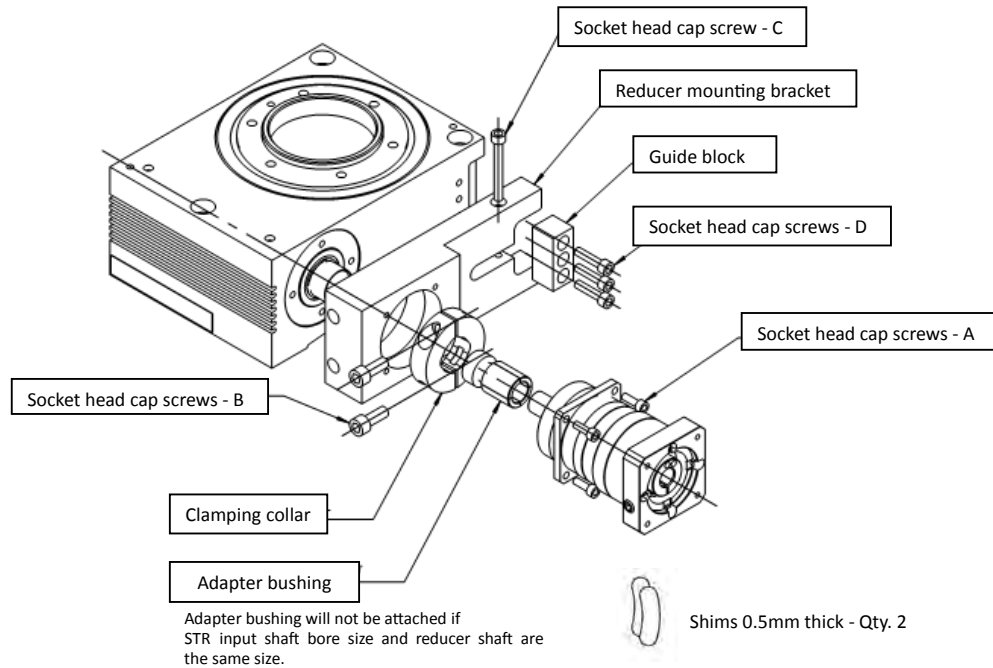
NIDEC DRIVE TECHNOLOGY CORPORATION

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1. STR exploded view

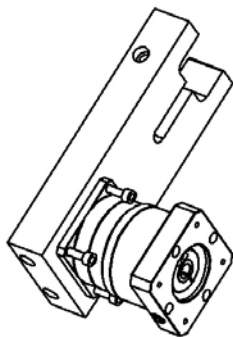
Parts which are shown in the following drawing are attached with STR unit. (Reducer may or may not be included.)



2. Reducer installation

Reducer must be installed correctly to insure trouble free operation of the Rotary Indexer. Please follow the steps below when mounting the reducer for the best operation of your STR unit. If the STR input shaft bore size and reducer shaft size are the same size, an adapter busing is not needed. If so, step 3 on page 3 can be skipped.

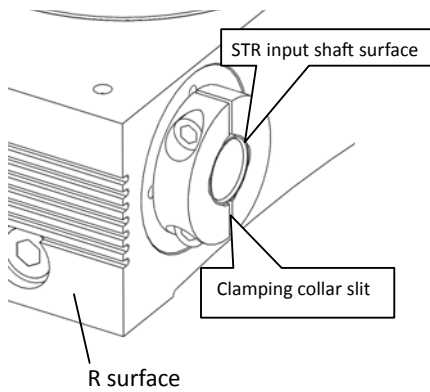
1. Install reducer to reducer mounting bracket



- Install reducer to reducer mounting bracket.
- Apply LOCTITE 243 (or equivalent) to screws-A.
- Tighten screws-A.

(See table 2 on page.8-9 for tightening torque)

2. Clamp STR input shaft temporarily by clamping collar. (Do not tighten screws -B in this step.)



- Apply LOCTITE 243 (or equivalent) to screws-B.
- Insert clamping collar to STR input shaft and align with shoulder.
(See "Important!" below.)

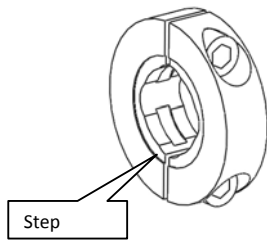
Important !

- STR040: STR040: does not have shoulder on input shaft. Align Clamping collar surface and STR040 input shaft surface with caution.
- STR063 Insert clamping collar to STR063 input shaft to the shoulder.

Clamping collar for STR080, 100 and 125 has "Step" which is showed in the figure on the left.

- STR080 Insert clamping collar with the "Step" toward the STR080 housing.
- STR100, 125 : Insert clamping collar with the "Step" toward Reducer and motor.

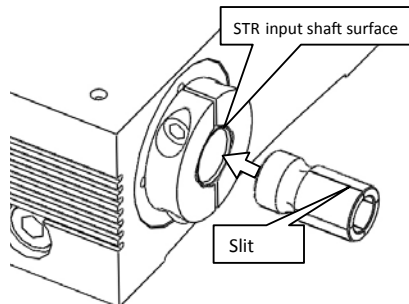
If the clamping collar is oriented incorrectly, it may hit the STR housing or reducer.



- Tighten screws-B temporarily in several stages evenly to make same clearance of slit on clamping collar.

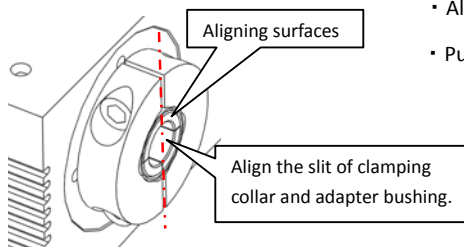
When tighten screws temporarily, the socket head should face STR housing R surface side. (See left figure.)

3. Insert adapter bushing into STR input hollow shaft



- Apply turbine oil lightly onto adapter bushing O.D.
- Insert adapter collar from no slit side into STR input hollow shaft.
Do not insert adapter bushing slit side first.

Caution: Do not use molybdenum disulfide oil or EP additive oil or grease. These may cause slippage of the shaft. Do not insert adapter bushing slit side first.



- Align the slit of clamping collar and adapter bushing.
- Push in adapter bushing to STR hollow shaft and align ends.

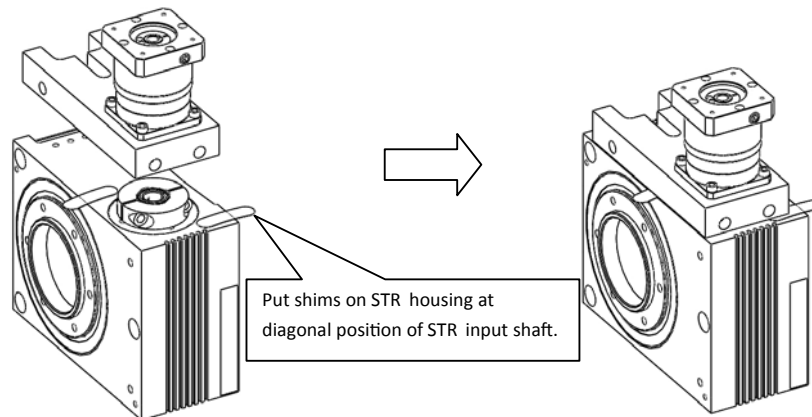
Caution: If the slits of both parts are not aligned, the clamping collar may not have sufficient transfer torque.

4. Insert reducer output shaft to STR input shaft

- Apply turbine oil lightly onto reducer output shaft.

**Caution: Do not use molybdenum disulfide oil or EP additive oil or grease.
(These may cause slippage of the shaft.)**

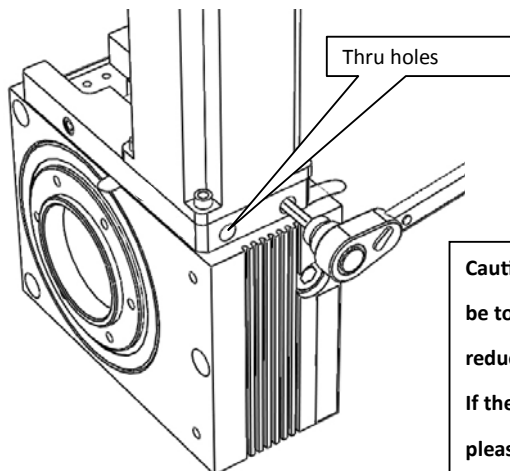
- Put 0.5mm thick shims between STR housing and reducer mounting bracket to make clearance between them.
(Place shims diagonally to make the clearance even.)



5. Tighten screws-B for clamping collar

- Tighten screws-B in several stages evenly. (See table 2 on page.8-9 for tightening torque)

Tighten screws-B in several stages evenly. At the end, tighten screws to specified tightening torque



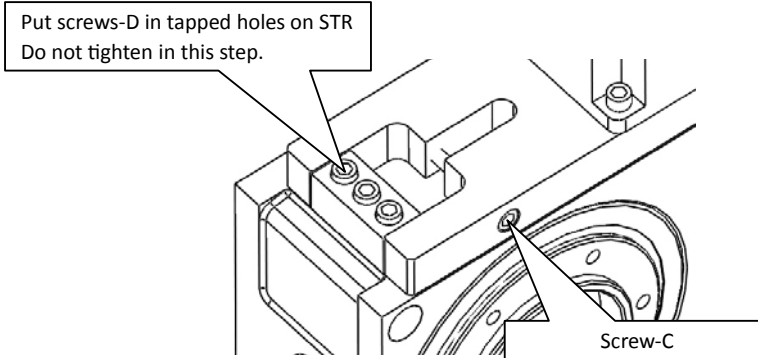
Caution: if screws-B are not tightened evenly, there may be too much run-out between STR input shaft and reducer.

If there is vibration during operation with servo motor, please follow "3. Reducer removal" and start over the installation if necessary.

- Remove two shims after tighten screws-B.

6. Tighten screw-C for clamping the guide block

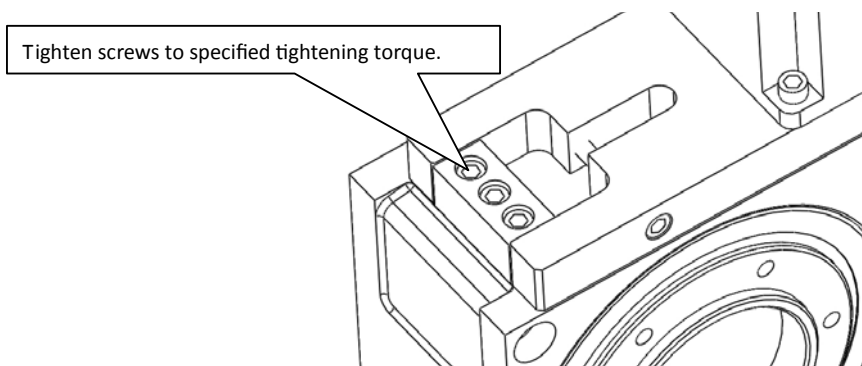
- Insert the guide block into the reducer mounting bracket slot.
- Apply LOCTITE 243(or equivalent) to screws-D and put them in tapped holes on STR.
Do not tighten screws-D in this step.
- Apply LOCTITE 243(or equivalent) to screw-C.
- Tighten screw-C. (See table 2 on page.8-9 for tightening torque)



Caution: If the guide block was fixed (tightened screws-D) before tightening screw-C, STR input bearings and also reducer bearings will have some stress by this incorrect installation. It may reduce the bearings life.

7. Tightening screws-D to fix guide block to STR housing

- Tighten screws-D. (See table 2 on page.8-9 for tightening torque)



Caution: Guide block is made of resin. Do not over torque when tightening.

With the above steps, the reducer installation is complete.

If there is vibration during operation with a servo motor, there may be too much run-out between STR input shaft and reducer. Please follow "3.Reducer removal" and start over the installation if needed.

Tools for clamping collar

A hex bit socket is used to tighten (or loosen) screws-B for the clamping collar.

Follow Table 1 below to choose the correct tool size.

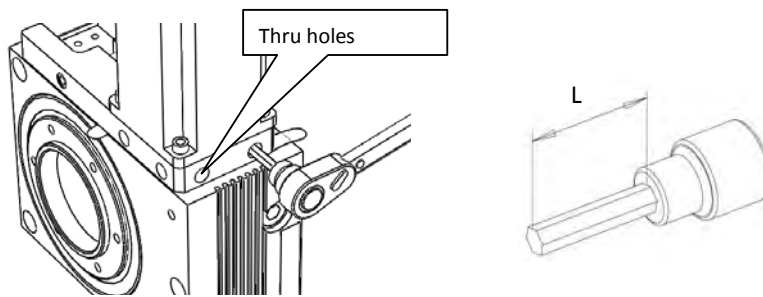


Table 1: Hex bit sockets

STR model	Screw size	Hex size	Thru hole size	Needed bit length L
STR040	M5	4mm	φ8.6	25
STR063	M6	5mm	φ11	30
STR080	M8	6mm	φ11	35
STR100 STR125	M10	8mm	φ14	55

Choose Hex bit socket which has bit length "L" equal or greater than number in table 1.

3. Reducer removal

Follow the steps below when you remove the reducer from STR.

1. If you can rotate the input shaft of the reducer

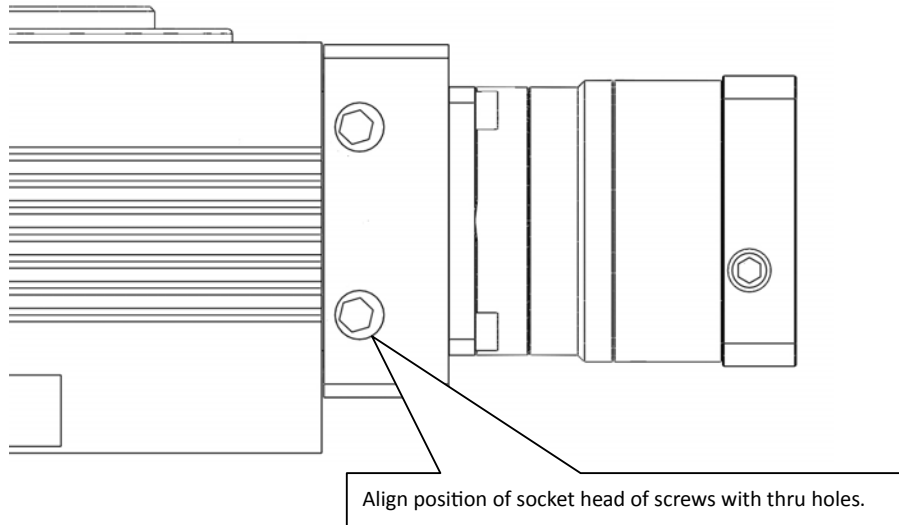
1. Match the position of thru holes of reducer mounting bracket with socket head of screws-B.
(Use JOG mode if motor can operate with controller)
2. Loosen screws-B in several stages evenly.
3. Remove screws-D from the guide block.
4. Remove the reducer with the reducer mounting bracket from STR.

2. If you cannot rotate the input shaft of reducer

1. Remove screws-D from the guide block.
2. Rotate the reducer mounting bracket to mate the position of thru holes with socket head of screws-B.
3. Loosen screws-B in several stages evenly.
4. Remove the reducer with the reducer mounting bracket from STR.

3. If you cannot rotate the input shaft of reducer and cannot rotate the reducer mounting bracket

1. Rotate STR output table by hand (or with hand tools) to rotate the clamping collar on STR input shaft.
2. Match the position of thru holes of reducer mounting bracket with socket head of screws-B.
3. Loosen screws-B in several stages evenly.
4. Remove screws-D from the guide block.
5. Remove the reducer with the reducer mounting bracket from STR.



4. Screws

Table 2 shows socket head cap screws for STR series.

Apply LOCTITE 243 (or equivalent) to every screws and use a torque wrench with the tightening torque shown in table 2 when tightening screws.

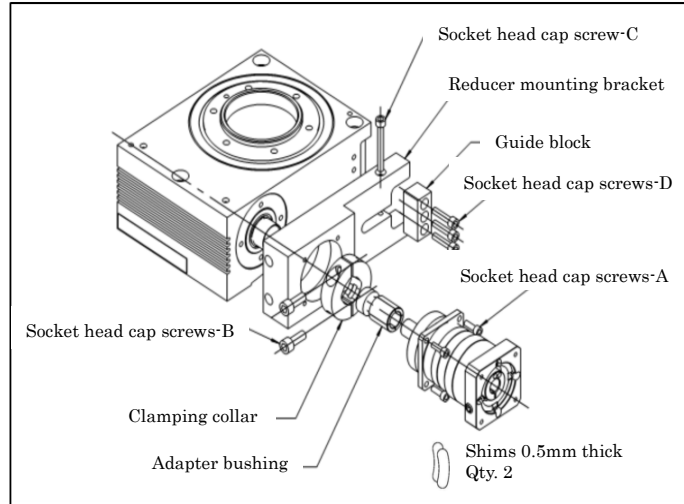


Table 2: Screws and tightening torque

STR model	Screw number		Screw size	Qty	Tightening torque
STR040	Socket head cap screws - A	For VRSF	M5×30	4	4.4 N-m
	Socket head cap screws - B		M5×15	2	8.5 N-m
	Socket head cap screw - C		M6×35	1	4.0 N-m
	Socket head cap screws - D		M5×20	2	2.0 N-m
STR063	Socket head cap screws - A	For VRS	M5×15	4	4.4 N-m
		For VRB	M5×15	4	4.4 N-m
		For VRGS	M5×18	4	4.4 N-m
		For VRSF	M5×18	4	4.4 N-m
	Socket head cap screws - B		M6×18	2	14.0 N-m
	Socket head cap screw - C		M6×40	1	6.0 N-m
	Socket head cap screws - D		M5×20	3	2.0 N-m
STR080	Socket head cap screws - A	For VRS	M5×15	4	4.4 N-m
		For VRB	M5×15	4	4.4 N-m
		For VRGS	M5×18	4	4.4 N-m
		For VRSF	M6×25	4	7.5 N-m
	Socket head cap screws - B		M8×20	2	35.0 N-m
	Socket head cap screw - C		M6×50	1	7.0 N-m
	Socket head cap screws - D		M6×25	3	3.0 N-m

STR100	Socket head cap screws - A	For VRS	M6×18	4	7.5 N-m
		For VRB	M6×18	4	7.5 N-m
		For VRGS	M8×25	4	18.5 N-m
		For VRSF	M8×50	4	18.5 N-m
	Socket head cap screws – B		M10×30	2	69.0 N-m
	Socket head cap screw – C		M8×60	1	12.0 N-m
	Socket head cap screws – D		M8×30	3	6.0 N-m
STR125	Socket head cap screws - A	For VRS	M6×18	4	7.5 N-m
		For VRB	M6×18	4	7.5 N-m
		For VRGS	M8×25	4	18.5 N-m
		For VRSF	M8×50	4	18.5 N-m
	Socket head cap screws - B		M10×30	2	69.0 N-m
	Socket head cap screw - C		M8×60	1	12.0 N-m
	Socket head cap screws - D		M8×30	3	6.0 N-m

5. Tightening torque (for reference)

The following table 3 and table 4 show prescribed tightening torque of screws.

Table 3: Tightening torque (Material: Aluminum)

Metric screw size	Prescribed tightening torque (Class 6.8)
M4	2.1 N-m
M5	4.4 N-m
M6	7.5 N-m
M8	18.5 N-m
M10	36.0 N-m

Table 4: Tightening torque (Material: Steel)

Metric screw size	Prescribed tightening torque (Class 10.9)
M4	4.1 N-m
M5	8.5 N-m
M6	14.0 N-m
M8	35.0 N-m
M10	69.0 N-m

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