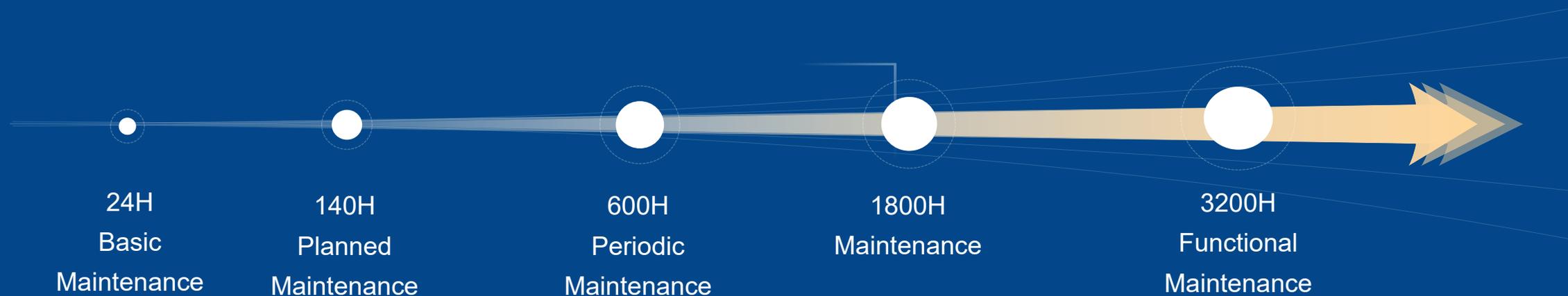


S90PRO Maintenance Manual

Date : 2025-08-20

S90 Maintenance Manual (H)

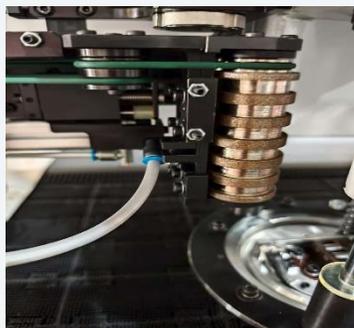


	24H (Basic Maintenance)	140H (Planned Maintenance)	600H (Periodic Maintenance)	1600H (Preventive Maintenance)	3200H (Functional Maintenance)
1	Sand Column Cleaning	Electric Control Box Filter Cleaning	Blade Guard Inspection and Replacement	Knife Drive Inspection and Maintenance	Knife Drive Cylinder Maintenance
2	Cutting Head Cleaning	Electric Control Box Heat Dissipation Mesh Cleaning	Lower Knife Guide Inspection and Cleaning	Bristle Brick Inspection and Replacement	Knife Plate Cylinder Maintenance
3	Knife Plate Cleaning	Vacuum Pump Filter Bucket Cleaning	Knife Intelligent Function Inspection and Maintenance	Anti-Forward Tilt Structure Bearing Replacement & Maintenance	Y-axis Gear Inspection & Maintenance
4	Knife Replacement	Drainage of Filtered Water from the Air Source Processor	Cutting Head Belt Inspection	Cutting Head Pulley Replacement & Maintenance	X-axis Belt & Timing Belt Maintenance
5	Drill Inspection	Oil Supply Check	Synchronization Calibration and Transmission Part Maintenance of the Bristle Bed	Cutting Head Belt Inspection and Replacement	Encoder Gear Inspection & Maintenance
6	X and Y Axis Racks Cleaning	Knife Sharpening Assembly Maintenance	Laser Light & Drilling Accuracy Inspection	Knife Guide Base Replacement	Bristle Bed Chain Inspection & Bristle Brick Replacement & Maintenance
7		X, Y, C Axis Accuracy Inspection	X, Y and C Axis Gear Racks Maintenance	Knife Sharpening Assembly Maintenance	Machine Bed Sprocket & Chain Inspection
8			X, Y Axis Guide Rail Maintenance	Helical Coil Replacement & Maintenance	
9			Abrasive Sharpening Rod Maintenance and Replacement (12000times)	Lower Knife Guide Replacement & Maintenance	
10			Electric Control Box Cleaning	Electric Control Box Filter Cotton Replacement	
11			Vacuum Pump Internal Cleaning	Buffer Replacement & Maintenance	

24H (Basic Maintenance)

material	S90code	Estimated usage time	S60
knife	170802110 2.5×8.5×290	On demand	171319015 2.5X8.5X253.5
	170707019 3×8.5×290		
	171319017 2×8×290		
drill	170745009 Hollow Drill3mm	On demand	general-purpose
	170745020 Hollow Drill4mm		
	170745021 Hollow Drill5mm		
	170745022 Hollow Drill6mm		
	170745023 Hollow Drill7mm		
	170745024 Hollow Drill8mm		
	170745025 Hollow Drill9mm		
	170745026 Hollow Drill 10mm		
	170745027 Hollow Drill 11mm		
	170745028 Hollow Drill 12mm		
	170745029 Hollow Drill 13mm		
	170745030 Hollow Drill 14mm		
	170745031 Hollow Drill 15mm		
	170745032 Hollow Drill 16mm		
	170745033 Hollow Drill 17mm		
170745034 Hollow Drill 18mm			
170745035 Hollow Drill 19mm			
170745036 Hollow Drill 20mm			
170745037 Hollow Drill 21mm			
170745038 Hollow Drill 22mm			
Cleaning agent	907787 (sand column Cleaning)	On demand	general-purpose

Operation Manual



1. Abrasive Sharpening Rod Cleaning :
The sand column shall be thoroughly cleaned with a cleaning agent each time the cutter is replaced.



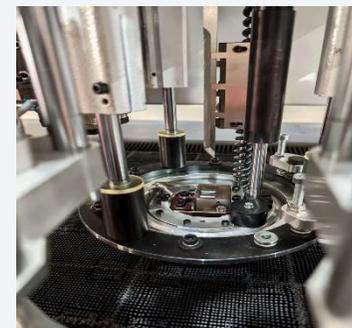
4. Knife replacement:
Replace the blade in a timely manner according to the knife width set in the software.



2. Cutting Head Cleaning:
The cutter head gear disc and surrounding dust shall be thoroughly cleaned with an air gun. The carbon brush edge aligns the groove.



5. Drill Bit Inspection:
If the drill bit has burrs or chips, grind it with fine sandpaper; replace the drill bit if its overall length is less than 115 mm.



3. Knife Plate Cleaning:
Clean oil stains and iron filings thoroughly with an air gun.



6. X、Y-axis Rack Cleaning :
Clean the dust inside the rack thoroughly with an air gun and brush.

140H (Planned Maintenance)

Operation Manual

material	code	Estimated usage time
lubricating grease	170130347	On demand
Knife Drive Oil	70132578 (Cutting machine-specific)	On demand
WD40	221331076 (metal protectant)	On demand



1. Filter Cleaning :
Remove the large and small electric control box filters with a Phillips screwdriver, and clean the gaps thoroughly with an air gun.



2. Electric Control Box Heat Dissipation Mesh Cleaning:
Clean the large and small electric control box filter screens thoroughly with an air gun.



3. Vacuum Pump Filter Bucket Cleaning:
Clean the filter bucket thoroughly with an air gun.



4. Air Source Processor Drainage:
Open the conical drain valve at the bottom of the air source processor and drain the water into the pre-placed container.

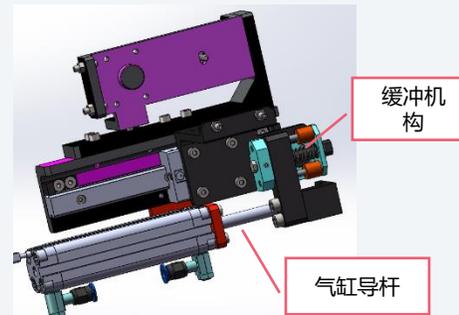
140H (Planned Maintenance)

Operation Manual



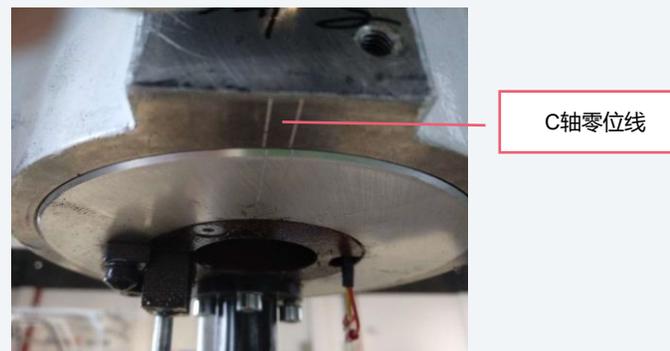
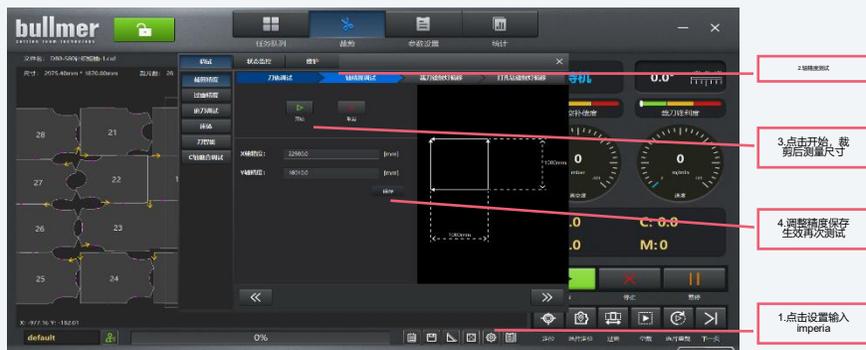
5. Oil Supply Check:

Check the oil level of the oil pot: it shall not exceed 1/2 of the capacity nor be lower than 1/4. (Special knife drive oil is required for refilling.)



6. Knife Sharpening Assembly Maintenance:

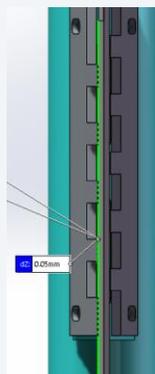
Clean the buffer mechanism and cylinder guide rod thoroughly with WD40, then apply lubricating grease evenly.



7. X and Y Axis Racks Cleaning:

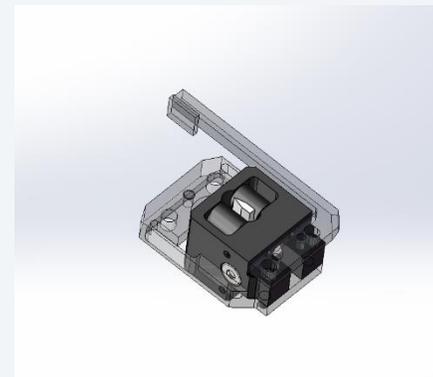
Cut a 1m×1m square to check the accuracy of the X and Y axes. If the axis accuracy is abnormal, first check whether the motor coupling, belt and gear are in normal condition. If the hardware is normal, re-calibrate the accuracy through the software. Perform a zero return operation on the C-axis and check whether the zero line is aligned. If it is not aligned, check whether the large and small gears of the C-axis are properly engaged. If the gears are normal, correct the zero position again.

material	S90code	Estimated usage time	S60code
Knife guard1	171309036	On demand	170712032
Knife guard2	171309037	On demand	170712033
Carbon brush	70115152	Recommended 600h	general-purpose
Sand column I	171302075	Recommended 600h	171302077
Sand column II	171302076	Recommended 600h	171302078
bearing	170724007	Recommended 600h	general-purpose
WD40 Metal Protectant	221331076 (Metal Protectant)	On demand	general-purpose
Lubricating grease	170130347	On demand	general-purpose



1. Blade Guard Inspection and Replacement:

Inspect monthly. The tooth-shaped backlash is adjustable front and rear. Replace the component when the backlash cannot be adjusted due to wear. (Single-side backlash: 0.04 mm–0.06 mm)

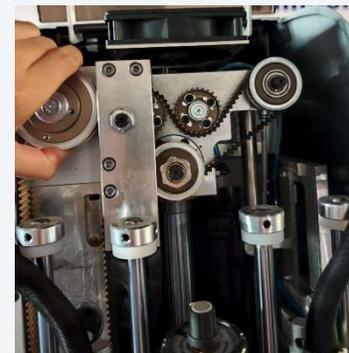


3. Knife Intelligent Function Inspection and Maintenance:

Test the knife's intelligent threshold in debugging mode to ensure it does not exceed 0.02. If the threshold exceeds 0.02, inspect and clean the carbon brushes; replace the carbon brushes if cleaning proves ineffective.

2. Lower Knife Guide Inspection and Cleaning:

Remove the knife rail monthly, clean it thoroughly with an air gun and WD40, and check that all bearings rotate normally. The clearance between bearings shall be equal to the knife thickness plus 0.08 mm to 0.12 mm. All bearings shall rotate smoothly without runout or jamming.



4. Cutting Head Belt Inspection:

Rotate the M-axis manually and check whether the knife drive gear has tooth skipping and whether the belt teeth are worn. Replace and adjust the components if tooth skipping or wear is detected.

600H (Periodic Maintenance)

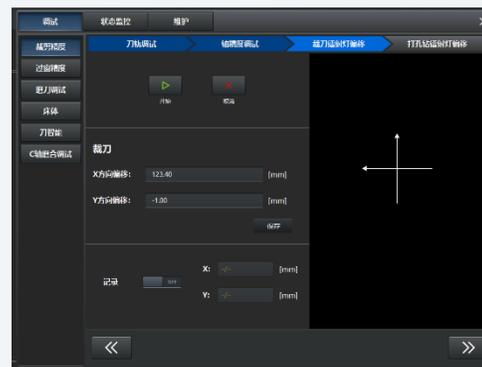
Operation Manual

- Remove the 6 screws on the mounting plate and detach the sand column mounting plate.
- Remove the 3 screws on the fixing seat under the sand column, and the sand column can be taken out directly.
- Replace with a new sand column assembled with bearings (install the sand column and belt according to their original positions). Ensure the mounting seat is assembled in place.



5. Synchronization Calibration and Transmission Part Maintenance of the Bristle Bed:

Remove the side cover, then check whether the drive chain of the machine bed is loose, whether the sprockets are displaced or tilted, and whether the screws are loose; inspect the encoder gear for looseness and missing teeth; clean the sprockets and chain and reapply lubricating grease.



6. Laser Light & Drilling Accuracy Inspection: Check whether the fixing screws of the laser light and the drilling bit are loose; use the test software to verify the accuracy on the waste material.



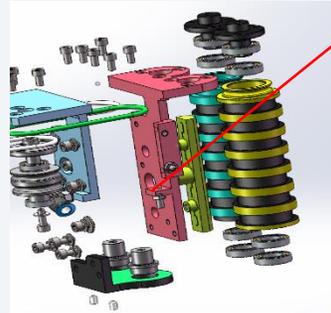
7. X, Y and C Axis Gear Racks Maintenance: Push the X, Y and C axes in the machine unlock mode to check for gear backlash. If backlash exists, adjust the gear mesh clearance. After the inspection, clean the gears thoroughly and apply lubricating grease.

Operation Manual

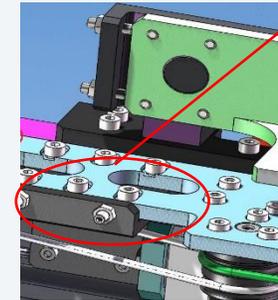


8. X, Y Axis Guide Rail Maintenance:

Check that the guide rail surface is free of scratches and the slide rail base is not deformed; clean the surface thoroughly and apply lubricating grease to the oil nozzle of the slide rail base.



Remove the screws here and the lower support plate can be detached directly.



Remove the 6 screws here and the mounting plate can be detached.

9. Abrasive Sharpening Rod Maintenance and Replacement (12000times) :

1. Remove the 6 screws on the mounting plate and detach the sand column mounting plate. 2. Remove the 3 screws on the fixing seat under the sand column, and the sand column can be taken out directly. 3. Replace with a new sand column assembled with bearings (install the sand column and belt according to their original positions). Ensure the mounting seat is assembled in place.

600H (Periodic Maintenance)

Operation Manual

10. Electric Control Box Cleaning:

Clean up the dust and debris inside the electric control box with a vacuum cleaner or dry cloth (perform this operation with power off).



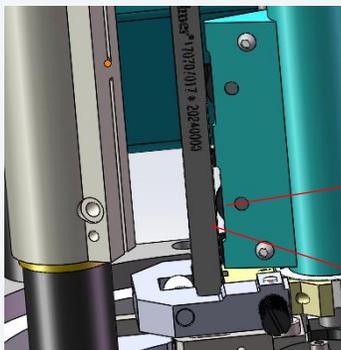
11. Vacuum Pump Internal Cleaning:

1. Pull the material receiving table backward to open it, then clean up the debris underneath.
2. Open the pump cover, check whether the hose clamps and air pipes at each connection are loose, and clean the cavity thoroughly.

material	S90code	quantity	S60代码
Bristal brick	171344053	On demand	general-purpose
Anti-Forward-Tilting Bearing Kit	170124023bearing	2	general-purpose
	170224002roller	1	general-purpose
	171302102Pin Shaft	1	general-purpose
Knife drive	960310876	1	general-purpose
Guide block	171309084	1	70109001
Guide seat	171309175	1	171301258
Belt Pulley Kit	170705007 Timing Pulley Assembly 1	1	general-purpose
	170735004 Timing Pulley Assembly 2	2	
	170735007 Timing Pulley Assembly 3	1	
	70124005 Ball Bearing	2	
	70103129 roller	3	
Belt Kit	171335016 S5M-16-845	1	171335024 S5M-16×810
	171322012 S5M-500x16	1	171335023 S5M-16×475
	170135048 DS5M-10x475	1	general-purpose

material	S90code	quantity	S60code	
Filter Cotton		3	general-purpose	
Knife Sharpening Assembly	Cylinder	170845014	1	general-purpose
	belt	170835016	1	
		171335035	1	
		171335034	1	
	Guide Rail	171308031	1	
	Motor	170733005	1	
	Buffer Pad	170732032		
	Shock Absorbing Pad	171222001	1	
	Buffer Lever	171312594	1	
	Buffer Base Plate	171309172	1	
	Buffer Pin Shaft	171302151	2	
	Linear Bearing	171324022	4	
	Guide Shaft	171302152		
	Spring	170727009	1	
Knife Guide Base (Select One of Two Configurations)	171209012 (Enlarged Standard Knife Plate)	1	general-purpose	
	171309171 (Dual Cold Cutterhead)	1	general-purpose	

material		S90代码	数量	S60代码
Lower Knife Rail Assembly (Select One of Three Configurations)	2.0Width	171301141	1	general-purpose
	2.5Width	171300256	1	
	3.0Width	171300306	1	
Helix		171360001	1	171360002
Shock Absorber	170722001	2	general-purpose	Shock Absorber



The clearance between the knife back and the rear wheel shall be less than 0.2 mm, and the relative angle difference shall not exceed 0.1 mm

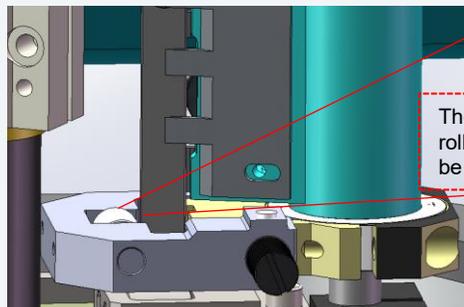
1. Knife Drive Inspection and Maintenance:

1. Rotate the cutterhead one full turn and check that the distance variation between the knife back and the taper wheel is less than 0.1 mm.
2. Remove the blade and check that the runout of the fixed knife bar is less than 1 mm.
3. If the above two requirements cannot be met, replace the knife drive, fixed guide block and guide seat.



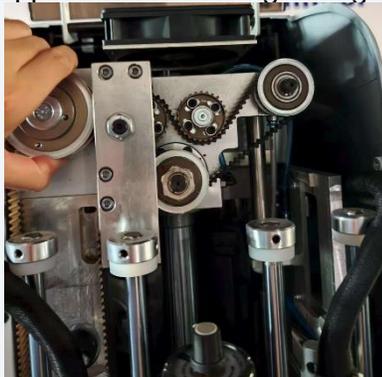
2. Bristle Brick Inspection and Replacement:

1. If the damage to a single bristle block exceeds one-third, replacement is recommended.
2. During replacement, it is necessary to remove the side guards and slats on both sides.
3. After replacement, check whether all slat screws are loose; the springs on the bristle block guards shall press against the bristle blocks. After installing the guards, seal them properly with glass glue.



3. Anti-Forward Tilt Structure Bearing Replacement & Maintenance:

Check the clearance between the blade and the anti-lean roller of the lower knife drive; it shall be within the range of 0.05–0.1 mm. The normal condition is that the surface of the anti-lean roller is smooth, the bearing rotates normally without shaking. If the standard is not met, replace the bearing and the pin shaft (grease shall be applied to the bearing during assembly).



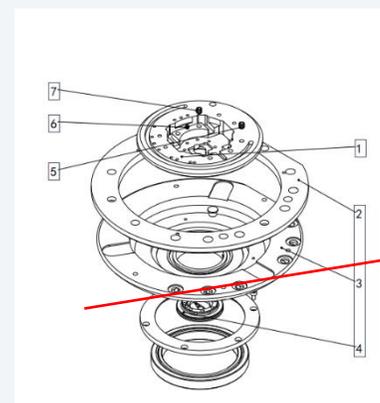
5. Cutting Head Belt Inspection and Replacement:

Replace the belt promptly if cracks appear on it or the tooth gap becomes enlarged; mark the tension pulley and reinstall it in its original position.



4. Cutting Head Pulley Replacement & Maintenance:

Remove the belt and inspect the pulley; replace the pulley if its tooth profile is worn or the pulley has wobbling.



6. Knife Guide Base Replacement:

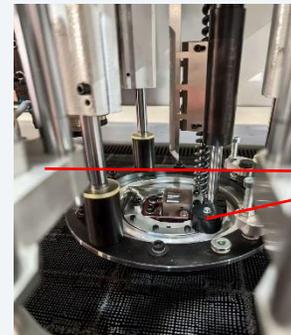
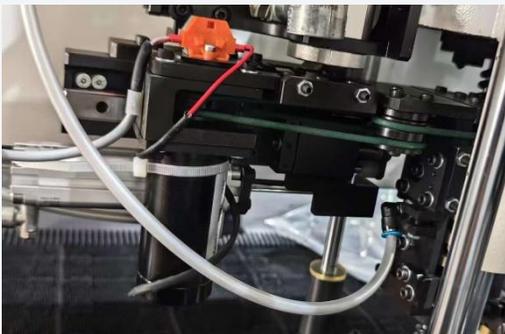
(Knife Guide Base Enlarged by 5.5 mm) Replace the base promptly if the clearance increases.

1600H (Maintenance)

Operation Manual

7. Knife Sharpening Assembly Maintenance: (See Page 16 of the Attached Sheets for Details.)

1. After cutting off the air supply, push the knife grinding cylinder by hand. The cylinder shall extend and retract without jamming; when pushed to the innermost position, there shall be no wobbling between the cylinder rod and the cylinder piston.
2. Shake the knife grinding assembly left and right to check whether there is clearance between the guide rail seat and the guide rail, which shall not affect the direction change of the knife grinding assembly during extension and retraction.
3. The buffer mechanism shall be free of deformation or jamming; the belt shall be free of cracks and uniform in thickness.
4. Replace the relevant components if the above requirements are not met.



Both the helical coil and the wiring terminals inside the cover need to be inspected.

8. Helical Coil Replacement & Maintenance:

No damage marks on the appearance. Gently toggle the upper, middle and lower sections of the helical coil with a wrench; The knife intelligence shall not be triggered. Replace the helical coil if abnormal triggering occurs.

The main inspection item is the wear condition of the bearing.

9. Lower Knife Guide Replacement & Maintenance:

Remove the lower knife rail and carefully inspect the bearings for smooth rotation without jamming; the rear wheel shall rotate without wobbling, and the bearings shall be in good appearance. Check the dimensions with a feeler gauge (bearing clearance = knife width + 0.08 mm ~ 0.12 mm). Replace the relevant parts promptly if the requirements are not met.



10. Electric Control Box Filter Cotton Replacement:

Replace the filter cotton of the electric control box promptly if it cannot be cleaned thoroughly.



Replace the upper and lower buffers and reinstall them in their original positions; then check the position of the knife tip and ensure that there is no abnormality during knife grinding and cutting.

11. Buffer Replacement & Maintenance:

Replace the buffer if the noise of the upper and lower knife drives becomes louder or the cutting head jitters.

3200H (Functional Maintenance)

Operation Manual

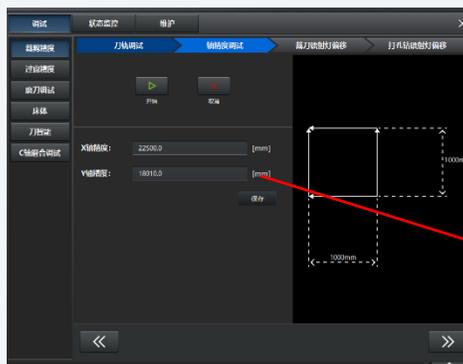
Material	S90code	quantity	S60code
Knife Drive Cylinder	170745019 DSNU-32-150	1	170745011 DSNU-32-140
Knife plate Cylinder	170145041 DSNU-16-100	1	70145046 DSNU-16-80
Y-axis Gear	170806001	1	general-purpose
X-axis Belt	171235009	1	general-purpose
	171235008	1	general-purpose
X-axis Gear	171335032 S8M-25tooth	1	general-purpose
	171335025 S8M-30tooth	2	general-purpose
	17123500600 S8M-38tooth	2	general-purpose
	171225001 cylindrical gear2-32	2	general-purpose
Encoder Gear	171312180	1	general-purpose



1. Knife Drive Cylinder Maintenance:
Loosen the connecting nut between the knife drive and the cylinder, and disconnect the air pipe. Pull the cylinder connecting rod manually; it shall move without jamming. When the connecting rod is pulled to the uppermost position, there shall be no clearance or wobbling at the piston port — this is the normal condition. Replace the relevant components if the above requirements are not met.



2. Knife Plate Cylinder Maintenance:
Loosen the connecting nut between the cutterhead and the cylinder, and disconnect the air pipe. Pull the cylinder connecting rod manually; it shall move without jamming. When the connecting rod is pulled to the uppermost position, there shall be no clearance or wobbling at the piston port — this is the normal condition. Replace the relevant components if the above requirements are not met.



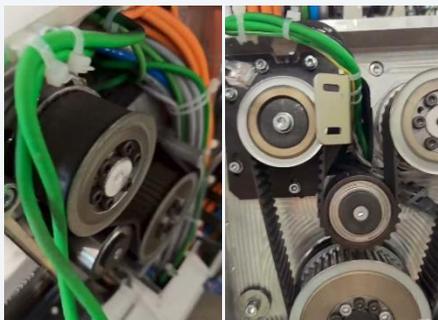
The accuracy here shall not be adjusted before parts inspection and replacement; adjustment and test shall be performed after inspection, replacement.

3. Y-axis Gear Inspection & Maintenance: (See Page 17 of the Attached Sheets for Details.)

When the machine is unlocked, push the Y-axis to check whether there is clearance during the left-right movement of the cutting head. Cut a 1 m × 1 m square and verify that there is no deviation. If any abnormality is found, remove the Y-axis gear, inspect it for wear or tooth breakage, and replace it promptly if necessary.

3200H (Functional Maintenance)

Operation Manual



4. X-axis Belt & Timing Belt Maintenance: (See Page 17 of the Attached Sheets for Details.)

Remove the left and right operation boxes, and inspect the wear condition of the pulleys and belts. Replace them promptly if there is any clearance or cracking.



5. Encoder Gear Inspection & Maintenance:

Remove the side housing and inspect the encoder gear; replace it promptly if there is any clearance or wear.



6. Bristle Bed Chain Inspection & Bristle Brick Replacement & Maintenance:

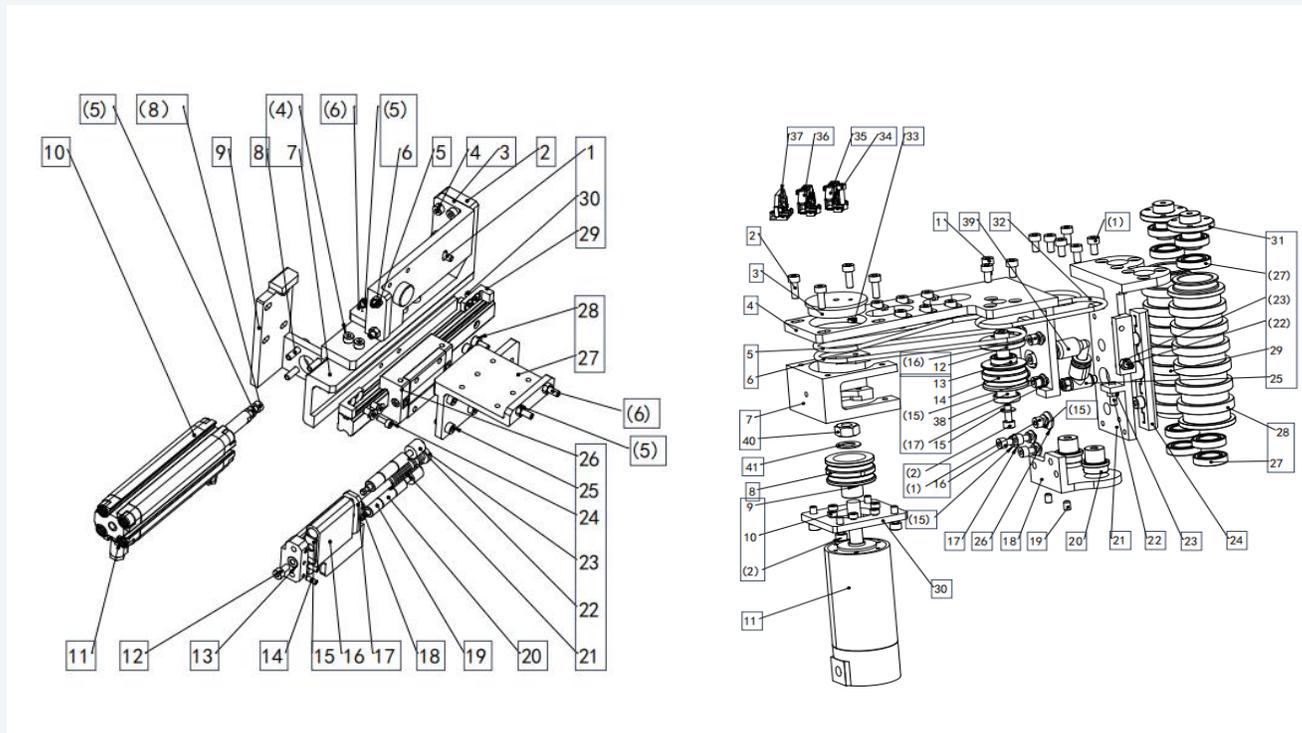
Remove the left and right retaining edges and inspect the chains and sprockets on the left and right machine beds. Adjust them promptly if any displacement is found. Replace the bristle bricks that are damaged by more than one-third, and clean the interior of the machine bed thoroughly. After cleaning, rotate the bristle bed to confirm there is no abnormal noise, and ensure that the slats run without obvious fluctuation.



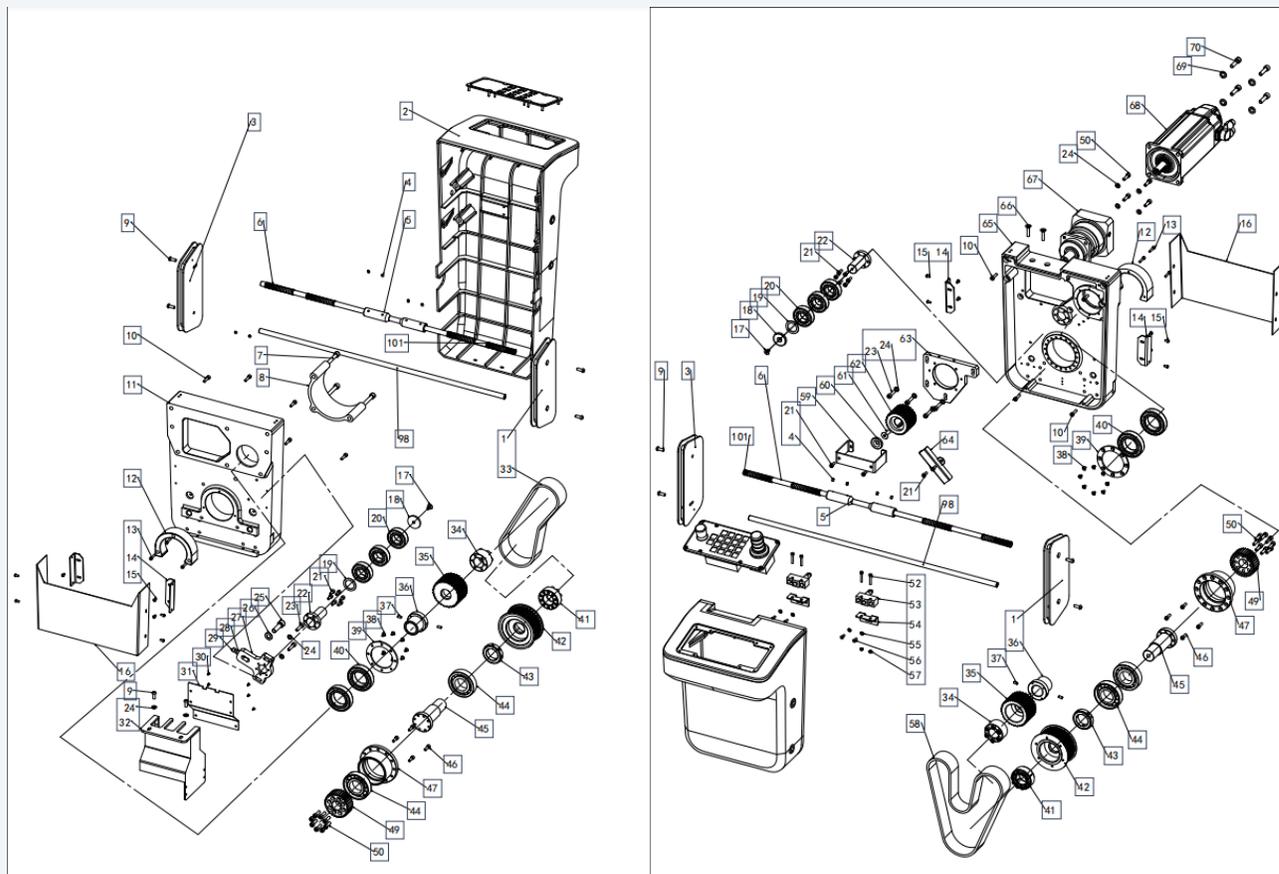
7. Machine Bed Sprocket & Chain Inspection:

Remove the left and right housings of the machine bed, and inspect the chains and sprockets. Adjust them promptly if any looseness or displacement is found. Apply grease after inspection to maintain proper lubrication of the chains and sprockets.

Sample of the grinding tool component parts



Sample of the X-axis transmission part components





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THANKS