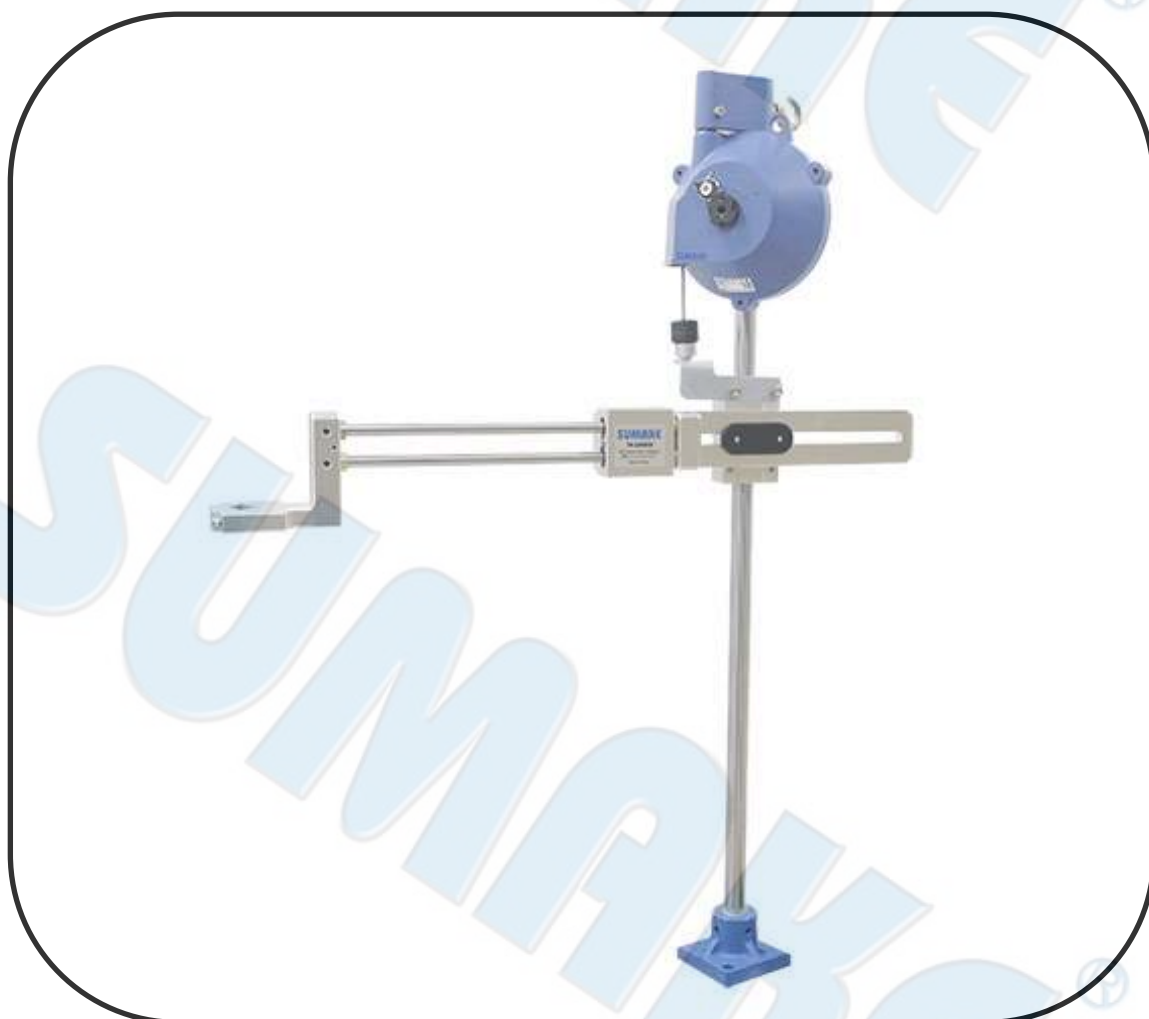


## OPERATION MANUAL

### ITEM NO.: TA-22050, TA-22070 LINEAR TORQUE REACTION ARM



TA-22050(70)-I-2309E-YM

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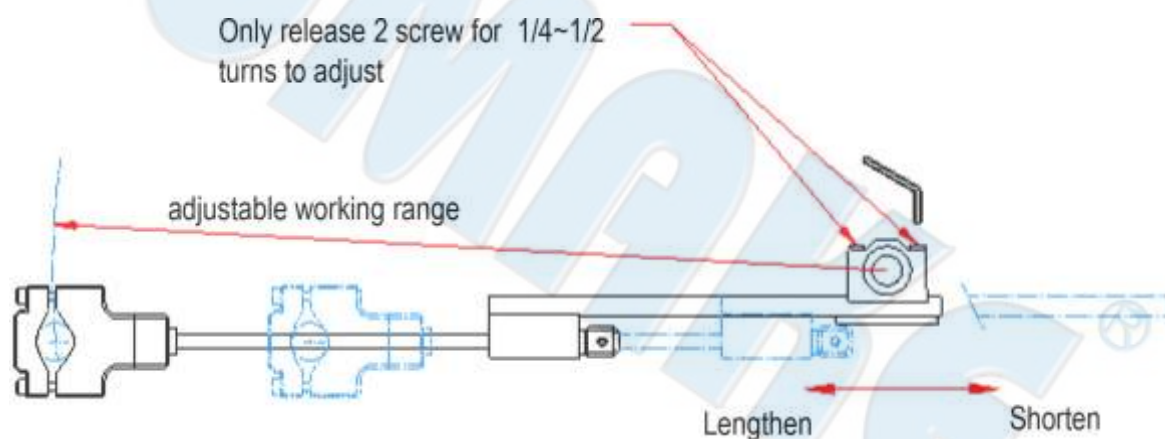
## I. Feature

TA-22050/TA-22070 torque reaction arm is applicable to absorb the reaction from electric/pneumatic screwdriver directly after working. To prevented injury for operator after working continuously.

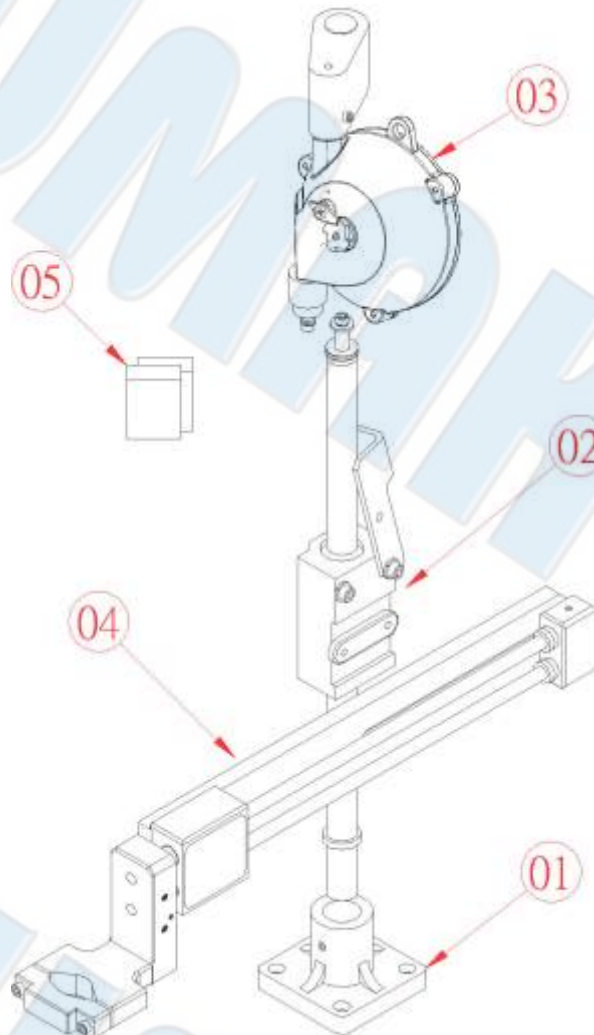
## II. Specification

1. The spindle can swivel 360° and front arm can swivel around 330° for horizontal and the vertical height can make electric/pneumatic screwdriver to the specific position. It convinces operator to work quickly and stable also hence efficiency and avoid human injury.
2. TA-22050/TA-22070 series can optimized to reduce the use of environmental space limits, and can be adjusted infinitely the entire using range and quick lock design.  
Make it more convenient and lighter to working.

See drawing as below.



### III. Item Inspection



#### ➤ Comparison

	Description	Q'TY	Remark
01	Base plate	1set	
02	Linear bearing set	1 set	
03	Hanger set	1 set	
04	Arm set	1 set	
05	screw & accessories	2pack	
	Hex screw *4 pcs		
	6mm allen key *1pcs rubber*1pcs		

## IV. Safety Precautions

For the proper use of this product, avoid jeopardizing personal and property safety of the lives of others, to prevent the occurrence of danger and be sure to read the instructions carefully

< Please be sure to follow instruction >

### 1. Warning :









【 Prohibition Sign】, it will occur personal injury or product damaged if didn't follow instruction.



【Alarm Sign】Damage of properties, or injury of personal may occur if not observed.

### 2. Safety information :

	Follow instructions depicted in the manual and operate the machine correctly.
	DO NOT let contaminants such as water or oil enter into the machine.
	DO NOT dismantle or modification.
	Keep hand away from institutional movements, range of movement when assembly.
	Please adjust the spring tension against weight of suspend tool.
	Please maintain and clean the component regularly.



## V. Description

### 1. Assembly :

There are five individual boxes after opening, please follow the steps below to assemble.

- A. Take 4pcs M6\*25(#14) screws from (05) screw pack to tighten the base (01) on a stable work. see **【Fig.1】** .
- B. Insert the spindle lower end of (02)Linear bearing set into the base (01) until the bottom end is in contact with the table.
- C. Tighten the set screw\*2pcs (#15) on the spindle.
- D. After unscrewing (unscrewing) the 2 hexagonal hole screws and spring washers that are locked on the bearing set→rotate the hanger plate (#16) counterclockwise and align the two screw holes, and then tighten the screws.
- E. Remove the hex screw (#1), the spring washer (#2), and the flat washer (#3) of the spindle (#12) top.
- F. Insert the hanger (#4) of hanger set (03) carefully from the upper end of the spindle (#12) to the fixed point. (please note: the base plate of spring balancer shell should face the spindle direction) see **【Fig.2】**
- G. Assemble the removed hex screw (#1), spring washer (#2), flat washer (#3), according to sequence. Make sure that the hanger set can rotating free. And then insert the rubber (#53) on top of hanger hole to prevent dust.
- H. disassemble the screw (#1) and spring washer (#2) of hanger set (03) and pass-through Linear bearing set (02).  
Make the hanging plate hole (#16) upward to tighten front tip of cable.  
(The cable needs to pulled down to touch hanging plate. )

NOTE: The protruding teeth needs to insert hanging plate hole correctly.

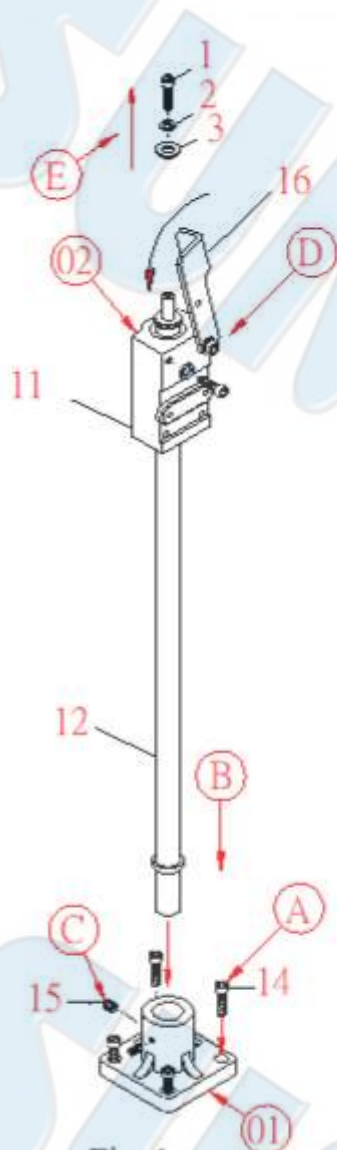


Fig. 1

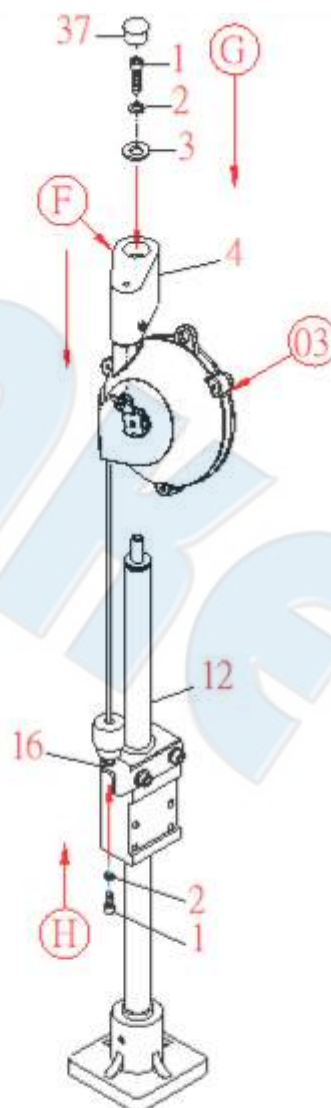


Fig. 2

- I. Loosen 2pcs M6\*45 (#25) hex screws (TA-22070 is M8\*55), and loosen the fixing bolts block (#18) from the linear bearing set (#11).
- J. Place the front arm (#22) of the Arm set (04) horizontally in the groove of the linear bearing set (#11).  
(NOTE: The label of the front arm must be outward)

Insert the fixing bolts block (#18) and tighten with the original hex screw (#25)

(NOTE: The upper and lower edges of the front arm must be inserted into the groove correctly.)

see 【Fig.3】

K. After fixing, using the accessories of 6mm allen key (#35) from (05) (or suitable tool)

To insert hex hole of spring balancer for spring tension adjust purpose.

Please refer to the related page. 4); spring tension adjustment refer to page 12.

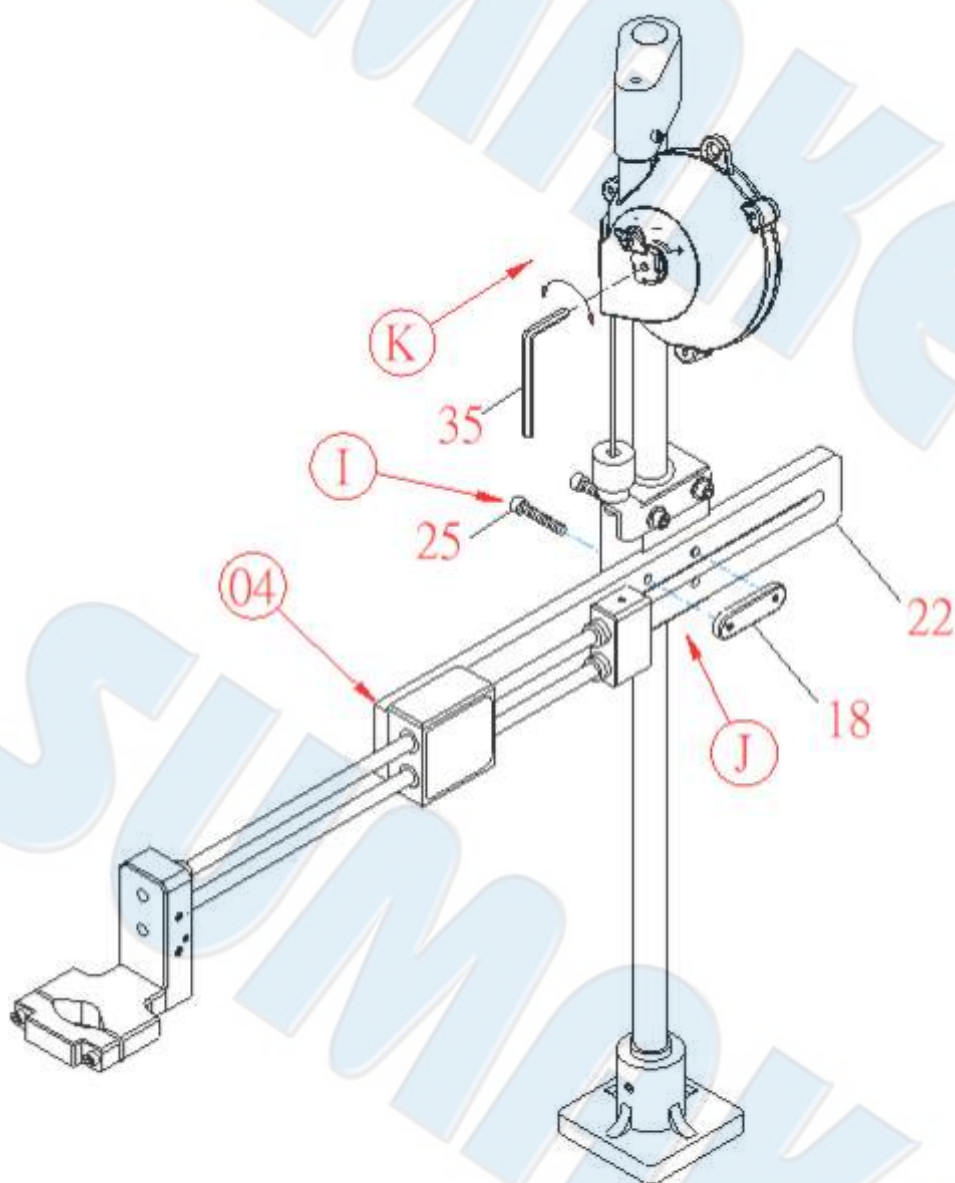
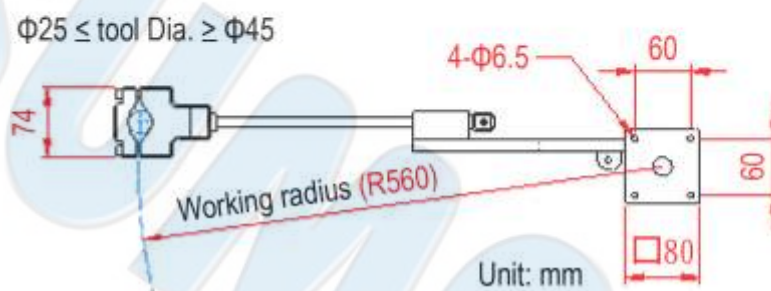
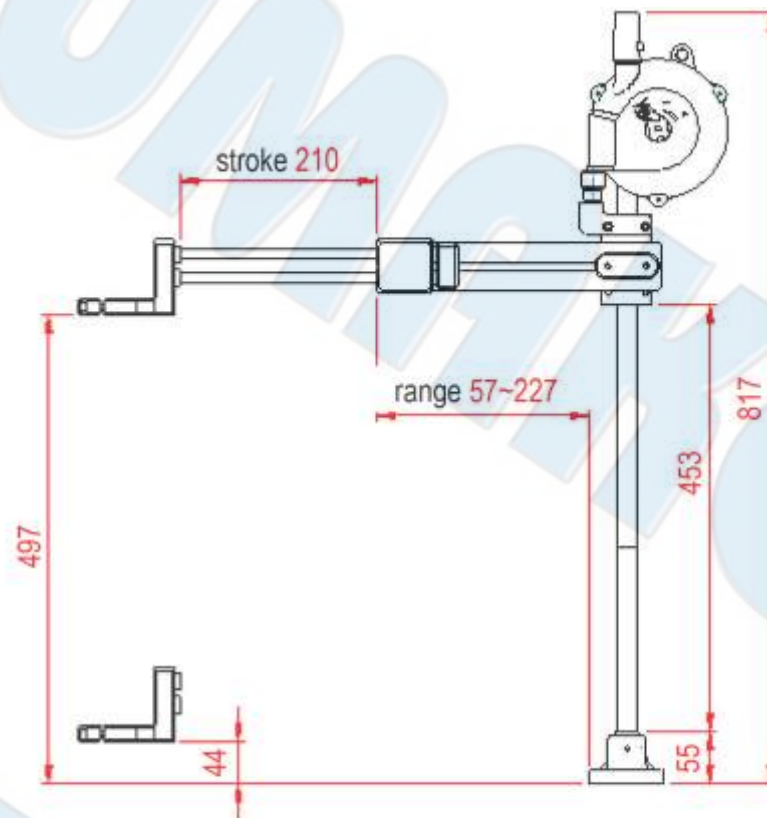


Fig. 3

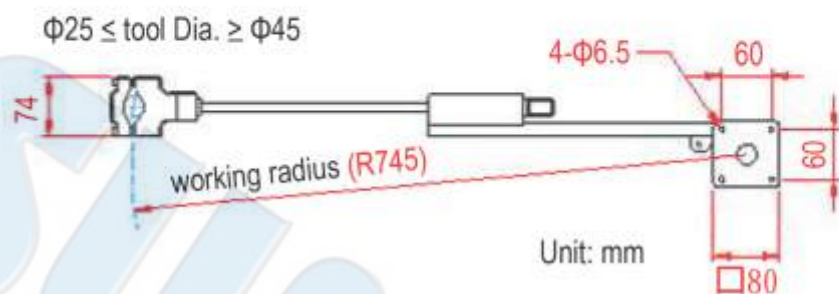
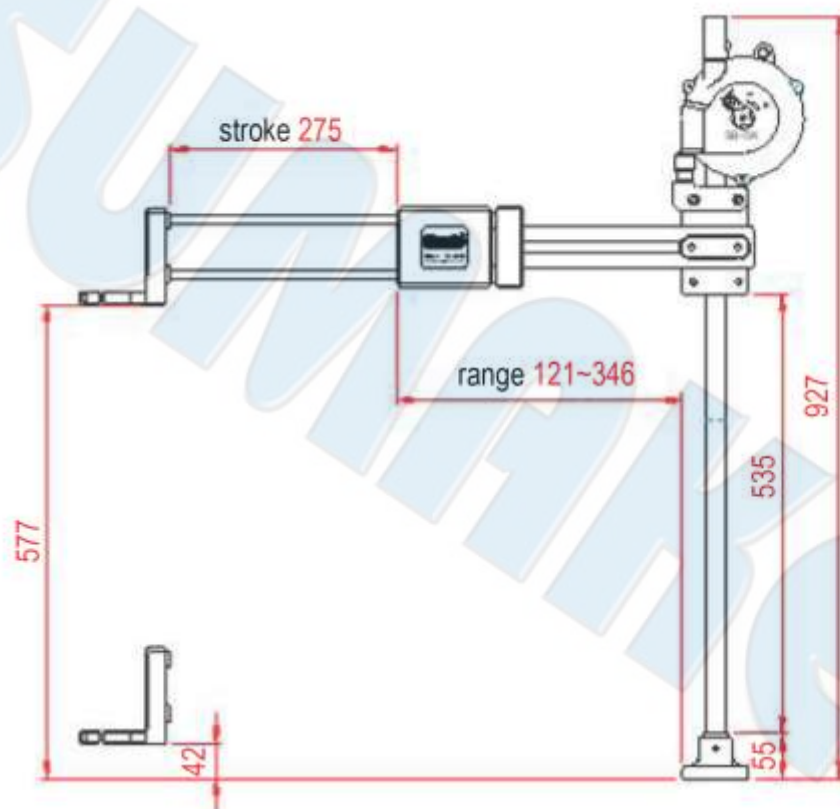


## 2. Dimension :

◇ Model : **TA-22050**



Model : **TA-22070**



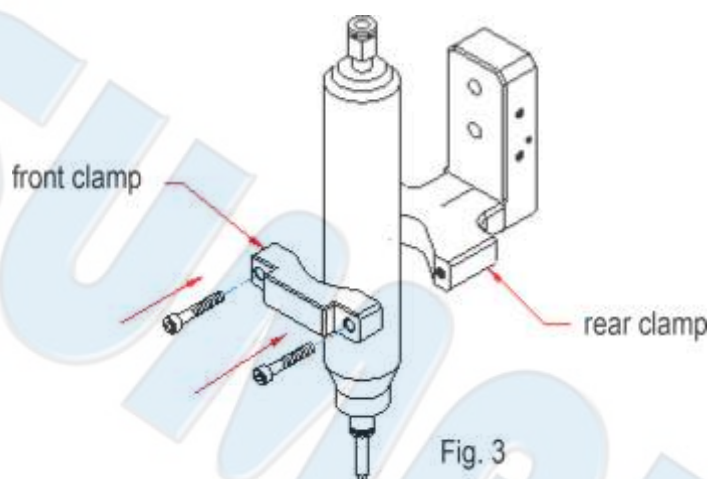
### 3. Working environment :

Area		indoor	Max. torque
TA-22050	weight	Approx. 6.3 kg	150 kgf-cm (14.7Nm)
TA-22070		Approx.10.4 kg	250 kgf-cm (24.5Nm)
Air pressure		5 ~ 6 kg/c m <sup>2</sup>	
Temperature		－5℃~ 60℃ ( NO freezing )	
Humidity		20% ~ 90% ( NO condensation )	

## VI. Installation

### 1. Installation Instruction :

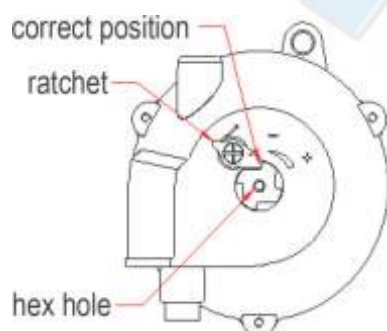
- (1) Please make sure before installing tool.
  - A. if the arm at the lowest point.
  - B. the spring balancer release spring tension. Check if cable soft or curved.  
if spring tension is not released, please refer to spring tension adjustment for “weaken”.
- (2) Please refer to FIG. 4 to assemble Front fixture and Rear fixture by M6\*50 hex screw. The available clamp diameter is Ø25 ~ Ø 45.
- (3) Please must check for point 1 include A&B to install or exchange tool.  
Or the arm set will rebound strongly if spring tension didn't match.  
And may cause personal injury.



2. Spring tension adjustment:

3.

The operator needs hold spring balancer by one hand, the other hand hold 6mm allen key to insert hex hole completely and carefully.



- increase spring tension: Turn the allen key to clockwise to adjust scale by scale.
- weaken spring tension: one hand hold spring balancer and one thumb push ratchet (NOTE: the allen key need turn hex hole clockwise to release ratchet before pushing.)  
→ and hold allen key carefully to turn counter-clockwise scale by scale then fixed by ratchet.



NOTE: When weaken the spring tension, the allen key must inset at Six o'clock direction. And pull out after turning 90° (accordance quarter scale).

Adjust over will cause personal injury.



NOTE: Make sure the ratchet is fixed after adjusting.

## VII. Maintenance

To make sure the component of Torque Reaction Arm is durable, please clean and lubricate it weekly.

1. Daily maintenance:  
Please clean and wipe the surface of the sliding spindle frequently and lubricate with clean by protection oil (WD-40 or similar oil).
2. Weekly maintenance:  
remove dust from the exterior components, linear axis fill the grease for lubricating purpose. (as shown in the picture).



★ If the operating environment with frequent or severe, please shorten the maintenance of the time.

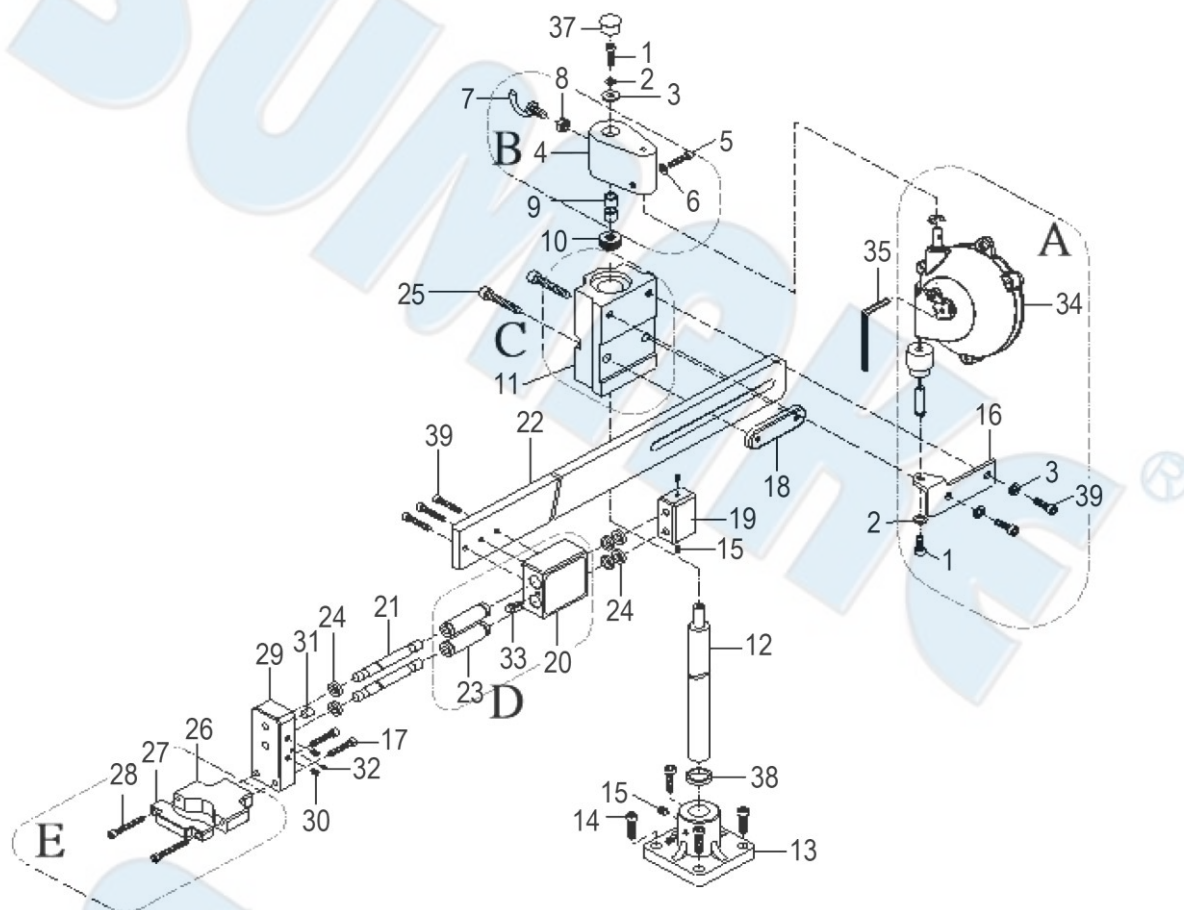


# TA-22050B

LINEAR TORQUE REACTION ARM, CLAMP: 25~45mm (ADJUSTABLE)

# TA-22050C

LINEAR TORQUE REACTION ARM, CLAMP: 34mm



## PARTS LIST

No.	Parts No.	Description	Q'ty	Remark
1	SWR2005	Screw (M6x16L)	2	A*1
2	WRS060	Spring Washer (M6 )	4	A*1
3	WR060A	Flat Washer (M6)	1	
4	TA300-002	Hanger	1	B*1
5	SWR2031	Screw (M5x25L)	1	B*1
6	WRS050	Spring Washer (M5)	1	B*1
7	TA300-003	Screw (M8)	1	B*1
8	NT080	Nut (M8 )	1	B*1
9	BG042	Bearing	2	B*2
10	BG043	Bearing	1	
11	TA300S-011	Linear Bearing	1	C*1
12	TA300-005	Spindle	1	
13	TA300-007	Base Plate	1	
14	SWR2018	Screw (M6x25L)	4	
15	SWN2001	Screw (M6x8L)	4	
16	TR350-016	Hanger Plate	1	A*1
17	SWR2039	Screw (M6x30L)	2	
18	TA300S-018	Fixing Bolts Block	1	
19	TA300-017	Rear Block	1	
20	TA300S-020	Sliding Holder	1	D*1
21	TA300S-021	Sliding Spindle	2	
22	TA300S-022	Front Arm	1	
23	BG019	Bearing	2	D*2

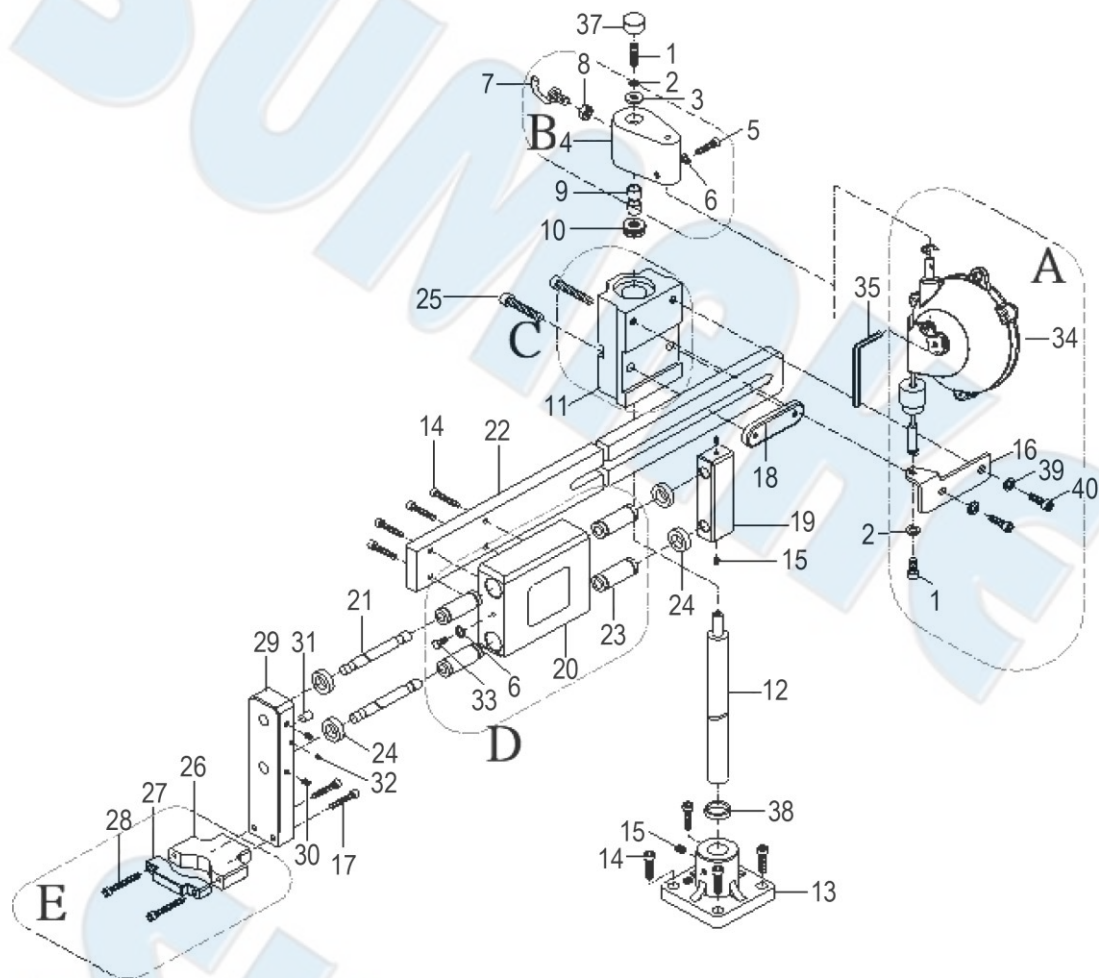
No.	Parts No.	Description	Q'ty	Remark
24	TA300-030	Gasket	6	
25	SWR2044	Screw (M6x45L)	2	
26	TA300-0262	Rear Clamp	1	E*1
27	TA300-0272	Front Clamp (25~45mm)	1	E*1
	TA22050-25B-1	Front Clamp (34mm)	1	
28	SWR2086	Screw (M6x50L)	2	E*2
29	TA300-022	Connect Block	1	
30	SWN2022	Screw (M6x12L)	2	
31	OH207	Magnet	1	
32	SWN2029	Screw (M4x8L)	1	
33	SWH001	Screw (M5x10L)	1	D*1
34	SB3KTA	Spring Balancer	1	A*1
35	SK6	Allenkey (6mm)	1	
37	OE063	Rubber	1	
38	TA300-029	Spindle Gasket	1	
39	SWR2002	Screw (M6x20L)	5	
Accessories Parts Kits				
A	Spring Balancer [Incl. 1, 2, 16, 34]			
B	Hanger Set [Incl. 4, 5, 6, 7, 8, 9(2)]			
C	Linear Bearing Set [Incl. 11]			
D	Sliding Fixed Set [Incl. 20, 23(2), 33]			
E	Clamp Set [Incl. 26, 27, 28(2)]			

# TA-22070B

LINEAR TORQUE REACTION ARM, CLAMP: 25~45mm (ADJUSTABLE)

# TA-22070C

LINEAR TORQUE REACTION ARM, CLAMP: 34mm



## PARTS LIST

No.	Parts No.	Description	Q'ty	Remark
1	SWR2005	Screw (M6x16L)	2	A*1
2	WRS060	Spring Washer (M6)	2	A*1
3	WR060A	Flat Washer (M6)	1	
4	TA300-002	Hanger	1	B*1
5	SWR2031	Screw (M5x25L)	1	B*1
6	WRS050	Spring Washer (M5)	2	B*1, D*1
7	TA300-003	Screw (M8)	1	B*1
8	NT080	Nut M8	1	B*1
9	BG042	Bearing	2	
10	BG043	Bearing	1	
11	TA600S-011	Linear Bearing	1	C*1
12	TA600-006	Spindle	1	
13	TA600-009	Base Plate	1	
14	SWR2018	Screw (M6x25L)	8	
15	SWN2001	Screw (M6x8L)	4	
16	TR650-016	Hanger Plate	1	A*1
17	SWR2039	Screw (M6x30L)	2	
18	TA600S-018	Fixing Bolts Block	1	
19	TA600-015	Rear Block	1	
20	TA600S-020	Sliding Holder	1	D*1
21	TA600S-021	Sliding Spindle	2	
22	TA600S-022	Front Arm	1	
23	BG021	Bearing	4	D*4

No.	Parts No.	Description	Q'ty	Remark
24	TA600-016	Gasket	4	
25	SWR2048	Screw (M8x55L)	2	
26	TA300-0262	Rear Clamp	1	E*1
27	TA300-0272	Front Clamp (25~45mm)	1	E*1
	TA22050-25B-1	Front Clamp (34mm)	1	E*1
28	SWR2086	Screw (M6x50L)	2	E*2
29	TA600-026	Connect Block	1	
30	SWN2022	Screw (M6x12L)	2	
31	OH207	Magnet	1	
32	SWN2029	Screw (M4x8L)	1	
33	SWH001	Screw (M5x10L)	1	D*1
34	SB5KTA	Spring Balancer	1	A*1
35	SK6	Allen key (6mm)	1	
37	OE063	Rubber	1	
38	TA600-007	Spindle Gasket	1	
39	WRS080	Spring Washer (M8)	2	
40	SWR2043	Screw (M8x20L)	2	
Accessories Parts Kits				
A	Spring Balancer [Incl. 1, 2, 16, 34]			
B	Hanger Set [Incl. 4, 5, 6, 7, 8]			
C	Linear Bearing Set [Incl. 11]			
D	Sliding Fixed Set [Incl. 6, 20, 23(4), 33]			
E	Clamp Set [Incl. 26, 27, 28(2)]			

NOTE

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## Operation Manual

### SA-22030, SA-22050, SA-22070

Read this manual before use




Do not fasten the hanger




When the spring breaks, the sage pin pops out from the spring case and collides with one of the pins, to stop the drum rotating.



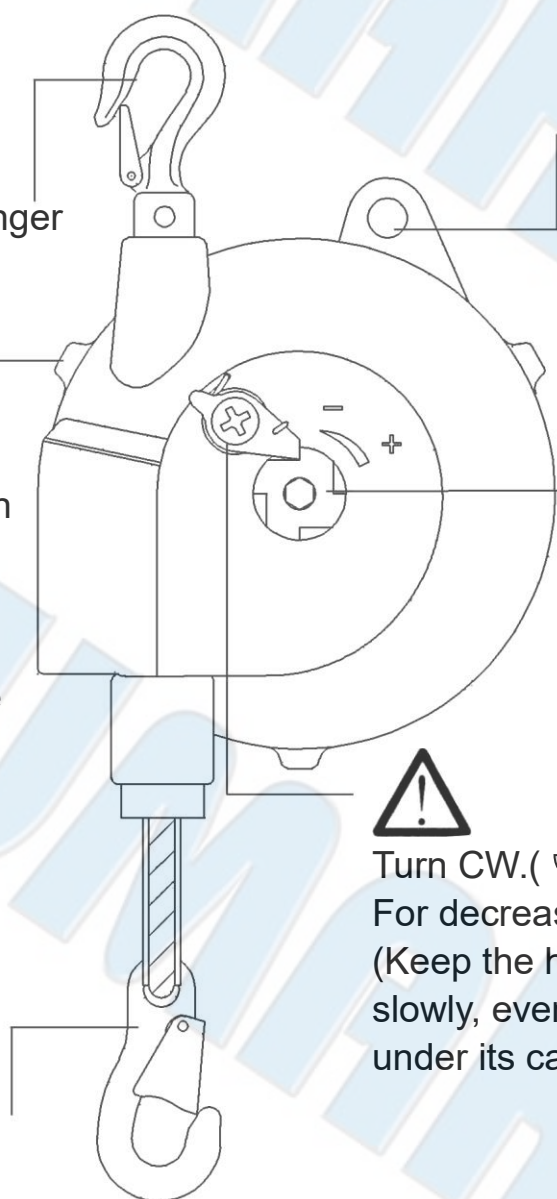
Always attached a secondary support cable or chain.

Turn CW. (  )  
For increasing the spring tension by allen key.




Turn CW.(  )  
For decreasing about 1.0cm  
(Keep the hex and turn slowly, even don't adjust under its capacity)

Bottom hook

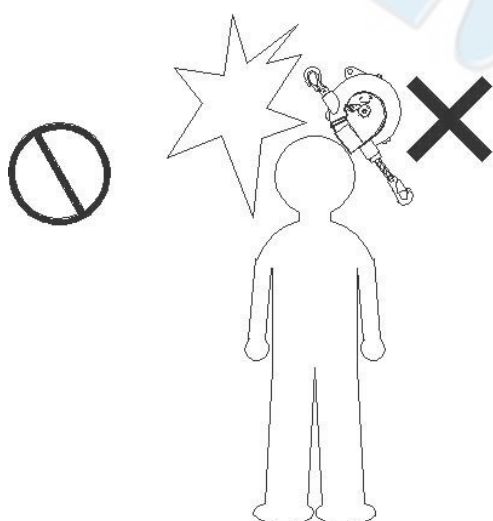




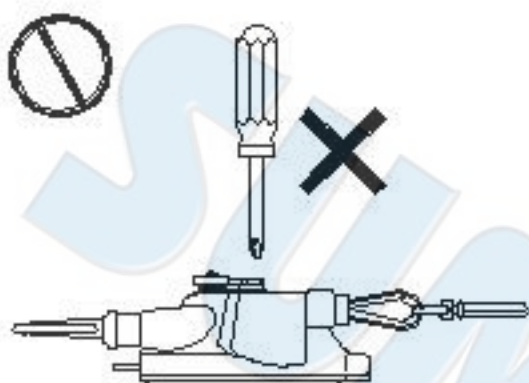
 <b>Caution</b>	 <b>Prohibition</b>
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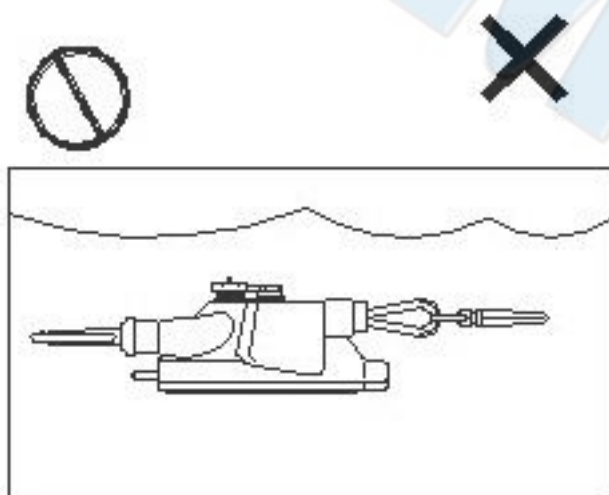
Incorrect use of the spring balancer could cause personal injury. Observe instruction in the manual and use the balancer correctly.



Never stand under the spring balancer.

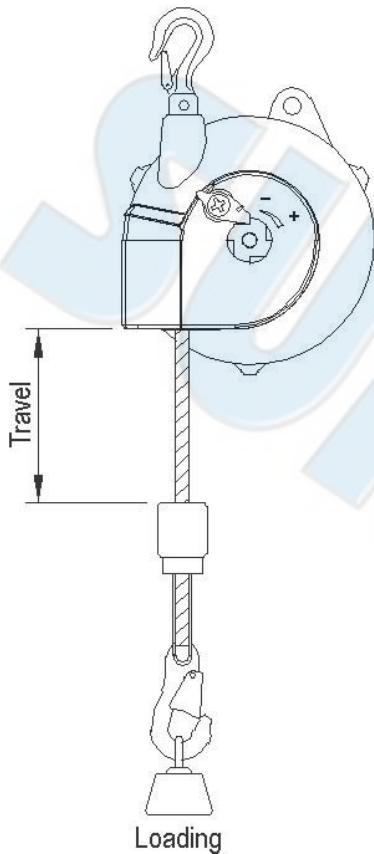


Prohibition of disassembly.



Never put the spring balancer in fluid.





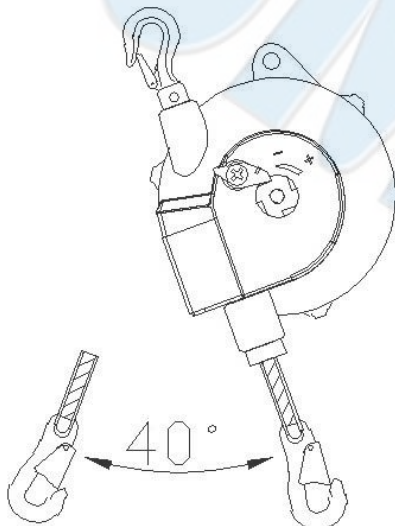
Don't twist and rub the cordage with cable during travel.  
Don't load over its capacity.



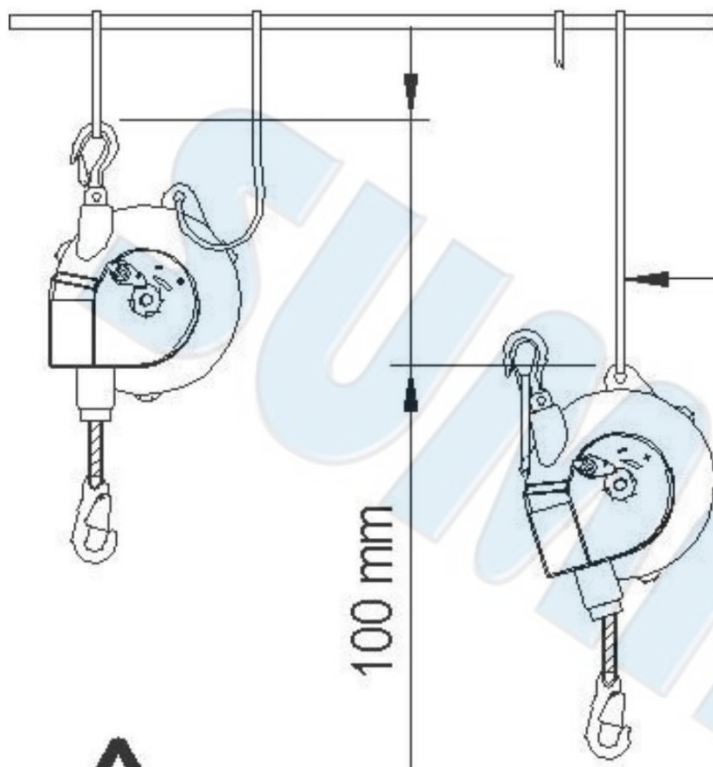
1. Take the tools off while remove the spring balancer, prevent the devise drop down.
2. Please remove the spring balancer and tools if rest for a long time.
3. Remove the spring balancer and devise before arranging the tension.

#### Application area:

Indoor and normal atmospheric conditions. Temperature range :  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$

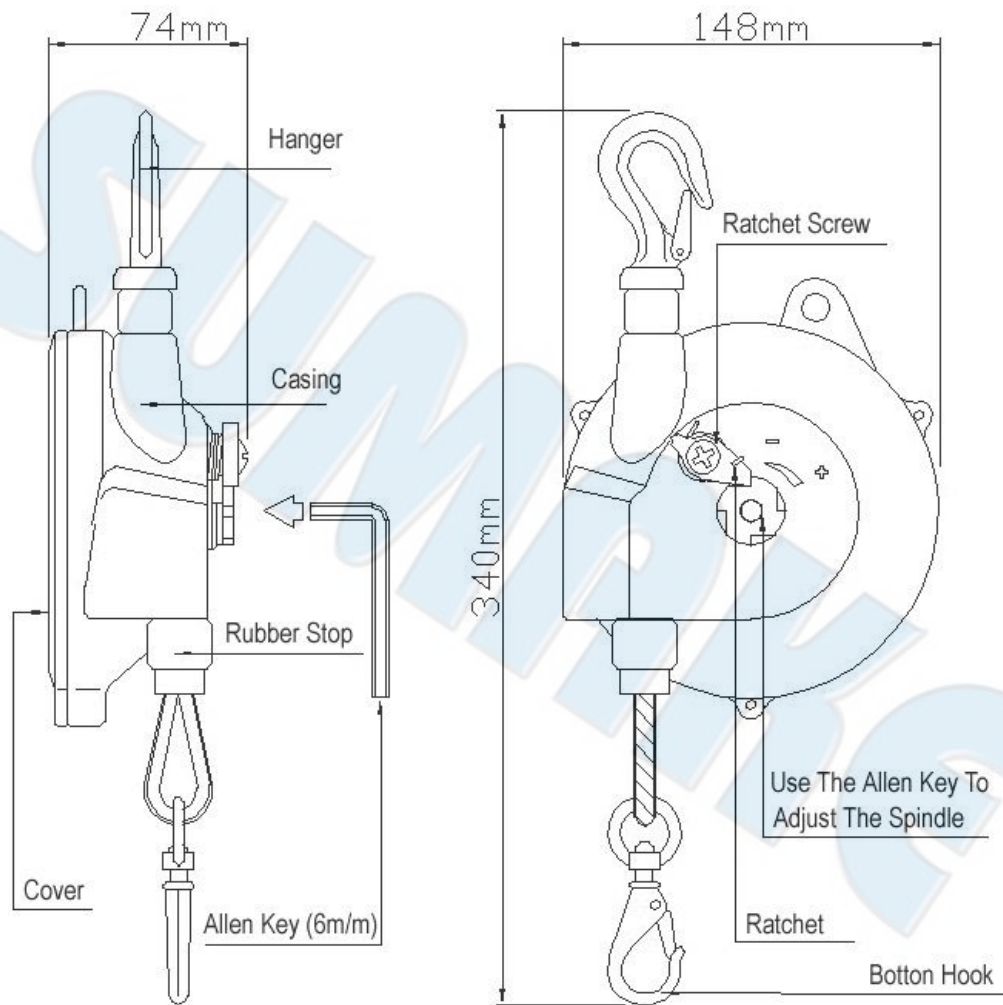


Large angle using will debase the wire rope's life, Under  $\pm 20^{\circ}$  is better.



Safety support  
cable or chain  
is required but  
not provided  
with the product.

Leave some slack in the secondary support cable or chain to allow the balancer to rotate freely.  
The slack must be a suitable length so that the balancer will stop within 10cm when falling in case of failure of the hanger or the fitting.



Model	Capacity	Weight	Travel
SA-22030	1.5 – 3.0 kg	1.73 kg	1.3 m
SA-22050	3.0 – 5.0 kg	1.82 kg	1.3 m
SA-22070	5.0 – 7.0 kg	1.85 kg	1.3 m

## 1. Installation

- (1) Attached the spring balancer to the steady place.
- (2) Please attached a secondary support cable and install to the steady position.
- (3) Install the devise within the capacity to the bottom hook.
- (4) Please adjust the tension within the capacity after install the devise.

## 2. Checks before use

- (1) The hanger and bottom hook is steady and turn swivel.
- (2) The cable is complete.
- (3) The ratchet spring and spindle is steady.
- (4) The appearance is complete, no any damage.



## EC DECLARATION OF CONFORMITY

We: **SUMAKE INDUSTRIAL CO., LTD.**

**4F, No. 351, Yangguang St., Neihu District, Taipei City, Taiwan**

declare in sole responsibility that the equipment

Equipment : **SPRING BALANCER**

Model/ Serial No. : **SA-22030(22050)(22070)**

to which this declaration applies, complies with these normative documents:

- Machinery Directive: 2006/42/EC

and conforms to the following EN standard,

- EN ISO 12100: 2010

Name and Signature/Position

**Mike Su – Managing Director**

Date and Place

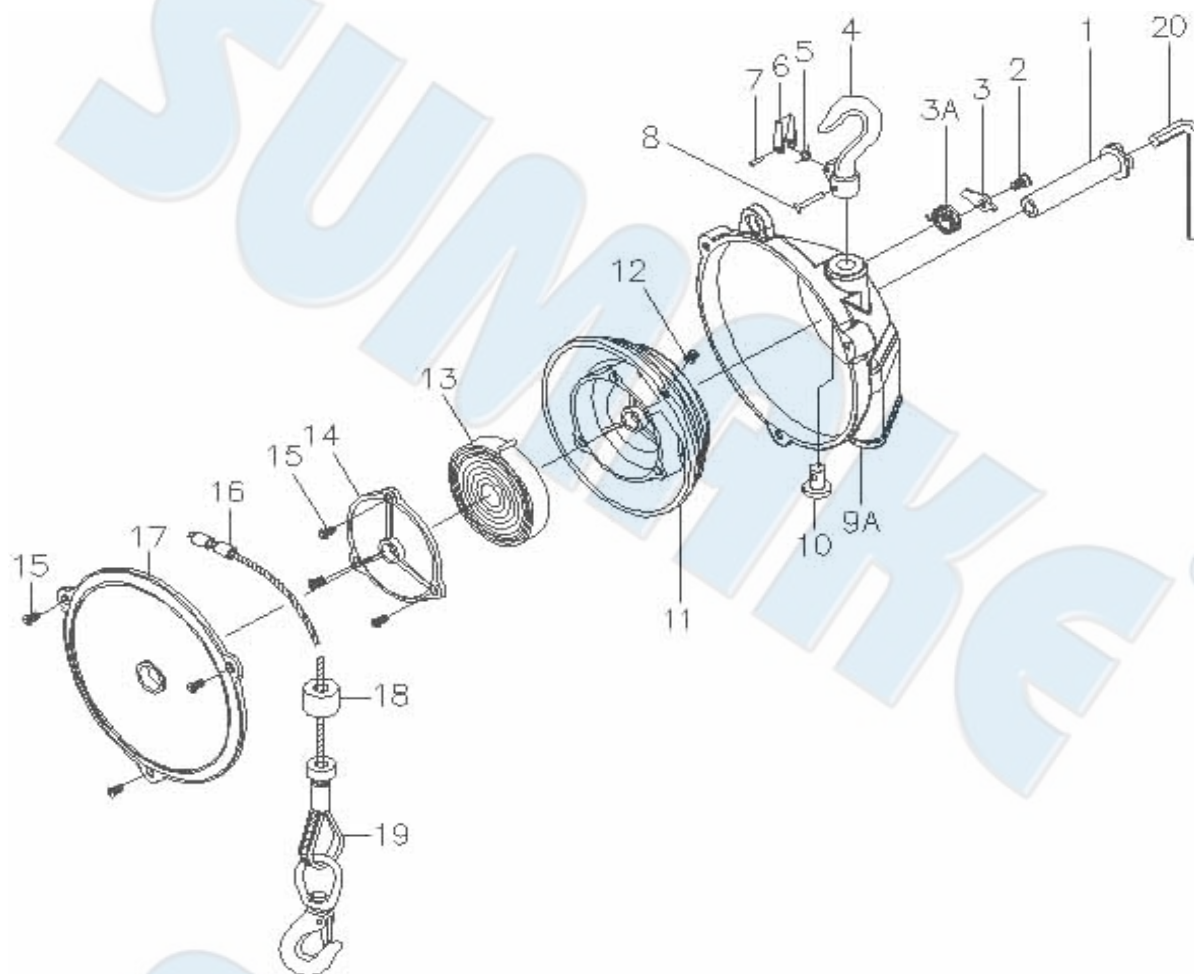
**2013/2/22**

**Taipei, Taiwan**

SA-22030(22050)(22070)-D-1308D-YMF

SA-22030  
SA-22050  
SA-22070

SPRING BALANCER (1.5-3KG)  
SPRING BALANCER (3-5KG)  
SPRING BALANCER (5.0-7.0KGS)



#### PARTS LIST

No.	Parts No.	Description	Q'ty
1	SA22030-01	Spindle	1
2	SA22030-02	Screw	1
3	SA22030-03	Ratchet	1
3A	SA22030-03A	Ratchet Spring	1
4~10	SA22030-09AS	Casing Set [Incl. 4, 5, 6, 7, 8, 9A, 10]	1
11&13	SA22030-13S	Spring Plate Set [Incl. 11, 13] [SA-22030]	1
	SA22050-13S	Spring Plate Set [Incl. 11, 13] [SA-22050]	1
	SA22070-13S	Spring Plate Set [Incl. 11, 13] [SA-22070]	1
12	SA22030-12	Screw	1
14	SA22030-14	Spring Cover	1
15	SA22030-15	Screw	6
16~19	SA22030-19S	Cable Set [Incl. 16(2), 18, 19]	1
17	SA22030-17	Cover	1
20	SA22030-20	Hex Spanner / rod	1



**NOTE**

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