AZIMUTH

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Instruction Manual
STRAIGHTENER FEEDER AZ-SF

AZIMUTH MACHINERY
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6040 Route 132, Ste-Catherine, Quebec, Canada, J5C 1B6

Azimuth Straightener feeder Instruction Manual

Table of Contents

1. Word of Caution

- ⚠ This machine is rated for 208V/60Hz and 480V/60Hz in star configuration. Make sure to properly connect the machine.
- ⚠ Before using the machine with material, make sure to perform a visual inspection and try to cycle it 5 times to verify that nothing has been damaged during transport (guarding system, etc.)
- ⚠ Never operate this machine until you've read & understood that this machine is dangerous. Placing your hands or any part of your body in this machine could lead to serious injuries or death. Warnings are posted around the machine for this purpose.
- ⚠ Never operate this machine without the use of a guard or safety device that will always protect you from injuries.
- ⚠ Never work on this machine unless the power is turned off and locked.
- ⚠ Never operate the equipment in teams of two or more
- ⚠ Never leave the workspace during the equipment operation
- ⚠ Follow the lockout procedures when leaving or servicing the equipment

*** Never put your hands in the machine unless the power is turned off and locked out **

The following general conditions must be followed.

- Check the machine and make sure that here is no damage when taking delivery of your machine. Please ask your dealer for replacement of shipping damage within 7 days starting the date of purchase, replacement requests are invalid after 7 days.
- Please check whether the accessories are missing while delivery of your machine. If there are any missing parts, please ask your dealer for the provision of the parts in question within 7 days from the date of purchase. Request you make after 7 days will not be considered.
- Make sure your machine is grounded and there are no voltage fluctuations on power supply.
- Failures caused by use of improper power connections are not covered by warranty of your machine. Repair of such failures will bring you financial burden.
- Do not try to attach external parts to each other's slots or their own slot the wrong way. Do all connections while the machine is off, do not try to attach or detach any parts while the machine is running.
- Do not interfere with software on the machine. Any modification to the software can be done only if Azimuth approves the request. Otherwise, it will cause your machine to be out of warranty.
- Make sure all connections to the machine are correctly made.
- Machine work surface must be flat, non-slip and solid.
- If our machine works with another machine than Azimuth ones, the manufacturer is not liable for any damage or work loss due to shock, moving around or vibrations in the event of overload of the other machine.
- Loading capacity of the machine must not be exceeded. Work overload will damage the machine and all components rotating (follow approval drawings and quote dimension specifications).
- Make sure the machine is working as shown by the technical service during installation.
- Only use our machines for sheet materials, our machines are designed for uncoiling, feeding and cutting sheet metals. They are not suitable for round or rectangle profiled materials.
- Do not modify the equipment at will. Azimuth is not responsible for damage or accident caused by unauthorized components or modifications.

2. Installation

This section covers the mechanical set-up of the straightener feeder (AZ-SFX). Please make sure to fully understand these instructions before attempting to make mechanical adjustments to the machine. All straightener feeder drawings are presented in Appendix I. Dimensions and specifications may vary depending on orders. Please refer to the approval drawings sent during the project. The instructions below will guide you through the machine installation. Azimuth installation staff are providing support for this manner.

2.1. Straightener feeder alignment and leveling

All components of the line such as decoiler, straightener, feeder, die and press should be exactly parallel to each other. Precision lasers are used to meet this requirement during installation. If the feed line is not properly aligned, the sheet material may slide to the sides and get damaged or stick inside the die and damage the equipment. Follow the recommended distance between the decoiler and the feeder shown in the approval drawing of your feedline. Creating the proper loop for the material will help the automatic sequence and material stress.

To level the straightener feeder correctly, use the screws located on the feets of the machine. Make sure to secure the equipment with anchors afterward.

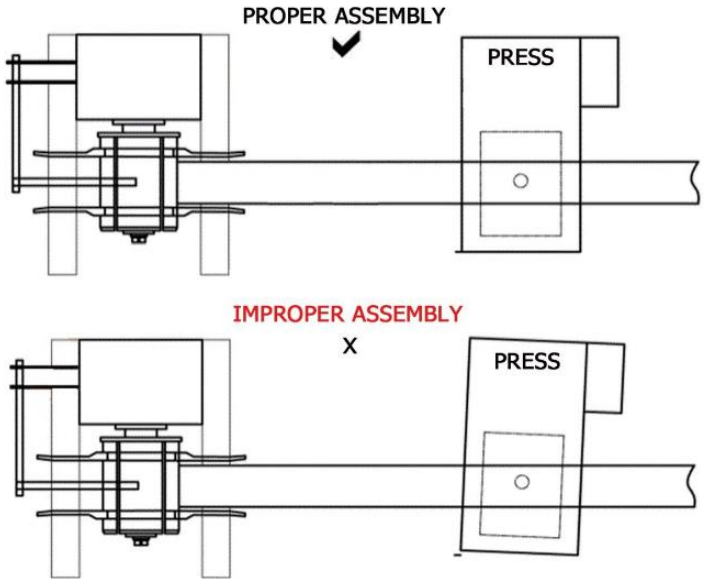


Figure 1: Feedline alignment

2.2. Air and oiling lines connections

The hydraulic station on the straightener feeder located in the front of the machine is made to lubricate aluminium and steel metal sheets. Pipes are marked with a number or letter depending on their position on the hydraulic station. Please connect the hydraulics lines with the matching numbers or letters. A 5 to 10 MPa pressure should maintain a continuous flow of oil. The maximum pressure is 17 MPa.

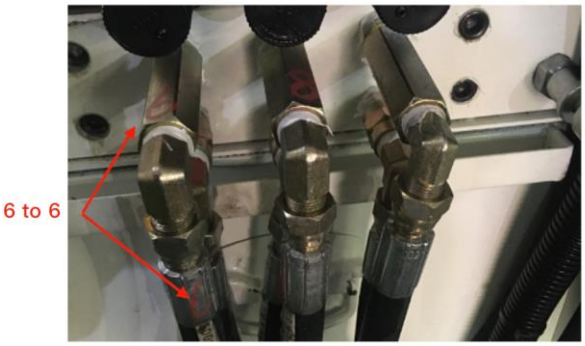


Figure 2: Hydraulic lines connection

Before starting the hydraulic station, follow the steps below:

1. Fill the hydraulic station with Lubrivanish SO-30 oil. Ensure that all lines are correctly bled
2. The motor needs to rotate clockwise when viewed from the back of the motor
3. When the hydraulic station is turned on, it should be adjusted to low pressure first and then adjusted to working pressure after the test are normal
4. Do regular inspections and maintenance every 6 months

All air lines should be connected correctly upon delivery. The main line connects via the air tank located on the back of the straightener feeder. Maintain air cylinder pressure between 0.4 and 0.6 MPa.

2.3. Pass-line height adjustment

The straightener-feeder has three fastening bolts. The screw should be released before adjusting the pass-line height with the controller. After completing the pass-line adjustment, make sure to tighten the three screws. The equipment should lift straightly; if it does not, adjust the chain tension and screw positions. Azimuth provides support for this process.

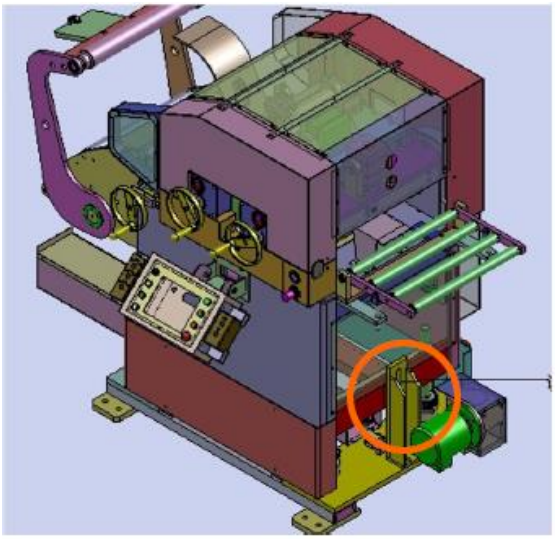


Figure 3: Pass-line height adjustment

2.4. Coil inlet width adjust rolls

Manually open the straightener-feeder pressure arm and adjust the roller distance with the hand-wheel. Center the rollers with the coil's middle, ensuring not to apply excessive pressure. The rollers should roll while touching the material for proper guidance.

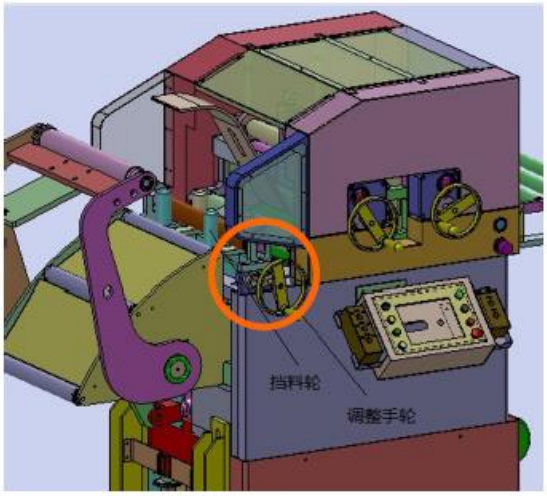


Figure 4: Coil inlet width adjust rolls

2.5. Feeding roller pressure adjustment

Manually open the adjustment knob located on the front right side of the straightener-feeder. Turning the knob clockwise increases pressure, while turning it counterclockwise decreases pressure. Coil strip slipping is typically due to insufficient pressure. Conversely, excessive pressure can result in rolling marks on the material.

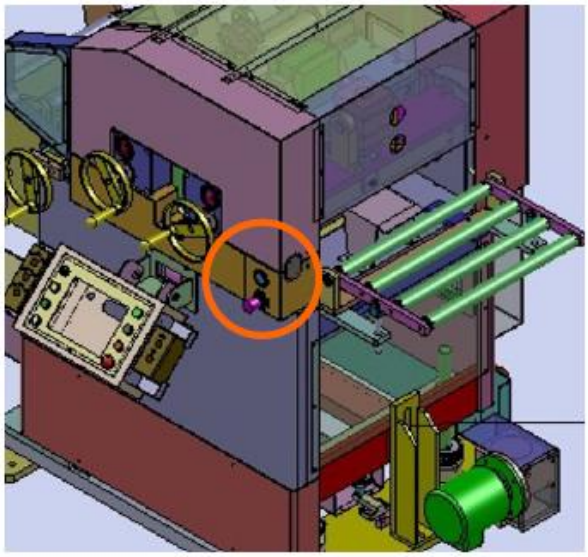


Figure 5: Pressure adjustment

2.6. Leveling roller gap adjustment

During adjustment, operate the servo feed motor in manual mode to rotate forward and reverse. Adjust repeatedly until the correction effect is satisfactory. To do so, manually open the adjustment knob located on the front right side of the straightener-feeder. Turning the knob clockwise increases pressure, while turning it counterclockwise decreases pressure. Coil strip slipping is typically due to insufficient pressure. Conversely, excessive pressure can result in rolling marks on the material. Do not repeat the process more than 5 times with the same material length as the mechanical properties of the material might change.

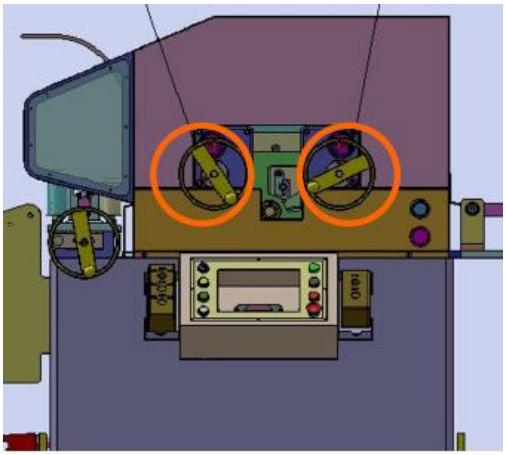


Figure 6: Pressure adjustment

Figure 6 and 7 below represents the actual configuration of the straightener rollers. The entrance handwheel should tilt the upper rolls 4-5-6-7 while the exit handwheel should incline & adjust parallelism. When both handwheel are at the same value (for example, +2 mm), the distance between the upper rollers & lower rollers should be near 2 mm.

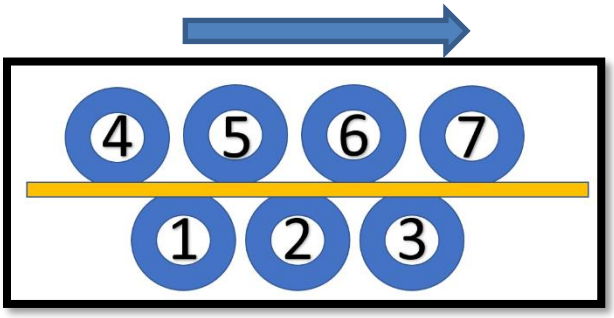


Figure 7 : Straightener rolls configuration

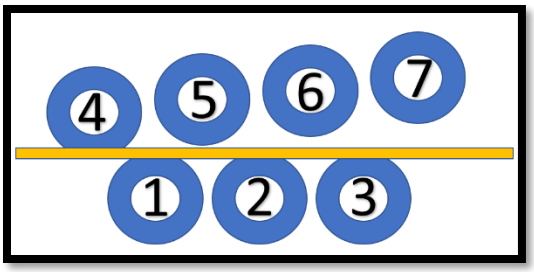
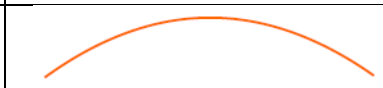
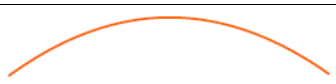


Figure 8 : Straightener rolls - Negative entrance wheel

Table 1: Roller gap adjustment instruction

No.	Before straightening	After straightening	Way to adjust
1			Adjust the straightener handwheel to make the upper roll go down
2			Adjust the straightener handwheel to make the upper roll go up
3			Adjust the straightener hand-wheel to make the upper roll go up. Adjust the pressure between upper and lower rolls suitably.
4			Turn over the material because this shape couldn't be straightened directly

2.7. Percentage of penetration

The percentage of penetration will vary based on these actual parameters:

1. Coil diameter
2. Material type
3. Loop between decoiler & straightening unit

The reference percentage of penetration can be calculated by the table below. Always start with a 15 % of penetration on the entrance rollers. Slightly increase the entrance value if you are not having a proper result. The exit value shouldn't be less than the actual material thickness.

Table 2: Percentage of penetration

Thickness	**.060''**
Entrance value	**-.010''**
Exit value	**.060''**

2.8. Machine capacity

The machine straightening capacity is for reference only. Always refer to the servo torque value when operating the machine. The charts below show the actual machine maximum thickness based on width of material.

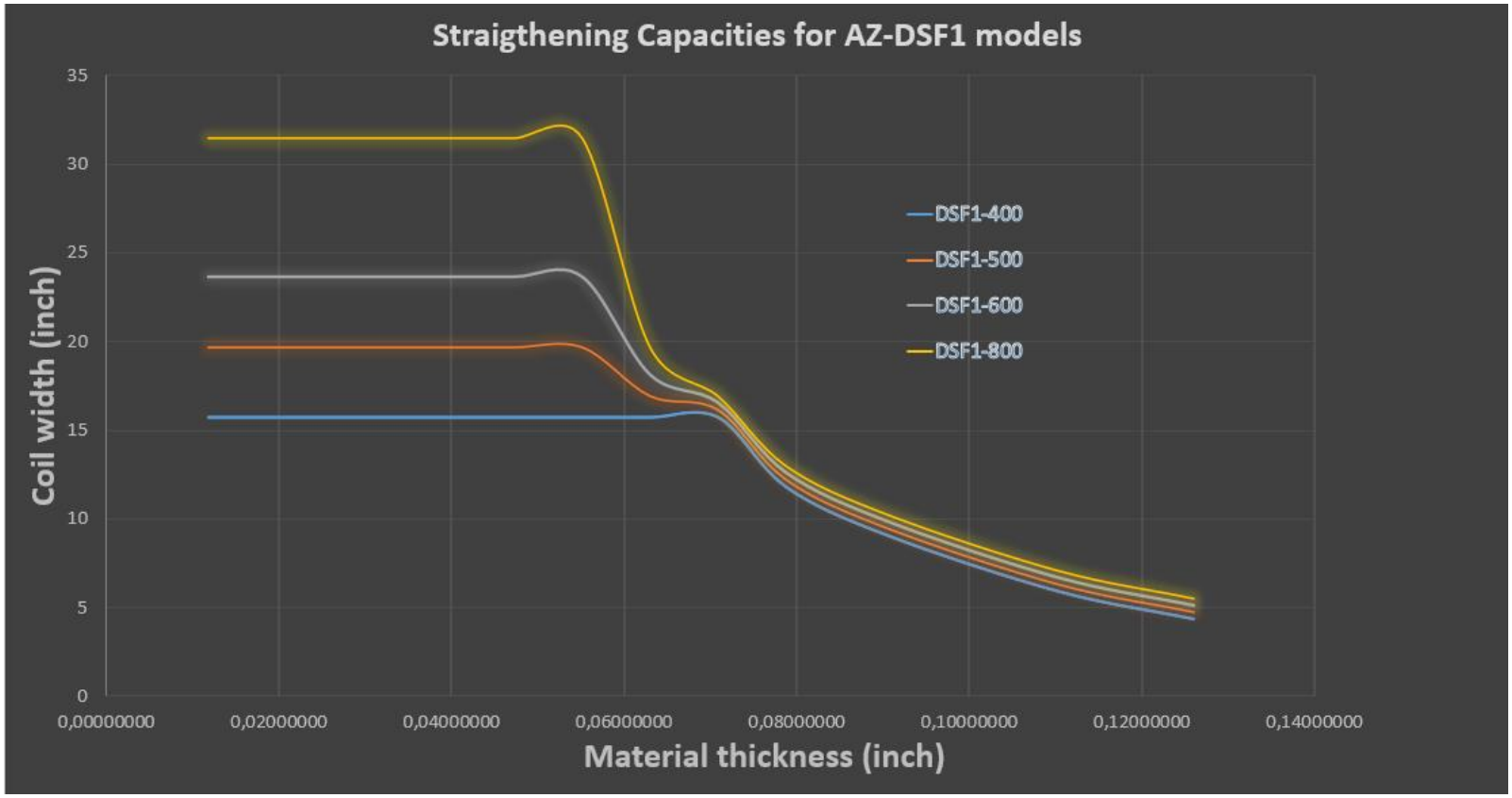


Figure 9: SF1 Straightening capacity

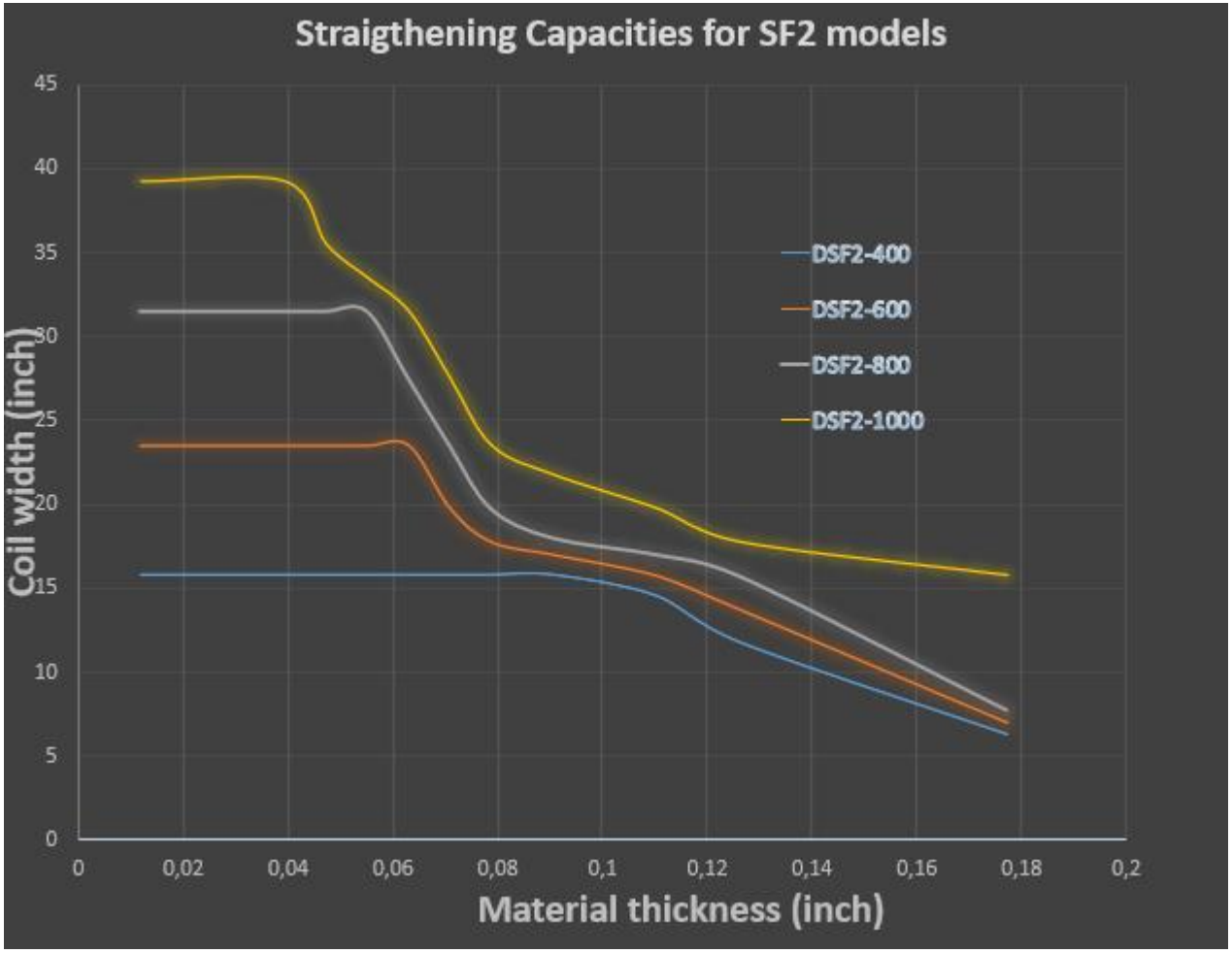


Figure 10: SF2 straightening capacity

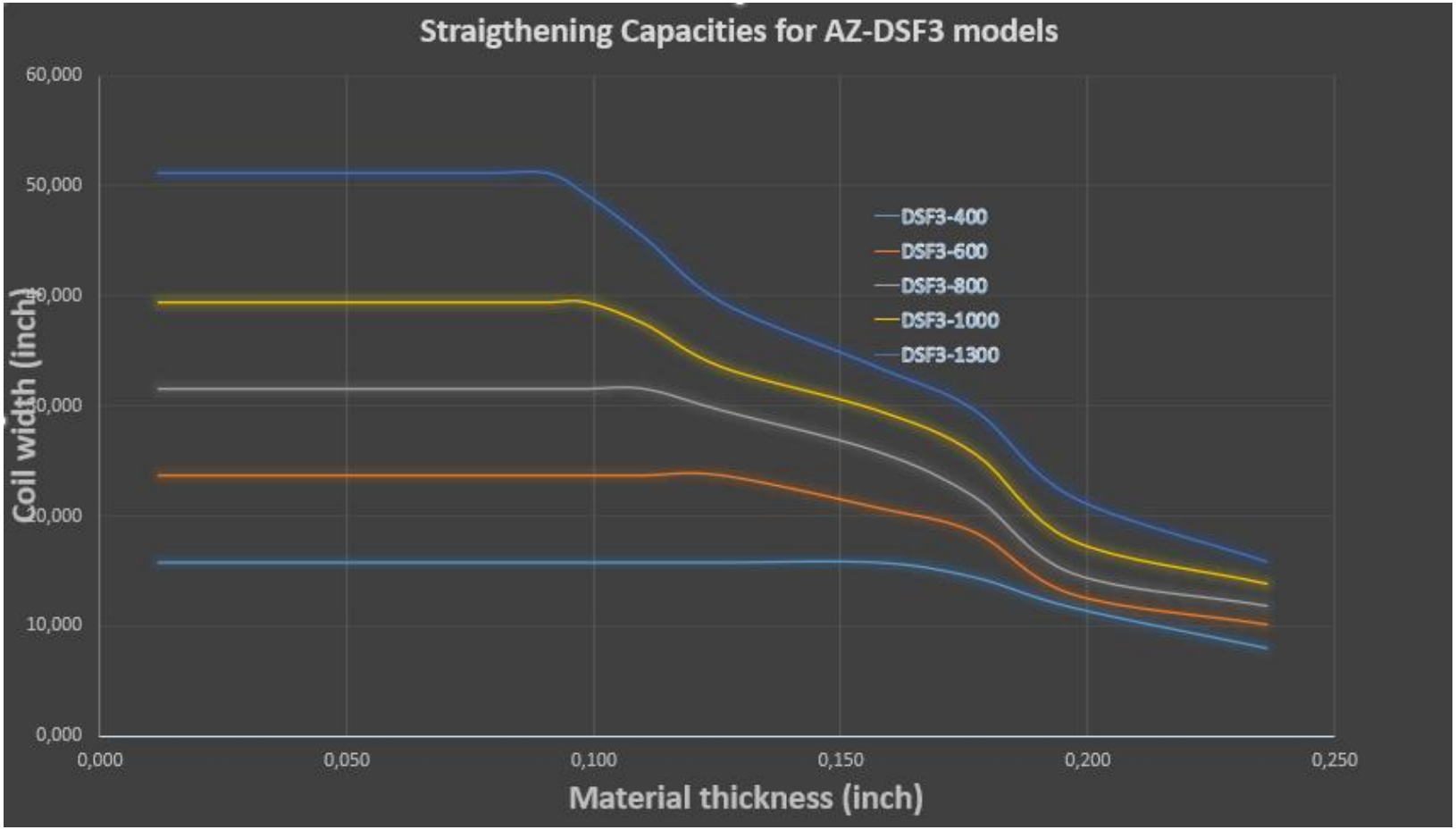


Figure 11: SF3 straightening capacity

2.9. Adjusting the PLS outputs (Feed, reset cam & pilot release)

In order to synchronize the feeder with the stamping press properly, you need to adjust the cam switch of the stamping press to control the feeding and the automatic release. Operating the press in '' INCH MODE'' of the stamping press to setting the cam switch. For the stamping equipment using electronic cams, please set contact closure to "ON" and contact opening to "OFF". Due to different electrical circuits, sometimes "ON/OFF" setting is opposite.

The feed start signal is set by the cam switch when the stamping equipment leaves the bottom dead center. Find the perfect timing between the opening of the tool & die.

Verify the angle value & add an hypothetical 10 degrees to this value. This value means that the feeder will start advancing material once receiving the signal. **(IE : This value should be between 180 & 360 degrees). You could always start with an hypothetical value of 270 degrees to your feed signal).**

Please note that the feed signal must be ON during the entire feeding sequence. If not, a "feed sequence'' fault will occur.

Below is an example of feed signal calculation:

Let's say you want to run your press $A = \pi r^2$at 60 SPM. For some reason, you want to complete your feed sequence before 40 degrees because the stopping time of your press is long.

You input a hypothetical value of 270 degrees as your feed signal ON

Your part length is 6''.

Table 3 : Scenario of feeding calculation

Feed signal on	270
Feed signal OFF	40
DWELL	360-270+40=**130 degrees**
Press speed	60 stroke per minutes
Press speed in degrees per seconds	60*360/60=**360 degrees per seconds**
Part length	6''
Feeder max speed	20'' per seconds

With the inputs above, you can determine if your scenario is achievable.

Feed time

LENGTH / FEEDER SPEED = 6''/20''/seconds = 0.300 SECONDS.

Press timing between feed

DWELL /Press speed in degrees per seconds=130/360=**.361seconds**

Feeder capacity

Feedtime/presstiming=.3/.361=83%

Since we are under the feeder capacity, this means this scenario is viable. In the scenario above, we are not taking ACCELERATION & DECELERATION in consideration.

The reset CAM is a signal telling the feed that the press made a complete rotation. The reset CAM prevents a ''double signal'' & prevents double feed.

The reset CAM should always be BEFORE the PILOT RELEASE signal, if needed.

The pilot release is a signal that make the feeder release the pressure from the rolls. In order to achieve a proper release follow these steps:

1. Find & locate the pilots inside the tool & die.
2. Operate the press in '' INCH'' mode & make sure that the feeder is set to manual mode
3. Jog the press until you reach the entrance of the pilot pins.
4. Once you find the proper positioning, take the pilot angle in memory.
5. Input those value in your press control, -10 degrees as the OPEN ANGLE.
6. Closing angle should be at bottom dead center, which is 180 degrees.

5. Maintenance

Always ensure the machine is stopped and lockout procedures are followed before conducting any servicing. Maintenance requirements and delays may vary depending on the system environment and continuous operation duration. Please refer to the instructions provided by Azimuth trainers for this matter.

a. Machine routine maintenance needs

- The condition in the air system (dryer/lubricator), daily oil checks should be made, and the water must be emptied. Verify if there is a leak and the pressure is normal. Air pressure should be maintained at 0.5 MPa.
- Electrical components and machine functionality (loop sensor, e-stop, valves, oil pressure, brake and all switches) should be checked daily to ensure the proper functionality of the system. Components should be kept clean to ensure long longevity.
- Before working with the machine, operators must check all the working parts, should do the checks against the possibility of loosening and dismantling due to the vibrations occurring during feeding. Uncommon sounds are a good sign of malfunction.
- Lubricate guidance rollers and screw shafts regularly.
- Periodically lubricate all the bearings and gears according to the maintenance chart.
- Periodically lubricate the pressure arm cylinder according to the maintenance chart.
- Check the belt tension of the servomotor. The belt must move forward and backward, maintaining a displacement equivalent to its thickness.
- Periodically check if the photoelectric sensor is working well and clean the glass surface.
- Oil tank and hose must be checked weekly for any leaks or malfunction. We suggest checking the oil quality at the same time. Make an oil change according to the maintenance chart.
- If the machine is not in use, please power and cycle the system once a week.
- General maintenance and checks on the machine are mainly focused on abrasion and moving parts. For further details on the replacement part, go to Appendix I.

Table 4: Routine maintenance needs

Parts	Daily	Weekly	Monthly	Biannual

Conditioning oil control	✓			
Guidance rollers		✓		
Lubrication of bearings		✓		
Lubrification of expansion mandrel		✓		
Belt tension			✓	
Oil tank and hose control		✓		
Oil change	✓			
General maintenance and checks of the machine				✓

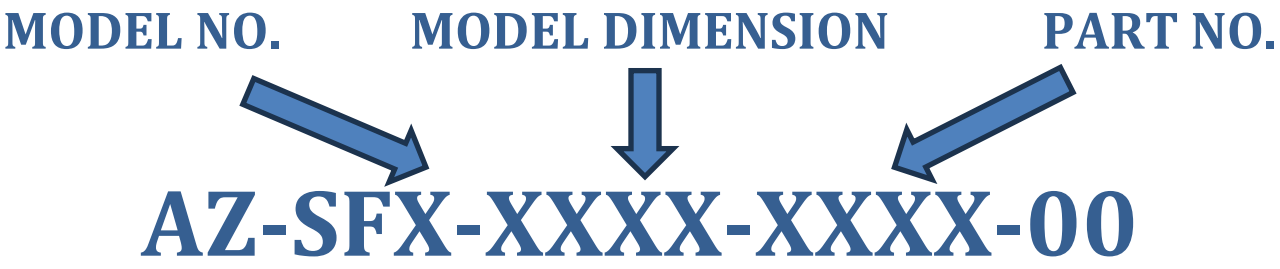
b. Machine troubleshooting instructions

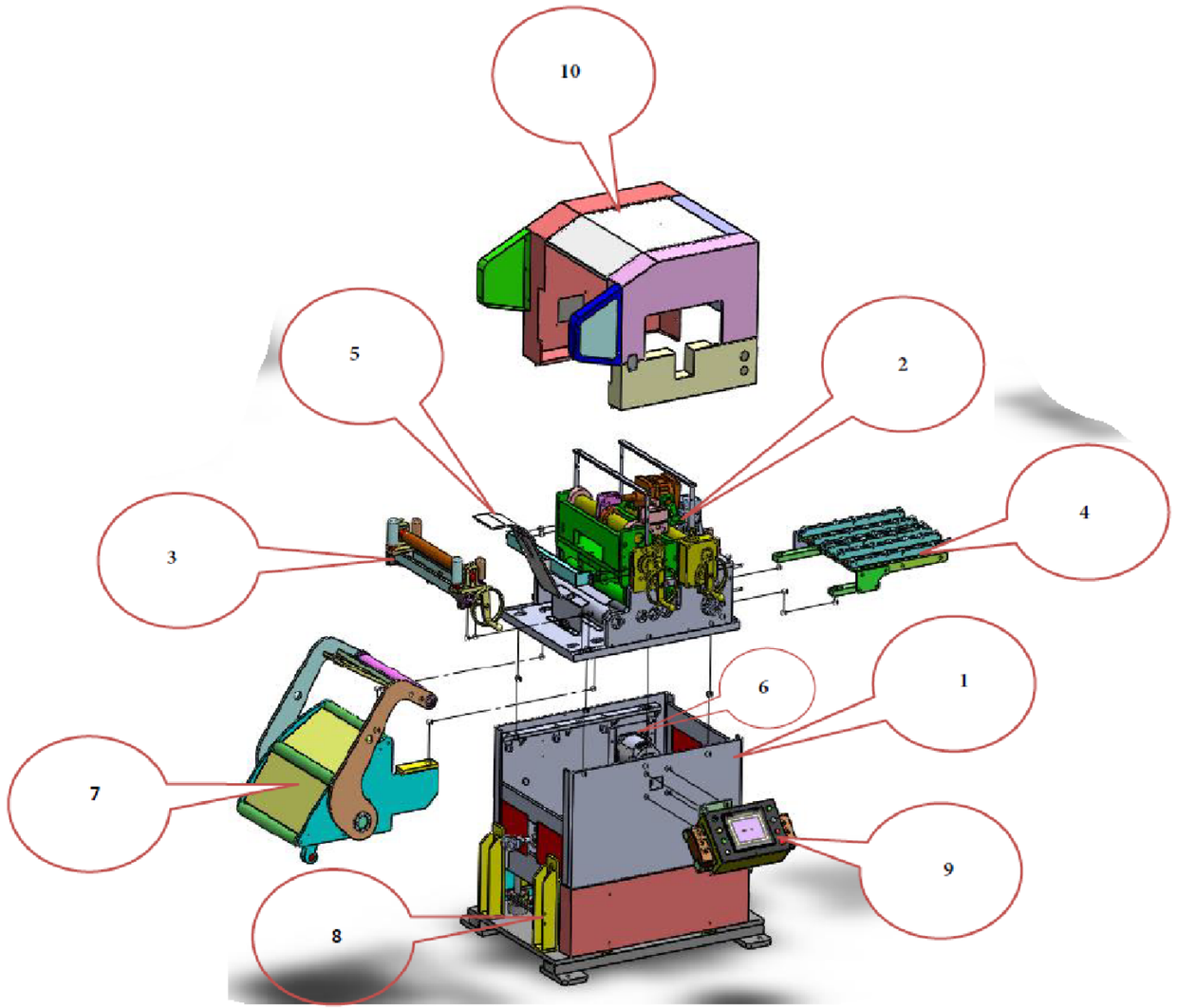
For any requests regarding troubleshooting or issues with the machine, please contact directly Azimuth following the contact information provided on the website.

APPENDIX

APPENDIX I: AZ-SF DRAWING

In this appendix, you will find the spare parts for all the AZ-SF straightener feeder models. Use this template for part numbers when ordering. Also, always mentioned the machine serial number. This assists Azimuth crew members in tracking parts according to the specific configuration of your machine.





ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-1000-00	FRAME ASSEMBLY	1
2	AZ-SFX-XXXX-2000-00	ROLLER ASSEMBLY	1
3	AZ-SFX-XXXX-4100-00	ENTRY GUIDING ROLLERS ASSEMBLY	1
4	AZ-SFX-XXXX-4200-00	EXIT GUIDING ROLLERS ASSEMBLY	1
5	AZ-SFX-XXXX-5000-00	INLET PLATE ASSEMBLY	1
6	AZ-SFX-XXXX-6000-00	MOTOR ASSEMBLY	1
7	AZ-SFX-XXXX-7000-00	PRESSURE ARM ASSEMBLY	1
8	AZ-SFX-XXXX-8000-00	LEVELING SYSTEM ASSEMBLY	1
9	AZ-SFX-XXXX-9000-00	HMI ASSEMBLY	1
10	AZ-SFX-XXXX-14000-00	GUARDING ASSEMBLY	1

DESCRIPTION

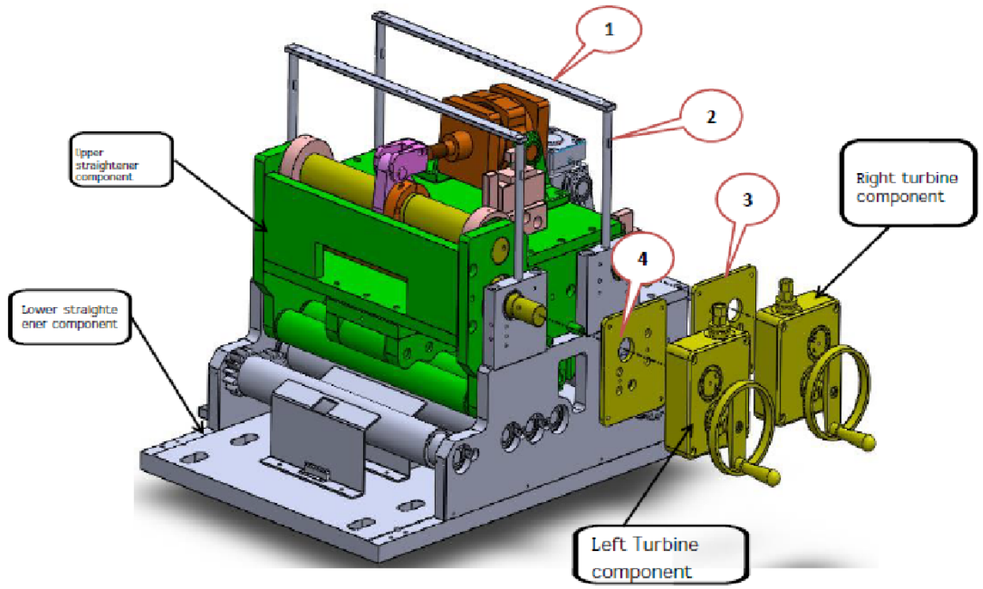
SRAIGHTENER FEEDER ASSEMBLY

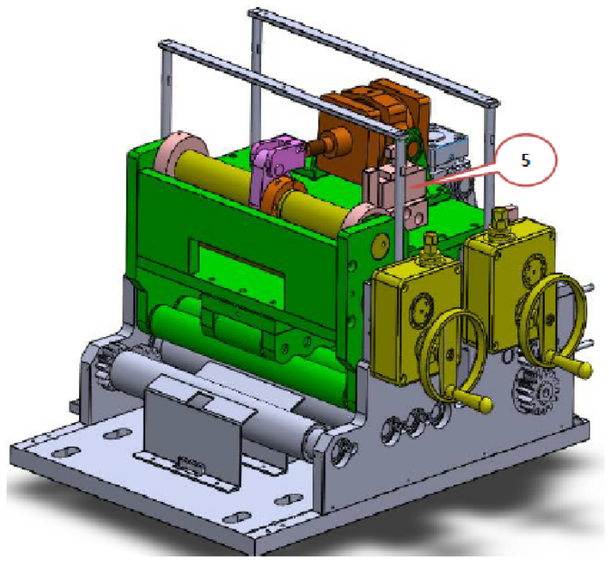
PART NO

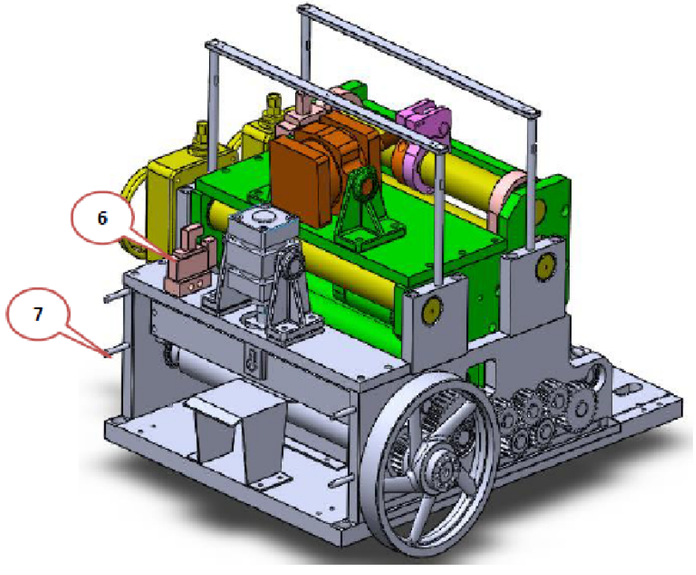
AZ-SFX-XXXX-0000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

Azimuth Machinery Inc
T 450 632 8080
F 450 632 8081
www.azimuthpress.com
6040 Rte. 132, Ste-Catherine
QC, Canada, J5C 1B6







ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-14001-00	COVER FIXED BOARD	2
2	AZ-SFX-XXXX-14002-00	COVER PILLAR	1
3	AZ-SFX-XXXX-2001-00	RIGHT ADJUSTEMENT BOTTOM PLATE	1
4	AZ-SFX-XXXX-2002-00	LEFT ADJUSTMENT BOOTOM PLATE	1
5	AZ-SFX-XXXX-20002-00	VFS5110-5DB VALVE	1
6	AZ-SFX-XXXX-20003-00	VFS3110-5DZB VALVE	1
7	AZ-SFX-XXXX-14003-00	COVER SUPPORT ROD	4

DESCRIPTION
ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-2000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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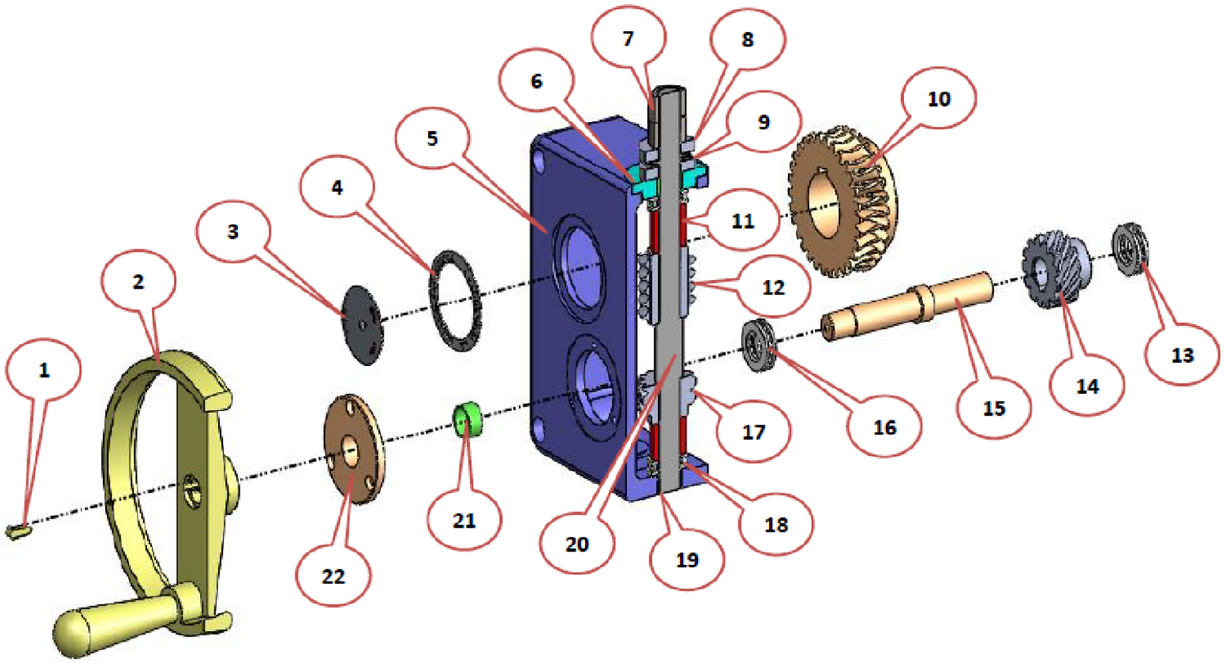
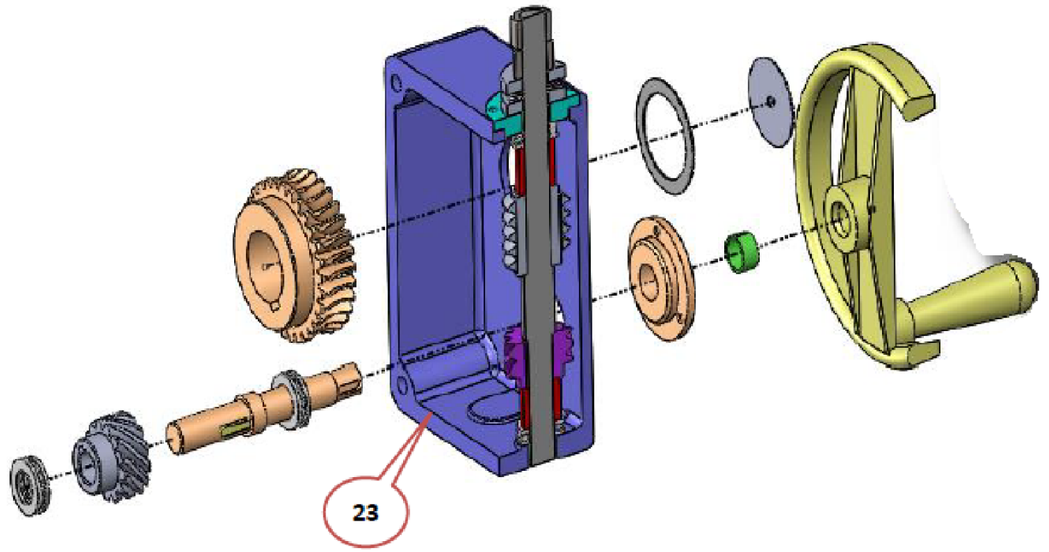
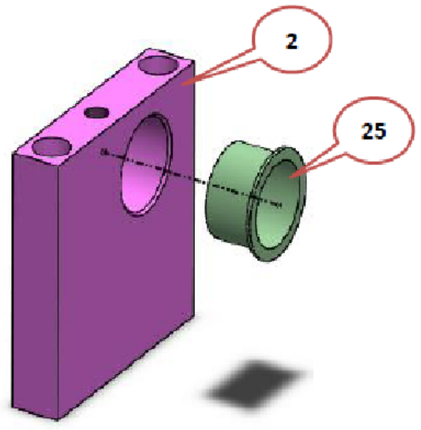


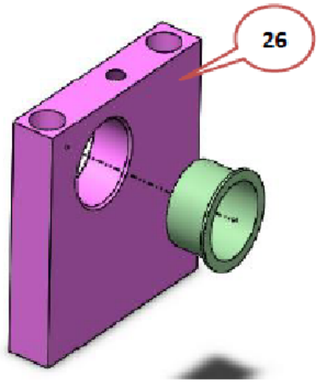
LEFT TURBINE GROUP



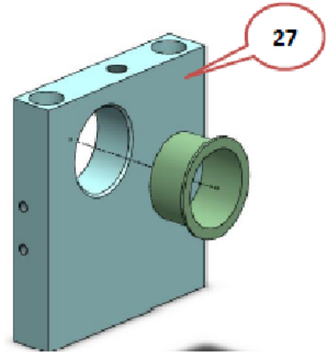
RIGHT TURBINE GROUP



RIGHT REAR SUPPORT GROUP



RIGHT FRONT SUPPORT GROUP



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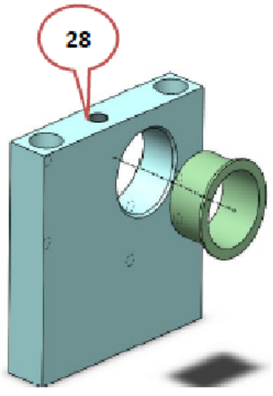

RIGHT FRONT SUPPORT GROUP

DESCRIPTION	ROLLERS ASSEMBLY
PART NO	AZ-SFX-XXXX-2000-00
DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

Azimuth Machinery Inc
T 450 632 8080
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QC, Canada, J5C 1B6

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-2101-00	FLAT KEY A TYPE 6 X 20	2
2	AZ-SFX-XXXX-2102-00	TWO-WHEEL SPOKE HANDLE vRTP. 250A-20	2
3	AZ-SFX-XXXX-2103-00	SIGNING SIGNS ON THE LEFT	2
4	AZ-SFX-XXXX-2104-00	BETAL FIXED SIGNS ON THE LEFT	2
5	AZ-SFX-XXXX-2105-00	LEFT TURBINE	1
6	AZ-SFX-XXXX-2106-00	FRENCH DISK A	2
7	AZ-SFX-XXXX-2107-00	M20 NUT C CLASS	2
8	AZ-SFX-XXXX-2108-00	WASHER	2
9	AZ-SFX-XXXX-2109-00	SPRING	2
10	AZ-SFX-XXXX-2110-00	TURBINE 30 X 3	2
11	AZ-SFX-XXXX-2111-00	TURBINE CUSHION CIRCLE 1	2
12	AZ-SFX-XXXX-2112-00	TURBINE ROD 1 X 30	2
13	AZ-SFX-XXXX-2113-00	THRUST BALL BEARINGS 51104	2
14	AZ-SFX-XXXX-2114-00	RIGHT ROTTEN DIAGONAL GEAR 1	2
15	AZ-SFX-XXXX-2115-00	MANIPULATING AXLE	2
16	AZ-SFX-XXXX-2116-00	THRUST BALL BEARING 51104	2
17	AZ-SFX-XXXX-2117-00	RIGHT ROTATION DIAGONAL GEAR 2	2
18	AZ-SFX-XXXX-2118-00	THRUST BALL BEARINGS 51104	2
19	AZ-SFX-XXXX-2119-00	SF-1X BEARING (202312)	2
20	AZ-SFX-XXXX-2120-00	TURBINE TRANSMISSION SHAFT	2
21	AZ-SFX-XXXX-2121-00	SF-1X BEARING (202312)	2
22	AZ-SFX-XXXX-2122-00	FRENCH DISK B	2
23	AZ-SFX-XXXX-2123-00	RIGHT TURBINE	1
24	AZ-SFX-XXXX-2124-00	RIGHT BACK SUPPORT	1
25	AZ-SFX-XXXX-2125-00	FB090 (70X60X55X35)	4
26	AZ-SFX-XXXX-2126-00	RIGHT FRONT SUPPORT	1
27	AZ-SFX-XXXX-2127-00	LEFT BACK SUPPORT	1
28	AZ-SFX-XXXX-2128-00	LEFT FRONT SUPPORT	1

DESCRIPTION
ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-2000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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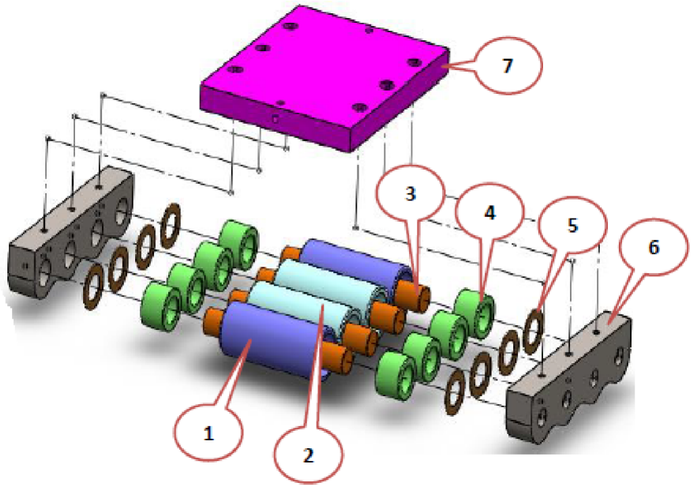
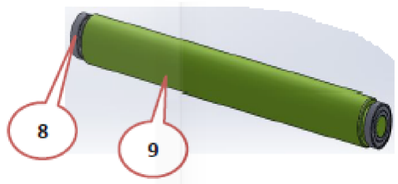
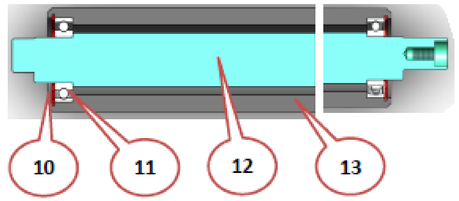


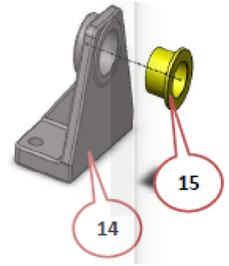
UPPER AUXILIARY ROLLER COMPONENT



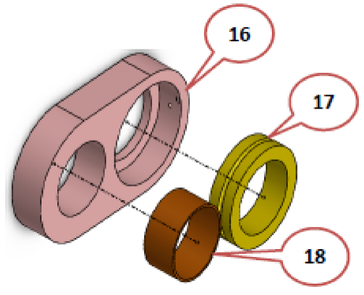
UPPER STRAIGHTENER ROLLER COMPONENT



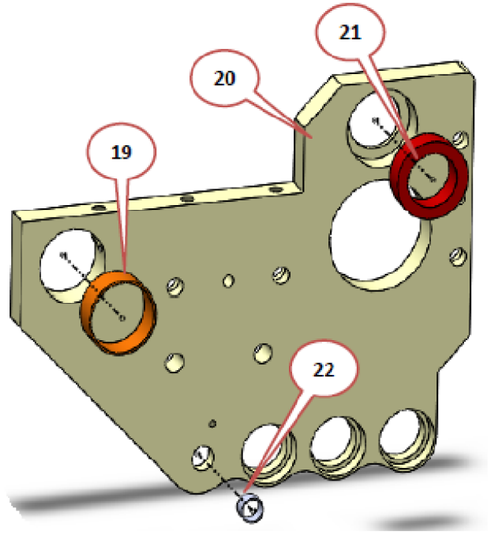
DIRECTION ROLLER COMPONENT



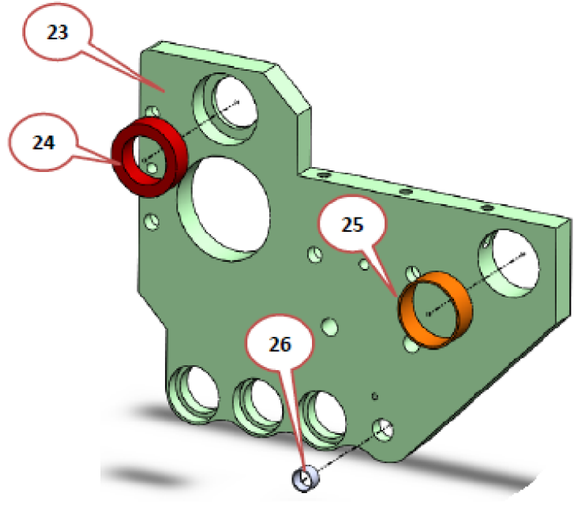
CYLINDER SEAT COMPONENT



ECCENTRIC CONNECTION ROD COMPONENT



RIGHT INSTALLATION BOARD GROUP



LEFT INSTALLATION BOARD GROUP

DESCRIPTION
ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-2000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-2201-00	AUXILIARY SMALL ROLLER	2
2	AZ-SFX-XXXX-2202-00	AUXILIARY ROLLER	2
3	AZ-SFX-XXXX-2203-00	AUXILIARY SHAFT	4
4	AZ-SFX-XXXX-2204-00	NA6932	8
5	AZ-SFX-XXXX-2205-00	SF-AWC PAD (32X54X1.5)	8
6	AZ-SFX-XXXX-2206-00	UPPER PLATE	2
7	AZ-SFX-XXXX-2207-00	An AUXILIARY BOARD	1
8	AZ-SFX-XXXX-2208-00	DEEP GROOVE BALL BEARING 6206-2Z	2
9	AZ-SFX-XXXX-2209-00	UPPER FLAT ROLLER	1
10	AZ-SFX-XXXX-2210-00	ELASTIC BLOCK B TYPE 55 WITH HOLES	2
11	AZ-SFX-XXXX-2211-00	DEEP GROOVE BALL BEARING 6206-2Z	2
12	AZ-SFX-XXXX-2212-00	DIRECTIONAL ECCENTRIC AXIS	1
13	AZ-SFX-XXXX-2213-00	STRAIGHTENER DIRECTION ROLLER	1
14	AZ-SFX-XXXX-2214-00	CYLINDER SUPPORT	2
15	AZ-SFX-XXXX-2215-00	JDB EDGE INLAID SET BEARINGS (36X45X35)	2
16	AZ-SFX-XXXX-2216-00	CONNECTING SEAT	1
17	AZ-SFX-XXXX-2217-00	NA4916	1
18	AZ-SFX-XXXX-2218-00	JF-800 BEARING (758040)	1
19	AZ-SFX-XXXX-2219-00	FB-090 BEARING (707530)	1
20	AZ-SFX-XXXX-2220-00	RIGHT INSTALLATION PLATE	1
21	AZ-SFX-XXXX-2221-00	ROLLER BEARING NA4911	1
22	AZ-SFX-XXXX-2222-00	SF-1X BEARING (222515)	1
23	AZ-SFX-XXXX-2223-00	ROLLER BEARINGS NA4911	1
24	AZ-SFX-XXXX-2224-00	LEFT INSTALLATION PLATE	1
25	AZ-SFX-XXXX-2225-00	FB-090 BEARING (707530)	1
26	AZ-SFX-XXXX-2226-00	S-1X BEARING (222515)	1

DESCRIPTION
ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-2000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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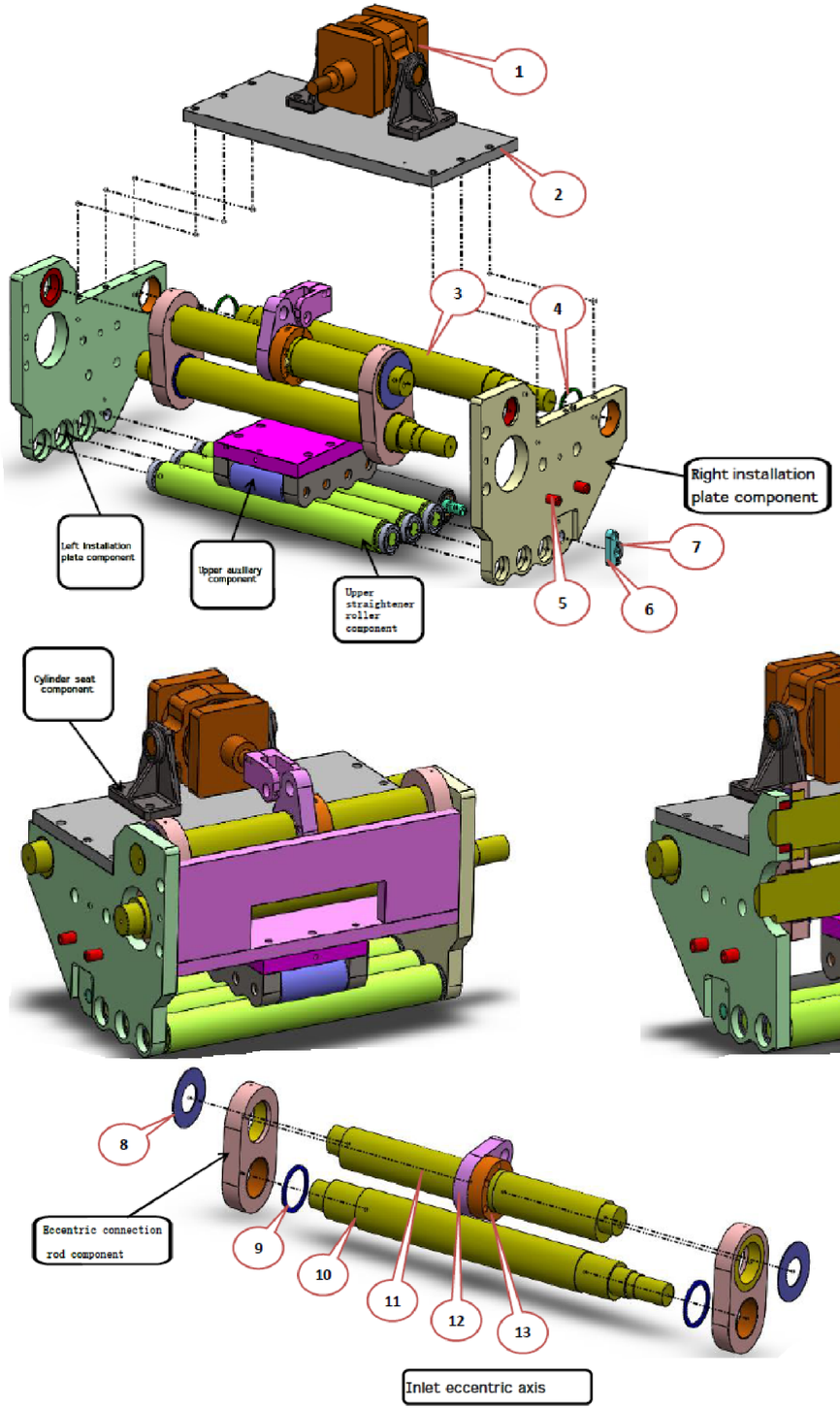

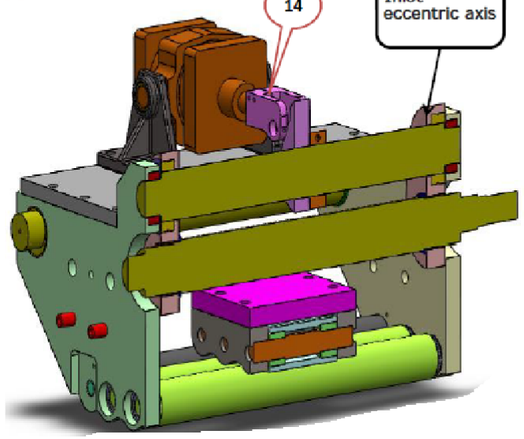

Inlet eccentric axis

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-20004-00	SCS2-TC-140B-75	1
2	AZ-SFX-XXXX-2003-00	UPPER PANEL	1
3	AZ-SFX-XXXX-2004-00	OUTLET ECCENTRIC AXIS	1
4	AZ-SFX-XXXX-2005-00	WASHER	2
5	AZ-SFX-XXXX-2006-00	HORIZONTAL PPOSITIONING	2
6	AZ-SFX-XXXX-2007-00	LOCK-UP SEAT	1
7	AZ-SFX-XXXX-2008-00	OUTLET RULER	1
8	AZ-SFX-XXXX-2301-00	ECCENTRIC AXIS WASHER	2
9	AZ-SFX-XXXX-2302-00	WASHER	2
10	AZ-SFX-XXXX-2303-00	INLET ECCENTRIC AXIS	1
11	AZ-SFX-XXXX-2304-00	OPEN ECCENTRIC AXIS	1
12	AZ-SFX-XXXX-2305-00	ECCENTRIC ROCKER	1
13	AZ-SFX-XXXX-2306-00	ROCKER LOCK RING	1
14	AZ-SFX-XXXX-20004.1-00	STRAIGHTENER CYLINDER CONNECTOR	1

DESCRIPTION
ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-2000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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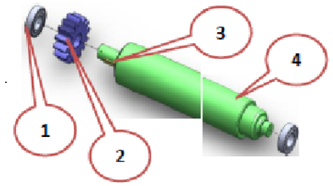
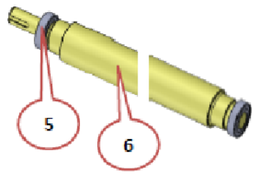
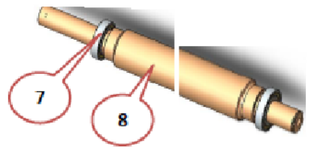


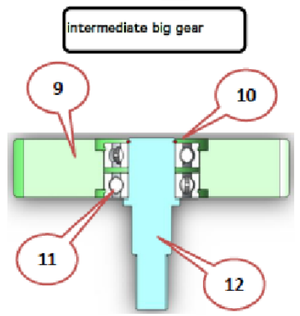
Guide press axis component

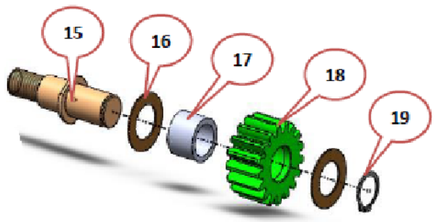


Lower straightener roller component

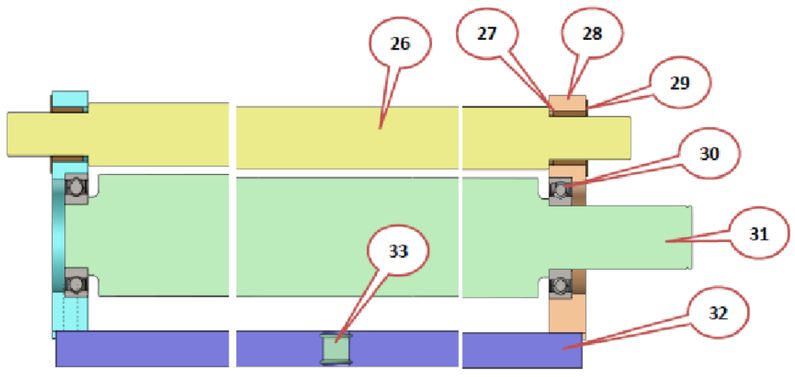


Main feeding roller component





Intermediate gear component



Feeding roller component

DESCRIPTION	ROLLERS ASSEMBLY
PART NO	AZ-SFX-XXXX-2000-00
DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-2401-00	DEEP GROOVE BALL BEARING 6206-2Z	2
2	AZ-SFX-XXXX-2402-00	FEED GEAR	1
3	AZ-SFX-XXXX-2403-00	FLAT KEY A 10 X 361	1
4	AZ-SFX-XXXX-2404-00	FRONT GUIDE PRESS AXIS	1
5	AZ-SFX-XXXX-2501-00	DEEP GROOVE BALL BEARING 6206-2Z	2
6	AZ-SFX-XXXX-2502-00	LOWER STRAIGHTENING ROLLER	1
7	AZ-SFX-XXXX-2601-00	DEEP GROOVE BALL BEARINGS 6209-2Z	2
8	AZ-SFX-XXXX-2602-00	MAIN FEEDING ROLLER	1
9	AZ-SFX-XXXX-2701-00	INTERMEDIATE BIG GEAR	1
10	AZ-SFX-XXXX-2702-00	ELASTIC BLOCK B TYPE 35 WITH HOLES	2
11	AZ-SFX-XXXX-2703-00	DEEP GROOVE BALL BEARINGS 6207-nR	2
12	AZ-SFX-XXXX-2704-00	INTERMEDIATE GEAR SHAFT	1
15	AZ-SFX-XXXX-2801-00	INTERMEDIATE GEAR SHAFT	1
16	AZ-SFX-XXXX-2802-00	SF-1WC PAD (32X54X1.5)	2
17	AZ-SFX-XXXX-2803-00	ROLLER BEARING TAF304030	1
18	AZ-SFX-XXXX-2804-00	INTERMEDIATE GEAR	1
19	AZ-SFX-XXXX-2805-00	ELSTIC BLOCK B TYPE B SHAFT 30	1
26	AZ-SFX-XXXX-2008-00	PRESS ROLLER SHAFT	1
27	AZ-SFX-XXXX-2009-00	JDB-1 BEARING (303825)	2
28	AZ-SFX-XXXX-2010-00	ROLLER BRACKET	1
29	AZ-SFX-XXXX-2011-00	SF-1WC PAD (32X54X1.5)	2
30	AZ-SFX-XXXX-2012-00	DEEP GROOVE BALL BEARING 6209-2Z	2
31	AZ-SFX-XXXX-2013-00	FEED ROLLER	1
32	AZ-SFX-XXXX-2014-00	AIR CYLINDER PRESS PLATE	1
33	AZ-SFX-XXXX-2015-00	NO REFUELING JOINT BEARING (GB25BC)	1

DESCRIPTION
ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-2000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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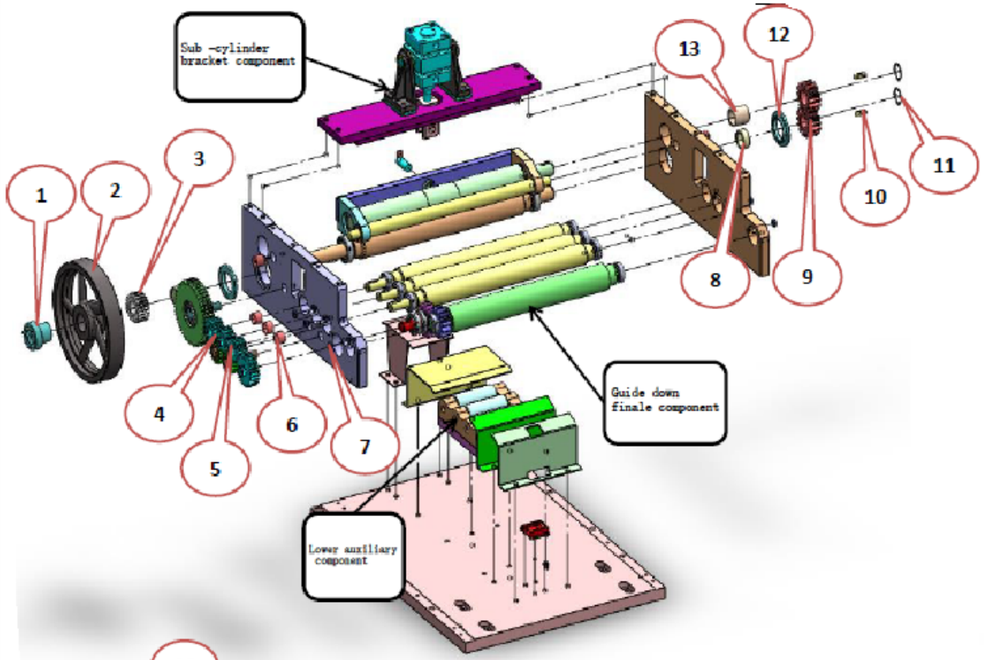

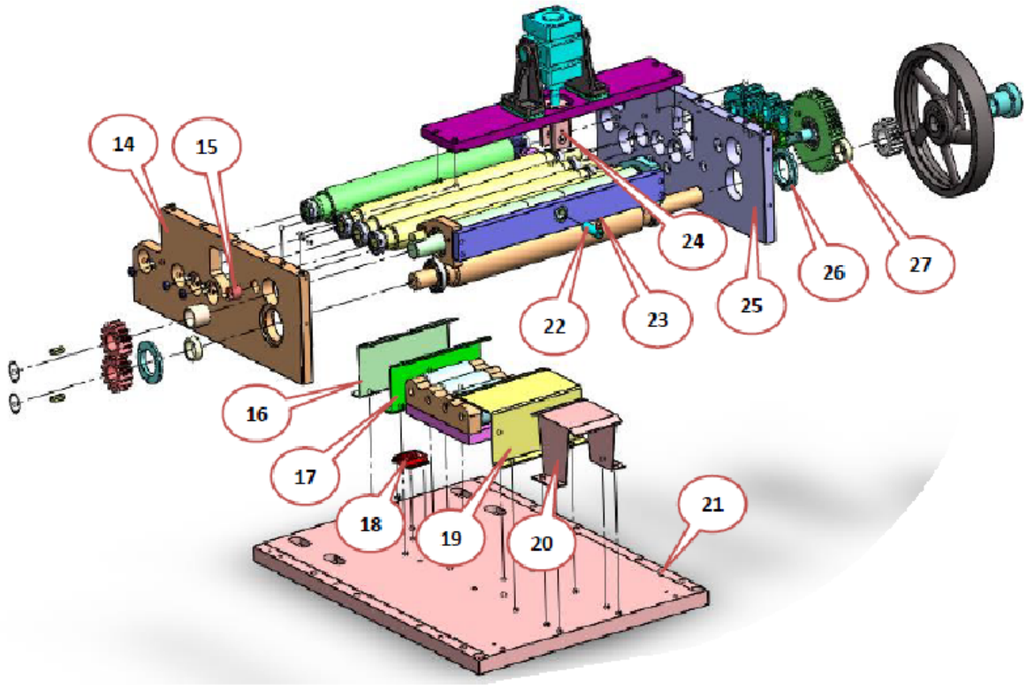

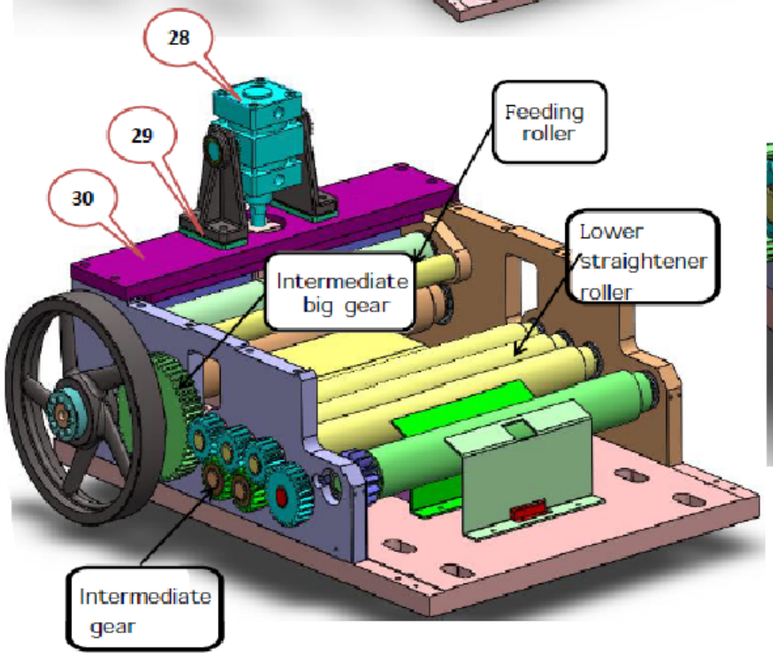

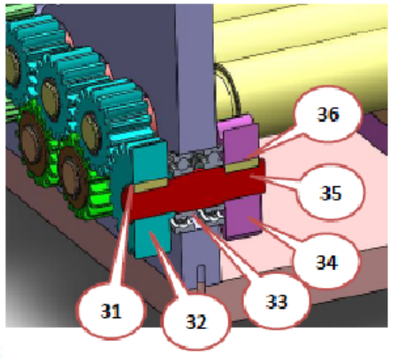

DESCRIPTION	ROLLERS ASSEMBLY
PART NO	AZ-SFX-XXXX-2000-00
DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-2016-00	FT-K (45X59X70)	1
2	AZ-SFX-XXXX-2017-00	BAND WHEEL	1
3	AZ-SFX-XXXX-2018-00	FEED GEAR	1
4	AZ-SFX-XXXX-2019-00	PRESS ROLLER GEAR	7
5	AZ-SFX-XXXX-2020-00	ELESTIC BLOCK B TYPE SHAFT 30	7
6	AZ-SFX-XXXX-2021-00	STRAIGHTENER ROLLER WASHER	7
7	AZ-SFX-XXXX-2022-00	UPPER ROLLER AXIS PRESSURE PAD	7
8	AZ-SFX-XXXX-2023-00	LOWER DRIVING ROLLER WASHER	1
9	AZ-SFX-XXXX-2024-00	FEEDER	2
10	AZ-SFX-XXXX-2025-00	FLAT KET C TYPE 14 X 40	2
11	AZ-SFX-XXXX-2026-00	ELASTIC BLOCK B TYPE 45	2
12	AZ-SFX-XXXX-2027-00	PRESS CAP	1
13	AZ-SFX-XXXX-2028-00	LOWER DRIVING ROLLER WASHER	1
14	AZ-SFX-XXXX-2029-00	RIGHT PLATE	1
15	AZ-SFX-XXXX-2030-00	SF-11X BEARING (303430)	1
16	AZ-SFX-XXXX-14004-00	INLET CARRIER PLATE	1
17	AZ-SFX-XXXX-14005-00	INTERMEDIATE CARRIER PLATE	1
18	AZ-SFX-XXXX-15001-00	REFLECTOR PLATE SEAT	1
19	AZ-SFX-XXXX-14006-00	OUTLER CARRIER PLATE	1
20	AZ-SFX-XXXX-14007-00	OUTLET GUIDE PLATE OF END	1
21	AZ-SFX-XXXX-2031-00	BASE PLATE	1
22	AZ-SFX-XXXX-2032-00	PLUG	1
23	AZ-SFX-XXXX-2033-00	STOP PAD	1
24	AZ-SFX-XXXX-2034-00	U SHAPED CONNECTOR	1
25	AZ-SFX-XXXX-2035-00	LEFT PLATE	1
26	AZ-SFX-XXXX-2036-00	PRESS CAP	1
27	AZ-SFX-XXXX-2037-00	LOWER DRIVING ROLLER WASHER	1
28	AZ-SFX-XXXX-20005-00	SCA2-TC-100B-20	1
29	AZ-SFX-XXXX-2038-00	FEEDING BRACKET PAD	2
30	AZ-SFX-XXXX-2039-00	CYLINDER INSTALLATION PAD	1
31	AZ-SFX-XXXX-2040-00	ELASTIC BLOCK B TYPE 30	1
32	AZ-SFX-XXXX-2041-00	TRANSMISSION GEAR	1
33	AZ-SFX-XXXX-2042-00	DEEP GROOVE BALL BEARING 6207-nR	1
34	AZ-SFX-XXXX-2043-00	TRANSMISSION GEAR	1
35	AZ-SFX-XXXX-2044-00	GEAR SHAFT	1
36	AZ-SFX-XXXX-2045-00	ORDINARY FLAT KEY A 10 X 32	2

DESCRIPTION
ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-2000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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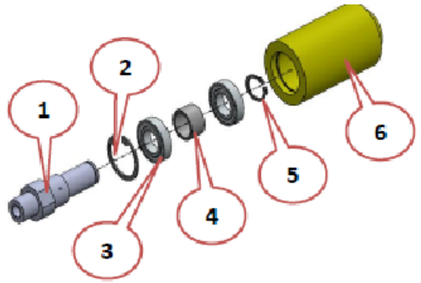
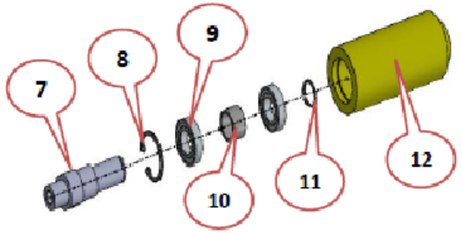
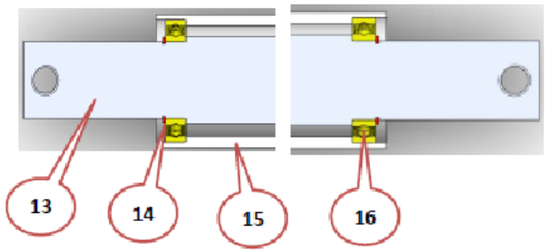


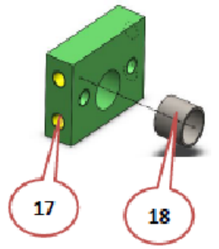
Short direction roller component



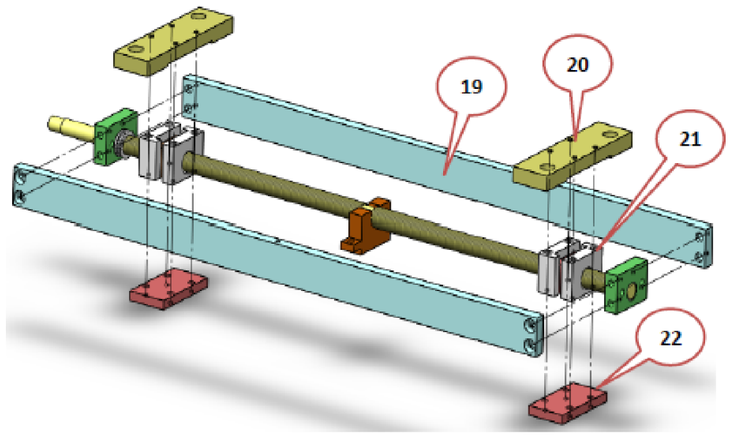
Long directional roller component

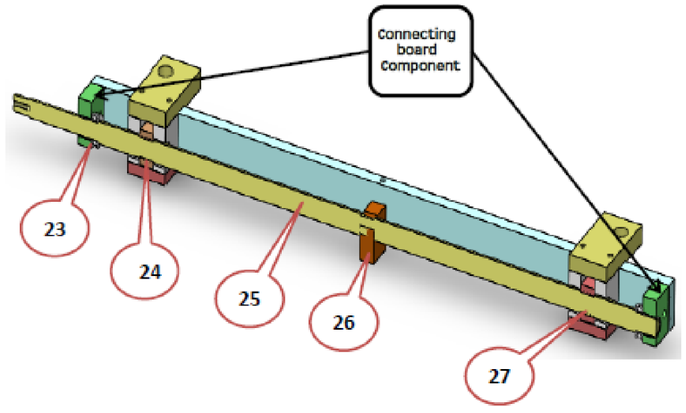


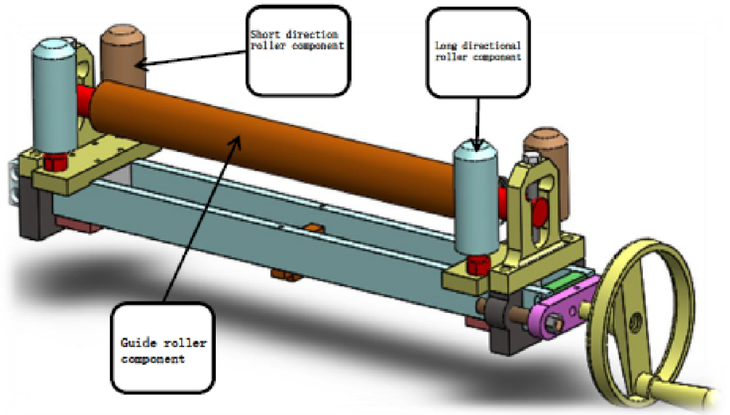
Guide roller component

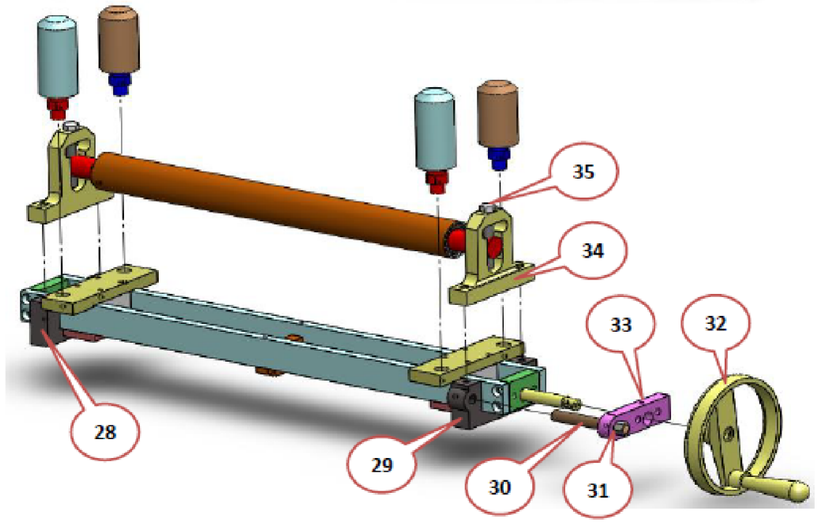


Connect board component









DESCRIPTION	ENTRY GUIDING ROLLERS ASSEMBLY
PART NO	AZ-SFX-XXXX-4100-00
DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-4101-00	REAR GUIDE ROLLER SHAFT	1
2	AZ-SFX-XXXX-4102-00	ELASTIC BLOCK B TYPE 37	1
3	AZ-SFX-XXXX-4103-00	DEEP GROOVE BALL BEARINGS 6904-2Z	2
4	AZ-SFX-XXXX-4104-00	PAD	1
5	AZ-SFX-XXXX-4105-00	ELASTIC BLOCK A TYPE 20	1
6	AZ-SFX-XXXX-4106-00	SHORT DIRECTION ROLLER	1
7	AZ-SFX-XXXX-4107-00	ECCENTRIC SHAFT	1
8	AZ-SFX-XXXX-4108-00	CIRCLIPS FOR HOLES B TYPE 37	1
9	AZ-SFX-XXXX-4109-00	DEEP GROOVE BALL BEARINGS 6904-2Z	2
10	AZ-SFX-XXXX-4110-00	PAD	1
11	AZ-SFX-XXXX-4111-00	ELASTIC BLOCK A TYPE 20	1
12	AZ-SFX-XXXX-4112-00	LONG DIRECTION ROLLER	1
13	AZ-SFX-XXXX-4113-00	GUIDE SHAFT	1
14	AZ-SFX-XXXX-4114-00	ELASTIC BLOCK A TYPE 35	2
15	AZ-SFX-XXXX-4115-00	GUIDE ROLLER	1
16	AZ-SFX-XXXX-4116-00	DEEP GROOVE BALL BEARINGS 6907-2Z	2
17	AZ-SFX-XXXX-4117-00	CONNECTING PLATE	2
18	AZ-SFX-XXXX-4118-00	SF-1X BEARING (202320)	2
19	AZ-SFX-XXXX-4119-00	GUIDE ROLLER BOARD	1
20	AZ-SFX-XXXX-4120-00	GUIDE DIRECTION ROLLER BOARD	1
21	AZ-SFX-XXXX-4121-00	NUT PRESS PLATE	4
22	AZ-SFX-XXXX-4122-00	INLET RESS PLATE	2
23	AZ-SFX-XXXX-4123-00	THRUST BALL BEARINGS 51104	2
24	AZ-SFX-XXXX-4124-00	RIGHT ROTATION NUT BOARD	1
25	AZ-SFX-XXXX-4125-00	ADJUST SCREW	1
26	AZ-SFX-XXXX-4126-00	POSITIONING PRESS PLATE	1
27	AZ-SFX-XXXX-4127-00	LEFT ROTATION NUT PLATE	1
28	AZ-SFX-XXXX-4128-00	REAR POSITION BLOCK	1
29	AZ-SFX-XXXX-4129-00	FRONT POSITIONING BOARD	1
30	AZ-SFX-XXXX-4130-00	ADJUST SCREW	1
31	AZ-SFX-XXXX-4131-00	NUT C CLASS M14	1
32	AZ-SFX-XXXX-4132-00	TWO-WHEEL SPOKE HANDLE	1
33	AZ-SFX-XXXX-4133-00	POSITIONING PLATE	1
34	AZ-SFX-XXXX-4134-00	SUPPORT BLOCK	2
35	AZ-SFX-XXXX-4135-00	SCREW	2

DESCRIPTION
ENTRY ROLLERS GUIDING ASSEMBLY

PART NO
AZ-SFX-XXXX-4100-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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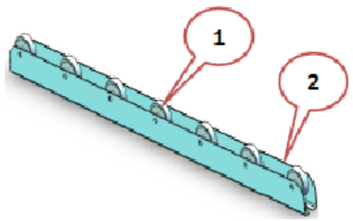
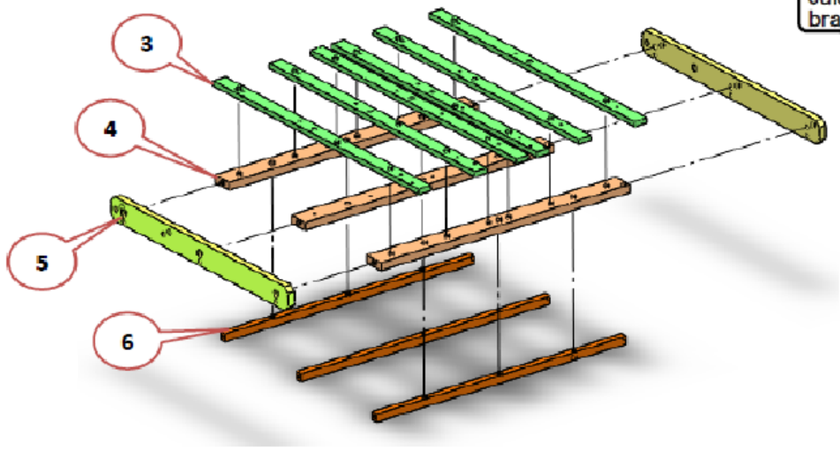


Guide wheel fixed bracket group



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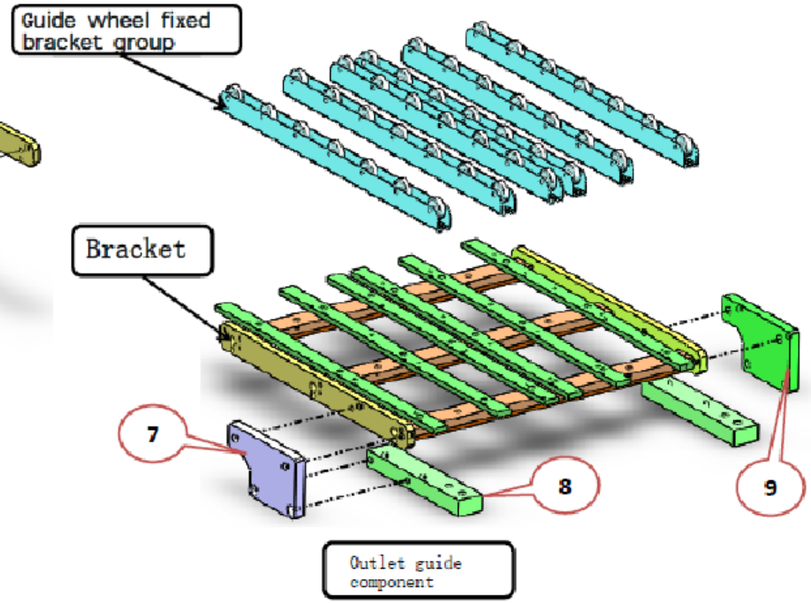

Outlet guide component

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-4201-00	RIFLE WHEEL HLX GLUE 38X8.1	42
2	AZ-SFX-XXXX-4202-00	GUIDE WHEEL FIXED BRACKET	6
3	AZ-SFX-XXXX-4203-00	BRACKET FIXING PLATE	6
4	AZ-SFX-XXXX-4204-00	BRACKET CONNECT PLATE	3
5	AZ-SFX-XXXX-4205-00	BRACKET SIDE BOARD	2
6	AZ-SFX-XXXX-4206-00	BRACKET REINFORCEMENT	3
7	AZ-SFX-XXXX-4207-00	BRACKET UPPORT PLATE	1
8	AZ-SFX-XXXX-4208-00	BASE INSTALLATION PLATE	2
9	AZ-SFX-XXXX-4209-00	BRACKET SUPPORT PLATE	1

DESCRIPTION
EXIT GUIDING ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-4200-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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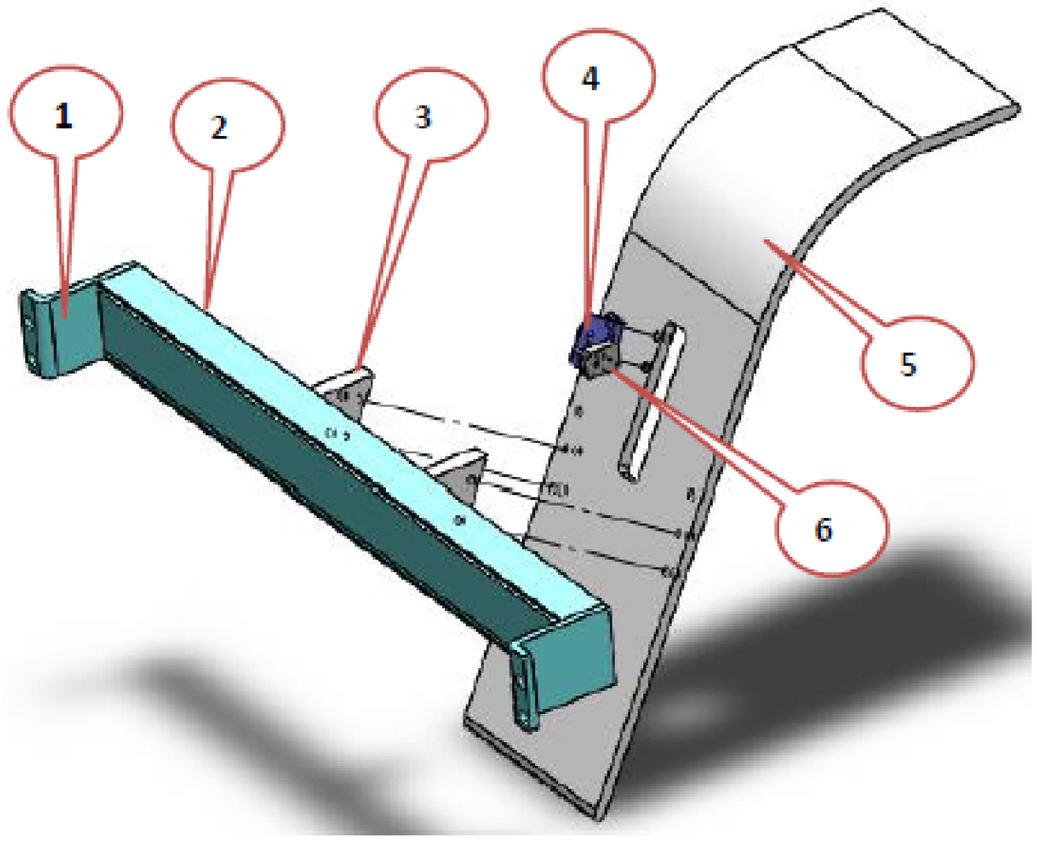

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-5001-00	BLOCKOUT INSTALLATION PLATE	1
2	AZ-SFX-XXXX-5002-00	SINK	1
3	AZ-SFX-XXXX-5003-00	SIDE PALTE	2
4	AZ-SFX-XXXX-5004-00	PHOTOELECRIC SEAT	1
5	AZ-SFX-XXXX-5005-00	INLET PLATE	1
6	AZ-SFX-XXXX-15002-00	PHOTOELECTRIC SENSOR	1

DESCRIPTION
EXIT GUIDING ROLLERS ASSEMBLY

PART NO
AZ-SFX-XXXX-4200-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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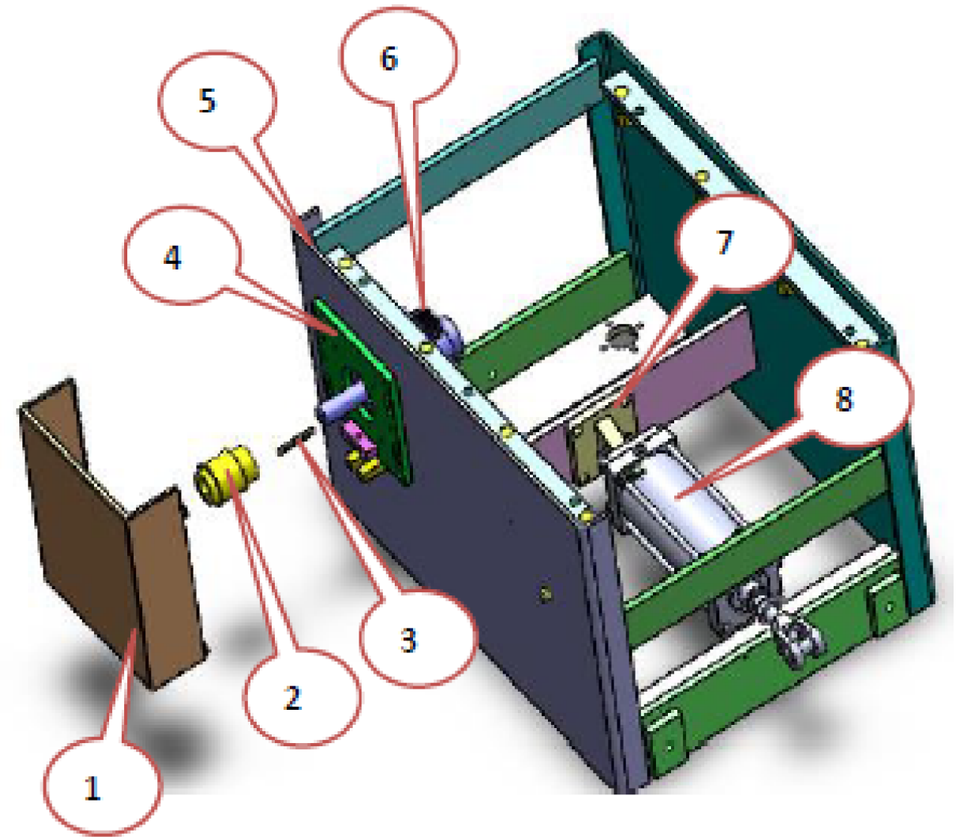

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-14008-00	REAR COVER	1
2	AZ-SFX-XXXX-5002-00	MOTOR BAND	1
3	AZ-SFX-XXXX-5003-00	KEYWAY	1
4	AZ-SFX-XXXX-5004-00	MOTOR PLATE	1
5	AZ-SFX-XXXX-1002-00	STRAGHTENER SHELF	1
6	AZ-SFX-XXXX-6001-00	SERVOMOTOR	1
7	AZ-SFX-XXXX-20006.1-00	SCS2-140-B1 CONNECTOR	1
8	AZ-SFX-XXXX-20006-00	SCS-LN-CB-140B-300-R0-D-YB1 CYLIDNER	1

DESCRIPTION

MOTOR ASSEMBLY

PART NO

AZ-SFX-XXXX-6000-00

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DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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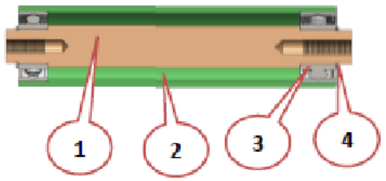
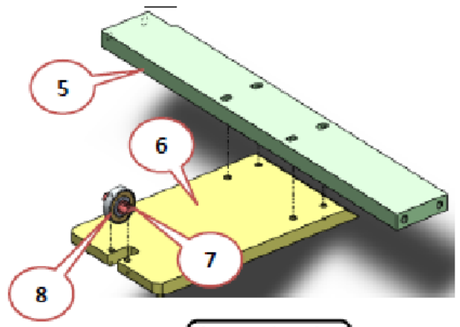
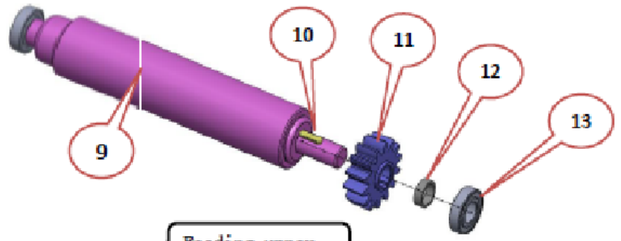


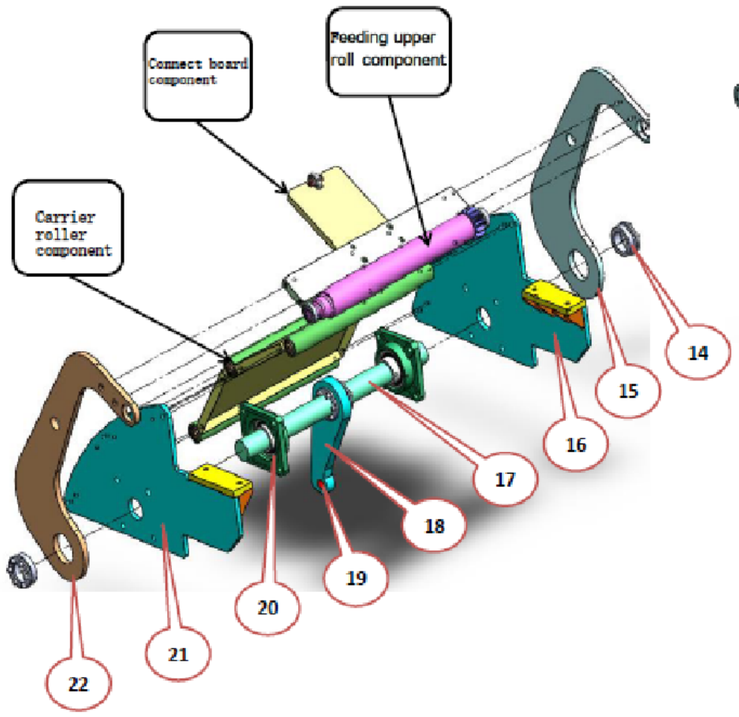
Carrier roller component

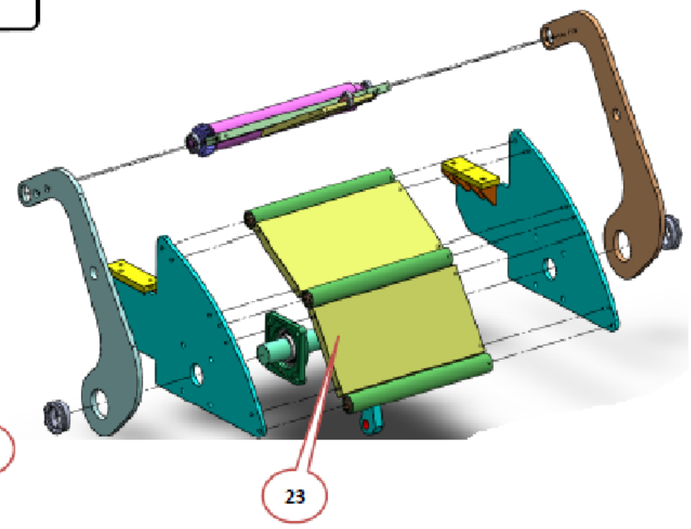


Connect board component



Feeding upper roller component





DESCRIPTION

PRESSURE ARM ASSEMBLY

PART NO

AZ-SFX-XXXX-7000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-7001-00	CARRIER SHAFT	1
2	AZ-SFX-XXXX-7002-00	CARRIER ROLLER	1
3	AZ-SFX-XXXX-7003-00	DEEP GROOVE BALL BEARING 6205-2Z	2
4	AZ-SFX-XXXX-7004-00	ELASTIC BLOCK B TYPE 25	2
5	AZ-SFX-XXXX-7005-00	CONNECTING PLATE	1
6	AZ-SFX-XXXX-7006-00	FRONT BAFFLE	1
7	AZ-SFX-XXXX-7007-00	BEARING SEAT	1
8	AZ-SFX-XXXX-7008-00	DEEP GROOVE BALL BEARING 6304-2Z	1
9	AZ-SFX-XXXX-7009-00	INLET UPPER ROLLER	1
10	AZ-SFX-XXXX-7010-00	ORDINARY FLAT KEY A 10X36	1
11	AZ-SFX-XXXX-7011-00	FEED GEAR	1
12	AZ-SFX-XXXX-7012-00	SHAFT SLEEVE	1
13	AZ-SFX-XXXX-7013-00	DEEP GROOVE BALL BEARING 6206-2Z	1
14	AZ-SFX-XXXX-7014-00	FT-H03-065	1
15	AZ-SFX-XXXX-7015-00	FOLDING ARM	1
16	AZ-SFX-XXXX-7016-00	INLET RIGHT SIDE PLATE WELDED	1
17	AZ-SFX-XXXX-7017-00	FOLDING ARM SHAFT	1
18	AZ-SFX-XXXX-7018-00	FOLDING ARM ROD	1
19	AZ-SFX-XXXX-7019-00	SF-1X BEARING (283234)	1
20	AZ-SFX-XXXX-7020-00	SQUARE SHAPED SEAT BEARING UCF213	2
21	AZ-SFX-XXXX-7021-00	INLET LEFT SIDE PLATE WELDED	1
22	AZ-SFX-XXXX-7022-00	FOLDING ARM	1
23	AZ-SFX-XXXX-7023-00	BAFFLE	2

DESCRIPTION
PRESSURE ARM ASSEMBLY

PART NO
AZ-SFX-XXXX-7000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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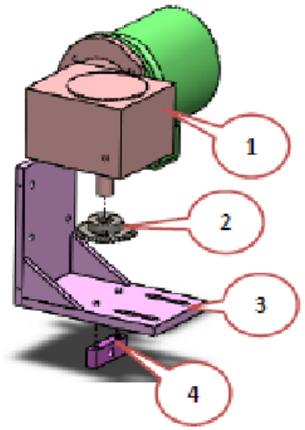
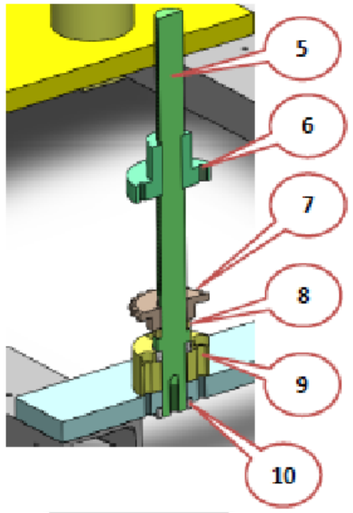
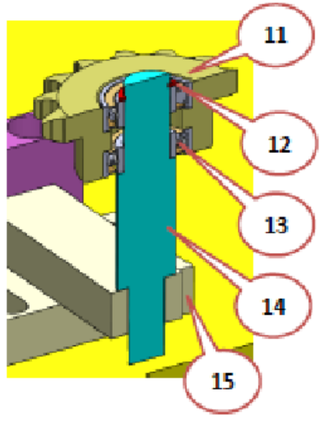
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-8001-00	MOTOR AND REDUCER	1
2	AZ-SFX-XXXX-8002-00	REDUCER SPROCKET	1
3	AZ-SFX-XXXX-8003-00	MOTOR FIXED SEAT	1
4	AZ-SFX-XXXX-8004-00	MOTOR RIGHT BOARD	4
5	AZ-SFX-XXXX-8005-00	SCREW	4
6	AZ-SFX-XXXX-8006-00	LIFT NUT	4
7	AZ-SFX-XXXX-8007-00	LIFT LINK WHEEL	4
8	AZ-SFX-XXXX-8008-00	SPROCKET CUSHION CIRCLE	4
9	AZ-SFX-XXXX-8009-00	POSITIONING SET	4
10	AZ-SFX-XXXX-8010-00	THRUST BALL BEARINGS 51107	4
11	AZ-SFX-XXXX-8011-00	TIGHT CHAIN WHEEL	1
12	AZ-SFX-XXXX-8012-00	ELASTIC BLOCK B TYPE 20	1
13	AZ-SFX-XXXX-8013-00	DEEP GROOVE BALL BEARING 6904-2Z	2
14	AZ-SFX-XXXX-8014-00	TIGHT SHAFT	1
15	AZ-SFX-XXXX-8015-00	TIGHT	1
16	AZ-SFX-XXXX-8016-00	HEADER	2
17	AZ-SFX-XXXX-8017-00	LINK SPLIN WHEEL	1
18	AZ-SFX-XXXX-8018-00	MOTOR TIGHT BOARD	1
19	AZ-SFX-XXXX-8019-00	CHAIN	1



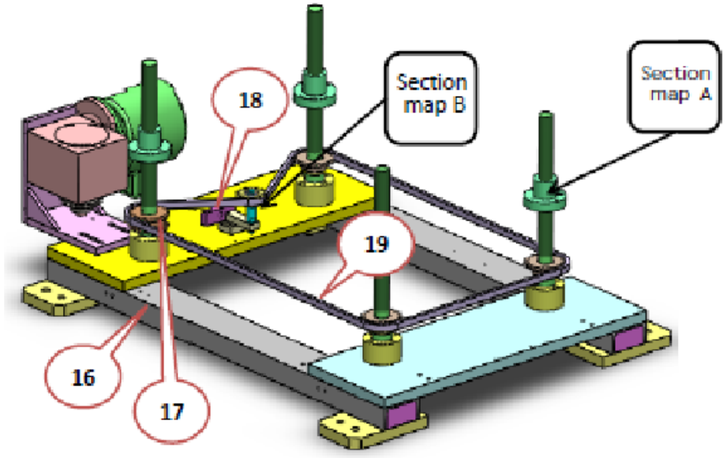
Motor component



Section magnification
Figure A



Section magnifying
Figure B



Base component

DESCRIPTION	LEVELING SYSTEM ASSEMBLY
PART NO	AZ-SFX-XXXX-8000-00
DRAWN BY: CHARLES LEFEBVRE	SCALE: 4:1
DATE: 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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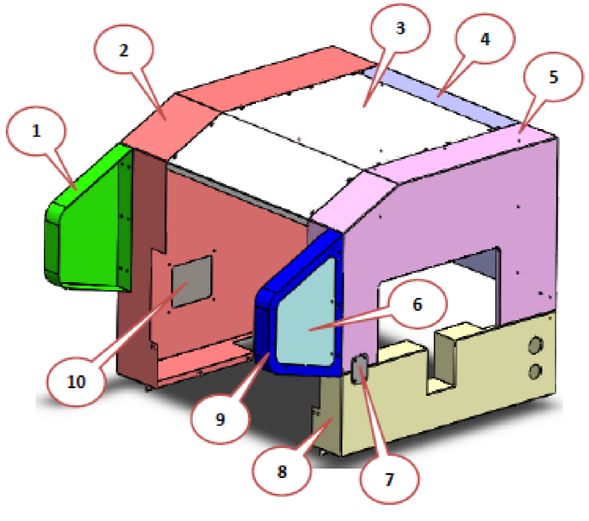
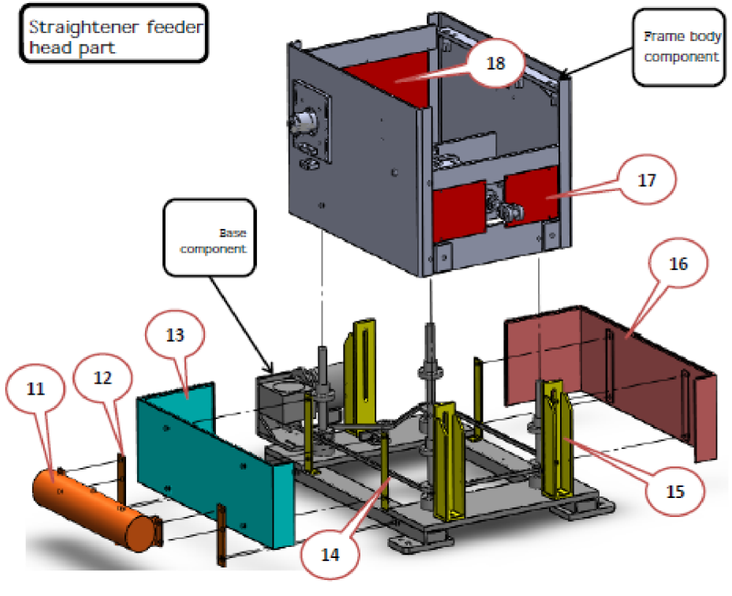
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	AZ-SFX-XXXX-14008-00	MOTOR AND REDUCER	1
2	AZ-SFX-XXXX-14002-00	REDUCER SPROCKET	1
3	AZ-SFX-XXXX-14003-00	MOTOR FIXED SEAT	1
4	AZ-SFX-XXXX-14004-00	MOTOR RIGHT BOARD	4
5	AZ-SFX-XXXX-14005-00	SCREW	4
6	AZ-SFX-XXXX-14006-00	LIFT NUT	4
7	AZ-SFX-XXXX-14007-00	LIFT LINK WHEEL	4
8	AZ-SFX-XXXX-14008-00	SPROCKET CUSHION CIRCLE	4
9	AZ-SFX-XXXX-14009-00	POSITIONING SET	4
10	AZ-SFX-XXXX-14010-00	THRUST BALL BEARINGS 51107	4
11	AZ-SFX-XXXX-20001-00	TIGHT CHAIN WHEEL	1
12	AZ-SFX-XXXX-20001.1-00	ELASTIC BLOCK B TYPE 20	1
13	AZ-SFX-XXXX-8013-00	DEEP GROOVE BALL BEARING 6904-2Z	2
14	AZ-SFX-XXXX-8014-00	TIGHT SHAFT	1
15	AZ-SFX-XXXX-8015-00	TIGHT	1
16	AZ-SFX-XXXX-8016-00	HEADER	2
17	AZ-SFX-XXXX-8017-00	LINK SPLIN WHEEL	1
18	AZ-SFX-XXXX-8018-00	MOTOR TIGHT BOARD	1
19	AZ-SFX-XXXX-8019-00	CHAIN	1



Cover component



DESCRIPTION
GUARDING ASSEMBLY

PART NO
AZ-SFX-XXXX-14000-00

DRAWN BY CHARLES LEFEBVRE	SCALE 4:1
DATE 2025-02-25	MATERIAL
RAW MATERIAL	QTY
TREATMENT	WEIGHT

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