

***ELITE*** **A.G**

LS06 FULL  
AUTOMATIC ELASTIC  
RING MAKER AUTOMAT

## **SAFETY INSTRUCTIONS**

This instruction manual and the indications and symbols that are used on the machine itself are provided in order to ensure safe operation of this machine and to prevent accidents and injury to yourself or other people.

## **WORK ENVIRONMENT**

Use the sewing machine in an area which is free from sources of strong electrical noise such as electrical line noise or static electric noise. Sources of strong electrical noise may cause problems with correct operation.

Any fluctuations in the power supply voltage should be within 10% of the rated voltage for the machine. Voltage fluctuations which are greater than this may cause problems with correct operation.

The power supply capacity should be greater than the requirements for the sewing machine's power consumption. Insufficient power supply capacity may cause problems with correct operation.

The ambient temperature should be within the range of 5C to 35C during use. Temperatures which are lower or higher than this may cause problems with correct operation.

The relative humidity should be within the range of 45% to 85% during use, and no dew formation should occur in any devices. Excessively dry or humid environments and dew formation may cause problems with correct operation.

## **CAUTION**

This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.

Be sure to wear protective goggles when using the machine. If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and injury may result.

Use threading mode or turn off the power first in order to carry out threading.

If using a work table which has casters, the casters should be secured in such a way so that they cannot move.

Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result

Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.

If an error occurs in machine operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact dealer or a qualified technician.

## MAINTENANCE INSPECTION

Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.

Ask your dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.

Turn off the power switch and disconnect the power cord from the wall outlet at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

When carrying out inspection, adjustment and maintenance When replacing consumable parts such as the rotary hook

If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.

Hold the machine head with both hands when tilting it back or returning it to its original position. Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine.

If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.

Use only the proper replacement parts as specified by Elite A.G.

Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.

## WARNING LABELS

Please follow the instructions on the labels at all times when using the machine. If the labels have been removed or are difficult to read please contact ELITE A.G.



Be careful to avoid injury from the moving thread take-up.

Be careful not to get your hands caught when returning the machine head to its original position after it has been tilted.

## INSTALLATION

Machine installation should only be carried out by a qualified technician.

Please contact Elite A.G. for any electrical problem that may need to be repair.

Do not connect the power cord until installation is complete, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury

All cords should be secured at least 25 mm away from any moving parts.

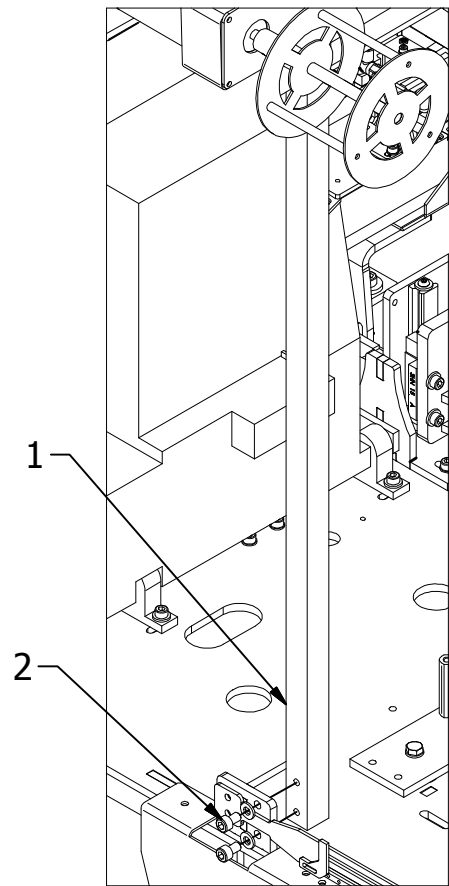
Furthermore, do not excessively bend the cable or secure it too firmly staples, otherwise there is the danger that fire or electric shocks could occur.

Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock, and problems with correct operation may also occur.



### 1-1. Installing the feeding unit

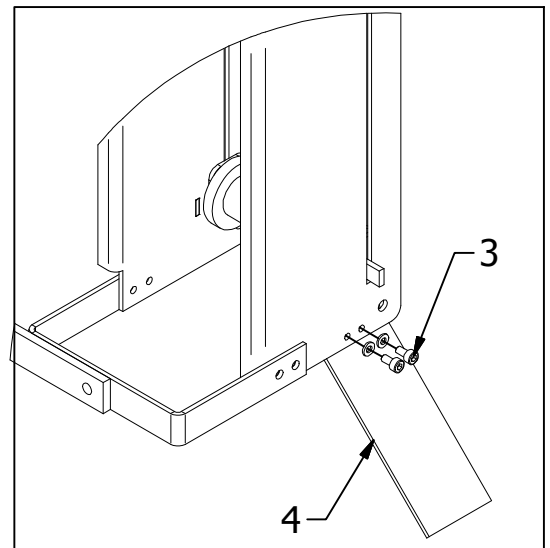
- (1) Feed motor assembly part (1pcs.)
- (2) M6x10 Screw with Washer (2pcs.)



### 1-2. Installing the elastic feed unit

- (3) M3x5 Screw With Washer ( 2pcs.)
- (4) Elastic fixing part (1 pcs)

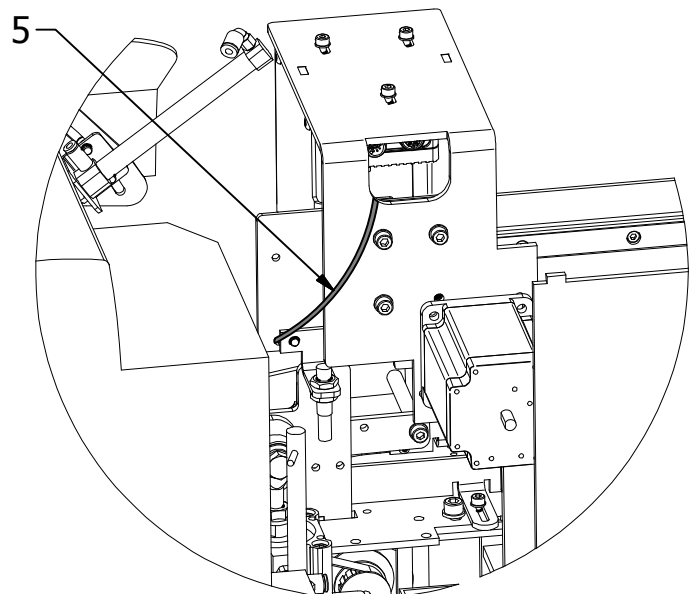
Note: Install it on the outside.

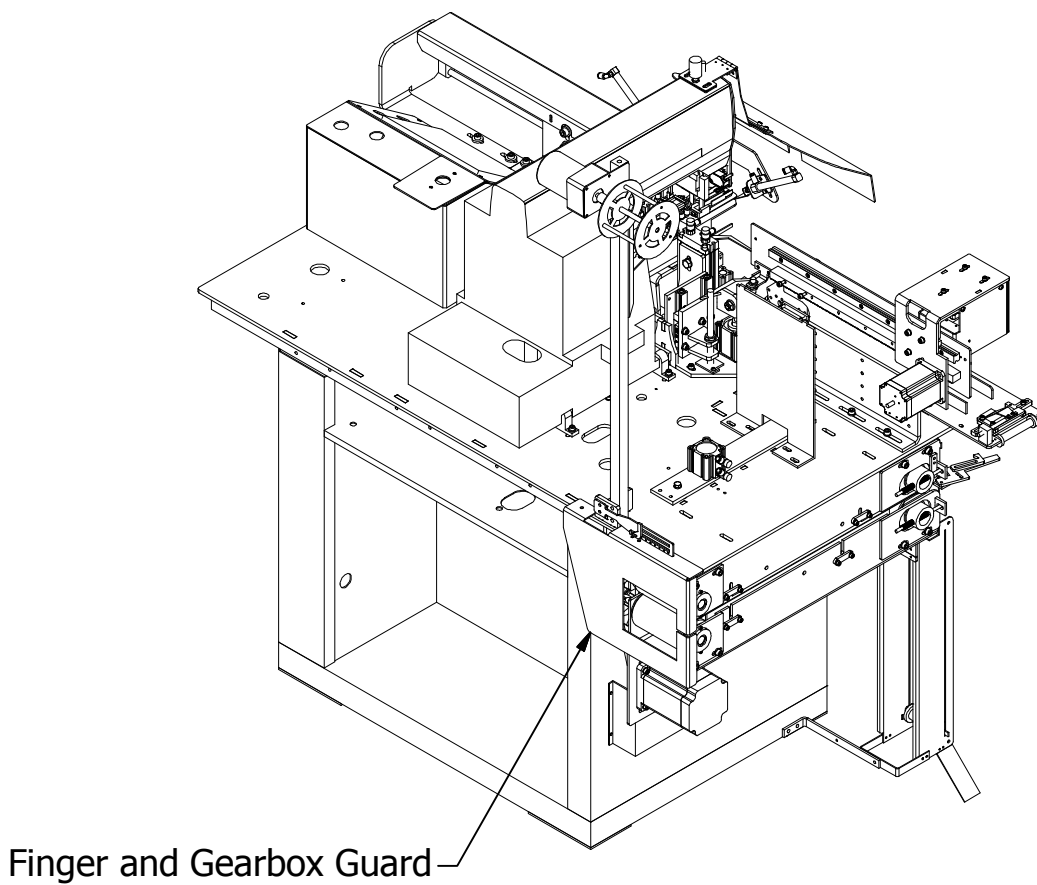
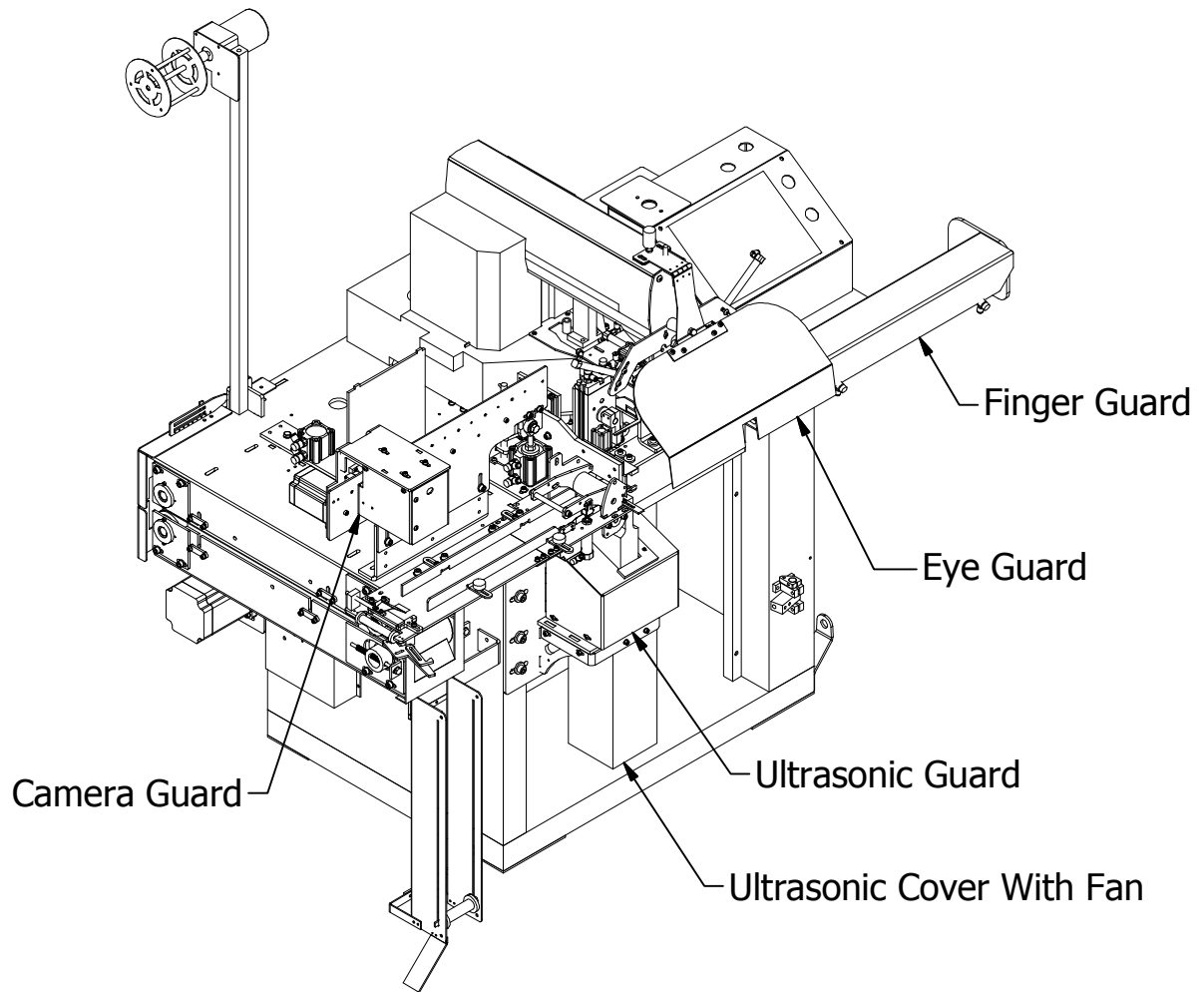


### 1-3. Installing the Camera unit

- (5) Plastic cable band (1pcs.)

Note: Cut the plastic cable band for the machine to work





## **Safety Equipments**

### **Finger Guard**

Manufactured to protect your finger and hand.

### **Camera Guard**

Manufactured to prevent any damage to the camera.

### **Finger Guard**

Manufactured to protect your finger and hand.

### **Ultrasonic Cover**

Manufactured to protect the ultrasonic unit.

### **Ultrasonic Guard**

Manufactured to protect the ultrasonic unit.

### **Partition Cover**

Manufactured to prevent any parts from falling into the ultrasonic. partition.

### **Eye Guard / Needle Guard**

Protects operator in case of needle breakage.

### **Finger Guard**

Manufactured to protect your finger and hand.

## **OPERATION OF THE ELECTRICAL SAFETY DEVICES**

### **ULTRASONIC HORN**

There is high current. Do not maintenance and repair without closing.

### **Camera**

Don't look directly at the camera light.

### **Computer**

Battery check is important.

### **Machine Electrical Panel**

There is high current. Do not maintenance and repair without closing.

### **Automat Electrical Panel**

There is high current. Do not maintenance and repair without closing.

**EN ISO 12100:2010 Safety of machinery — General principles for design —  
Risk  
assessment and risk reduction**

No.	Sub-clause of EN 12100:2010	Origin	Potential Consequences	Hazardous Situation	Risk Estimation	Risk Reduction and Protective Measures
1.1	6.2.2.1 6.2.2.2	acceleration, deceleration; angular parts;	Being run over	when the machine moves	- Se 2, Fr 4, Pr 1 Av 1, CI 6	1.Designed to comply with the standards 2.Warnings are used
1.2	6.2.3 a) 6.2.3 b)	approach of a moving element	Being thrown	Not applicable		
1.3	6.2.6 6.2.10 6.3.1 6.3.2 6.3.3 6.3.5.2	to a fixed part; cutting parts; elastic elements; falling objects;	Crushing			
1.4	6.3.5.4 6.3.5.5 6.3.5.6 6.4.1 6.4.3 6.4.4 6.4.5	high pressure; instability; moving elements; rotating elements; rough, slippery surface; sharp edges;	Cutting or severing	When maintaining the machine or the machine is running	- Se 2, Fr 4, Pr 1 Av 1, CI 6	1.Designed to comply with the standards 2.Warnings are used 3.take some PPE equipment

<b>1.5</b>			Drawing in or trapping			
<b>1.6</b>			Entanglement	When maintaining the machine or the machine is running	- Se 2, Fr 4, Pr 1 Av 1, CI 6	1.Designed to comply with the standards 2.Warnings are used 3.take some PPE equipment
<b>1.7</b>			Friction or abrasion	When maintaining the machine	- Se 2, Fr 4, Pr 1 Av 1, CI 6	1.Designed to comply with the standards 2.Warnings are used 3.take some PPE equipment
<b>1.8</b>			Impact			
<b>1.9</b>			Injection	Not applicable		
<b>1.10</b>			Shearing	When maintaining the machine	- Se 2, Fr 4, Pr 1 Av 1, CI 6	1.Designed to comply with the standards 2.Warnings are used 3.take some PPE equipment
<b>1.11</b>			Slip, trip and fall of person	When maintaining the machine or the machine is running	- Se 2, Fr 4, Pr 1 Av 1, CI 6	1.Designed to comply with the standards 2.Warnings are used 3.take some PPE equipment

<b>1.12</b>			Stabbing or puncture	When maintaining the machine	- Se 2, Fr 4, Pr 1 Av 1, CI 6	1. Designed to comply with the standards 2. Warnings are used 3. take some PPE equipment
<b>1.13</b>			Suffocation	Not applicable		

## ELECTRICAL

<b>2.1</b>				Burn	1. The main power's input	-- Se 2, Fr 1, Pr 1, Av 1, CI 3-	1. Designed to comply with the standards 2. Warnings are used
<b>2.2</b>			electromagnetic phenomena;	Electrocution	Not applicable		
<b>2.3</b>	6.2.9 6.3.2 6.3.3.2 6.3.5.4		_ live parts; _ not enough distance to live	Falling, being thrown	Not applicable		
<b>2.4</b>	6.4.4 6.4.5		parts under high voltage; _ overload; -short-circuit	Fire	Not applicable		
<b>2.5</b>				Shock	1. The main power's input	-- Se 2, Fr 1, Pr 1, Av 1, CI 3-	1. Designed to comply with the standards 2. Warnings are used

<b>.6</b>	6.2.4 b)	_ explosion;	Burn	Not applicable		
<b>2.7</b>	6.2.8 c)	_ flame;	Dehydration;	Not applicable		
<b>2.8</b>	6.3.2.7 6.3.3.2.1 6.3.4.5	_ objects or materials with a high or low temperature;	Discomfort;	Not applicable		

## NOISE

4.1		_ cavitation phenomena;	Discomfort	Using the machine		1.Designed to comply with the standards
4.2		_ exhausting system;	Loss of awareness			
4.3		_ gas leaking at high	Loss of balance			
4.4	6.2.2.2	speed;	Permanent hear loss			
4.5	6.2.3 c)	_ manufacturing	Stress			
4.6	6.2.4 c)	process	Tinnitus			
4.7	6.2.8 c)	(stamping, cutting, etc.);	Tiredness			
	6.3.1 6.3.2.1 b) 6.3.2.5.1 6.3.3.2.1 6.3.4.2 6.4.3 6.4.5.1 b) and c)	_ moving parts; _ scraping surfaces; _ unbalanced rotating parts; _ whistling pneumatics; _ worn parts.	Any other (for example, mechanical, electrical) as a consequence of an interference with speech communication or with acoustic signals.			

## VIBRATION

<b>5.1</b>		cavitation phenomena;	Discomfort	Using the machine		1.Designed to comply with the standards
<b>5.2</b>		_ misalignment of	Low-back morbidity	Not applicable		
<b>5.3</b>	6.2.2.2	moving parts;	Neurological disorder	Not applicable		
<b>5.4</b>	6.2.3 c) 6.2.8 c)	_ mobile equipment;	Osteo-articular	Not applicable		
<b>5.5</b>	6.3.3.2.1	_ scraping surfaces;	Trauma of the spine	Not applicable		
<b>5.6</b>	6.3.4.3 6.4.5.1 c)	_ unbalanced rotating parts; _ vibrating equipment; _ worn parts.	Vascular disorder	Not applicable		

## Radiation

<b>6.1</b>		ionizing radiation	Burn	Not applicable		
<b>6.2</b>		source;	Damage to eyes and	Not applicable		
<b>6.3</b>	6.2.2.2	_ low frequency electromagnetic	Effects on reproductive	Not applicable		
<b>6.4</b>	6.2.3 c) 6.3.3.2.1 6.3.4.5 6.4.5.1 c)	radiation; _ optical radiation (infrared, visible and ultraviolet), including laser; _ radio frequency	Genetic mutation	Not applicable		



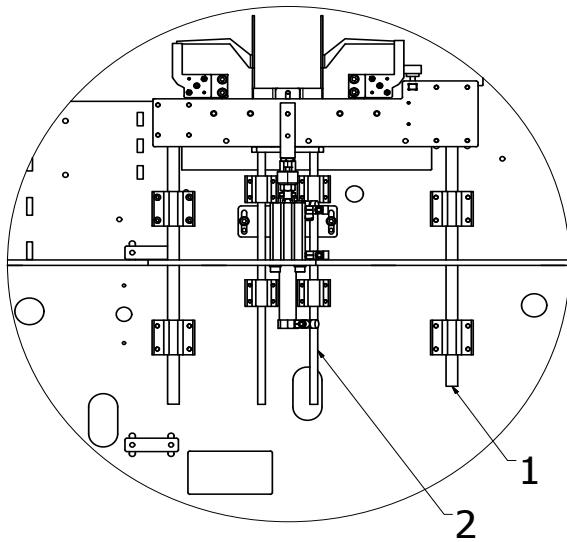
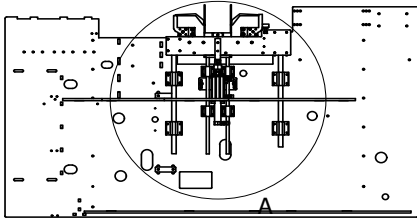
## Material/ substance hazards

<b>7.1</b>		aerosol;	Breathing difficulties,	Not applicable		
<b>7.2</b>	6.2.2.2	_ biological and microbiological (viral or bacterial)	suffocation	Not applicable		
<b>7.3</b>	6.2.3 b)	agent;	Cancer	Not applicable		
<b>7.4</b>	6.2.3 c) 6.2.4 a)	_ combustible;	Corrosion	Not applicable		
<b>7.5</b>	6.2.4 b)	_ dust;	Effects on reproductive	Not applicable		
<b>7.6</b>	6.3.1 6.3.3.2.1	_ explosive;	Explosion	Not applicable		
<b>7.7</b>	6.3.4.4	_ fibre;	Fire	Not applicable		
<b>7.8</b>	6.4.5.1 c) 6.4.5.1 g)	_ flammable;	Infection	Not applicable		
<b>7.9</b>		_ fluid;	Mutation	Not applicable		
<b>7.10</b>		_ fume;	Poisoning	Not applicable		
		_ oxidizer.	Sensitization	Not applicable		

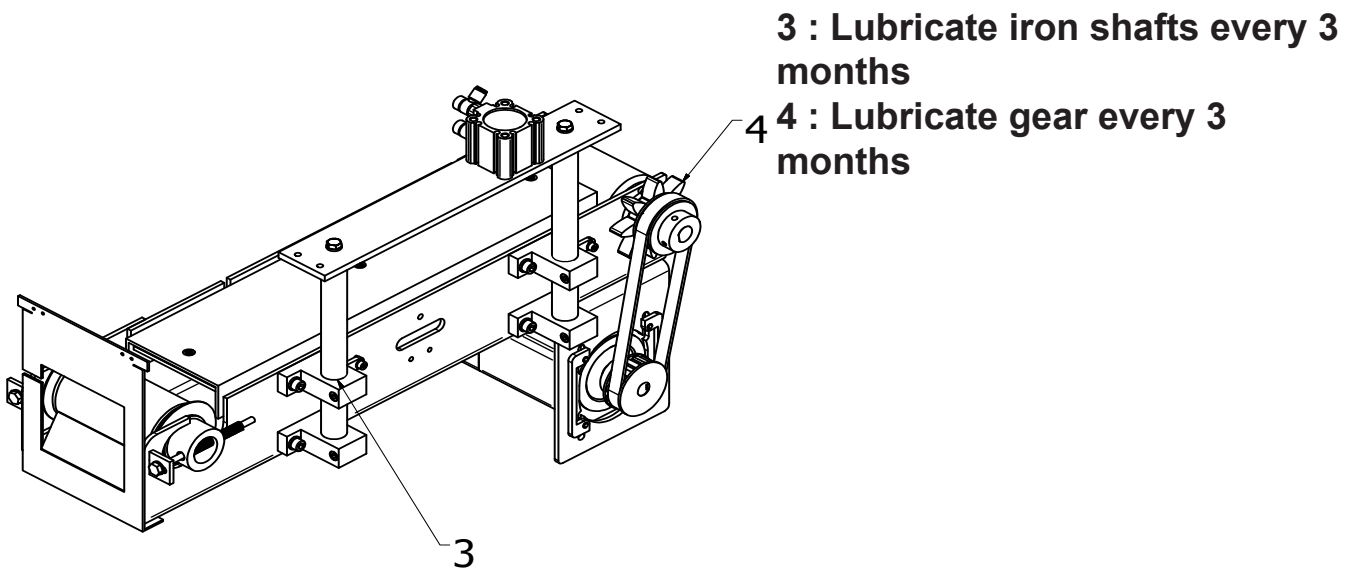
## Ergonomic hazards

<b>8.1</b>		access;	Discomfort	Not applicable		
<b>8.2</b>		_ design or location of	Fatigue	Not applicable		
<b>8.3</b>	6.2.2.1	indicators	Musculoskeletal	Not applicable		
<b>8.4</b>	6.2.7 6.2.8 6.2.11.8 6.3.2.1 6.3.3.2.1	and visual displays units; _ design, location or identification of control devices; _ effort; _ flicker, dazzling,	Stress	Not applicable		

# CRITICAL SPARE PARTS REPLACEMENT DETAILS



- 1 : Lubricate shafts every 3 months**
- 2 : Lubricate shafts every 3 months**



- 3 : Lubricate iron shafts every 3 months**
- 4 : Lubricate gear every 3 months**

# DATA SHEET

ELITE A.G : AUTOMATIC ELASTIC RING MAKER AUTOMAT

MODEL : LS06

MADE IN TURKEY

ENERGY : 220 V AC

ENERGY CONSUMPTION : 3000 WATT / PER HOUR

AIR : 5 (6) BAR

AIR CONSUMPTION : 10 LT. / PER MIN

***ELITE* A.G**

**USER MANUAL**

**MACHINE HAVE 4 MODES. PLEASE FIRST  
CHOOSE THE MODE WHICH YOU WANT TO  
OPERATE SYSTEM**

**MARK SEWING MODE AND MARK CUTTING**

**MODE: FIRST INSTALL YOUR LOGO ON THE ELASTIC TO SOPASS v3 SOFTWARE  
FROM COMPUTER.**

**USE **OBJECT LOCATER** FROM SOFTWARE TO ADJUST AND SAVE YOUR LOGO TO  
SYSTEM.**

**PLEASE CHECK CAMERA MANUAL TO LEARN HOW TO TEACH CAMERA YOUR LOGO  
ON THE ELASTIC.**

**YOU NEED TO RESET POSITION OF MACHINE AT  
FIRST OPENING EVERYTIME.**



**COUNTER** : COUNTING THE HOW MANY ELASTIC MACHINE WORKED ON.

**THREAD COUNTING**: LOW THREAD COUNTER.

**ONLY CUTTING**: CUTTING ELASTIC WITH CHECKING LENGHT . NO LOGO CHECK-  
ING.

**MARK CUTTING**: CUTTING ELASTIC WITH CHECKING LENGHT AND LOGO.

**SEWING**: CUTTING ELASTIC AND SEW IT. NO LOGO CHECKING.

**MARK SEWING** : CUTTING ELASTING AND SEW IT WITH CHECKING LOGO.

**HEATING OFF**: TURN OFF IRONING SYSTEM HEATING ONLY.

**C**: ADJUST IRONING SYSTEM DEGREE.

**PRESS OFF**: COMPLETELY CLOSING THE IRONING BANTS.

**FUSING PISTON** : CONTROL THE PISTON OF HEATING SYSTEM.

**AIR**: ON/OFF AIR SYSTEM.

**CUTTER**: ONE CUT FOR CLEAN AND ADJUST ELASTIC BEFORE OPERATING MA-  
CHINE.

**SET**: REPAIR MODE, WHEN YOU PRESS MACHINE STEP EVERY OPERATION ONE  
BY ONE.

**SEWING START**: PRESS IF MACHINE THREAD BROKE THAN MACHINE CONTINUE  
FROM STOP POSITION. BUZZER RESET : STOP BUZZER.

**MACHINE RESET**: RESET THE MACHINE IF ANY PROBLEM OR PATTERN CHANG-  
ING.



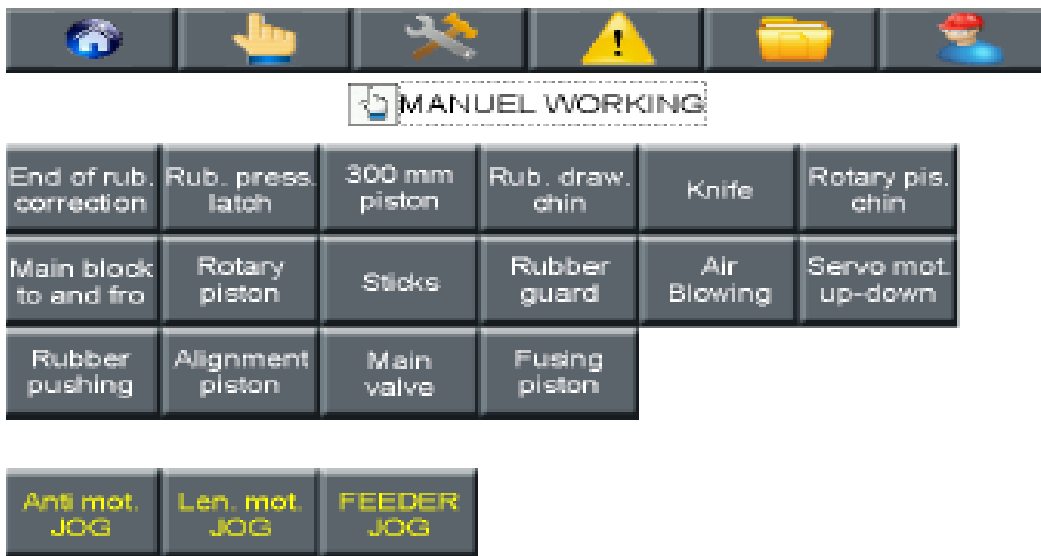
**1: HOMEPAGE:** TO RETURN HOMEPAGE

**2:MANUAL WORKING:** REPAIR MODE TO CHECK EVERY SYSTEM ON MACHINE ONE BY ONE

**3: SETTINGS :** TO ENTER DETAILED SETTINGS OF MACHINE LIKE TIMING AND SPEED OF SYSTEMS. **4:ALARM:** CHECK THE ALARMS WHICH MACHINE GIVE.

**5: PROGRAMS:** INSTALL OR UPLOAD PROGRAM YOU ADJUSTED.

**6: TECHNICIAN SETTINGS :** ONLY WE CAN ENTER THESE SETTINGS.



**THIS SECTION NEED TO USE BY TECHNICIAN TO CHECK SYSTEMS ON THE MACHINE HAVE PROBLEM OR NIT ONE BY ONE.**

**END OF RUBBER CORRECTION:** TO CHECK AIR RUBBER CORRECTION AT THE MACHINES CHIN.

**RUBBER PRESSING LATCH:** CHECK THE LATCHES ON THE ROTARY PISTONS.

**300MM PISTON:** CHECK LONG RUBBER TAKING PISTON.

**RUBBER DRAWING CHIN:**CHECK THE PISTON ON THE 300MM PISTON.

**KNIFE:** CHECK ONLY KNIFE PISTON COME UP AND DOWN.

**ROTARY PISTON CHIN:**CHECK THE PISTONS WHICH FOR TAKE ELASTIC TO TO ROTARY PISTONS.

**MAIN BLOCK:** PRESS TO CHECK MAIN MOTOR COME FRONT AND GO BACK.

**ROTARY PISTON:**PRESS TO CHECK ROTARY PISTONS COME FRONT AND GO BACK.

**STICKS:** CHECK THE STICKS ON THE MACHINE HEAD PUSHING THE RUBBER STRAIGHT OR NOT.

**RUBBER GUARD:** CHECK THE PISTON WHICH PUSHING ELASTIC FRONT.

**AIR BLOWING:** CHECK THE AIR BLOWING ON THE MACHINE HEAD.  
**SERVO MOTOR UP AND DOWN:** CHECK SERVO MOTOR POSITION ON MAIN BLOCK.  
**RUBBER PUSHING:**CHECK THE PISTON WHICH THROW ELASTIC AFTER OPERATION FINISH.

**ALOGNMENT PISTON:**CHECK THE PISTON WHICH ADJUST ELASTIC CONNECTION AREA

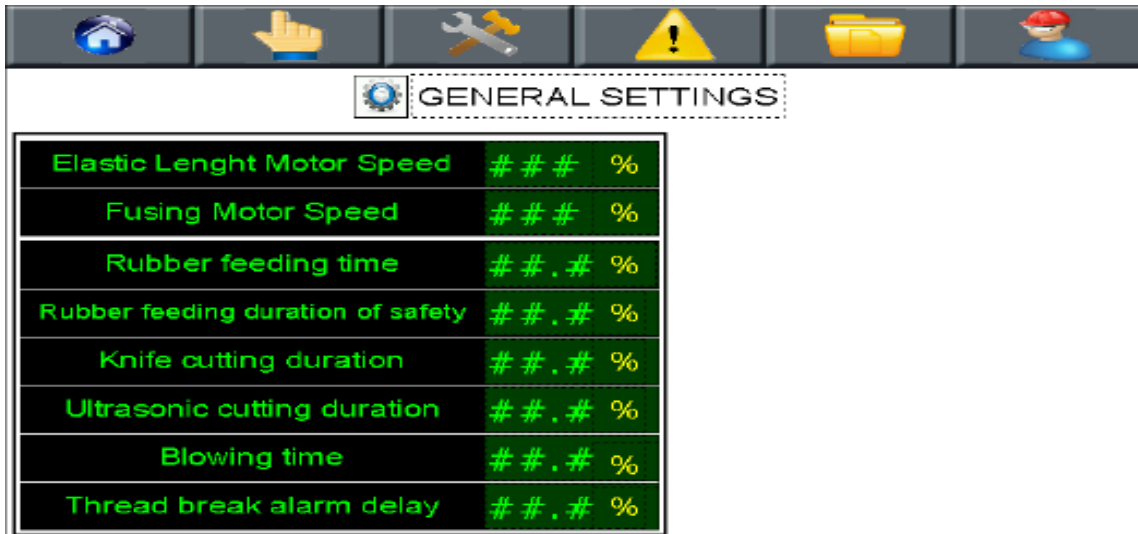
**MAIN VALVE:** CHECK MAIN VALVE OF THE MACHINE AIR ON / OFF.

**FUSING PISTON:** CHECK FUSING PISTON.

**ANTI MOTOR JOG:** CHECK MOTOR OF OPENING RUBBER BEFORE IRONING SYSTEM.

**LENGHT MOTOR JOG:** CHECK SERVO MOTOR ON THE MAIN BLOCK.

**FEEDER JOG:** CHECK MOTOR IN THE IRONING SYSTEM.



The screenshot shows a software interface with a top navigation bar containing icons for home, hand, tools, warning, folder, and user. Below this is a 'GENERAL SETTINGS' section with a gear icon. A table lists eight settings, each with a value in the format '###%' or '##.#%'. The values are: Elastic Lenght Motor Speed (### %), Fusing Motor Speed (### %), Rubber feeding time (##.# %), Rubber feeding duration of safety (##.# %), Knife cutting duration (##.# %), Ultrasonic cutting duration (##.# %), Blowing time (##.# %), and Thread break alarm delay (##.# %).

GENERAL SETTINGS	
Elastic Lenght Motor Speed	### %
Fusing Motor Speed	### %
Rubber feeding time	##.# %
Rubber feeding duration of safety	##.# %
Knife cutting duration	##.# %
Ultrasonic cutting duration	##.# %
Blowing time	##.# %
Thread break alarm delay	##.# %

**ELASTIC LENGHT MOTOR SPEED:** ADJUST SPEED OF LENGHT MOTOR IN THE MAIN BLOCK

**FUSING MOTOR SPEED:** ADJUST SPEED OF BANTS IN THE IRONING SYSTEM

**RUBBER FEEDING TIME:** ADJUST TIME OF THE IRONING SYSTEM FEEDING RUBBER FEEDING DURATION OF SAFETY: ADJUST THE TIME OF RESET WHEN FUSING STOP.

**KNIFE CUTTING DURATION:** ADJUST THE TIME OF KNIFE UP AND DOWN.

**ULTRASONIC CUTTING DURATION:** ADJUST THE TIME OF ULTRASONIC SYSTEM WORJING TIME. NEED TO ADJUST MINIMUM WITH KNIFE CUTTING DURATION.

**BLOWING TIME:** ADJUST THE TIME FOR BLOWING AT AIR SYSTEM.

**THREAD BREAK ALARM DELAY:** ADJUST THE SENSORS TIME BEFORE GIVING ALARM.





**JAW SENSOR IS ACTIVE:** ON/OFF SENSORS ON THE JAW OF THE MACHINE.

**THREAD BREAK ACTIVE:** ON/OFF MACHINES THREAD BREAK SENSORS.

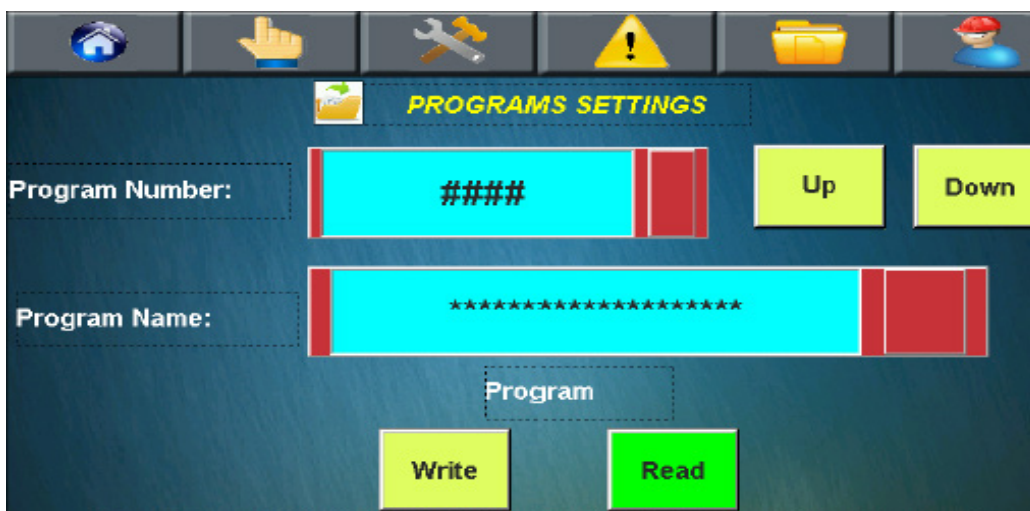
**LOW THREAD SENSOR IS ACTIVE:** ON/OFF MACHINES LOW THREAD SENSOR.

**ALIGNMENT IS ACTIVE:** ON/OFF RUBBER CORRECTING SYSTEM.

**BLOWING IS ACTIVE:** ON/OFF BLOWING SYSTEM ON THE MACHINES CHIN.

**HORN IS ACTIVE:** ON/OFF MACHINES BUZZER.

**123456789:** TOTAL COUNTER OF THE MACHINE.

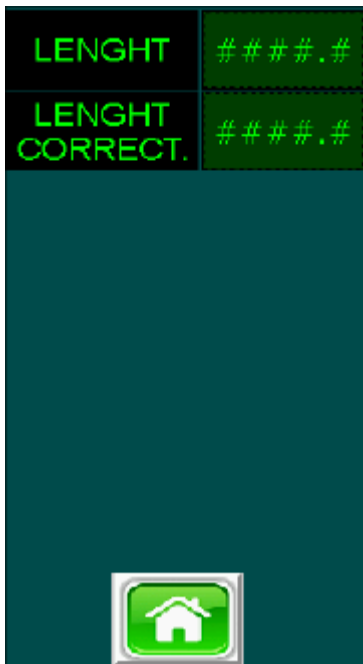


**PROGRAM NUMBER:** CODE OF THE PROGRAM WHICH YOU WRITE.

**PROGRAM NAME :** NAME OF THE PROGRAM YOU PUT ON IT.

**WRITE:** CHANGE PROGRAM NUMBER AND NAME THEN WRITE IT FOR SAVE IT.

**READ:** FIRST WRITE PROGRAM CODE AND THEN READ IT FOR INSTALL IT FROM SYSTEM



**CUTTING MODE ON**

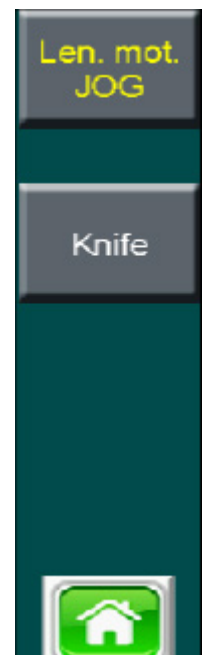
**LENGHT:** WRITE THE LENGHT OF SIZE.  
**LENGHT CORRECT:** LENGHT CHANGING MATERIAL TO MATERIAL WRITE THE + OR – LENGHT FROM LENGHT YOU WROTE




**MARK CUTTING MODE ON**

**LENGHT MOTOR JOG:** PUSH TO FEED ELASTIC.  
**KNIFE:** PUSH FOR CUT THE ELASTIC ON THE KNIFE.  
**LOGO FIND:** WRITE THE LENGHT OF ELASTIC BEFORE LOGO, THAN MACHINE WILL CHECK LOGO AFTER PASS LENGHT YOU WROTE.  
**LOGO FIND SPEED:** SPEED OF SYSTEM WHICH IT NEED TO FIND LOGO IN, IF YOUR LOGO IS NOT CLEAR AND SYSTEM CANT FIND MACHINE WILL GIVE ALARM. KEEP TIME LONG AT VERY UNCLEAR LOGO.

**LENGHT MOTOR JOG:** PUSH TO FEED ELASTIC.  
**KNIFE:** PUSH FOR CUT THE ELASTIC ON THE KNIFE.



LENGHT	####.#
LENGHT CORRECT.	####.#
LOADING	####.#
BACK RUN	####.#
	

### SEWING MODE ON

**LENGHT MOTOR JOG:** PUSH TO FEED ELASTIC.

**KNIFE:** PUSH FOR CUT THE ELASTIC ON THE KNIFE.

**LOADING:** ADJUST THE ELASTIC LOADING TIME TO CHINS ON 300MM PISTON WHEN IT COME TO TAKE ELASTIC FROM KNIFE.

**BACK RUN:** ADJUST THE TIME LONGER OR SHORTER IF LOADING IS NOT COMPLETE OR LOADED TOO MUCH.

LENGHT	####.#
LENGHT CORRECT.	####.#
LOADING	####.#
BACK RUN	####.#
LOGO FIND	####.#
LOGO FIND SP.	###%
	

### MARK SEWING MODE ON

**LENGHT MOTOR JOG:** PUSH TO FEED ELASTIC.

**KNIFE:** PUSH FOR CUT THE ELASTIC ON THE KNIFE.

**LOADING:** ADJUST THE ELASTIC LOADING TIME TO CHINS ON 300MM PISTON WHEN IT COME TO TAKE ELASTIC FROM KNIFE.

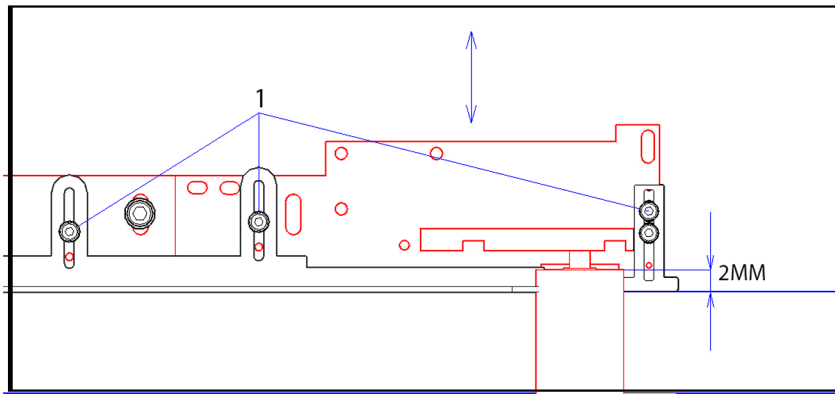
**BACK RUN:** ADJUST THE TIME LONGER OR SHORTER IF LOADING IS NOT COMPLETE OR LOADED TOO MUCH.

**LOGO FIND:** WRITE THE LENGHT OF ELASTIC BEFORE LOGO, THAN MACHINE WILL CHECK LOGO AFTER PASS LENGHT YOU WROTE.

**LOGO FIND SPEED:** SPEED OF SYSTEM WHICH IT NEED TO FIND LOGO IN, IF YOUR LOGO IS NOT CLEAR AND SYSTEM CANT FIND MACHINE WILL GIVE ALARM. KEEP TIME LONG AT VERY UNCLEAR LOGO.

***ELITE*** **A.G**

**TECHNICIAN MANUAL**



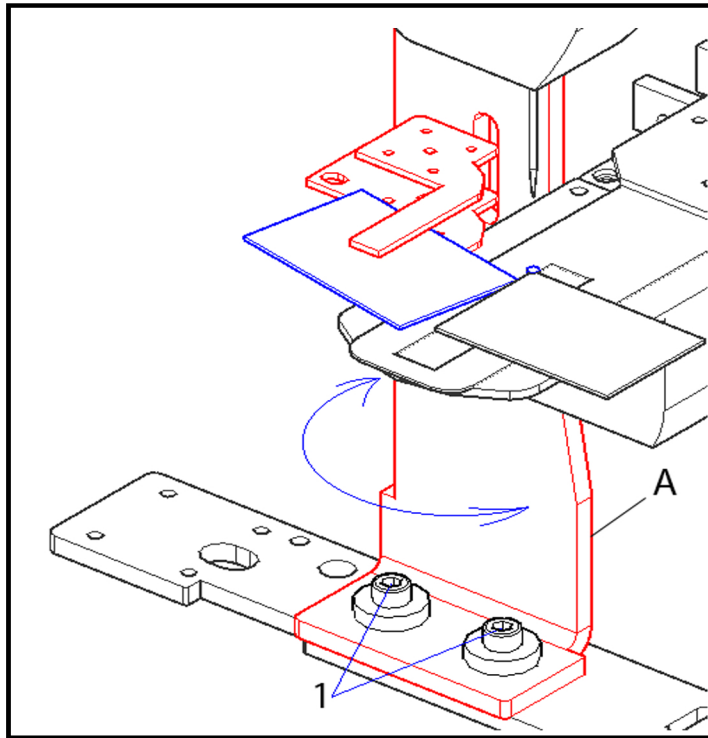
**SCHEMA-1**

## ELASTIC ROLLER POSITION ADJUST

1-) Adjust elastic position 2mm inside edge of roller from screws No:1. (SCHEMA-1)  
 a-) Loose screws. No:1 - Adjust elastic position 2mm inside edge of roller from screws. Elastic should be parallel on plane.

b-) Tighten screws.

NOTE : Please choose STICH MODE from screen and push EMERGENCY BUTTON ; Before start this adjustments.



**SCHEMA-2**

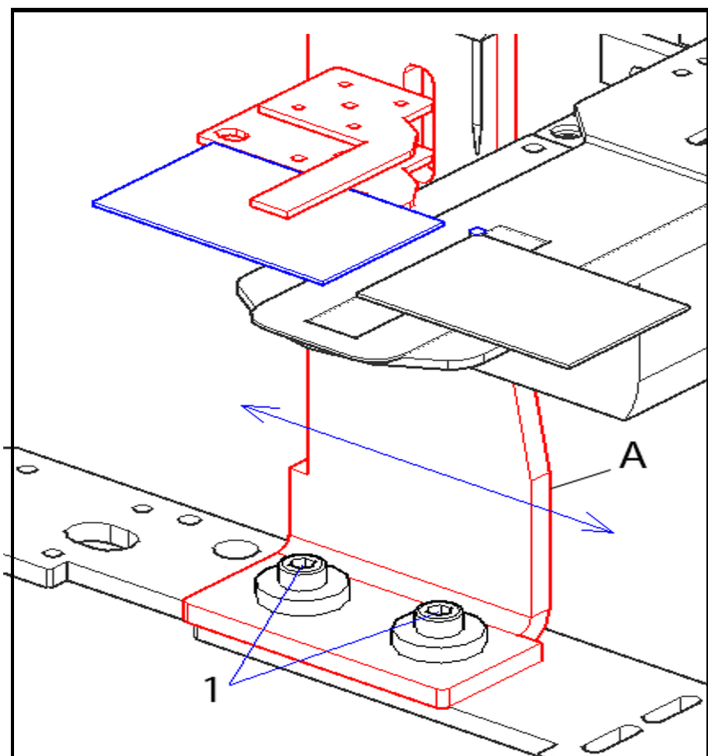
## Left Holder Chin Elastic Parallelism Adjustment

1-) Adjust elastic parallel from screws No:1 (SCHEMA-2)  
 a-) Loose screws ( No:1) and turn A column half of its requirement.

b-) Continue until find parallel position.

c-) Push SET from screen for test.

NOTE : Please choose STICH MODE from screen and push EMERGENCY BUTTON ; Before start this adjustments.



**SCHEMA-3**

## Left Holder Chin Needle Hole Close Position Adjusting On X Plane

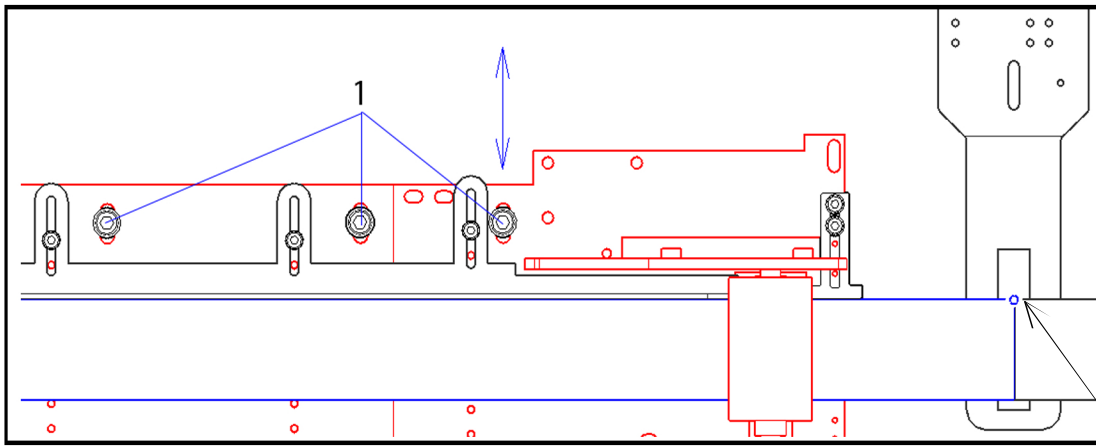
1-) Loose screws No:1 and move column A closest place to Needle hole. (SCHEMA-3)

a-) Loose screws No:1

b-) Move A column closer to needle hole half of its requirement.

c-) Continue until best position. Push SET from screen for test.

NOTE : Please choose STICH MODE from screen and push EMERGENCY BUTTON ; Before start this adjustments.



**SCHEMA-4**

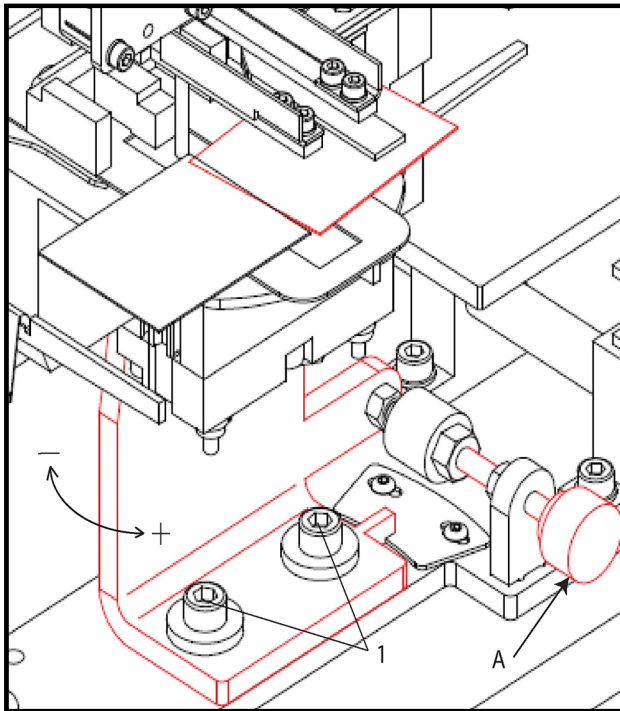
**NEEDLE HOLE**

## Left Elastic Holder Needle Hole Centering Position Adjustment On Y Plane

- 4-) Adjust it from screws No:1 on Y plane. (SCHEMA-4)  
 a-) Push SET from screen for test.

NOTE: Please choose STICH MODE from screen and push EMERGENCY BUTTON ; Before start this adjustments.

## Right Elastic Holder Parallel Adjustment to Machine Chin

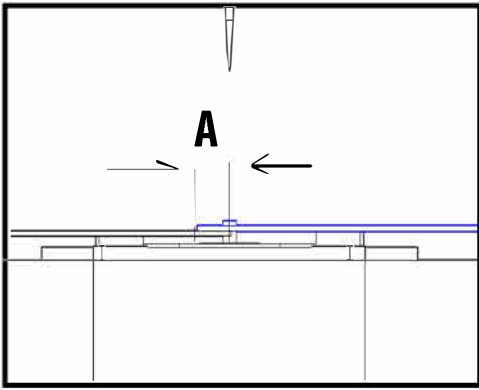


**SCHEMA-1**

- 1-) Adjust elastic parallel from screws No:1 (SCHEMA-1)  
 a-) Loose screws ( No:1) and turn A column half of its requirement.  
 b-) Continue until find parallel position.  
 c-) Push SET from screen for test.

NOTE: Please choose STICH MODE from screen and push EMERGENCY BUTTON ; Before start this adjustments.

## Elastic Mounting Adjustment

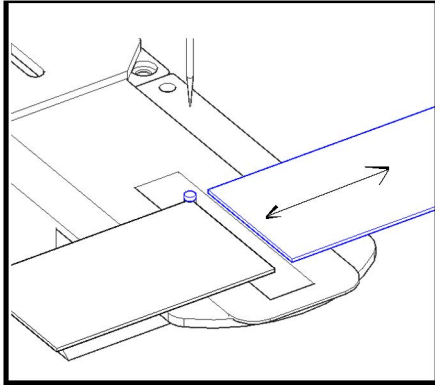


4-) This adjustment is only for RIGHT elastic holder mounting adjustment (SCHEMA-2).

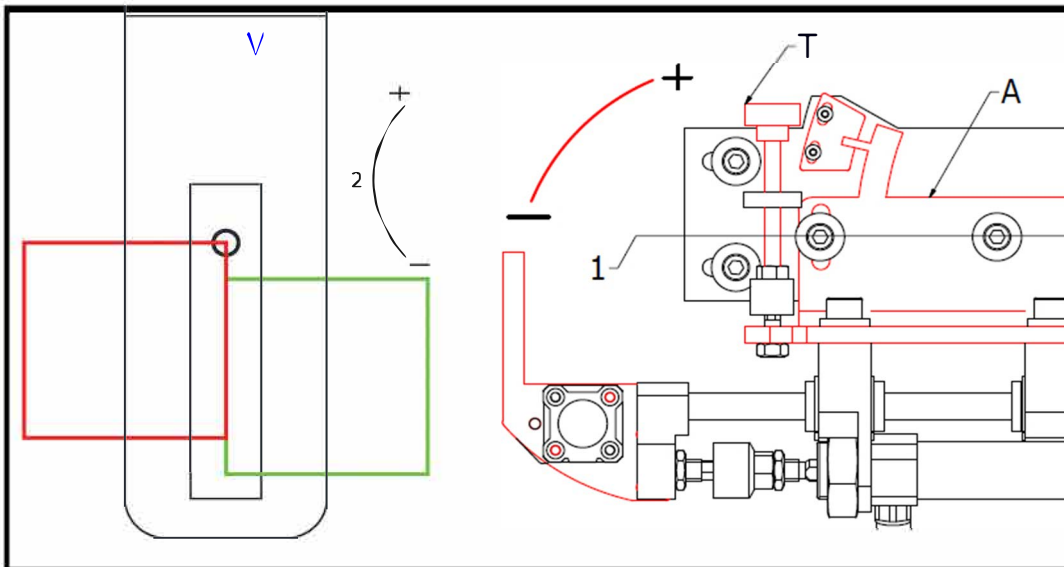
a-) A distance should be between 0-6 mm.

b-) Push SET from screen for test.

NOTE : Please choose MARK STICH MODE from screen and push EMERGENCY BUTTON ; Before start this adjustment.



SCHEMA-2



SCHEMA-3

## Right Elastic Needle Hole Parallel Adjustment On Y Plane

3-) Adjust elastic parallel from screws No:1 (SCHEMA-3)

a-) First loose 3 screws No:1 then move A plate half of its requirement up to No :2.

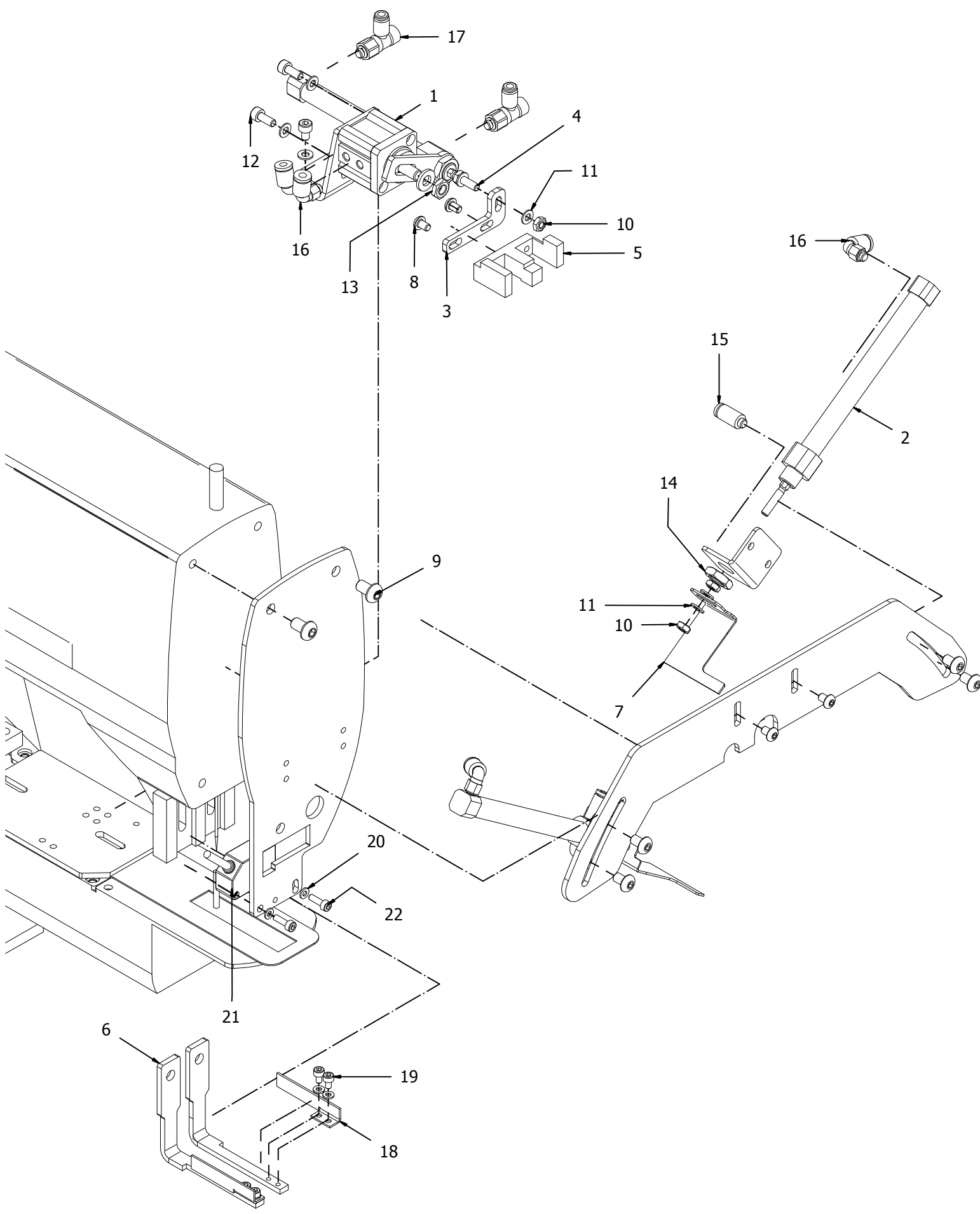
b-) Push SET from screen for test.

NOTE : Please choose MARK STICH MODE from screen and push EMERGENCY BUTTON ; Before start this adjustment.

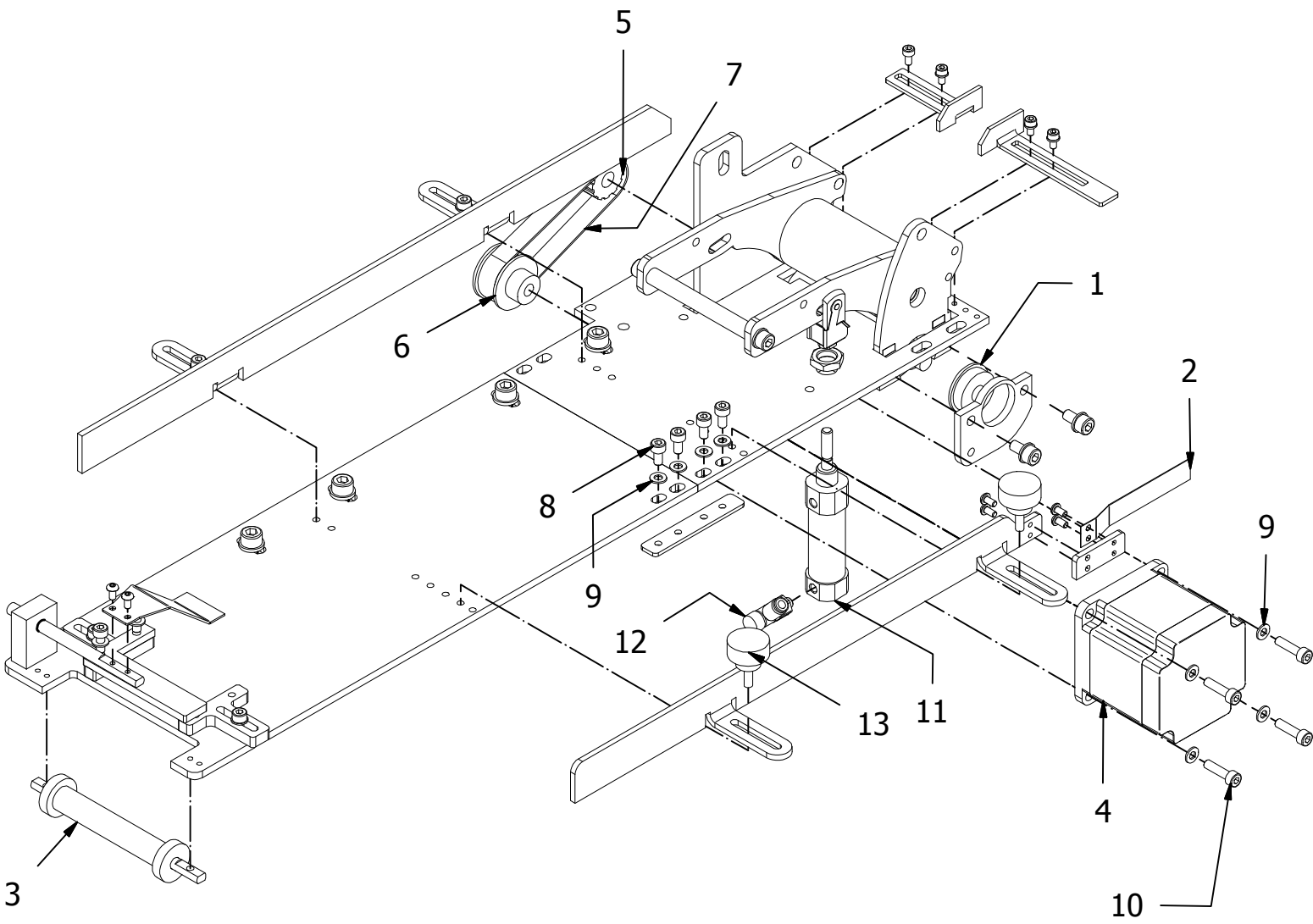
***ELITE* A.G**

**PART LIST**

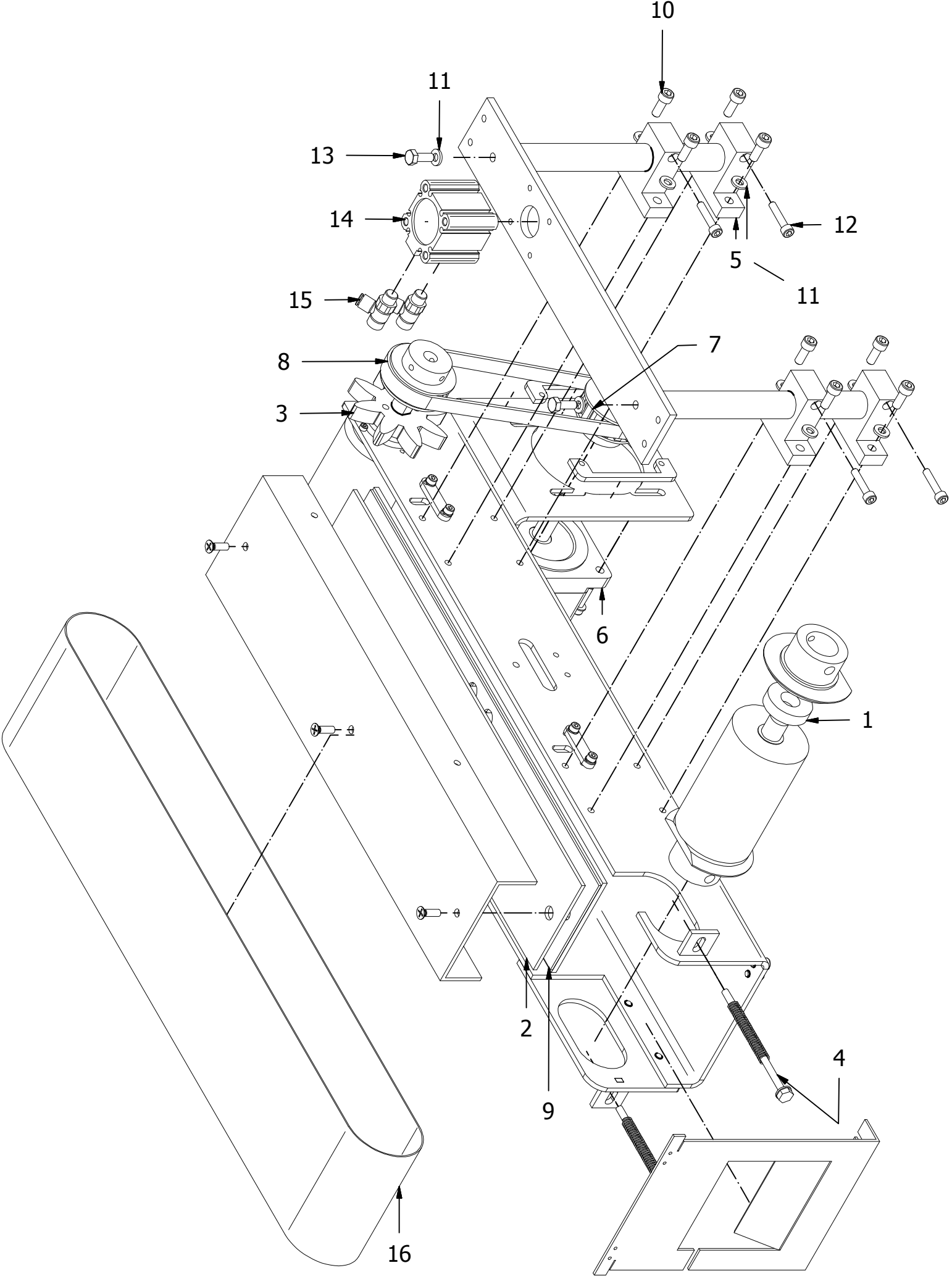




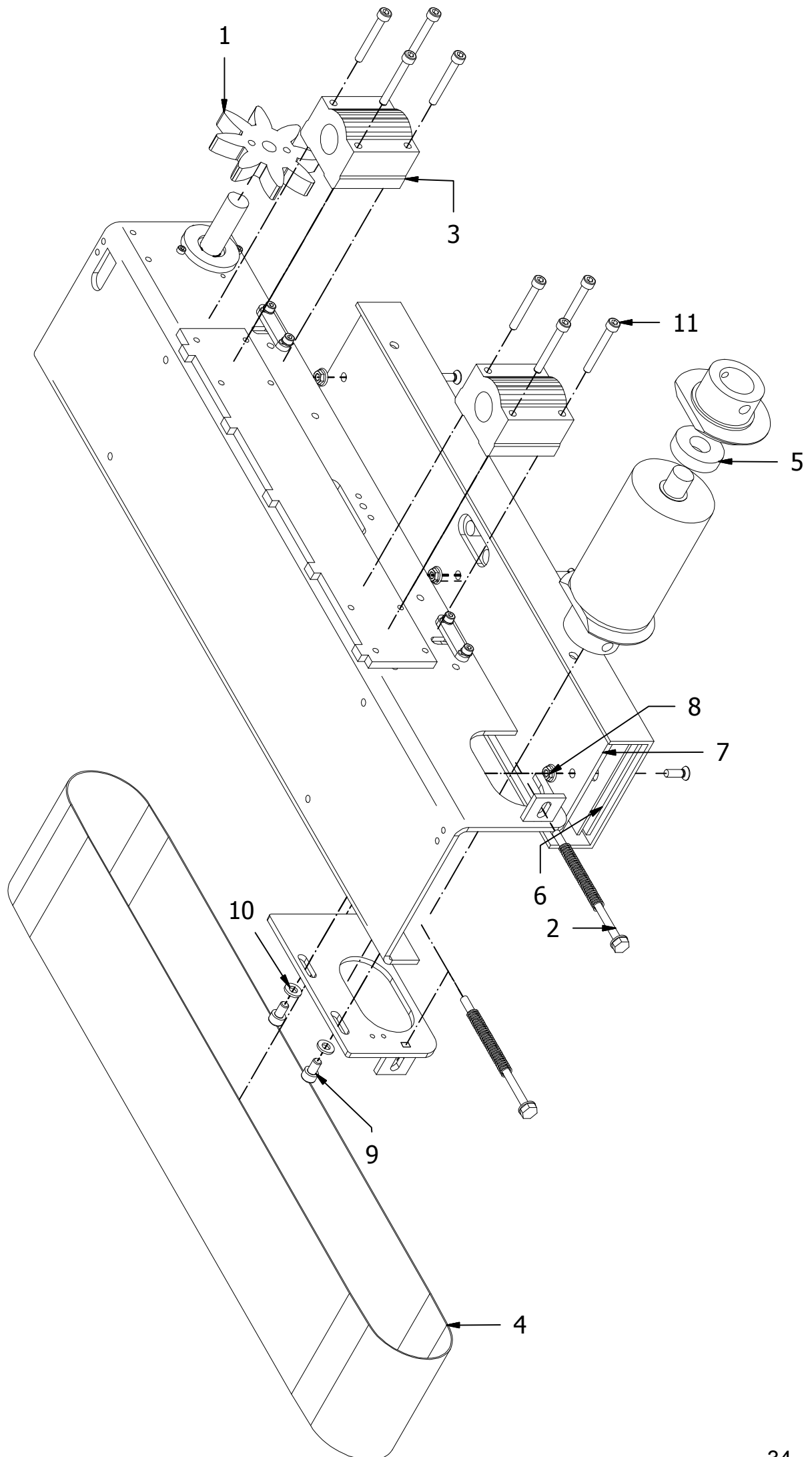
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	CQ2KN16-5DM Compact Cylinder	LS05H_129
2	2	CJ2KB10_75Z	LS05H_126_CJ2KB10_75Z
3	1	Tire Brag Part	LS05H_117
4	1	CJ2K-Z_ROD-Air Cylinder/Non-rotating Rod Type CJ2KB10-60Z	CJ2KB10-60Z
5	1	Tire Brag	LS06H_116
6	1	Foot	LS06H_114
7	1	Chain	LS05H_171
8	4	Hexagon Socket Button Head Screw ISO 7380-1	LS06_ISO 7380-1 - M4 x 6
9	2	Hexagon Socket Button Head Screw ISO 7380-1	LS06_ISO 7380-1 - M6 x 10
10	6	Hexagon nuts, style ISO 4032	LS06_ISO 4032 - M4 - ISO
11	10	Plain washers for clevis pins ISO	LS06_ISO 8738 - 4(2)
12	2	Hexagon Socket Head Cap Screw ISO 4762 - M4 x 10	LS06_ISO 4762 - M4 x 10ISO
13	1	Hexagon thin nuts ISO 4035 - M6	LS06_ISO 4035 - M6 - ISO
14	2		LS06_CJ2K10Z_NUT
15	2	Socket Head Male Connector KQ2S04-M5A_A	LS06_366
16	4	One-touch Fittings Male Union Elbow KQ2L04-M5	LS06_363
17	2	Speed Controller With One Touch Fitting AS1201F-M5-04A	LS06_357
18	1	Foot Guard	LS05H_418
19	4	Hexagon Socket Head Cap Screw ISO 4762 - M3 x 5	LS06_ISO 4762 - M3 x 5ISO
20	6	Plain washers for clevis pins ISO 8738 - 3	LS06_ISO 8738 - 3(2)
21	1	Lanbao Photoelectric Sensor DPB	LS06_420
22	2	Hexagon Socket Head Cap Screw ISO 4762 - M3 x 10	LS06_ISO 4762 - M3 x 10ISO



ITEM	QTY	DESCRIPTION	PART NUMBER
1	4	608 Bearings	LS05D_168
2	1	Aligment	LS06D_265
3	1	Back Roller	LS05F_180
4	1	57BHH56-300A-21BE Stepper Motor	LS05D_044
5	1	Pulley	LS05D_282
6	1	Pulley	LS05D_047
7	1	XL8mm Belt	LS05D_369
8	6	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M4 x 8ISO
9	14	Plain washers for clevis pins - Product grade A	LS06_ISO 8738 - 4(2)
10	4	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M4 x 16ISO
11	1	CJ2-Z BODY-Air Cylinder/Standard	LS06_400_CJ2B16-15Z
12	1	AS_2_1F-A-Speed Controller With One Touch Fitting/Elbow Type	LS06_357_AS1201F-M5-04A
13	2	Hand Screw	LS06_0440



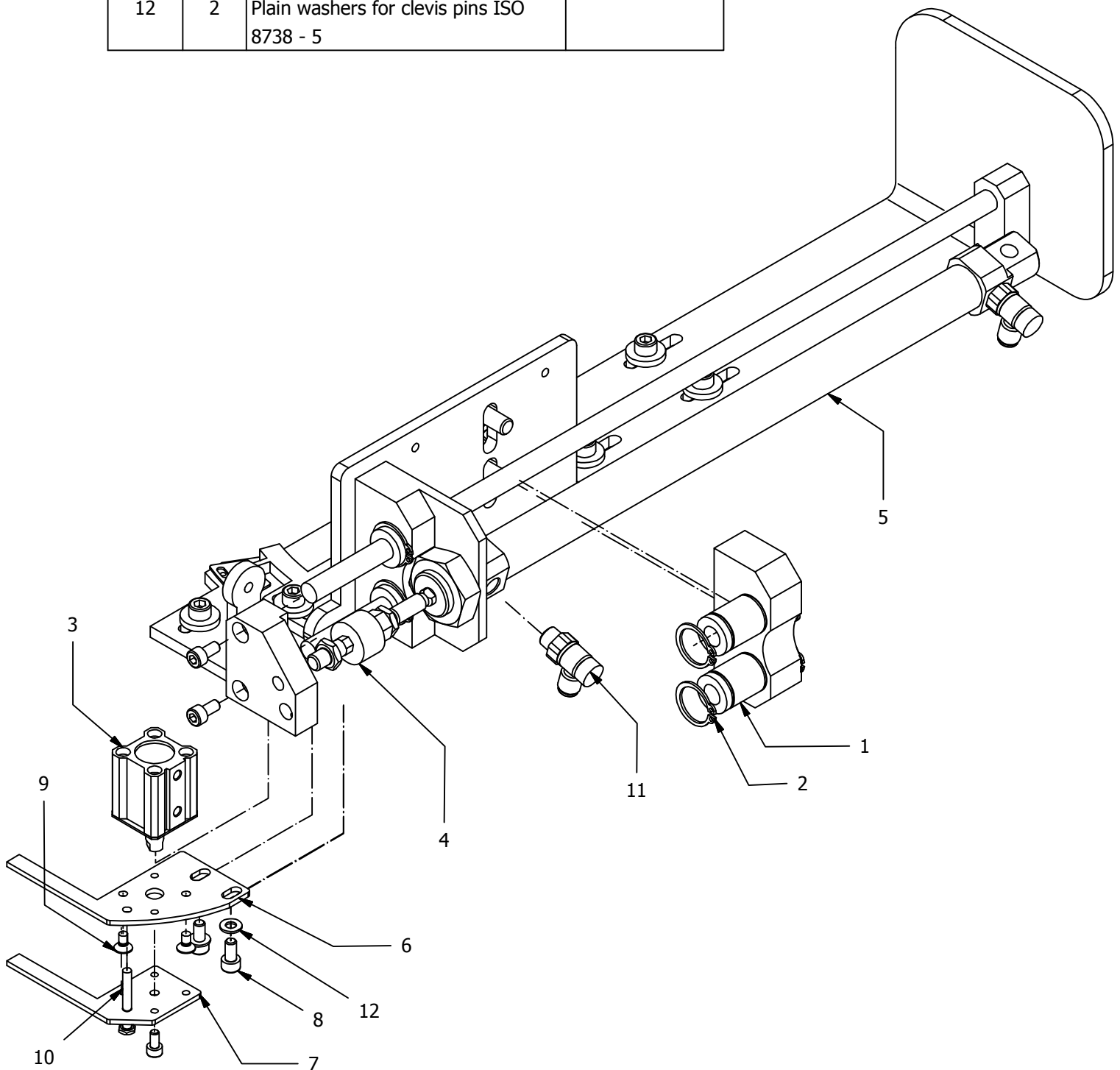
ITEM	QTY	DESCRIPTION	PART NUMBER
1	4	6202 RULMAN	LS05F_139
2	1	Resistance	LS05F_135
3	1	Plastic Gear	LS05F_142
4	2	Set Screw	LS05F_196
5	4	SK20	LS05F_151
6	1	86BHH118-Y490A-Y32A Stepper Motor	LS05F_143
7	2	Pulley	LS05F_305
8	1	187 l belt	LS05F_371
9	1	Thermal Insulation Felt	LS05F_284
10	8	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M6 x 16ISO
11	14	Plain washers for clevis pins - Product grade A	LS06_ISO 8738 - 6(2)
12	4	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M5 x 25ISO
13	2	Hexagon head screws. Product grade C	LS06_ISO 4018 - M6 x 16
14	1	CQ2_BODY-Compact Cylinder/Standard: Double Acting Single Rod CDQ2A32TF-1	LS05F_207_CDQ2A32TF-10
15	2	AS_2_1F-A-Speed Controller With One Touch Fitting/Elbow Type	LS06_356
16	1	Band	LS06_0436



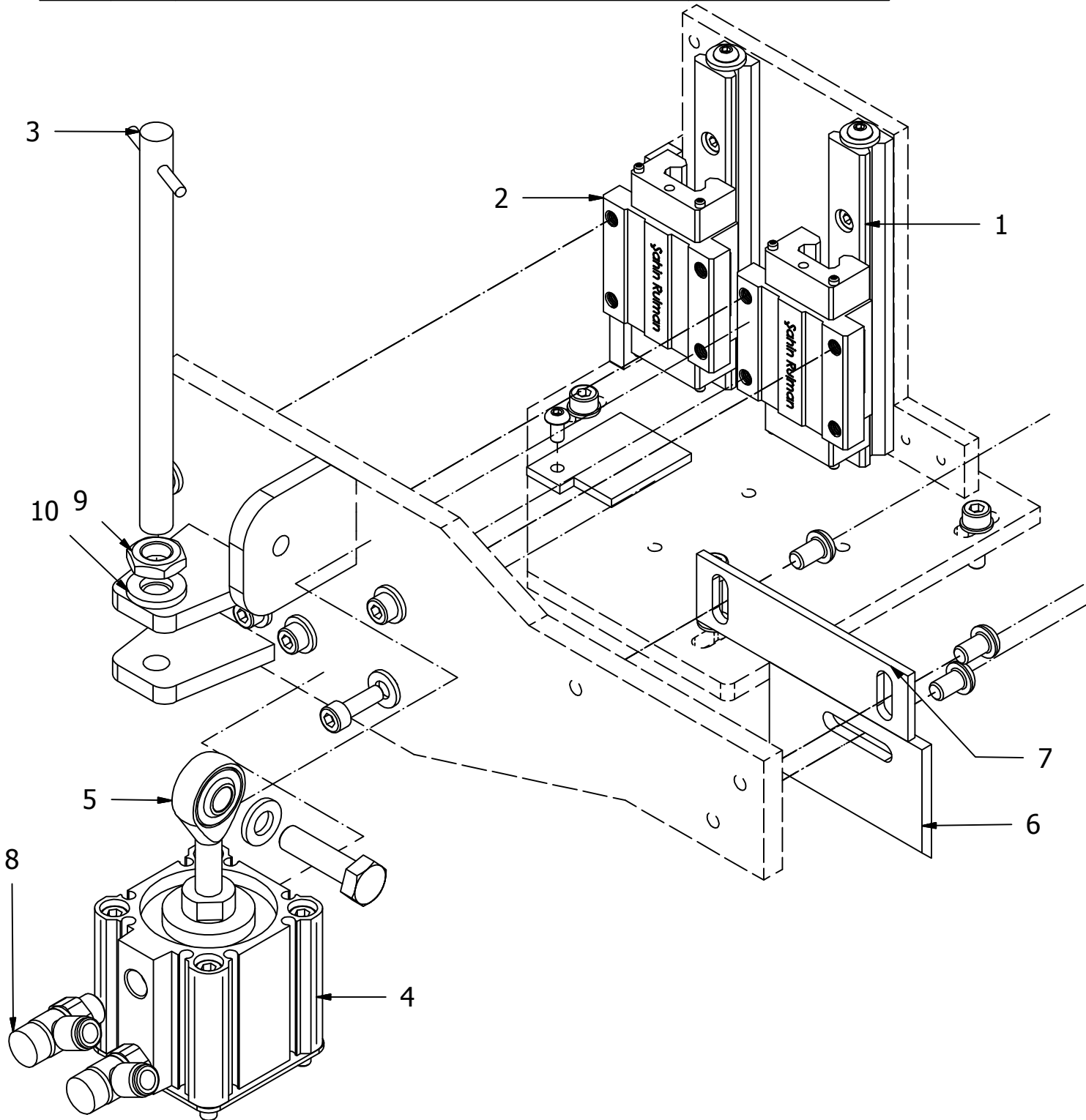
<b>ITEM</b>	<b>QTY</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>
1	1	Plastic Gear	LS05F_142
2	2	Set Screw	LS05F_196
3	2	SCE 20 UU	LS05F_153
4	1	Band	LS05F_316
5	4	6202 RULMAN	LS05F_139
6	1	Resistance	LS05F_135
7	1	Thermal Insulation Felt	LS05F_136
8	3	Hexagon nuts with flange-coarse thread	LS06_ISO 4161 - M5(1)
9	4	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M6 x 10ISO
10	4	Plain washers for clevis pins - Product grade A	LS06_ISO 8738 - 6(2)
11	8	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M5 x 40ISO



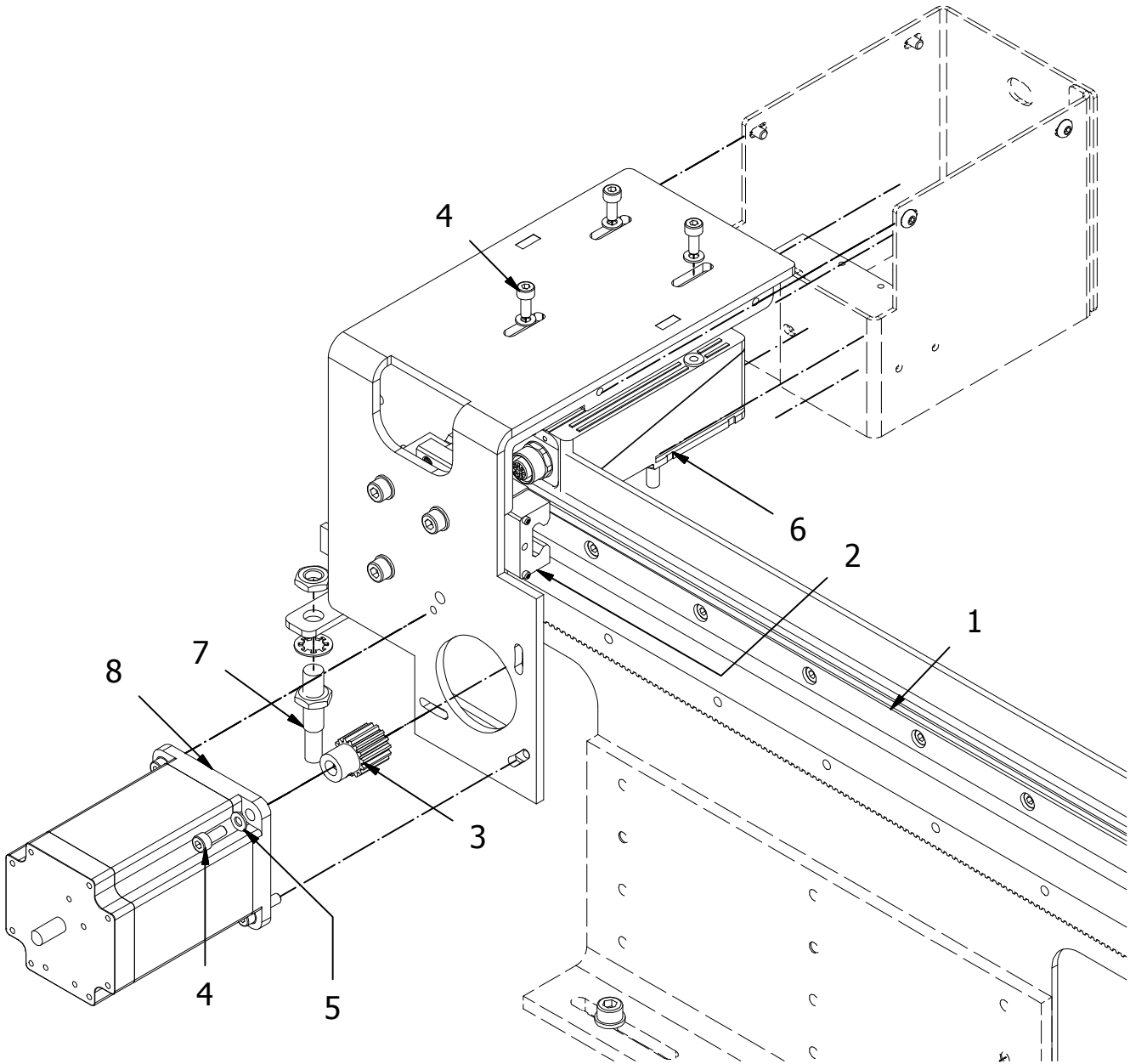
PARTS LIST			
ITEM	QTY	DESCRIPTION	PART NUMBER
1	4	LM10□□Bearings	LS05T_274
2	8	Retaining rings for shaft DIN 471 - 19x1□	LS05T_275
3	1	CQ2B16-15	LS05T_276
4	1	Floating Joint JA20-8-125	LS05T_071
5	1	CD85N20-275C-B	LS05T_072
6	1		LS05T_63
7	1		LS05T_62
8	6	Head Cap Screw ISO 4762 - M5 x 10	
9	2	ISO 7046-2 H - M4x8 - 8□ - H1	
10	1	Head Cap Screw ISO 4762 - M4 x 35	
11	2	Speed Controller With One Touch Fitting AS2201F-01-06A	
12	2	Plain washers for clevis pins ISO 8738 - 5	

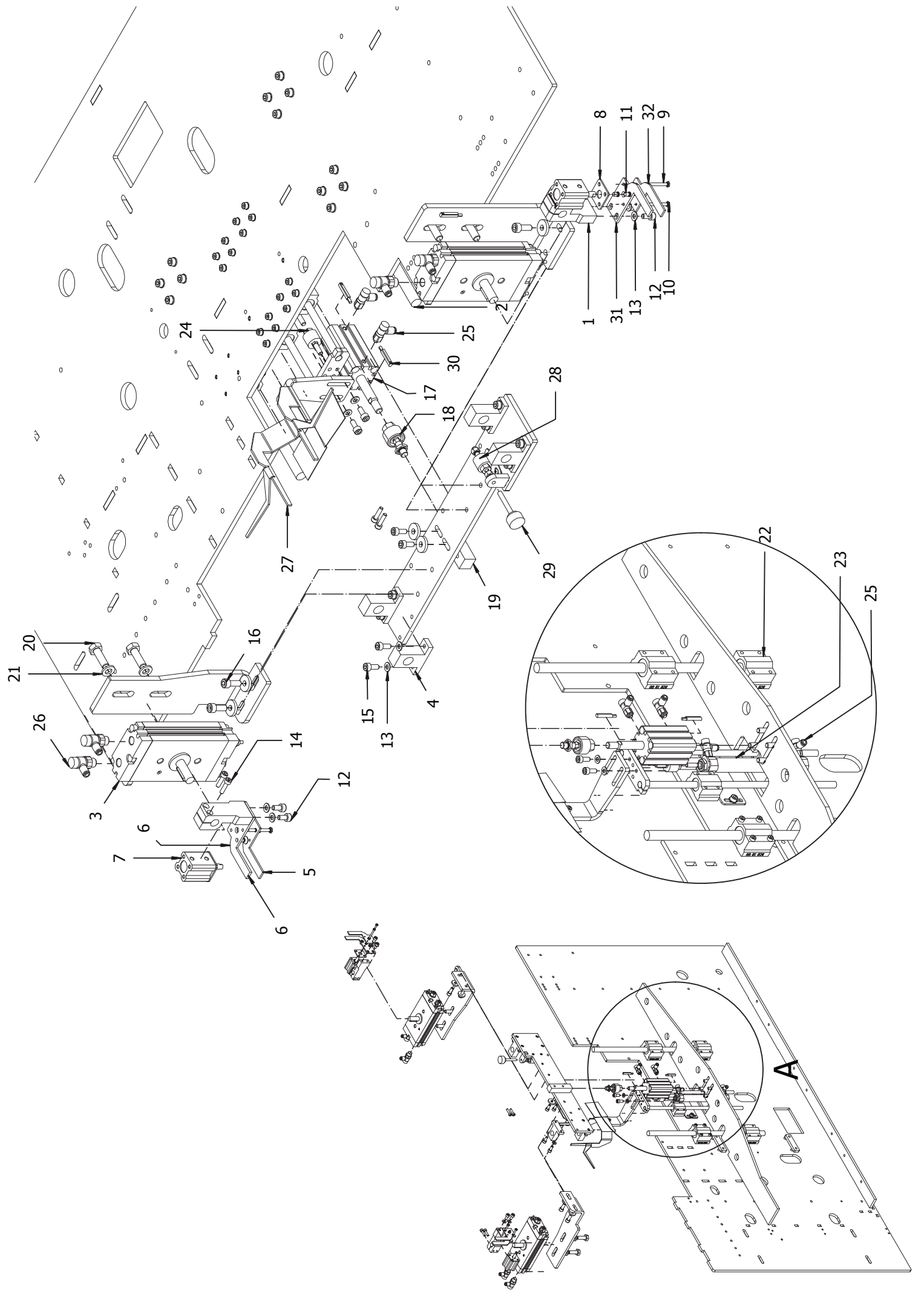


PARTS LIST			
ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Rail 15	LS05□_006
2	2	Carriage 15	LS05□_005
3	1	Set Screw M10x1	LS05□_336
4	1	CQ2B40TF-20	LS05□_010
5	1	8 Rod End	LS05□_008
6	1	Chife	LS05□_159
7	1	Set Plate	LS06□_165
8	2	AS_2_1F-A-Speed Controller With One Touch Fitting/Elbow Type	LS06_356
9	1	ISO 8675 - M10 x 1	
10	1	ISO 8738 - 10	



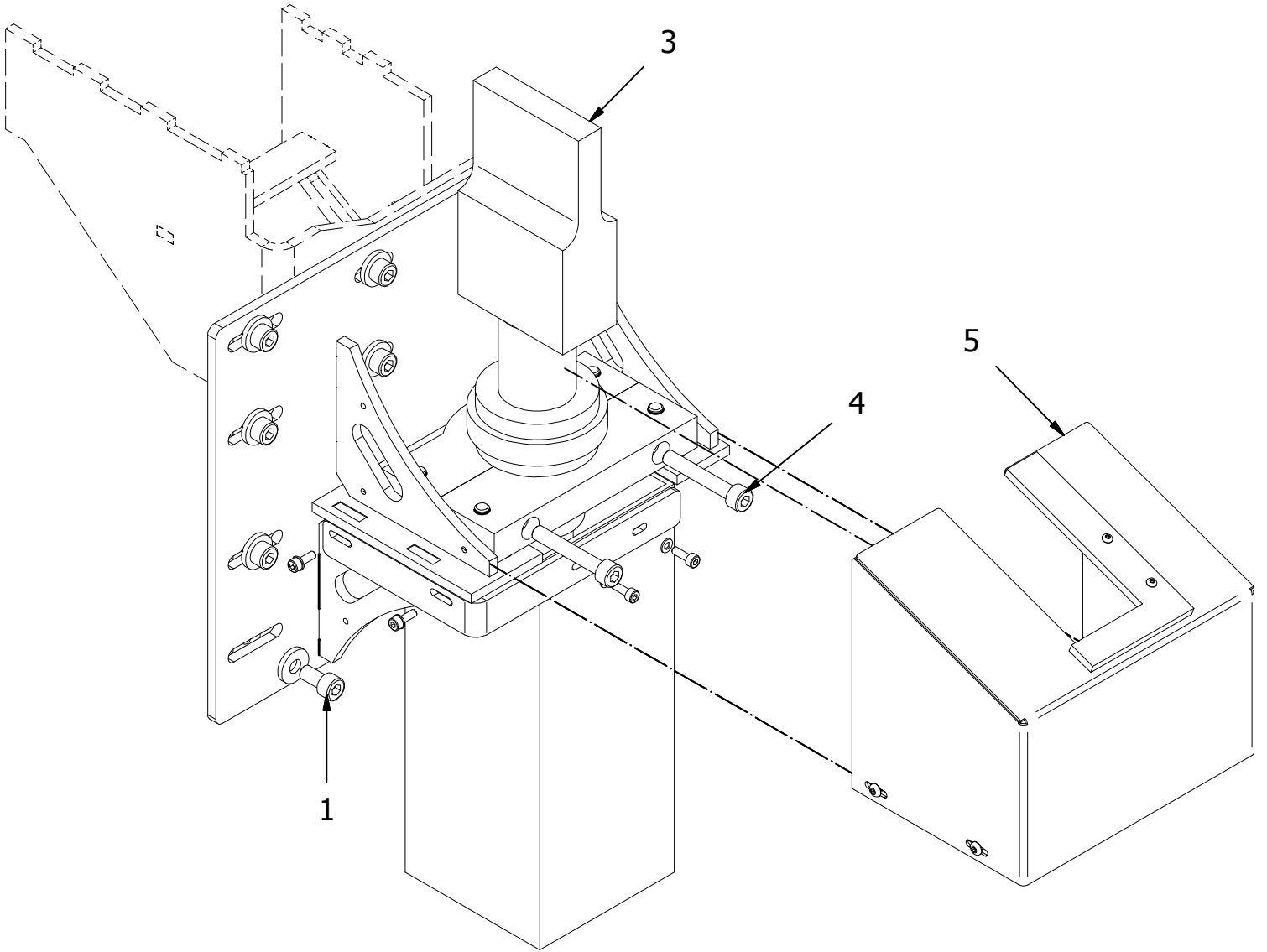
PARTS LIST			
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Carriage 15	LS05L_020
2	1	Rail 15	LS05L_005
3	1	M1 22 Pinion Gear	LS05L_201
4	5	ISO 4762 - M4 x 10ISO	
5	7	ISO 8738 - 4	
6	1	SICK SPSPI-4F2111	LS05L_393
7	1	OMRON_E2B-SO8S02-WP-B1 Sensor	LS05H_373
8	1	Stepper Motor 60BHH86-300E-24DA	LS06_425





ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Axle Holder	LS05_097
2	2	Shaft	LS05_098_R
3	2	CDRQ2B20-180C	LS05_104
4	4	SK-12	LS05_099
5	1	Gripper Bot Left	LS05_095
6	1	Gripper Top Left	LS06_096
7	2	CQ2_BODY-Compact Cylinder/Standard: Double Acting Single Rod CQ2A12-15	LS05_105
8	2	Cylinder High Adjust Part	LS05_062
9	4	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M3 x 30ISO
10	4	Hexagon thin nuts (chamfered) - Product grades A and B	LS06_ISO 4035 - M3 - ISO
11	4	Cross recessed countersunk flat head screws	LS06_ISO 7046-2 H - M4x8 - 8.8 - H1
12	4	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M5 x 10ISO
13	28	Plain washers for clevis pins - Product grade A	LS06_ISO 8738 - 5(2)
14	20	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M4 x 16ISO
15	24	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M5 x 12ISO
16	8	Hexagon Socket Head Cap Screw	LS06_ISO 4762 - M6 x 16ISO
17	1	CDQSB20-35DM	LS05_089
18	1	JA20_8_125	LS05_197
19	1	Main Block Adjust Part	LS06_092
20	4	Hexagon head screws. Product grade C	LS06_ISO 4018 - M8 x 25
21	4	Plain washers for clevis pins - Product grade A	LS06_ISO 8738 - 8(2)
22	4	SCE-12-UU	LS05_102
23	1	CJ2-Z BODY-Air Cylinder/Standard: Double Acting Single Rod CJ2B16-100Z-B	LS05_093
24	1	JA BODY-Floating Joint: Standard Type	LS05_179
25	4	AS_2_1F-A-Speed Controller With One Touch Fitting/Elbow Type	LS06_357
26	4	AS_2_1F-A-Speed Controller With One Touch Fitting/Elbow Type	LS06_362
27	1	Elastic Opener	LS06_0437
28	1	JA15-5-080	LS06_0438
29	1	Hand Screw	LS06_0439
30	3	D-M9-Solid State Auto Switch/Direct Mounting Style	LS05_386
31	1	Gripper Top Right	LS06_096_RIGHT
32	1	Gripper Bot Right	LS05_095_RIGHT_B

PARTS LIST			
ITEM	QTY	DESCRIPTION	PART NUMBER
1	8	ISO 4762 - M8 x 16	
3	1	Horn	LS06_397
4	2	ISO 4762 - M8 x 50	LS06_426
5	1	Guard	LS06H_0422



***ELITE* A.G**

LIFES DATA



Prepared	T.Wada 22.Oct .2018
Checked	M.Wada 22.Oct .2018
Approved	M.Araki 23.Oct .2018

## Reliability Data : FILTER REGULATOR

### Model: AW10~60 series

#### B<sub>10</sub> data

Based on the life test results of FILTER REGULATOR (AW10~60) series, assuming that a failure mode following the weibull distribution, the following B<sub>10</sub> data has been estimated (90% confidence level).

Model/Series	B <sub>10</sub> (Million cycles)	Pressure (MPa)
AW10~60 Series (REGULATOR)	3.9	0.7

#### Notes)

The determination of B<sub>10</sub> is generally based on the methods described in ISO19973, except for Pressure.

#### Warning)

SMC does not take any responsibility for the use of this data or for the use of the product when used in the safety related part of a control system (SRP/CS) according to ISO13849-1.





### Reliability Data : Air Cylinder

#### Model: C85(Φ 20·25) series

Prepared	H. Someya Aug. 01. 2018
Checked	
Approved	M. TANIGUCHI. Aug. 02. 2018

#### B<sub>10</sub> data

Based on the life test results of C85 series, assuming that a failure mode following the weibull distribution, the following B<sub>10</sub> data has been estimated (90% confidence level).

Model/Series	B <sub>10</sub> (Million cycles)	Pressure (MPa)	Load
C85(Φ 20 · 25)	10	0.5	0kg

#### Notes)

The determination of B<sub>10</sub> is generally based on the methods described in ISO19973, except for Pressure, Load.

#### Warning)

SMC does not take any responsibility for the use of this data or for the use of the product when used in the safety related part of a control system (SRP/CS) according to ISO13849-1.

## 信頼性特性データ：エアシリンダ

型式：標準形/CJ2、低摩擦形/CJ2Q、低速シリンダ/CJ2Xシリーズ

### B10 データ

エアシリンダ CJ2 標準形、低摩擦、低速シリンダシリーズの以下の耐久性試験結果から、故障確率分布をワイブル分布と仮定した場合の、B10 データの推定値（信頼水準 90%）を以下に示します。

	B10
標準形/CJ2シリーズ	2,280 万回
低摩擦形/CJ2Qシリーズ	410 万回
低速シリンダ/CJ2Xシリーズ	80 万回

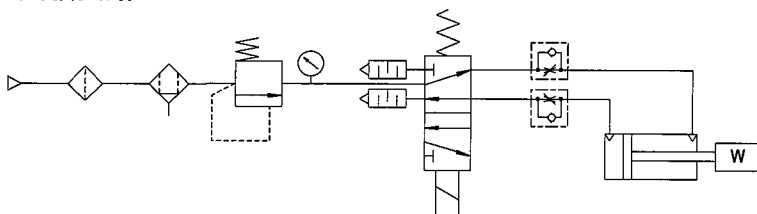
※上表の値は下記耐久試験における部品固有の値ですので、安全機能における本製品の使用可否につきましては、設備設計仕様の枠内においてご判断ください。

### 耐久試験結果


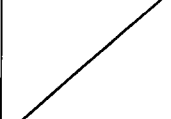

- ・ 標準形/CJ2シリーズ：15 台の試験を行い、2,500 万回経過後、故障数 0 個
- ・ 低摩擦形/CJ2Qシリーズ：10 台の試験を行い、500 万回経過後、故障数 0 個
- ・ 低速シリンダ/CJ2Xシリーズ：10 台の試験を行い、100 万回経過後、故障数 0 個

### 耐久試験条件

#### ① 試験回路



- ② 圧力 : 0.5MPa
- ③ 給油 : 無給油
- ④ 空気源 : ドライエア
- ⑤ 作動頻度 : CJ2&CJ2Q : 120 回/秒  
CJ2X : 60 回/秒
- ⑥ 実験場所 : ライフ室
- ⑦ 周囲温度 : 常温
- ⑧ 負荷 :  
CJ2&CJ2Q : 軸受部分に加わる横荷重が出力の 1/40 となる負荷  
CJ2X : 無負荷

承認	確認	作成
		

S D T B 0 1 - 0 1 - 0 1

## Reliability characteristic data for: Air cylinder

- Model number** : Standard type/CJ2 series  
 \_\_\_\_\_ : Low friction type/CJ2Q series  
 \_\_\_\_\_ : Low-speed cylinders/CJ2X series

### B10 data

Based on the following endurance test results of the cylinder CJ2 series, and assuming a failure mode following the Weibull distribution the following B10 data has been estimated. (90% confidence level)

	B10
Standard type/CJ2 series	22.8 million cycles
Low friction type/CJ2Q series	4.1 million cycles
Low-speed cylinders/CJ2X series	0.8 million cycles

#### NOTE:

The estimated reliability data provided is only applicable to the component in the stated operating conditions. Use of this data for any assessment under standards or otherwise, is at the sole risk of the user. This product is not a safety component and is not supplied to provide a safety function.

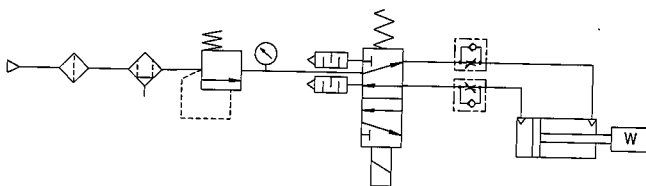
### Endurance test results

For reference

- Standard type: 15 pieces were tested up to 25 million cycles, and found to have zero failure.
- Low friction type: 10 pieces were tested up to 5 million cycles, and found to have zero failure.
- Low-speed cylinders: 10 pieces were tested up to 1 million cycles, and found to have zero failure.

### Endurance test conditions

#### 1) Test circuit



- 2) Pressure: 0.5MPa
- 3) Lubrication: None
- 4) Air supply: Dry air
- 5) Operating freq.: CJ2&CJ2Q : 120times / sec.  
CJ2X : 60 times / sec.
- 6) Laboratory: Life test room
- 7) Ambient temp.: Normal temp. (13 to 33 °C)
- 8) Load:

CJ2&CJ2Q : The load whose lateral load applied to the bushing is 1/40 of the maximum theoretical output/  
 CJ2X : No load

Prepared	T. MATSUDA Feb-24-2010
Checked	
Approved	T. Sato Feb-24-2010



## Reliability Data : Compact Cylinder

### Model:CQ2 series

Prepared	H.GOTO 12.JUL.2018
Checked	K.NIKAIDO 12.JUL.2018
Approved	M.OKUMA 12.JUL.2018

### B<sub>10</sub>data

Based on the life test results of CQ2 series, assuming that a failure mode following the weibull distribution, the following B<sub>10</sub> data has been estimated (90% confidence level).

Model/Series	B <sub>10</sub>	Pressure (MPa)	Load
CQ2 series (φ12~200)	8 million cycles	0.5MPa	Maximum allowable lateral load applied to the bushing is 1/20 of the maximum cylinder force.

#### Notes)

The determination of B<sub>10</sub> is generally based on the methods described in ISO19973, except for pressure, load.

#### Warning)

SMC does not take any responsibility for the use of this data or for the use of the product when used in the safety related part of a control system (SRP/CS) according to ISO13849-1.

**This is a reference document referring to  
Standard: JIS B8381 (1995)  
Pneumatic system-Flexible tubes-Tube fittings  
with SMC/ETC comments added.**

**Performance**

**1) Airtightness.** When the test described in 4) is carried out, there should be no leakage from the point where the fitting joins the tube.

**2) Pressure resistance.** When the test described in 5) is carried out, there should be no detachment of the tube, and no breakage, cracking, leakage or any other faults with any part of the fitting.

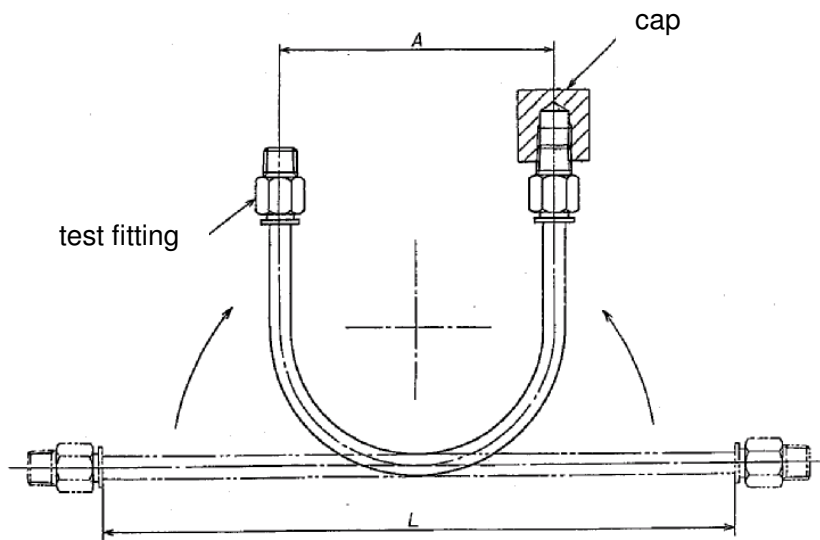
**3) Repeated attachment.** When the test described in 6) is carried out, the fitting should meet the conditions in 1).

**Test procedures**

**4) Airtightness.** Insert a tube of free length L (as stipulated in table 2) into the fitting, as shown in Figure 1. Apply internal pressure of the maximum operating pressure of the tubing being used, and then at 0.1MPa. Maintain this pressure for 5 minutes, and then test for leakage for 1 minute. The specimen should have a cap on one end.

N.B. The testing method for airtightness is to submerge the fitting including the tube joint area in water. There should be no bubbles in 1 minute at Max pressure for tube and at 0,1 MPa.

**Figure 1.** Test procedure for airtightness test.



**5) Pressure resistance.** Take a fitting that has passed the 4) Airtightness test. Gradually increase the pressure to 1.5 times the maximum operating pressure, then maintain for 1 minute, while checking for faults as described in 2) Pressure resistance.

During this test, the fitting should be mounted horizontally and have a cap on one end.

**6) Repeated attachment.** Attach and detach the fitting and the tube five times, carry out the test described in 4) Airtightness at each insertion. Note; There should be no flaws in the tubing used.

**7) Pull-out strength.** Insert a tube of free length 100mm into the fitting and set up in a constant speed stretching test device. Carry out test at a pulling rate of 200mm per minute.

**Table 1** Pull out strengths of fittings:

Tube Designation (size)	Types of tube material				
	Fastening type fittings (compression)		Instant type fittings (one touch)		
	Symbols of applicable tubes				
	AH (Polyamide class 1)	AL (Polyamide class 2)	AH (Polyamide class 1)	AL (Polyamide class 2)	U (Polyurethane)
4	120	90	70	60	50
6	300	220	130	100	80

8	400	280	180	140	110
10	600	460	250	190	150
12	800	600	300	220	180

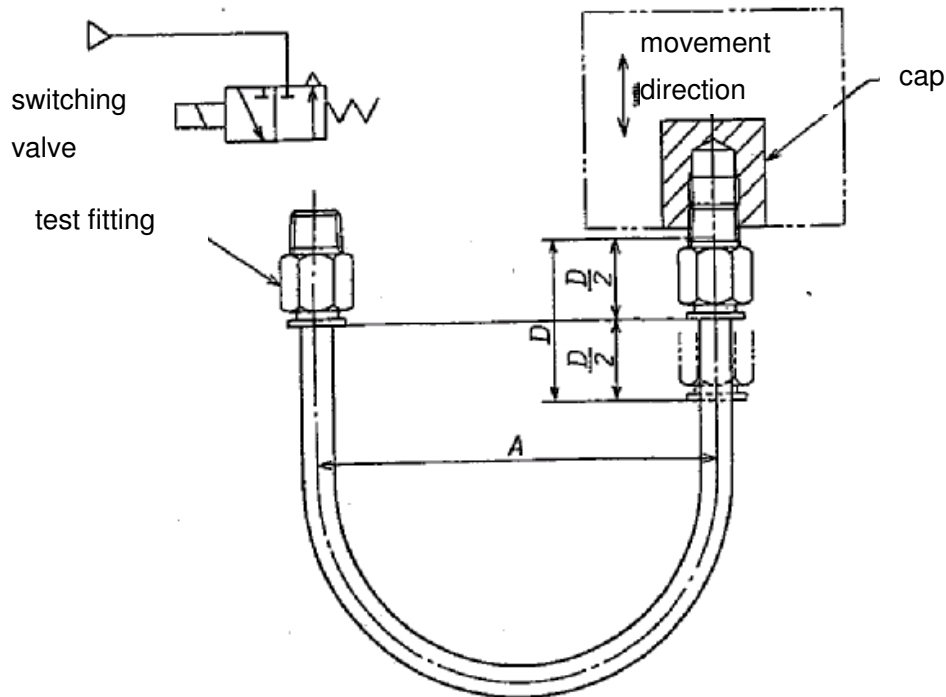
**8) Endurance.** Insert a tube of free length L (as stipulated in table 2) into the fitting and carry out the test described in 1) Air tightness. If it satisfies the conditions in 1), mount into the apparatus shown in figure 2, and apply a pressure of 0.5MPa in a cycle of pressurizing for 0.5 seconds and releasing for 0.5 seconds. At the same time, vibrate the other end once a second with double amplitude D as shown in table 2. After 5 million cycles, carry out the test described in 4).

**Table 2.** Measurements for endurance test equipment

Units:mm

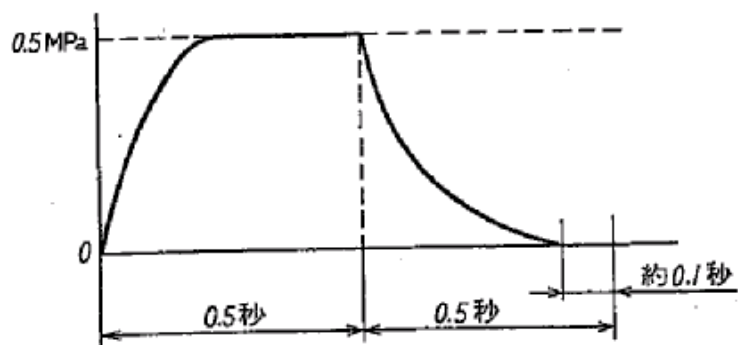
Nominal size of tube	Free length L	Mounting pitch A	Double amplitude D
4	120	52	20
6	180	78	30
8	240	104	40
10	300	130	50
12	360	156	60

**Figure 2.** Endurance test equipment



Note. The cycle of pressurizing and releasing is shown in figure 5.

**Figure 3.** Cycle of pressurizing and releasing for endurance test





## Reliability characteristic data for: Speed controller

### Model number : AS series

### B10 data

Based on the following endurance test results of the speed controller AS series, and assuming a failure mode following the Weibull distribution the following B10 data has been estimated. (90% confidence level)

	B10
AS series	7.4 million cycles

### NOTE:

The estimated reliability data provided is only applicable to the component in the stated operating conditions. Use of this data for any assessment under standards or otherwise, is at the sole risk of the user. This product is not a safety component and is not supplied to provide a safety function.

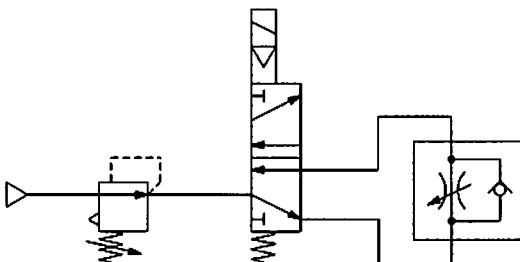
### Endurance test results

For reference

- 5 speed controllers were tested up to 10 million cycles, and found to have zero failure.

### Endurance test conditions

#### 1) Test circuit




- 2) Pressure: 1MPa
- 3) Lubrication: None
- 4) Air supply: Dry air
- 5) Operating freq.: 2 times / sec.
- 6) Laboratory: Life test room
- 7) Ambient temp.: Room temp.
- 8) Load: None

Prepared	N.Morisako
Checked	<i>H. Yamada</i>
Approved	<i>S. Nakamura</i>

## Life of Compact Cylinder

The table below shows a guideline for the life of the product. The data has been validated from life testing results.

Product name	Series	Product life (as reference)
Compact cylinder: Single acting	CQS-S/T series 	5 million reciprocating cycles.



### Caution

#### Product Life

- Product life shown in this material is for reference for model selection, and not the actual warranted values.
  - Maintenance including regular replacement of seals and grease improves product life.
- Please refer to the life guideline above for the average maintenance intervals.

#### Conditions for the expected product life

- Specifications and values published in catalogs, drawings and operation manuals are satisfied.
- Introduction of foreign matter, including drain, into the operating fluid may cause lubrication failure.

#### Regular inspection

For regular maintenance, please replace seals, add grease, or replace the product as necessary in accordance with below points Also refer to the catalog or the Operation Manual (CQS\*-OM0001C) for detail.

- Air leakage from seals
- Sliding mark on the piston rod
- Change in operating condition and change in the minimum operating pressure
- Presence of a grease film on the sliding surface



Title	MTTF of pressure switch			Date	19.Feb.2016
Division	PD Div. 5	Model	Z/ISE, PSE, ISA, ZSP, PPA, PS1*00	Doc no	PS**-TDR0005-A

● **Inquiry**

What is the MTTF (Mean Time To Failure) of pressure switch?

● **Answer**

Based on the predicted component lives supplied by the various manufacturers the following estimated values have been calculated for these products.

Model	MTTF [Years]
Z/ISE1,2 PS1□00 PSE510/530 ZSP1 ISA1/2	126
PSE54□	390
PSE550	175
Z/ISE3,10,30,30A,40,40A ISE35 ISE70 PPA	166
PSE56□	233
Z/ISE50,60,80 ISE75□	207
PSE200	100
PSE300	265
ISA3	58
Z/ISE20	180

\*: For product not in the above table, please contact SMC.

NOTE:

The estimated reliability data provided is only applicable to the component in the stated operating conditions. Use of this data for any assessment under standards or otherwise, is at the sole risk of the user. SMC does not give approval for the use of this component in a safety function.

Stated Operating Conditions

Ambient temperature: 25 ° C  
Supply voltage: 24.0 V DC  
Duty cycle: Continuous (100%)

All other conditions within specifications as defined in the Installation and Operation Manual.

Approved	Checked	Prepared
19.Feb.2016 Uchiyama	19.Feb.2016 Okuyama	19.Feb.2016 Saito

Related documents	PS**-TDN0010-D (Japanese)	Comment	



## Reliability Data : Solenoid Valve

### Model: SY(A) series

Prepared	H. Suzuki 15 <sup>th</sup> June 2018
Checked	<i>S. Sumiyoshi</i> 19 <sup>th</sup> June 2018
Approved	<i>N. Miyazoe</i> 19. June, 2018

### B<sub>10</sub> data

Based on the life test results of SY(A)3000/5000/7000/9000 series, assuming that a failure mode following the weibull distribution, the following B<sub>10</sub> data has been estimated (90% confidence level).

Model/Series	B <sub>10</sub> (Million cycles)	Pressure (MPa)
SY3*( $\frac{2}{4}$ )0/5*( $\frac{2}{4}$ )0/7*( $\frac{2}{4}$ )0/9*( $\frac{2}{4}$ )0 series (Single, Double, 3 port)	47	0.7
SY3*( $\frac{2}{4}$ )0/5*( $\frac{2}{4}$ )0/7*( $\frac{2}{4}$ )0/9*( $\frac{2}{4}$ )0 series (3 position)	27	0.7
SYA3*( $\frac{2}{4}$ )0/5*( $\frac{2}{4}$ )0/7*( $\frac{2}{4}$ )0 series (Single, Double)	47	0.7
SYA3*( $\frac{2}{4}$ )0/5*( $\frac{2}{4}$ )0/7*( $\frac{2}{4}$ )0 series (3 position)	27	0.7

#### Notes)

The determination of B<sub>10</sub> is generally based on the methods described in ISO19973, except for Pressure.

#### Warning)

SMC does not take any responsibility for the use of this data or for the use of the product when used in the safety related part of a control system (SRP/CS) according to ISO13849-1.

# Life Test

SY5000\*-SMJ0002

Model No.

PILOT VALVE V100  
S Y 5 1 ※ 0

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig.1]
- Place : Life Test Room

Piping of Life Test Room in SMC

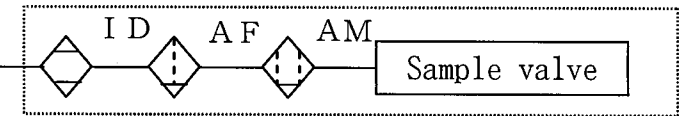


Fig.1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million					Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	40	50	
1	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
2	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
3	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
4	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
5	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
6	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
7	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
8	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
9	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.
10	DC24	DC24	Room temp.	5	→					Nothing wrong has been found during the operation.

# Life Test

Model No.

PILOT VALVE V100  
SY52※0 (T)

Double Solenoid

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig.1]
- Place : Life Test Room

Piping of Life Test Room in SMC

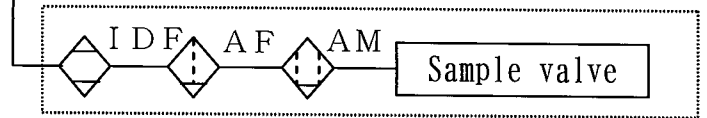


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million					Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	40	50	
1	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100  
SY53※0(T)

Closed Center

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig. 1]
- Place : Life Test Room

Piping of Life Test Room in SMC

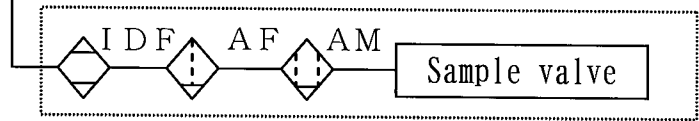


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million			Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	
1	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100  
S S 5 Y 5 - 6 0 - ※※  
S Y 5 1 6 0 (T)

Single Solenoid

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig.1]
- Place : Life Test Room

Piping of Life Test Room in SMC

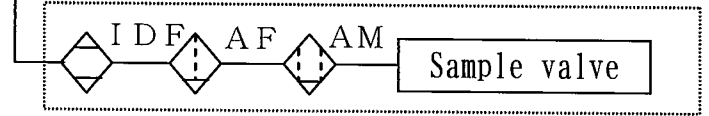


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million					Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	40	50	
1	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.



# Life Test

Model No.

PILOT VALVE V100  
 S S 5 Y 5 - 6 0 - ※※  
 S Y 5 2 6 0 (T)

Double Solenoid

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig. 1]
- Place : Life Test Room

Piping of Life Test Room in SMC

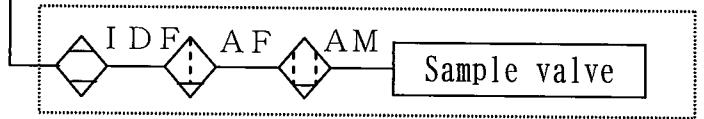


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million					Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	40	50	
1	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	5	→					Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100  
 S S 5 Y 5 - 6 0 - ※※  
 S Y 5 3 6 0 ( T )

Closed Center

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig. 1]
- Place : Life Test Room

Piping of Life Test Room in SMC

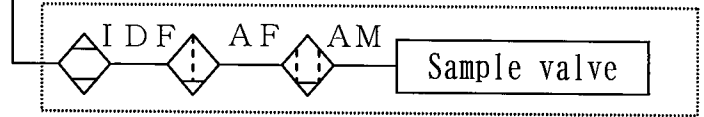


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million			Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	
1	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100  
 S S 5 Y 5 - 6 0 - ※※  
 S Y 5 4 6 0 ( T )

Exhaust Center

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig. 1]
- Place : Life Test Room

Piping of Life Test Room in SMC

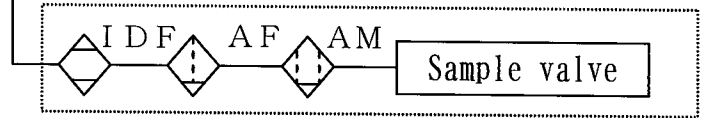


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million			Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	
1	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100  
SS5Y5-60-※※  
SY5560(T)

Pressure Center

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig. 1]
- Place : Life Test Room

Piping of Life Test Room in SMC

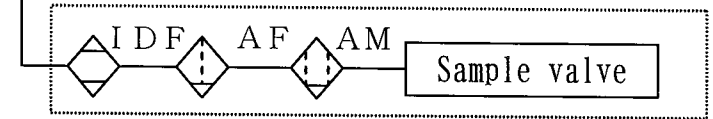


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million			Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	
1	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100  
SY51※0 (T)

Single Solenoid

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig.1]
- Place : Life Test Room

Piping of Life Test Room in SMC

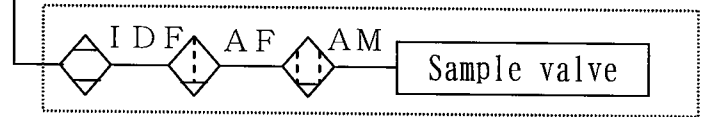


Fig. 1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million					Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	40	50	
1	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
2	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
3	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
4	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
5	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
6	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
7	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
8	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
9	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.
10	220VAC	220VAC	Room temp.	5	→					Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100  
SY54※0 (T)

Exhaust Center

Test Conditions

- Supply Air Pressure : 0.5 MPa
- Lubrication : Non-lubricated [Fig.1]
- Place : Life Test Room

Piping of Life Test Room in SMC

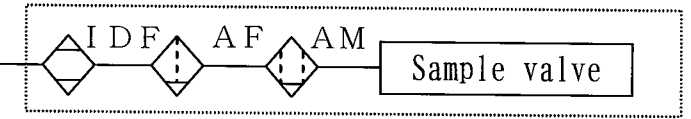


Fig.1

Valve No.	Rated Volt.	Test Conditions			Operation Cycles Million			Results
		Volt.	Ambient Temp. °C	Operating frequency Hz	10	20	30	
1	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	3	→			Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data. Usually the life of the valves depends on conditions.

# Life Test

Model No.

PILOT VALVE V100

Test Conditions

•Supply Air Pressure : 0.5 MPa

•Lubrication : Non-lubricated [Fig.1]

•Place : Life Test Room

Piping of Life Test Room in SMC

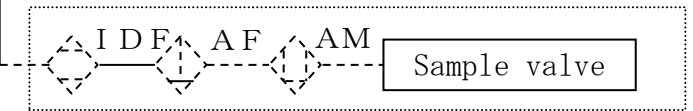


Fig.1

Single Solenoid

Valve No.	Rated	Test Conditions			Operation Cycles Million	Results
		Volt.	Ambient °C	Operating H z		
1	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
2	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
3	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
4	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
5	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
6	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
7	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
8	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
9	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.
10	24VDC	24VDC	Room temp.	5	10 20 30 40 50 →	Nothing wrong has been found during the operation.

\* We can not guarantee these Life Test Data, these data mean only a bench test data.