



# Installation & Operating Manual for 5C Air Collet Closer & Collet Nose



SNK GT-27

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## 1.0 CONTACT & SERVICE INFORMATION

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Service in Asia:	Dynamic Tools Corp. 3-3-13 Saikujo-cho Nara 630 Japan Tel: 81-742-62-6760 Fax: 81-742-62-6766 E-mail: <a href="mailto:dynex@earth.email.ne.jp">dynex@earth.email.ne.jp</a>

## 2.0 INTRODUCTION

MicroCentric Air Collet Closers and 5C Collet Noses are produced to the highest standards of precision and accuracy. The Air Collet Closer is an advanced design which features a precision rotary air bearing. If this unit is correctly installed and properly maintained, it will provide years of trouble free operation and performance.

The information in this manual, if followed, will enable you to obtain maximum performance and life from MicroCentric air collet closers and collet noses. Please keep this manual handy for easy reference.



### **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 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.



**DANGER**

**Indicates an imminent hazardous condition which, if not avoided, could result in serious injury or death.**



**WARNING**

**Indicates a potentially hazardous condition which, if not avoided, could result in serious injury or death.**




**CAUTION**


**Indicates a potentially hazardous condition which, if not avoided, could result in minor or moderate injury.**


**IMPORTANT**


**Instructions for optimum performance and avoiding errors or misuse of the chuck or cylinder.**

### 3.0 PRECAUTIONS FOR SAFE OPERATION OF THE COLLET CLOSER

 <b>WARNING</b>	
<b>Do not run the collet closer without supplying air pressure to the rotary air bearing assembly.</b>	The rotary air bearing will run hot, which over a period of time can damage the ball bearings and lead to potential seizure of the assembly.

 <b>DANGER</b>	
<b>Always supply dry, clean (filtered), and lubricated air to actuate the collet closer.</b>	Supplying clean, lubricated air to the collet closer prevents contamination which could lead to seizure of the rotary air bearing assembly.

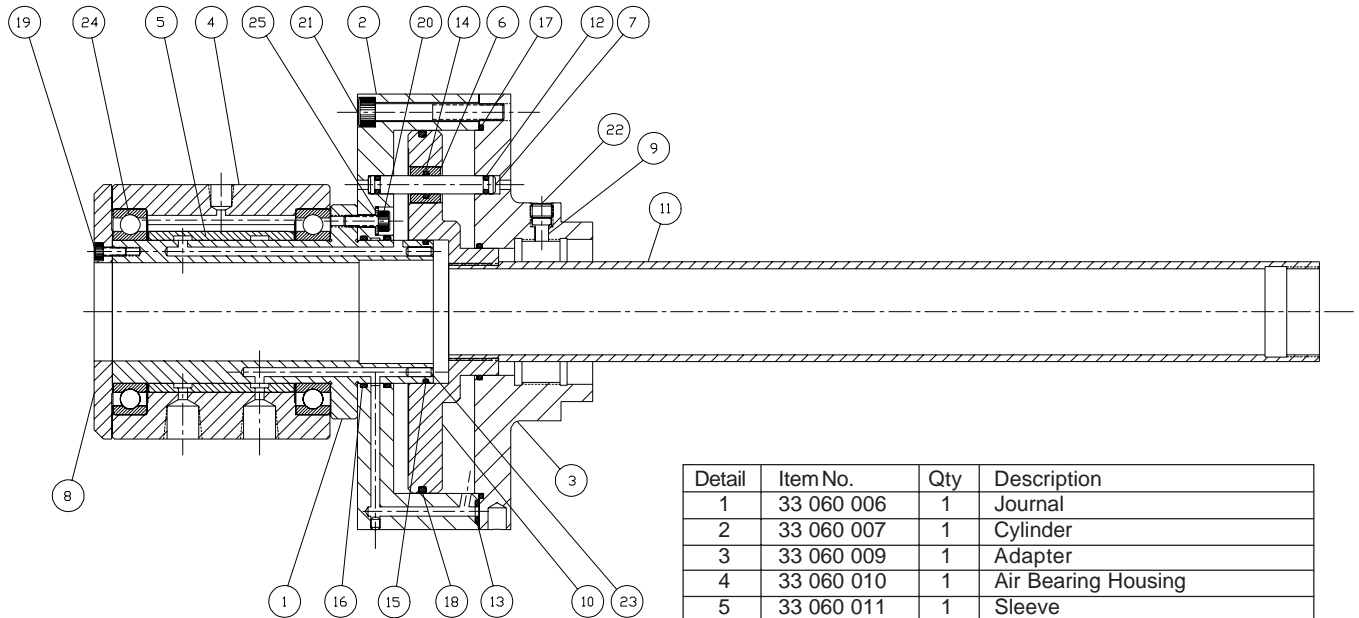
 <b>WARNING</b>	
<b>Do not run the collet closer without supplying lubrication to the rotary air bearing assembly.</b>	A continuous oil mist must be supplied to the rotary air bearing assembly. Failure to do so will shorten the life of the ball bearings.

 <b>CAUTION</b>	
<b>When the machine has been sitting for a period of time, (i.e. overnight) run the spindle at 100 rpm for 5 minutes.</b>	Running the collet closer at high speeds when it is cold can damage the rotary air bearing assembly.

## 4.0 COLLET CLOSER SPECIFICATIONS

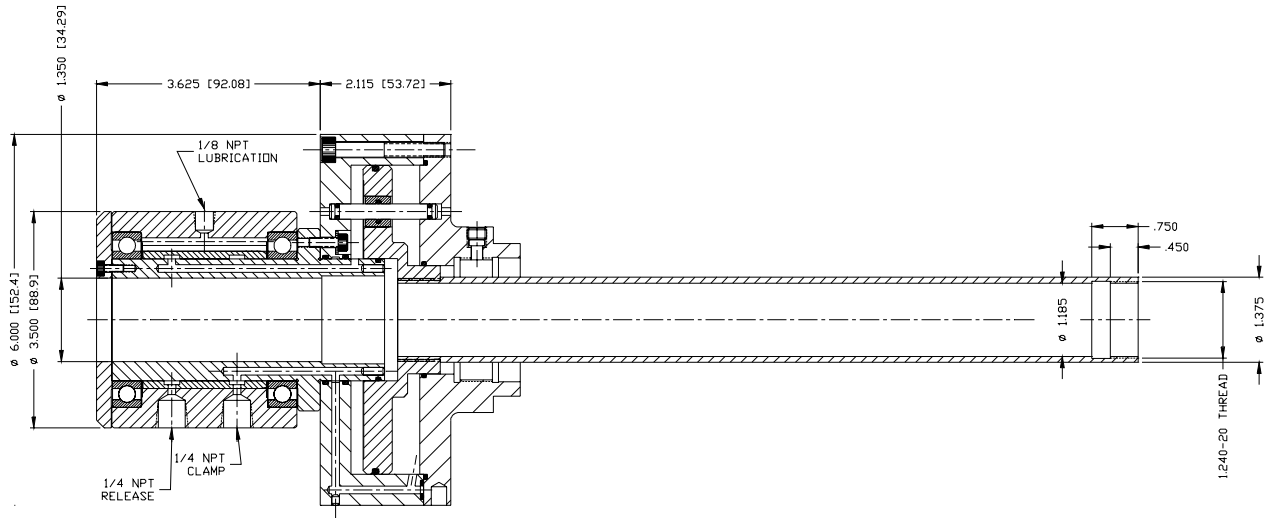
<b>Model No.</b>	<b>LDZ-150</b>
Through Hole	1.062" (27 mm)
Piston Stroke	0.394" (10 mm)
Maximum Air Pressure	100 psi (7.0 kg/cm <sup>2</sup> )
Maximum Draw Tube Force	1660 lbs (755 kg)
Maximum Speed	6,000 rpm

## 5.0 ASSEMBLY DRAWING & PARTS LIST FOR COLLET CLOSER

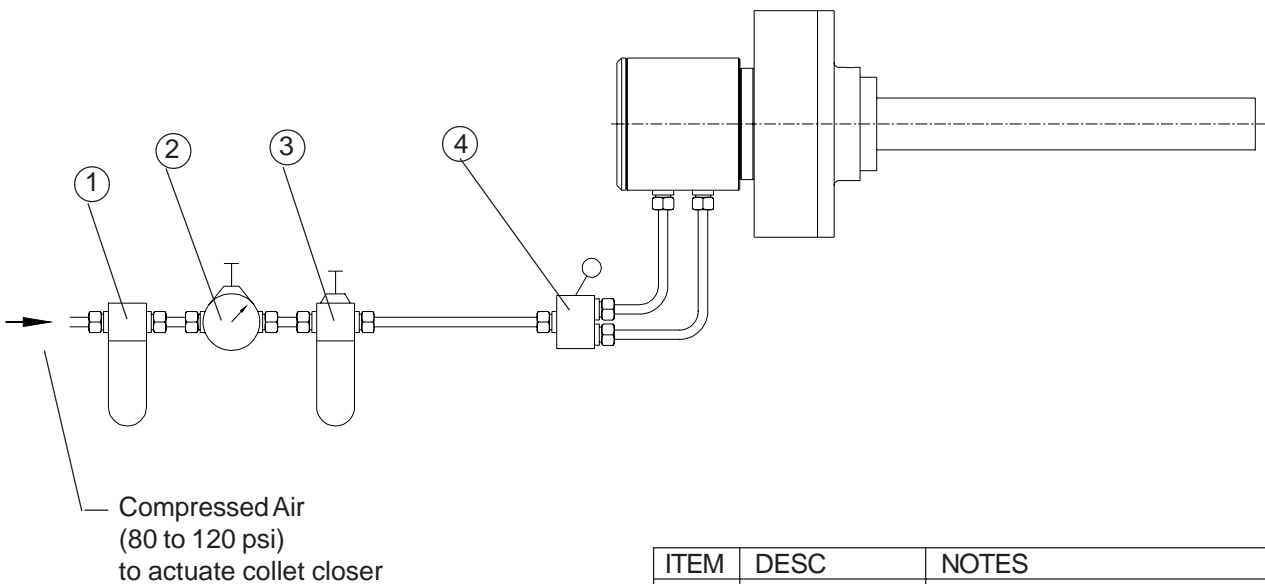


Detail	Item No.	Qty	Description
1	33 060 006	1	Journal
2	33 060 007	1	Cylinder
3	33 060 009	1	Adapter
4	33 060 010	1	Air Bearing Housing
5	33 060 011	1	Sleeve
6	33 060 012	2	Bushing
7	33 060 013	2	Pin
8	33 060 015	1	End Cap
9	33 060 022	3	Thread Lock Pin
10	33 060 049	1	Piston
11	33 060 050	1	Draw Tube
12	82 010 006	4	O-Ring 2-006 Buna
13	82 010 008	2	O-Ring 2-008 Buna
14	82 010 010	2	O-Ring 2-010 Buna
15	82 010 031	2	O-Ring 2-031 Buna
16	82 010 033	2	O-Ring 2-033 Buna
17	82 010 049	1	O-Ring 2-049 Buna
18	82 010 158	1	O-Ring 2-158 Buna
19	83 188 M012	3	M3 x 12 Soc Hd Cap Screw
20	83 189 M012	4	M4 x 12 Soc Hd Cap Screw
21	83 191 M045	6	M6 x 45 Soc Hd Cap Screw
22	83 831 015	3	Lock Screw
23	84 125 037	2	Dowel Pin 1/8 x .375
24	85 100 131	2	Bearing 61910
25	89 100 010	4	Sealing Washer

## 6.0 DIMENSIONS OF COLLET CLOSER



## 7.0 INSTALLATION DIAGRAM OF COLLET CLOSER



ITEM	DESC	NOTES
1	Air Filter	Change every 6 to 12 mo.
2	Pressure Regulator	Max. 100 psi (7 kg/cm <sup>2</sup> ) Min. 20 psi (1.5 kg/cm <sup>2</sup> )
3	Lubricator	1 drop every 30 to 45 sec.
4	Valve	Manual or electric solenoid

## 8.0 MOUNTING COLLET CLOSER

The MicroCentric Air Collet Closer for the SNK GT-27 is supplied with an integral adapter plate and 5C draw tube. You should review the assembly drawing in section 5.0 before installing or removing the collet closer to familiarize yourself with its various components.

1. The air collet closer assembly is installed by threading the entire unit onto the rear of the machine spindle.
2. Clean the rear of the spindle thoroughly, both the threads and the pilot diameter. All mounting surfaces must be free of chips and dirt. Also make sure that all surfaces are free of nicks and burrs.
3. Make sure the tips of the (3) lock pins (item 9) are clear of the ID mounting thread. Loosen the (3) lock screws (item 22) if necessary.
4. Insert the draw tube into the machine spindle and thread the entire collet closer assembly onto the rear of the spindle. Thread the collet closer until the front face of the adapter (item 3) bottoms out against the shoulder of the spindle. Tighten the collet closer securely by hand without applying excessive force.
5. Measure the runout of the OD of the air bearing housing (item 4) in the middle with a dial indicator.
6. The maximum radial runout should be .0008" (0.020mm) TIR. If the radial runout exceeds .0008" (0.020mm), remove the collet closer and reinstall it on the machine.
7. Tighten each of the (3) lock screws (Item 22) to A torque of 6 ft-lb (8 n-m).
8. Insert the anti rotation screw through the bracket and thread it into the M6 tapped hole on the OD of the air bearing housing (item 4). The anti rotation screw should not exert side load or drag which would prevent the free rotation of the air bearing assembly.
9. Referring to the installation diagram in section 7.0, connect the 2 air lines which actuate the collet closer into the 1/4"-27 NPT fittings on the OD of the air bearing housing. The inner port (closest to the cylinder) is for clamping; the outer port (at the rear) is for unclamping.



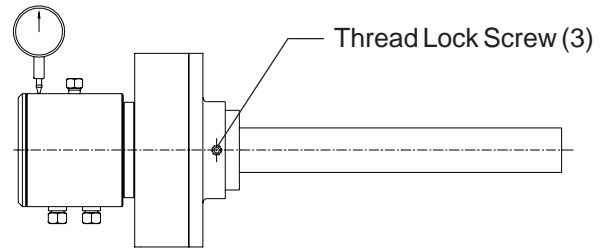
### CAUTION

**Do not apply excessive torque when threading the collet closer onto the rear of the machine spindle.**



### CAUTION

**The radial runout of the sleeve should not exceed .0008" (0.020mm) TIR.**



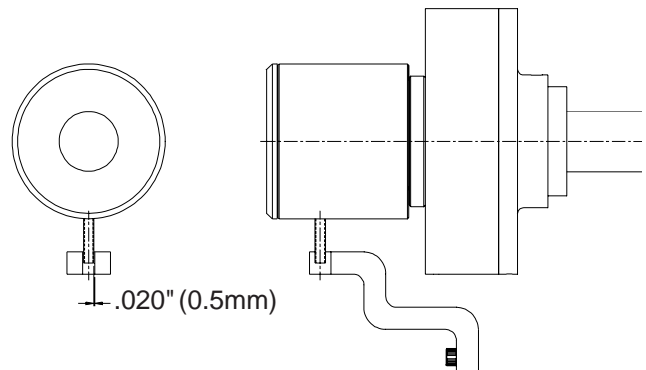
### WARNING

**The air and lubrication fittings are installed at the factory and should never be overtightened as the air bearing housing (item 2) can be distorted.**



### WARNING

**The anti rotation screw can not exert side load or drag on the air bearing housing. Minimum clearance .020" (0.5mm) per side.**



## 9.0 AIR SUPPLY & LUBRICATION

The MicroCentric Air Collet Closer will provide many hours of continuous, trouble free operation if the unit is properly installed and the following precautions are observed:

1. The air that is supplied to actuate the collet closer must be lubricated and filtered.
2. Always run the collet closer with air pressure to the rotary air bearing assembly. Air flow is required for the proper function of the air bearing, and will also dissipate any heat generated during operation.
3. Set the lubricator unit to deliver 1 drop of oil every 2 to 3 minutes.
5. Always make sure that the lubricator unit is filled with oil. The oil level should be checked regularly.
6. Change the filter element in the air filter unit at least every 6 months.

<b>RECOMMENDED LUBRICANT</b>
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<b>Mobil Velocite No. 6 or equivalent</b>
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**WARNING**

**Always supply filtered & lubricated air to the collet closer.**

**DANGER**

**Never run the collet closer without air pressure supplied to the unit.**

**DANGER**

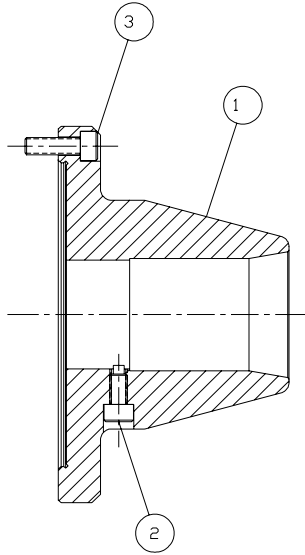
**Never operate or run the collet closer when the oil reservoir in the lubricator unit is low or empty.**

## 10.0 REMOVING COLLET CLOSER

Should it become necessary to remove the collet closer from the machine, observe the following procedure.

1. Disconnect the air and lubrication hoses from the fittings in the OD of the air bearing housing (item 4). Make certain to insert plugs into the fittings to keep dirt and contaminants out of the air bearing.
2. Unthread the anti rotation screw from the OD of the air bearing housing.
3. Loosen the (3) lock screws (item 22) so that the lock pins (item 9) are disengaged from the ID mounting thread.
4. Unthread the entire collet closer assembly from the rear of the machine spindle. After the unit is unthreaded from the spindle, simply slide the entire assembly out from the rear of the spindle.
5. Make sure to protect the mounting threads while the collet closer is off the machine to prevent damaging the threads.

## 11.0 ASSEMBLY DRAWING & PARTS LIST FOR 5C COLLET NOSE



Detail	Item No.	Qty	Description
1	76 100 076	1	5C Collet Nose SNK / M
2	36 100 002	1	5C Collet Key
3	83 190 M016	6	M5 x 16 Soc Hd Cap Screw

## 12.0 MOUNTING COLLET NOSE

The MicroCentric 5C collet nose is designed to mount directly to the SNK GT-27 machine spindle.

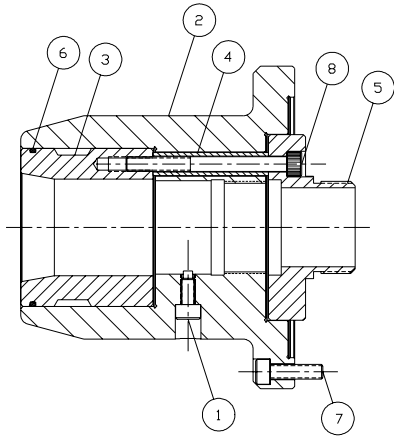
1. Make sure the mounting surfaces of the collet nose and machine spindle are clean and free of dirt, nicks, and burrs which would prevent the proper seating of the collet nose.
2. Mount the collet nose onto the machine spindle and lightly tighten the (6) mounting screws.
3. Use a dial indicator measure the radial runout of the tapered collet seat.
4. Adjust the runout of the collet seat to run within .0001" (0.0025 mm) TIR. This is done by tapping the OD of the collet nose with a plastic tipped hammer.
5. After the runout is adjusted, alternately and equally tighten the (6) mounting screws.
6. Check the radial runout of the collet seat again to verify the collet nose hasn't moved while the mounting screws were tightened. If the runout has increased, loosen the mounting bolts and repeat steps 4 and 5.



### IMPORTANT

**Adjust the radial runout of the collet seat to within .0001" (0.0025 mm) TIR to obtain maximum precision and accuracy.**

## 13.0 ASSY DRWG & PARTS LIST FOR DEAD LENGTH 5C CHUCK



Detail	Item No.	Qty	Description
1	36 100 002	1	5C Collet Key
2	36 100 004	1	5C/DL Chuck Body
3	36 100 005	1	5C/DL Collet Sleeve
4	36 100 006	3	5C/DL Bushing
5	35 100 007	1	5C/DL Draw Tube Connector
6	82 010 033	1	O-Ring 2-033 Buna
7	83 190 M016	6	M5 x 16 Soc Hd Cap Screw
8	83 190 M055	3	M5 x 55 Soc Hd Cap Screw

## 14.0 MOUNTING DEAD LENGTH 5C CHUCK

The MicroCentric 5C dead length collet chuck mounts to the SNK GT-27 machine spindle with an adapter plate.

1. Make sure the mounting surfaces of the collet chuck, adapter plate and machine spindle are clean and free of dirt, nicks, and burrs which would prevent the proper seating of the collet nose.
2. Mount the adapter plate to the machine spindle. Lightly tighten the mounting screws.
3. Use a dial indicator to measure the radial runout of the adapter. Radial runout of the pilot diameter should not exceed .0002" (0.010mm). If necessary, adjust the radial runout.
4. Tighten the mounting screws alternately and equally.
5. Measure the lateral runout of the mounting face of the adapter plate. The amount of the mounting face should not exceed .0001" (0.005mm).
6. Actuate the collet closer to bring the draw tube into the forward position.
7. Engage the threads of the draw tube connector into the draw tube and thread the entire chuck assembly onto the draw tube.
8. Actuate the collet closer so that the chuck body seats against the mounting face of the spindle.
9. Lightly tighten the (6) mounting screws.
10. Use a dial indicator to measure the radial runout of the tapered collet seat.
11. Adjust the runout of the collet sleeve to run within .0001" (0.0025 mm) TIR. This is done by tapping the OD of the chuck body with a plastic tipped hammer.
12. After the runout is adjusted, alternately and equally tighten the (6) mounting screws.
13. Check the radial runout of the collet sleeve again to verify the collet nose hasn't moved while the mounting screws were tightened. If the runout has increased, loosen the mounting bolts and repeat steps 4 and 5.



### IMPORTANT

**Adjust the radial runout of the collet sleeve to within .0001" (0.0025 mm) TIR to obtain maximum precision and accuracy.**

## 15.0 INSTALLING A 5C COLLET

A collet wrench should be used to install and remove 5C collets in both the standard collet nose and dead length 5C collet chuck

### 15.1 STANDARD COLLET NOSE

1. Actuate the collet closer so that the draw tube is in the forward position.
2. Unscrew the threaded collet pin (item 2) three or four full turns.
3. Thread the 5C collet into the collet nose until the largest diameter of the OD taper is approximately .125" (3 mm) from the front face of the collet nose.
4. Engage the threaded collet pin into the slot on the OD of the collet. This is done by rotating the collet until the collet pin engages into the slot.
5. Actuate the collet closer and verify that the collet is clamping the proper diameter and has sufficient opening to insert a part into the collet. Make adjustments to the position of the collet as necessary.

### 15.2 DEAD LENGTH 5C COLLET CHUCK

1. Actuate the collet closer so that the draw tube is in the retracted position.
2. Unscrew the threaded collet pin (item 1) three or four full turns.
3. Thread the 5C collet into the collet nose until the largest diameter of the OD taper is approximately .125" (3 mm) from the front face of the collet sleeve.
4. Engage the threaded collet pin into the slot on the OD of the collet. This is done by rotating the collet until the collet pin engages into the slot.
5. Actuate the collet closer and verify that the collet is clamping the proper diameter and has sufficient opening to insert a part into the collet. Make adjustments to the position of the collet as necessary.



#### IMPORTANT

**Apply grease to the outside of the collet to assure smooth operation and minimize wear to the collet and collet nose.**



#### CAUTION

**Do not actuate the collet closer without clamping a bar or workpiece in the collet.**



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