SBC Linear Actuator

I.The key feature of SBC Linear actuator

LOW COST- FAST DELIVERY

As all of our actuator products have been developed around or own SBC linear rail system we maintain total quaility control, in- house supply lines for fast deliveries and a cost control base keeping SBC actuators extremely price competitive

HIGH ACCURACY- HIGH REPEATABILITY

Advantages derived through R&D gains across our liner rail and other SBC lines are immediately transferred into our actuators keeping them at the forefront of technology benefit. As SBC has specialized in Linear Rail Systems since incorporation our actuators offer the same high running accuracy achieved in our rail guides. Repeatability of ¡¾0.02(m)m is our standard platform.

VERSATILE LOAD/SPEED CAPABILITY

A wide variety of rail & carraige combinations, running accuracies and sealing options means we can offer the most versatile product combinations within the SBC actuator range. We offer products than can handle slow moving high load applications as well as high speed high accuracy units that can handle up to 2000mm/sec

HIGH RIGIDITY

SBC actuators utilise the strength of high grade aluminum alloy to form the external body of each unit supporting the inherent rigidity within our rail system.

DESIGN ADVANTAGES

Using a pre- designed actuator system eliminates the need for individual component matching and the associated costs of individual item supply, assembly time, alignment time and most of all design time. The wide range of SBC actuators means that there is inevitably a unit to suit all types of requirement whether system bulk or compactness is the real need.

DRIVE UNIT COMPATIBILITY

SBC Actuators can be driven by the widest range of motor types depending on your application needs. Any AC or DC, Servo or Stepper motors can be used along with whatever control systems are required for specific application needs

ULTIMATE CHOICE

The wide range of SBC actuator models allows you to select a specific unit that best suits your needs.

II. SBC Linear actuator application check list

Company			TEL	
Contact person			FAX	
Date			Application	

System Spec (Sketch request)

1. System spec		2.Applied load		External force	1	2
No of rails		Length X (mm)		From center X (mm)		
No of block /rail		Length Y(mm)		From center Y (mm)		
Length between blocks(mm)		Length Z(mm)		From center Z (mm)		
Length btween rails(mm)		Load(Kgf)		External force		
Mounting distance		External force Y		External force Z		

3. Speed pattern

speed

distance hour

triangle

speed

distance hour

rectangular

Express transport stroke		Normal stroke	
Stroke (mm)		Stroke(mm)	
Stroke time(hr)		Stroke time (hr)	
Speed pattern		Speed pattern	
Cycle time (s)		Cycle time (s)	
Max unifrom velocity (mm/s)		Max uniform velocity (mm/s)	
Max acceleration (mm/s²)		Max acceleration (mm/s²)	

4.Request accuracy		5.Life time	
Straightness		Cycle Time	
Clearance		Request life time(year)	

6.working condition

Impact load	☐ Non	☐ few	☐ a few	☐ severe	Special environment	Temp(¡É)
vibration	☐ Non	☐ few	☐ a few	☐ severe	Note.	
contaminants	☐ Non	☐ few	☐ a few	☐ severe		

III. Selection of SBC Linear Actuator

BASIC DATA

1. MAX. PAY LOAD   :   kgf
2. MAX. SPEED   :   mm/s
3. STROKE   :   mm
4. MAX. REPEATABILITY   :   mm
5. Assembling   :   X, Y, Z axis.
6. Driving force   :   Ball Screw / Timming Belt
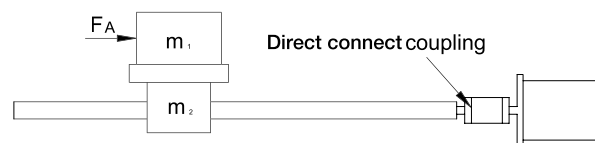7. Check the external force
8. Check the dimension(Select the Base)
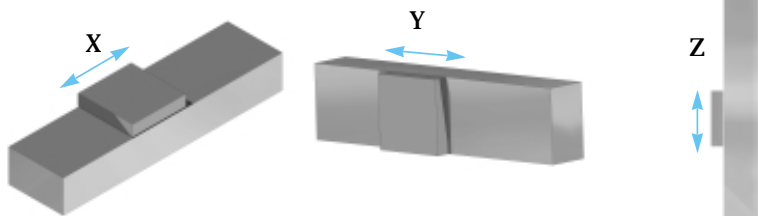
Picture 1.

Motor selection

1. Calculating Torque(TL)

   Select a motor with an appropriate drive torque rating, (TL) calculation . An undersized motor will trip out under driving load

   <Calculating the Applied Torque for Ball Screw operation>

Picture 2

$$T_L = \left\{ \frac{F \cdot P_B}{2\pi\eta_c} + \frac{\mu_i F_0 P_B}{2\pi\delta} \right\} \times \frac{1}{i} \ [kgf \cdot cm]$$

T_L	Applied Torque (kgf/cm)	Ball Screw	Effect (η_c)
F	Axial load (kgf) = $\mu \times$ W		
	(μ: LM coeffecient factor, W : load)	Ground Ball Screw	0.9 ~ 0.95
P_B	Ball Screw Lead (mm)		
η_c	Ball Screw efficiency	Rplled Ball Screw	0.7 ~ 0.8
μ_i	Preload nut inside of coefficent factor		
F_0	Preload load.		
i	Deceleration rate		

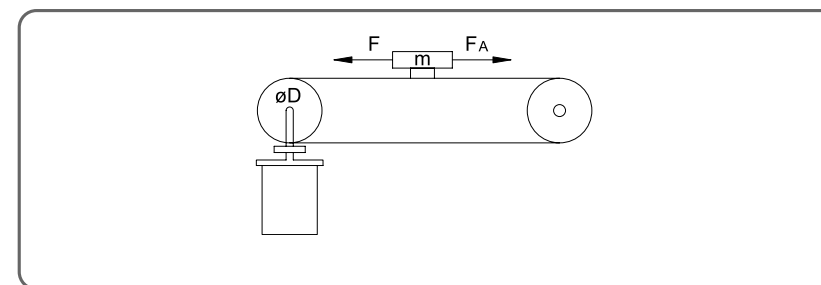**Equation 1**   Calculating the Torque for Ball Screw

¡ØEquation of Torque

$$T_L = \frac{F \cdot P_B}{2\pi\eta_c} \times \frac{1}{i} \times S \cdot F \qquad \text{(Horizontal load)} \qquad S ¡¤ F(\text{safety factor}) : 2\text{~}2.5$$

$$T_L = \frac{F \cdot P_B}{2\pi\eta_c} \times \frac{1}{i} \times 2 \times S \cdot F \qquad \text{(Vertical load)}$$

equation 2   Calculating the Torque for Ball Screw torque

Calculating the torque for timing belt

Picture2

$$T_L = \frac{F}{2\pi\varsigma} \times \frac{\pi D}{i} = \frac{FD}{2\pi i} \ [kgf \cdot cm]$$

$$F = \mu i \times W \ [kgf]$$

T_L	applied Torque (kgf · cm)
F	axial load (kg)
$\pi\varsigma$	Timming Belt efficiency
D	Pully diameter
i	reduction rate
μi	LM Guide and Timming Belt pully coefficient of friction

equation 3 Timming Belt Torque calculaton

$$T_L = \frac{D}{2} \times F \times \frac{1}{\pi\varsigma} \times \frac{1}{i} \times S \cdot F \qquad \text{(horizontal load)} \qquad S \cdot F(\text{safety}) : 2{\sim}2.5$$

$$T_L = \frac{D}{2} \times F \times \frac{1}{\pi\varsigma} \times \frac{1}{i} \times 2 \times S \cdot F \quad \text{(vertical load, but } \mu i= \text{ non care, F = W)}$$

equation 4 Timming Belt Torque calculaton

(1) Calculation of motor power(W)

After calcuating the applied torque, calculating the motor power using below equation.

$$W = 0.1047 \times R(rpm) \times Torque[N.m]$$

equation 5 Calculating the motor power (W)

---

1. Ensure that the linear actuator is suited to the working environment.

Selecting

500 Stk.

5 (kg)
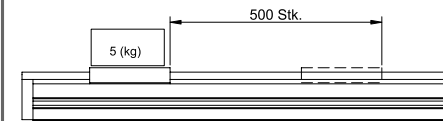
Basic data

- load : 5 kg
- Velocity : 500 mm/s
- Repeatability : ¾0.02 (mm)
- Assembling : X axis. (vertical)
- Stroke : 500 (mm)
- Driving force : Ball Screw
- Motor connection : Motor direct connect.
- Base size(select model) : 60 ~ 90 (mm)
- Working conditiion : Spray machinery.

2.Select model
Check that linear actuator model selected can handle the parameters in the check ilst above., if appropriate consider using ¡° SS90-D10- 500 ¡±

3. Select motor
.After selecting a linear actuator you must then consider what type of motor and control system will best suit the application ensuring that the motor has appropriate torque

$$T_L = \frac{F \cdot P_B}{2\pi\varsigma} \times \frac{1}{i} \times S \cdot F \qquad \text{Using equation, calculate the Torque}$$

$$T_L = \frac{5 \cdot 10}{2\pi 0.9} \times \frac{1}{1} \times 2 = 17.69[kgf \cdot cm] \qquad \text{Select the motor fitting for this Torque}$$

¡ ∅Motor should be selected after calculating the Torque reruieto drive the loaded actuator

---

Check the basic data(stroke, pay load, max speed etc)	Check that loads and stroke requirements are met.	Check the model is suitable for the working environment

Ensure that required accessories such as assemblinc bracket, cables etc	Check the position and the size to be suitable for the application	Select the subordinate assembling model

SBC Total Linear Motion Solution

Important guidelines when selecting a linear actuator

1. Setting up your axes stroke range
 • Always keep to the minimum stroke length required to optimize the working area.
 • Assembling multiple axes, always keep the stroke range for Y and Z axes shorter than that of X.
 • Always consider speed requirements where the long stroke moves are required.

2. Consideration of system loads
 • Do not exceed the catalogue load for any individual axis
 • Always consider additional load effects in horizontal and vertical axes.
 • Be aware of the effects of load under acceleration and deceleration.

3. Speed
 • Never exceed the allowable speed rating of the individual actuator.

4. Care on installation
 • Inproper installation can shorten the life of the unit regardless of the fact that it operates within its specified load limits.

5. Environment
 • Always consider the working environment, heat, dust, condensation and vibration will all have an adverse effect on any system and play an important part when selecting a suitbale model.

¥ ³. The General Technical Data

Positioning accuracy

 - The maximum stroke is standard length for any given actuator. The maximum error between the actual moving distance and instruction value from the reference position is shown iin absolute value.


Repeatability accuracy

 - Halve the value of maximum difference of the measured stopping position by positioning the carriage 7 times from a random point to the same direction along the axis. This maximum value can be shown with ¡ ˚ ¡¾¡ ±sign.
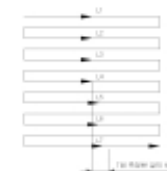
Back- lash measurement method

- Set the dial gauge standard value as ﹞0‡±after the table is stopped after positioning
  movement along the axis
- Under the above condtion, turn on the motor. Remove the load after applying it on the table
  to axial direction not depending on the transport equipment.
- Take measurements by calculating the difference between the standard value and the
measurements with remval of load. (see below picture)
- Measure this in the middle of stroke and each end side of stroke. Among this value,
consider the maximum value as measurements.
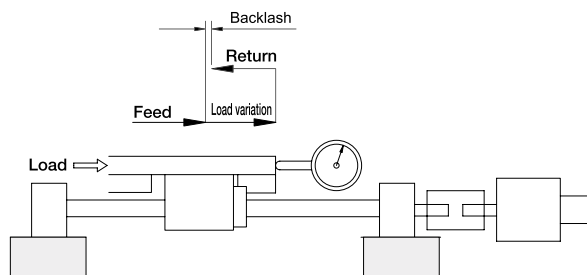
Speed acceleration and deceleration time. acceleration correlation data

Velocity (mm/s)	Acceleration and reduction time(sec)	Accelertaion(m/s²)	Acceleration of gravity (G)
250	0.10	2.500	0.26
	0.15	1.667	0.17
	0.2	1.250	0.13
500	0.10	5.000	0.51
	0.15	3.333	0.34
	0.20	2.500	0.34
1000	0.10	10.000	1.02
	0.15	6.667	0.68
	0.20	5.000	0.51

¡ØAcceleration of gravity= acceleration speed / 9.8(m²/s

Speed acceleration and reduction time. acceleration correlation data

- While controlling the linear actuator, it means detecting accuracy how the servo motor could
  detect the position accurately (Rely on accuracy of encoder and Linear scale)

$$A = \frac{1000 ¡ P_B}{P_{PG} ¡ R ¡ K} \ (mm/pluse)$$

P_B	Ball Screw Lead (m)	P_{PG}	Pulse per encoder 1 rotation
R	Decelaration rate	K	Feedback pulse

The difference between AC servo motor and stepping motor

Comparision	Servo motor	Stepping motor
Control	closed loop control (encoder necessary)	open loop control (encoder unnecessary)
Basic motion	Smooth toroque&rotation	Active toroque and speed
Resolution	Resolution per 1 rotation = 1/8192~1/131072	0.36°/step 0.72°/step 1.8°/step ¡Ø Micro steeping possible (max.1/125000 : 5 standard)
Max Speed	Max 6000 min⁻¹	0.72°/step(5standard) 1200~2400min⁻¹
Out put of power	3W ~ 30KW	~300W
Feature	• High speed • High rigidity machinery • Multiple control options • Higher cost	• Limited acceleration speed • Low rigidity machinery. • Easier control options. • Lower price level.

¡Ø The structure of AC servo motor and stepping motor.
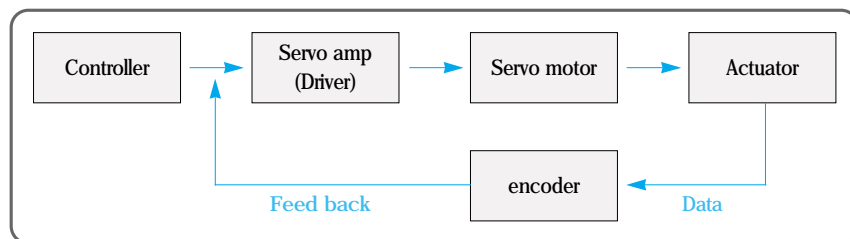
(AC Servo motor)
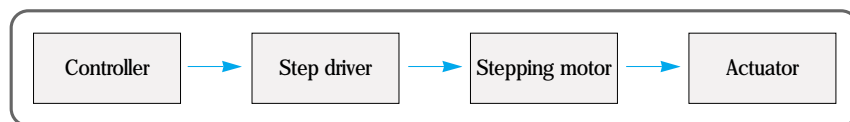
(Stepping motor)

¥´. Linear actuator installing, maintenance and repairing

Working condition

- Working condition of linear actuator is as follow.

Reference	Contents
Operatinh temperature	0 ¡ÆÑ 40 ¡ÆÑ
Keeping temperature	- 10 ¡ÆÑ 55 ¡ÆÑ
Operating humid	Under 85%(RH)
Keeping humid	Under 95%(RH)
Working place	Inside

Installing surface allowance

- It should be fixed to the smooth assembling surface with less 0.05mm flatness.
- The thickness of bracket should be more than 20mm when fixing the actuator.

Overall length of Base (mm)	Flatness (mm)
Under 700mm	0.05 mm
700 ~ 1300 mm	0.07 mm
Over 1300mm	0.09 mm

¡Ø Bolt (kgf・cm)

TAP Material	M3	M4	M5	M6	M8	M10	M12
Aluminum	10	21	45	70	150	340	600
Castiron	13	28	60	94	205	460	800
Iron	20	42	90	140	310	690	1200

Maintenance and Checking

Checking	Checking period	Contents
Periodical checking	1/1month	Bolt assembling
	1/6 months	Ball Screw
Periodical checking	1/6 months	Belt
	1/1 year	Linear Rail System

¡∅Checking period can be differenct according to wroking condition.

Part Name	Life time (Hr)
Linear Rail System (LM Guide)	50,000
Belt	40,000
Ball Screw	50,000

Grease feeding	Grease	Period	Feeding method
Ball Screw	CRG - 50 ¡∅(1)	1 / 6 months	Applying on Shaft
Linear Rail System		1 / 1 year	Feeding to Nipple

Trouble shooting for unacceptable system performance

|	Check point	Possible corrections
Noise by machine	1) Inferior installation surface accuracy	Correction of installation surface accuracy(flatness) by using shim material
	2) Ingress of foreign matter into bearings	clean and re- grease after removing old grease and any foreign matter
	3) Exceeding specified speed limits	Reduce the speed below to the limited speed
	4) Loose connectors or coupling	Tighten any loose bracketor the coupling
	5) Lack of appropriate lubrication	Grease injection after removal of grease or alien substance
	6) Wrong set up of electronic Gain	P,I Gain adjustment
	7) Damaged or worn ball screw	Replace the ball screw
	8) Damaged or wornLinear Rail System	Replace the Linear Rail System
	9) Faulty brake operation	Replace Brake components
	10) 3rd party storke interruption caused by machine	Rplace any parts causing 3rd party interferencet
Vibration	1) Running actuators in over speed mode	Reduce the speed below to the limited speed
	2) Inappropriate accelerating and decelerating time	Adjust the accelerating and decelerating time to be longer
	3)Rigidity weakness of table	Complement of table rigidity and fixation of basic bolt to surface
	4)Fastening problem of bolt	Check whether the bolt is completely faxtening
	5) Overload	Lower the speed of control the accelerating of decelerating time
	6) Wrong set up of Gain	Adjustment of P,I Gain
	7) Resonance with other machine	Controllong of accelerating and decelerating time to be longer
Inferiority of repeatability	1)Damage of Ball Screw	Replace the Ball Screw
	2) Inferioty of installing surface	Reinstallation after correction of installing surface accuracy by using of thickness tape
	3) Low of Position Gain	Raise the Position Gain
	4) Inferiority of fastening bolf for actuator	Check whether the bolt is completely fastening. Check whether the length of the bolt is suitable. Fasten the standard torque.
	5) Weakness of table rigidty	Complement of table riigidity
	6) Loosend of coupling	Tightening the coupling again or replace it
	7) Lead error of machine	Contact SBC when the repeatability processing is needed.
Limit Sensor Problem	1) Cable damage	Replace Cable
	2) Sensor damage	Replace Sensor
	3) Wrong set up of limit Parameter	Reset of limit Parameter
Unstable movement of Actuator	1) Cable problem	Replace Cable
	2) Broken cable wire cause of inappropriate use	Selecting the appropriiate cable
	3) Incomplete connection of Connector	Checking of Connector connecting
When the actuator is not moving to the instructed position	1)Wrong value of Pitch//Rev(Gear Ratio)	Pitch/Rev(Gear Ratio) change
	2) Check the Sensor and Encoder Z	Check the controller

¥ μ. Mini Linear actuator

Basic data

Ball- Screw Type MA Series
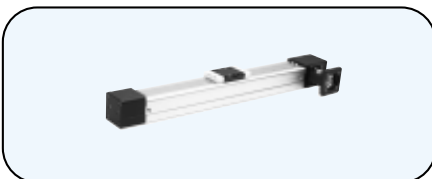
Belt Type MA Series
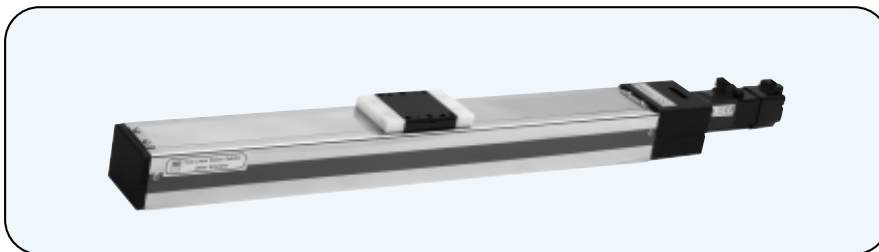
Ball- Screw Type MA Series

The MA series is the SBC miniaturised Linear Drive Unit of the same width and height. It¡s small and compact size package suits many application requirements. The ball screw drive units can utilise varying leads offering stroke speed versatility. The belt drive model, using parabolic RPP- belts, offer high- load, low- noise and precision movement. MA series can be supplied with a drive motor to suit the user¡s control package

<Mini Linear actuator spec>

Body Type	Body Size	driving force	Lead	Load(kg)	Repeatability(mm)	Max Stroke(mm)
MA	40	Ground Ball Screw(©ª8)	5 8 12	5	¡¾0.02	120
		Rolled Ball Screw(©ª8)	5 8 12	5	¡¾0.05	270
	60	Ground Ball Screw(©ª12)	5 8 12	8	¡¾0.02	480
		Rolled Ball Screw(©ª12)	5 8 12	8	¡¾0.05	480
		Timming Belt	74.98	8	¡¾0.1	480
	75	Ground Ball Screw(©ª12)	5 10 20	13	¡¾0.02	480
		Rolled Ball Screw(©ª12)	5 8 12	13	¡¾0.05	400

2. MINI Linear Actuator Structure

Linear Guide
High- precision and high- load miniature series is applied. Super accuracy can be achieved by using H or P grade guides(option) Achieves long, maintenance free life by using the ball retainer series of miniature guide Low friction seal provides ultimate protection and is appropriate for low motor power

Sensor(Option)
Application of a photoelectric sensor- high reliability and high durability, not affected by environment.
Any sensor type can be fitted

Ball Screw
Various leads available(1mm~30mm)- please inquire before selecting.
Preload type are available(optional).
C3~C10 rrolled and ground ball screw offers versatile lead accuracy.
Low- friction and clean room grease can be used

Coupling
High deformation rigidity- backlash 0
Clamp type- easy motor mounting.
Please specify diameter for motor shaft when ordering

Dustproof Cover
*Stainless Sheet is used
Preventing dust and alien materials from getting inside the linear actuator. Achieving longer life time and longer maintenance intervals
*Suction Ports(Option) - Using a suction port, it is more applicable for 10 class clean room

Install Position
The linear actuator has no positional limitations when working within the specified load and moment load. Vertical mounting positions must consider possible back driving load effect on ball screws and load limits on belts. Brake motors or external locking elements need to be considered in these instances..

Maintenance
Both the ball screw and liner guide should be checked periodically(400 hours operation or 3 months). The stainless steel cover sheet should also be checked at these times for any wear effect.

Maximum force & moments
Suyggested max load and moments loads have been selected based on distance from the centre point of the slide table. If there are loads or moments from alternate directions, it is suggested that load and moment de- ratings of up to 60% should be applied against the maximum specifications.

Temperature
MA series Mini linear actuator can be used in temperature ranging from 0~40 C. However it is recommended to operate as close to ambient as possible. Motors can sometimes generate high temperatures and we recommend units to be installed away from external heat sources 100C

Ordering example of Mini Linear Actuator

| MA 60 | G | 10 | 200 | 40 | 8 | Y1 | R |

Body Type & Size

MA : 40
60
75

Driving force

G : Ground Ball Screw
R : Rolled Ball Screw
B : Belt(¡ ∅MA60 only)

Ball Screw Lead

See tje spec

Drive Motor Assembling

R : Right
L : Left
(¡ Belt type only)

Stroke

See the spec

Motor Flange Size

Flange size for applying motor

Motor Shaft Diameter

Sensor

Non : No symbol
Starting point : Y0
Starting point, top, down : Y1

Sensor

R : Right
L : Left

MA40- G(R) Series (Ball Screw)

Clean Room (Class 10)

MA40- G(Ground)

SCREW LEAD	5	8	12	LOAD (kg)	9	REPEAT ABILITY	¡¾0.02(mm)
MAX STROKE (mm)	120	120	120	BALL SCREW	¥Õ8- C5, Backlash 0.005mm	MAX MOTOR SPEC	100(W), ¡à40(mm)
MOMENT (Nm)	Ma15.7	Mb16.3	Mc34.8	LINEAR GUIDE	MINIATURE WIDE 9		

MA40- R(Rolled)

SCREW LEAD	5	8	12	LOAD (kg)	9	REPEAT ABILITY	¡¾0.02(mm)
MAX STROKE (mm)	270	270	270	BALL SCREW	¥Õ8- C5, Backlash 0.005mm	MAX MOTOR SPEC	100(W), ¡à40(mm)
MOMENT (Nm)	Ma15.7	Mb16.3	Mc34.8	LINEAR GUIDE	MINIATURE WIDE 9		

DRAWING & DIMENSION
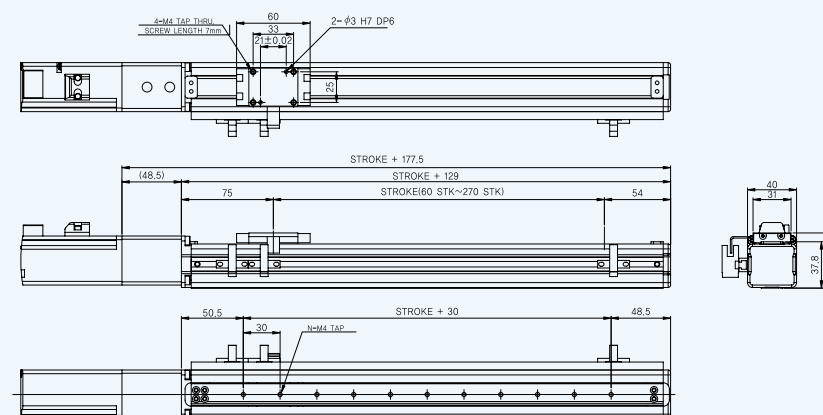
MA60- G(R) Series (Ball Screw)

Clean Room (Class 10)

MA40- G(Ground)

SCREW LEAD	5	10	20	LOAD (kg)	9	REPEAT ABILITY	¡¾0.02(mm)
MAX STROKE (mm)	440	440	480	BALL SCREW	¥Õ8- C5, Backlash 0.005mm	MAX MOTOR SPEC	100(W), ¡à40(mm)
MOMENT (Nm)	Ma16.4	Mb18.6	Mc47.1	LINEAR GUIDE	MINIATURE WIDE 9		

MA40- R(Rolled)

SCREW LEAD	2	5	10	LOAD (kg)	9	REPEAT ABILITY	¡¾0.05(mm)
MAX STROKE (mm)	480	480	480	BALL SCREW	¥Õ12- C7, Backlash 0.005mm	MAX MOTOR SPEC	100(W), ¡à40(mm)
MOMENT (Nm)	Ma16.4	Mb18.6	Mc47.1	LINEAR GUIDE	MINIATURE WIDE 9		

DRAWING & DIMENSION
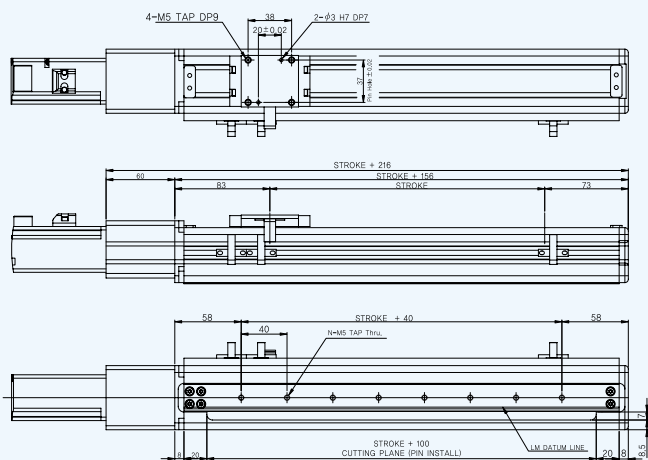
MA60- B- R Series (Belt)

High apply load, Timming Belt for high precision feed line, Clean Room (Class 10)

MODEL	BELT LEAD	MAXS TROKE (mm)	LOAD (kg)	BELT	LINEAR GUIDE	MOMENT(Nm)			REPEATABILITY	MAX MOTOR SPEC
MA60- B- R	74.98	1000	8	RPP5- 10	MINIATURE WIDE 12	Ma16.4	Mb18.6	Mc47.1	¡¾0.1(mm)	00(W), ¡à40(mm)

DRAWING & DIMENSION
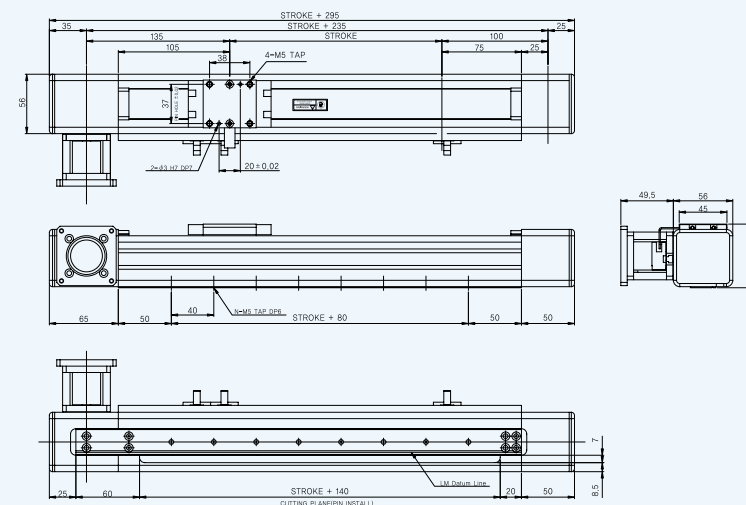
MA60- B- L Series (Belt)

High apply load, Timming Belt for high precision feed line, Clean Room (Class 10)

DRAWING & DIMENSION

MODEL	BELT LEAD	MAXS TROKE (mm)	LOAD (kg)	BELT	LINEAR GUIDE	MOMENT(Nm)			REPEATABILITY	MAX MOTOR SPEC
MA60- B- L	74.98	120	8	RPP5- 10	MINIATURE WIDE 12	Ma16.4	Mb18.6	Mc47.1	¡¾0.1(mm)	100(W), ¡à40(mm)

DRAWING & DIMENSION
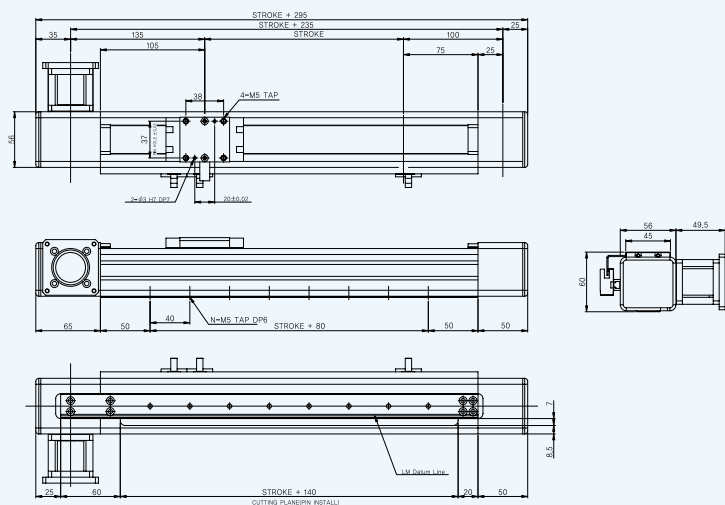
MA75- G(R) Series (Ball Screw)

Compact design, Clean Room(Class 10)

MA75- G(Ground)

SCREW LEAD	5	10	20	LOAD (kg)	13	REPEAT ABILITY	¡¾0.02(mm)
MAX STROKE (mm)	400	400	400	BALL SCREW	¥Û12- C5, Backlash 0.005mm	MAX MOTOR SPEC	100(W), ¡à40(mm)
MOMENT (Nm)	35.2	38.2	137	LINEAR GUIDE	MINIATURE WIDE 15		

MA75- R(Rolled)

SCREW LEAD	2	5	10	LOAD (kg)	9	REPEAT ABILITY	¡¾0.02(mm)
MAX STROKE (mm)	400	400	400	BALL SCREW	¥Û12- C7, Backlash 0.005mm	MAX MOTOR SPEC	100(W), ¡à40(mm)
MOMENT (Nm)	35.2	38.2	137	LINEAR GUIDE	MINIATURE WIDE 15		

DRAWING & DIMENSION
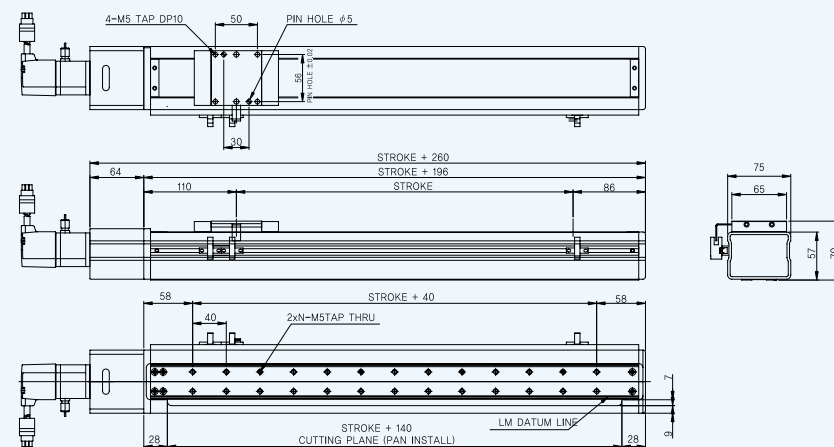
¥ ¶. Sealed Type Linear Actuator

Sealed Type (Clean Robot)
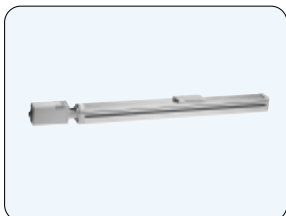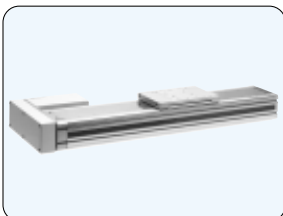
SS90- D2   SS140- P1   SB140- D3

New revolution in linear actuator

• Conventional linear actuators usually have much empty space between the unit base and cover. Therefore they become unsuitable for dusty environments and clean room requirements

• SBC sealed type linear actuators such as SS and SB series have adopted a stainless cover on top of the base cover w hich has been designed to be stick to the base. The result is that it prevents any dust and dampness from effecting the ball screw, linear rail and bearings. It can therefore be applied in automated feed lines where dust and other contaminants exist in the atmosphere. This design is also very effective when used in the fields of LCD, PDP, semiconductor, medical and food industries where the requirement for clean working environments is paramount.(clean class 10 achieved)

• If the ball screw and linear rail system are raydent- treated, it is even more effective for corrosive free longer life.

Simple design

The compact design and rigid design give more stability and suits the cosmetic requirement of many applications.

Resolve the slackness of cover

Unlikely many conventional actuators using aluminum cover, the SBC linear actuators uses an ultra thin SUS stainless cover. Even in long stroke units, no slackness develops in the SUS sealing cover.

Various driving force

• Ball Screw : SS series   • Belt : SB series

Installation of Sealed Type linear actuator

Insertion of FLAT NUT into T grooves in the bottom of linear actuator body provides appropriate mounting points and allow for positional adjustment to suit the length of the actuator
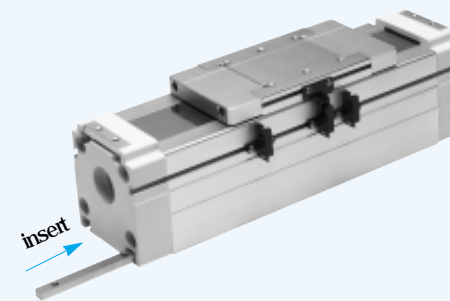
insert

1. Please insert the FLAT NUT to T groove in the bottom of linear actuator as above

adjus
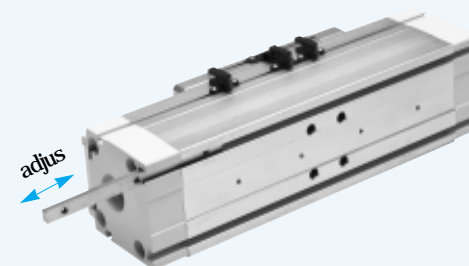
2. After insertion of the FLAT NUTS, use appropriately sized(see specifications) cap screws or bolts to fix the linear actuator at positions suitable to the length

For more information, please see the installation, maintenance and repair section

Ordering example of SS type (Ball Screw Type)

| SS 90 | D1 | 10 | 500 | 60 | 10 | B | R |
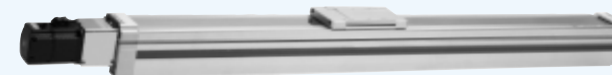
Body Type & Size

SS : 90
    140
    180

Drive Motor Assembly

D1 : Motor outside direct connect
D2 : Motor inside direct connect
P1 : Left parallel
P2 : Right parallel
P3 : Down parallel

Ball Screw Lead

Standard Lead
5,10,20(¡ See the spec)

Stroke

See the spec

Motor Flange Size

Flange size for applying motor

Motor Capacity

ex)100W : 10
    400W : 40

Motor Type

No symbol : Non Break
B   : Break Type

Sensor

R : Right
L : Left

SS90- D1

Driver Motor outside direct connect Type, Clean Room (Class 10)

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	35	35	25	BALL SCREW	¥ Õ15- C5	MAX MOTOR SPEC	200(W), ¡à60(mm)
	vertical	30	20	-	LINEAR GUIDE	NO.15X2BX1R	WEIGHT(kg)	8.3+ (1.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm
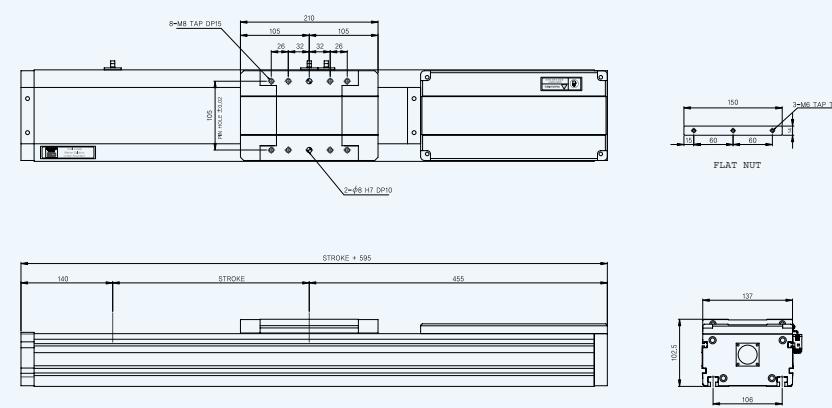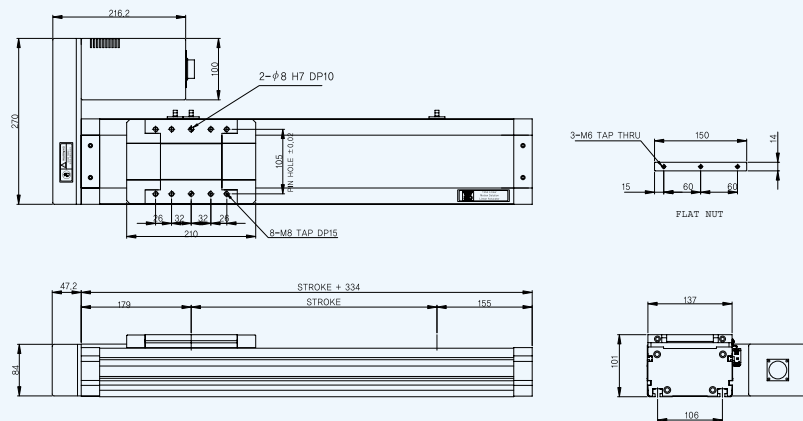
DRAWING & DIMENSION

SS90- D2

Driver Motor inside direct connect Type, Clean Room (Class 10)

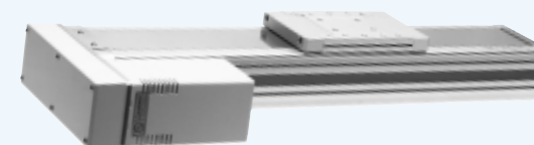| LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	35	35	25	BALL SCREW	¥Õ15- C5	MAX MOTOR SPEC	200(W), ¡à60(mm)
	vertical	30	20	-	LINEAR GUIDE	NO.15X2BX1R	WEIGHT(kg)	8.3+ (1.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

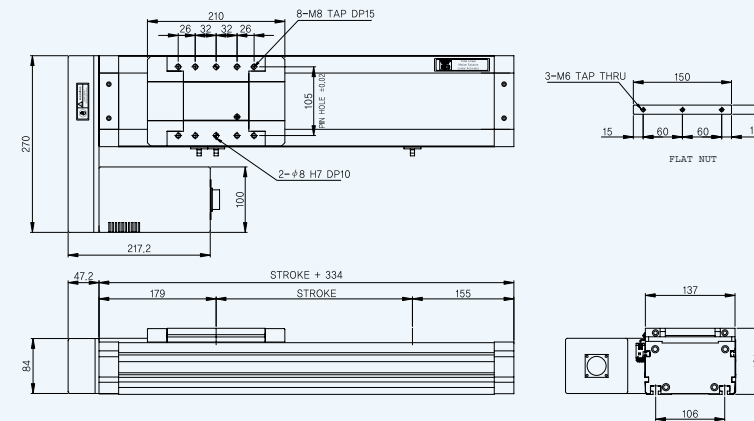## DRAWING & DIMENSION

SS90- P1

Driver Motor left parallel Type, Clean Room (Class 10)

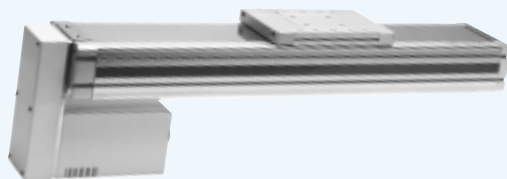| LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	35	35	25	BALL SCREW	¥Õ15- C5	MAX MOTOR SPEC	200(W), ¡à60(mm)
	vertical	30	20	-	LINEAR GUIDE	NO.15X2BX1R	WEIGHT(kg)	9.3+ (1.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm
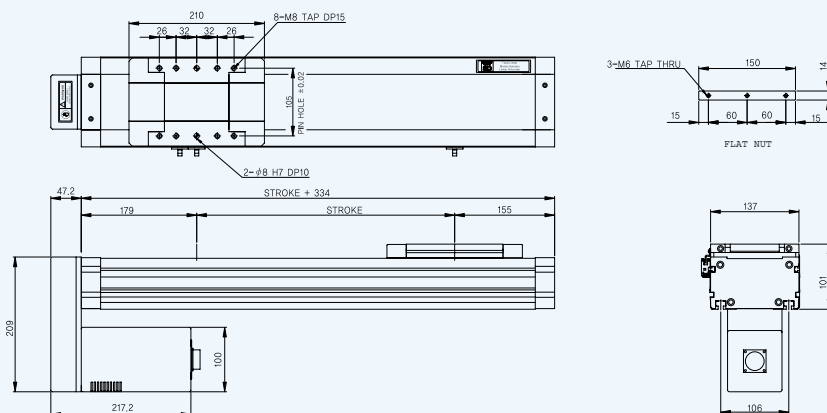
DRAWING & DIMENSION

SS90- P2

Driver Motor right parallel Type, Clean Room (Class 10)
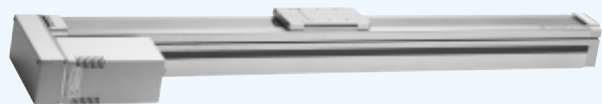
LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	35	35	25	BALL SCREW	¥ Õ15- C5	MAX MOTOR SPEC	200(W), ¡à60(mm)
	vertical	30	20	-	LINEAR GUIDE	NO.15X2BX1R	WEIGHT(kg)	9.3+ (1.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SS90- P3

Driver Motor down parallel Type, Clean Room (Class 10)

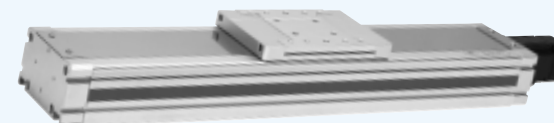| LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	35	35	25	BALL SCREW	¥ Õ15- C5	MAX MOTOR SPEC	200(W), ¡à60(mm)
	vertical	30	20	-	LINEAR GUIDE	NO.15X2BX1R	WEIGHT(kg)	9.3+ (1.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm
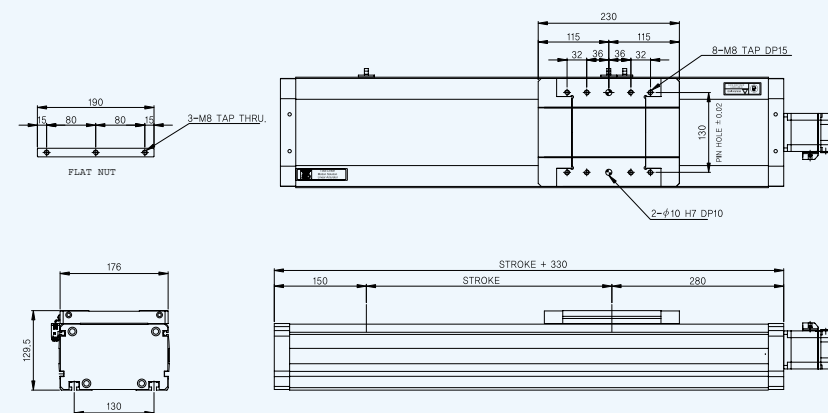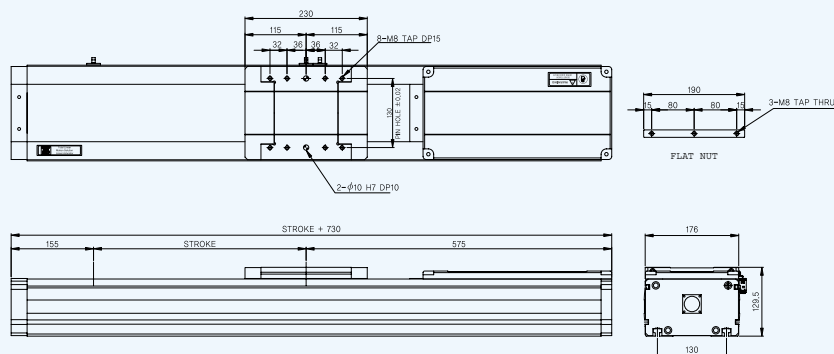
DRAWING & DIMENSION

SS140- D1

Driver Motor outside direct connect Type, Clean Room (Class 10)

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	50	50	40	BALL SCREW	¥ Õ15- C5	MAX MOTOR SPEC	400(W), ¡à60(mm)
	vertical	40	30	-	LINEAR GUIDE	NO.15X4BX2R	WEIGHT(kg)	12.5+ (1.3XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SS140- D2

Driver Motor inside direct connect Type, Clean Room(Class 10)

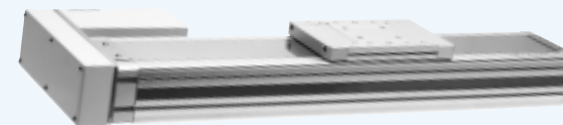| LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	50	50	40	BALL SCREW	¥ Õ15- C5	MAX MOTOR SPEC	400(W), ¡à60(mm)
	vertical	40	30	-	LINEAR GUIDE	NO.15X4BX2R	WEIGHT(kg)	12.5+ (1.3XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm
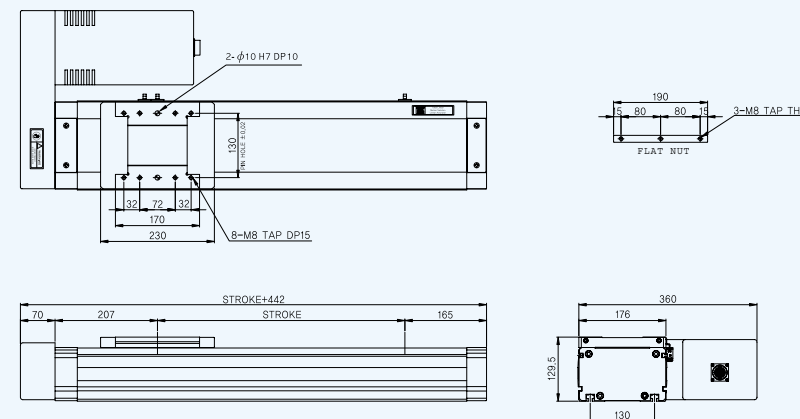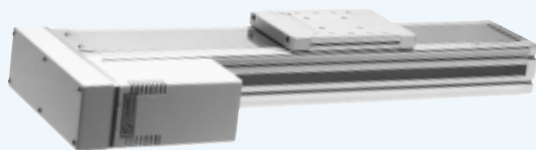
DRAWING & DIMENSION

SS140- P1

Driver Motor left parallel Type, Clean Room (Class 10)

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	50	50	40	BALL SCREW	¥Õ15- C5	MAX MOTOR SPEC	400(W), ¡à60(mm)
	vertical	40	30	-	LINEAR GUIDE	NO.15X4BX2R	WEIGHT(kg)	13.7+(1.3XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

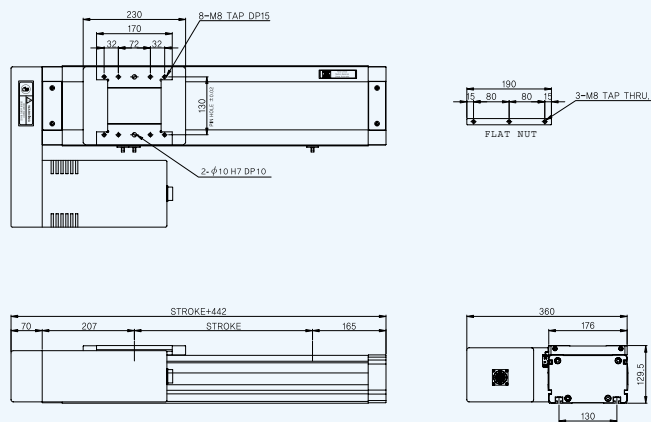### DRAWING & DIMENSION

SS140- P2

Driver Motor right parallel Type, Clean Room (Class 10)
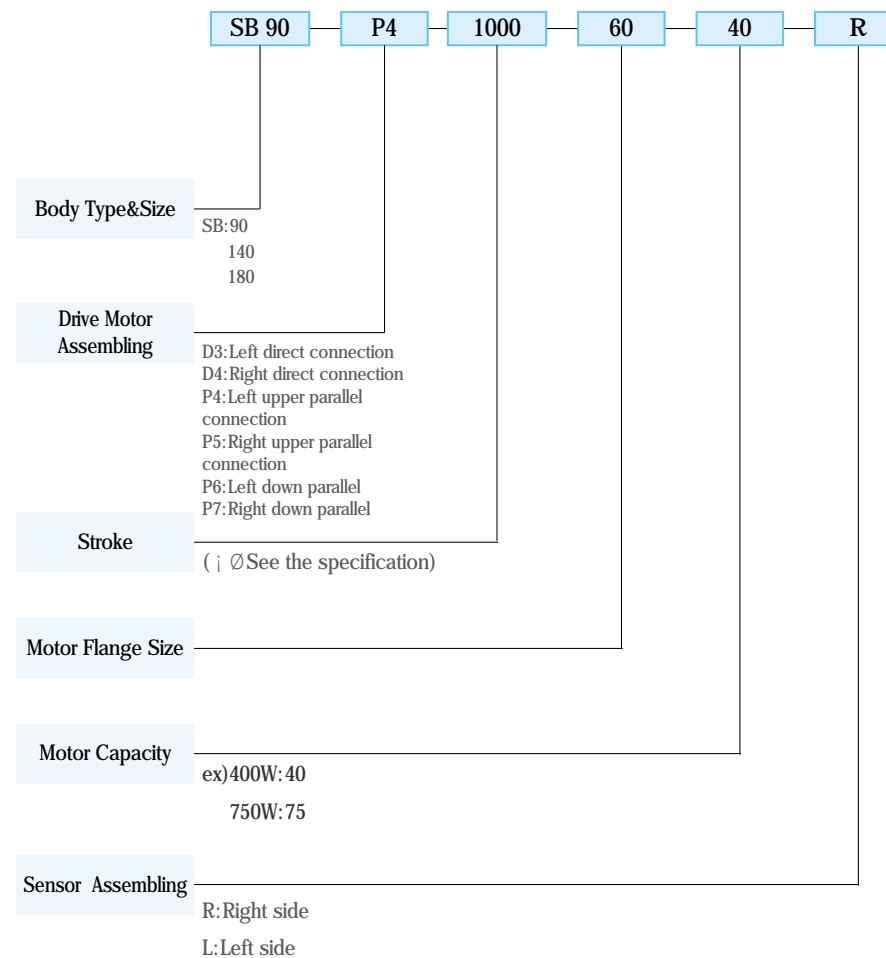
LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	50	50	40	BALL SCREW	¥Õ15- C5	MAX MOTOR SPEC	400(W), ¡à60(mm)
	vertical	40	30	-	LINEAR GUIDE	NO.15X4BX2R	WEIGHT(kg)	13.7+(1.3XSTROKE/100)

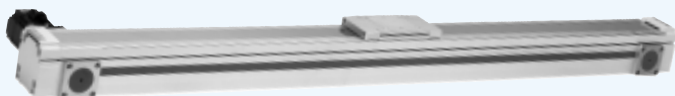*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SS140- P3

Driver Motor down parallel Type, Clean Room (Class 10)

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	±0.02(mm)
LOAD (kg)	horizontal	50	50	40	BALL SCREW	Ø15- C5	MAX MOTOR SPEC	400(W), ⌀60(mm)
	vertical	40	30	-	LINEAR GUIDE	NO.15X4BX2R	WEIGHT(kg)	13.7+ (1.3XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SS180- D1

Driver Motor outside direct connect Type, Clean Room (Class 10)

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	±0.02(mm)
LOAD (kg)	horizontal	90	85	65	BALL SCREW	Ø15- C5	MAX MOTOR SPEC	750(W), ⌀60(mm)
	vertical	48	40	-	LINEAR GUIDE	NO.20X4BX2R	WEIGHT(kg)	21.8+ (2.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SS180- D2

Driver Motor inside direct connect Type, Clean Room (Class 10)

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡ ¾0.02(mm)
LOAD (kg)	horizontal	90	85	65	BALL SCREW	¥ Õ20- C5	MAX MOTOR SPEC	750(W), ¡ à60(mm)
	vertical	48	40	-	LINEAR GUIDE	NO.20X4BX2R	WEIGHT(kg)	21.8+ (2.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SS180- P1

Driver Motor Left Pareller Type,: Clean Room (Class 10)

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡ ¾0.02(mm)
LOAD (kg)	horizontal	90	85	65	BALL SCREW	¥ Õ20- C5	MAX MOTOR SPEC	750(W), ¡ à60(mm)
	vertical	48	40	-	LINEAR GUIDE	NO.20X4BX2R	WEIGHT(kg)	21.8+ (2.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SS180- P2

| Driver Motor Right Parallel Type : Clean Room (Class 10) |

LEAD(SPEED)*		5(250)	10(500)	20(1000)	MAXS TROKE (mm)	1000	REPEATABILITY	¡¾0.02(mm)
LOAD (kg)	horizontal	90	85	65	BALL SCREW	¥Õ20- C5	MAX MOTOR SPEC	750(W), ¡à60(mm)
	vertical	48	40	-	LINEAR GUIDE	NO.20X4BX2R	WEIGHT(kg)	22.8+(2.1XSTROKE/100)

*Max linear motion speed of ball screw verse 3000rpm

DRAWING & DIMENSION

SB Type(Belt Type) Ordering Example

| SB 90 | P4 | 1000 | 60 | 40 | R |

Body Type&Size

SB:90
   140
   180

Drive Motor Assembling

D3:Left direct connection
D4:Right direct connection
P4:Left upper parallel connection
P5:Right upper parallel connection
P6:Left down parallel
P7:Right down parallel

Stroke

(¡ ∅See the specification)

Motor Flange Size

Motor Capacity

ex)400W:40
   750W:75

Sensor Assembling

R:Right side

L:Left side

SB90- D3

Driver Motor Left direct connection: Clean Room (Class 10), Timming Belt

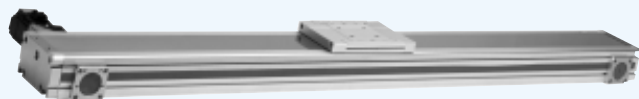| MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB90- D3	1500(mm/s)	25	3000	¥ Õ44.56	NO.15X2BX1R	¡¾0.1(mm)	400(W), ¡à60(mm)	10.34X(STROKE/100)

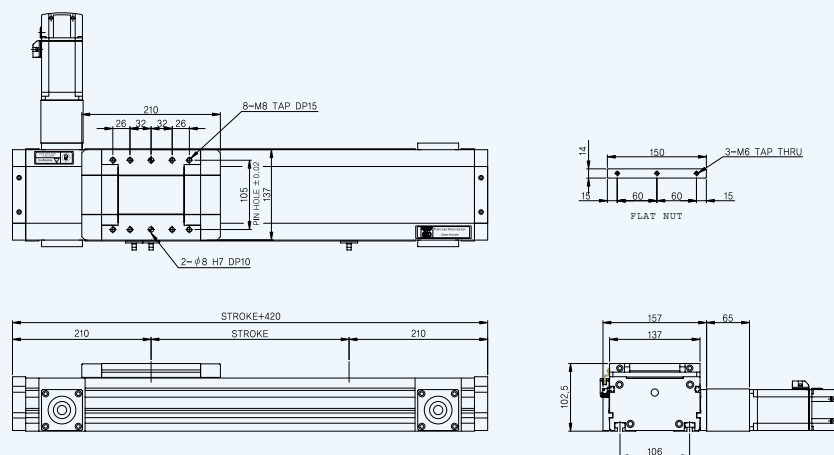### DRAWING & DIMENSION
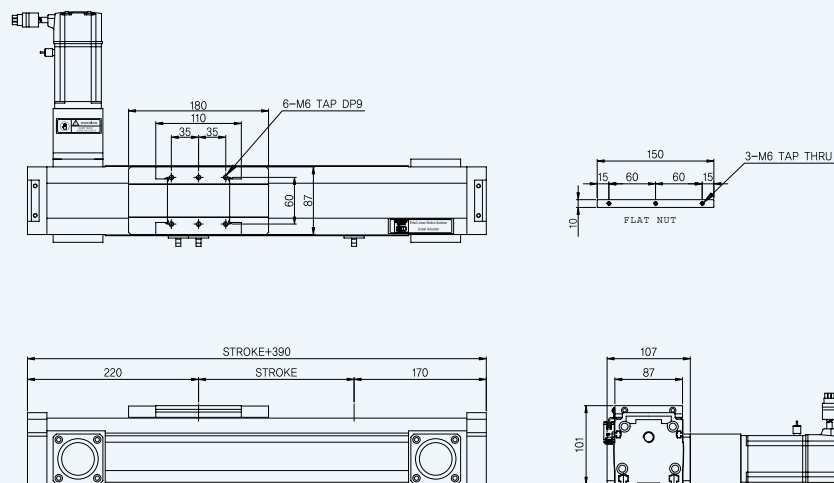
SB90- D4

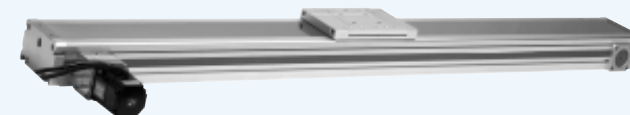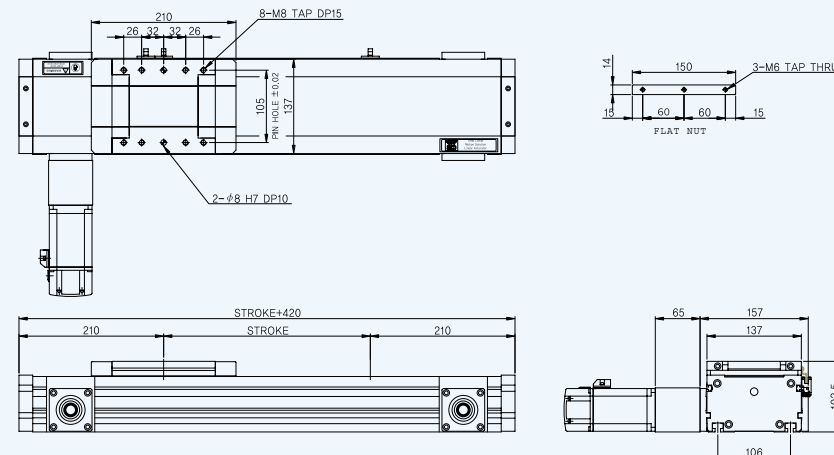Driver Motor Right direct connection Type : Clean Room(Class 10), Timming Belt
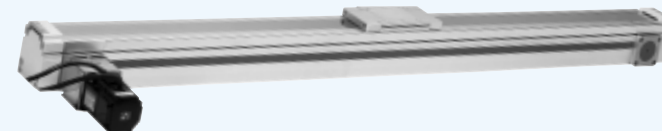
MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB90- D4	1500(mm/s)	25	3000	¥ Õ44.56	NO.15X2BX1R	¡¾0.1(mm)	400(W), ¡à60(mm)	10.34X(STROKE/100)

DRAWING & DIMENSION

SBC
Total Linear Motion Solution
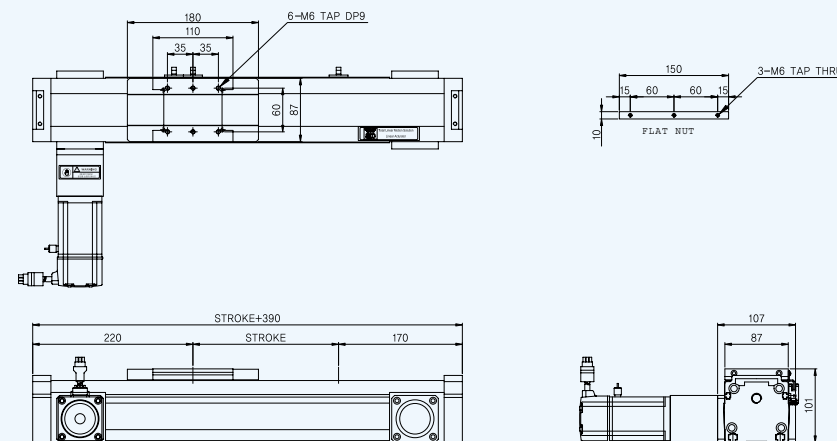
SB90- P4

Driver Motor Left upper parallel Type: Clean Room (Class 10), Timming Belt
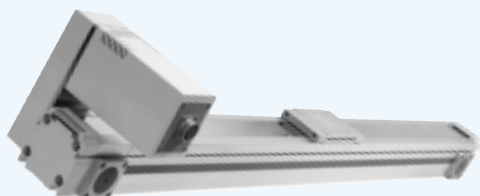
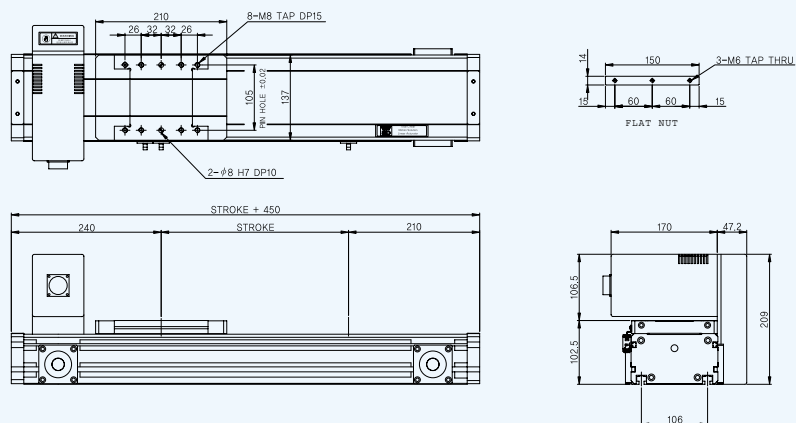| MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB90- P4	1500(mm/s)	25	3000	¥ Õ44.56	NO.15X2BX1R	¡ ¾0.1(mm)	400(W), ¡ à60(mm)	10.34X(STROKE/100)

DRAWING & DIMENSION
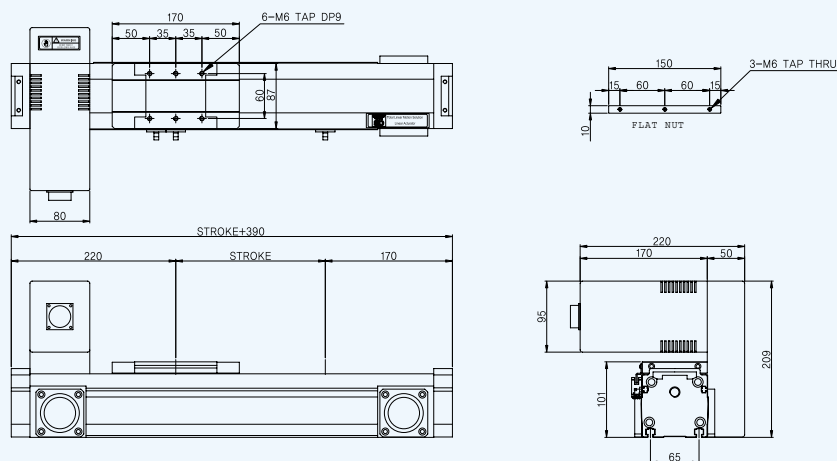
SB90- P5

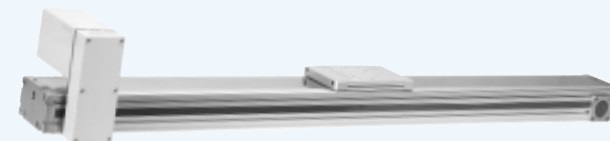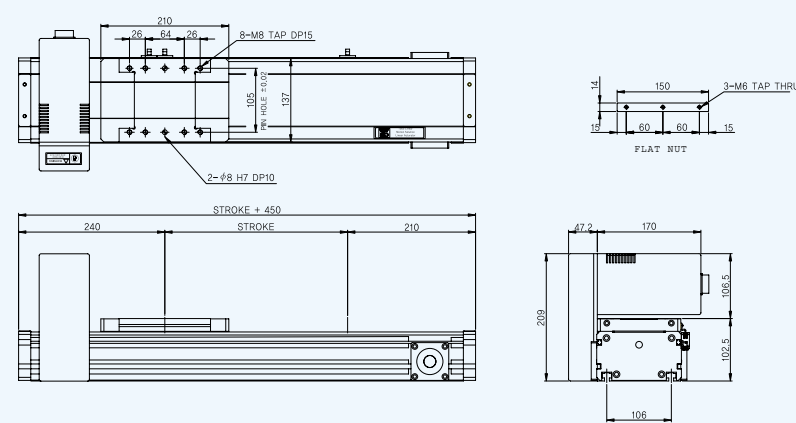Driver Motor Right upper parallel Type: Clean Room (Class 10), Timming Belt
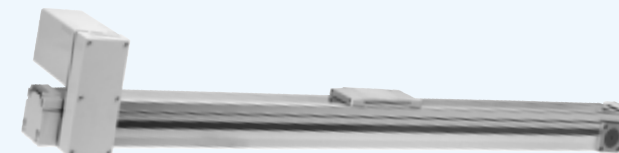
MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB90- P3	1500(mm/s)	25	3000	¥ Õ44.56	NO.15X2BX1R	¡ ¾0.1(mm)	400(W), ¡ à60(mm)	10.34X(STROKE/100)

DRAWING & DIMENSION
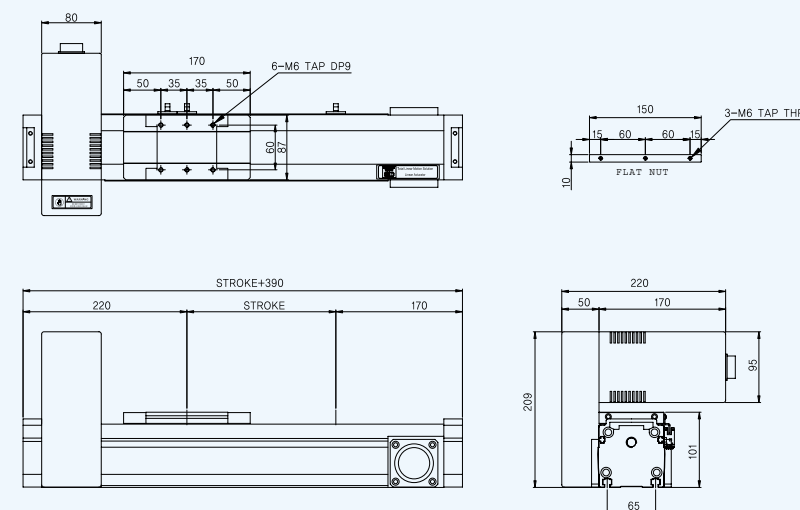
SB90- P6

Driver Motor Left down parallel Type: Clean Room (Class 10), Timming Belt
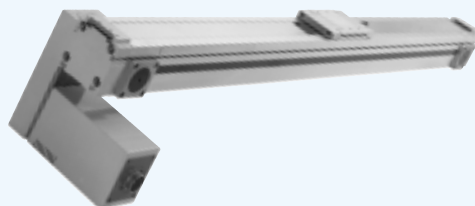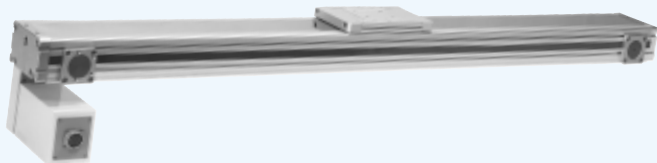

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB90- P6	1500(mm/s)	25	3000	¥ õ44.56	NO.15X2BX1R	¡¾0.1(mm)	400(W), ¡à60(mm)	10.34X(STROKE/100)

DRAWING & DIMENSION
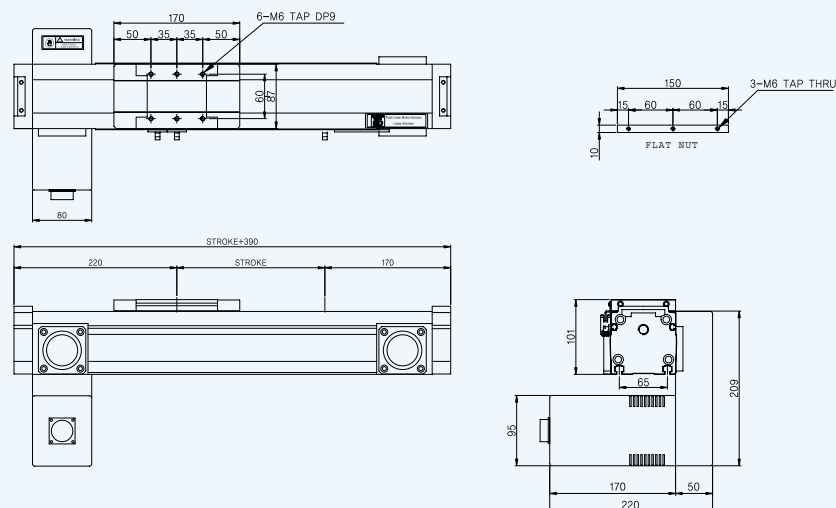
SB90- P7
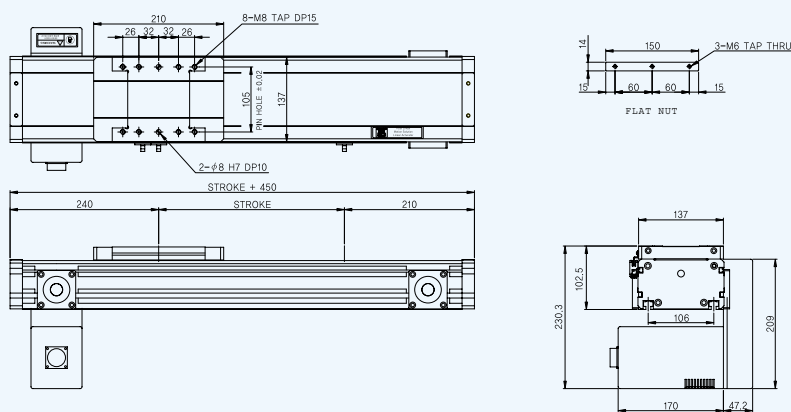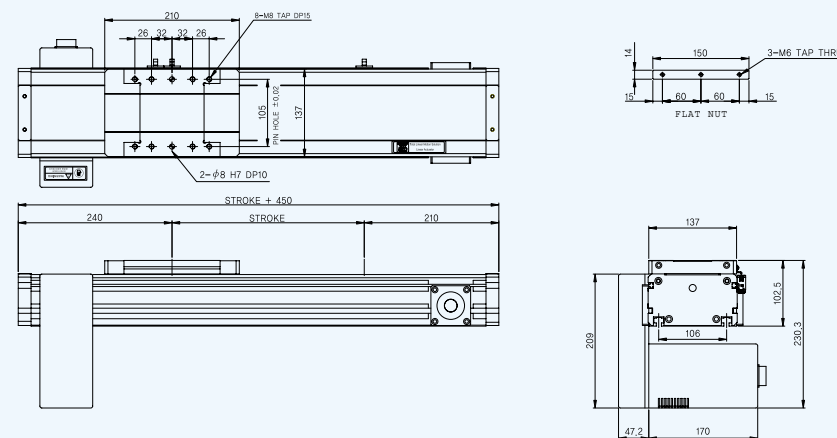
Driver Motor Right down parallel Type: Clean Room (Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB90- P7	1500(mm/s)	25	3000	¥ õ44.56	NO.15X2BX1R	¡¾0.1(mm)	400(W), ¡à60(mm)	10.34X(STROKE/100)

DRAWING & DIMENSION
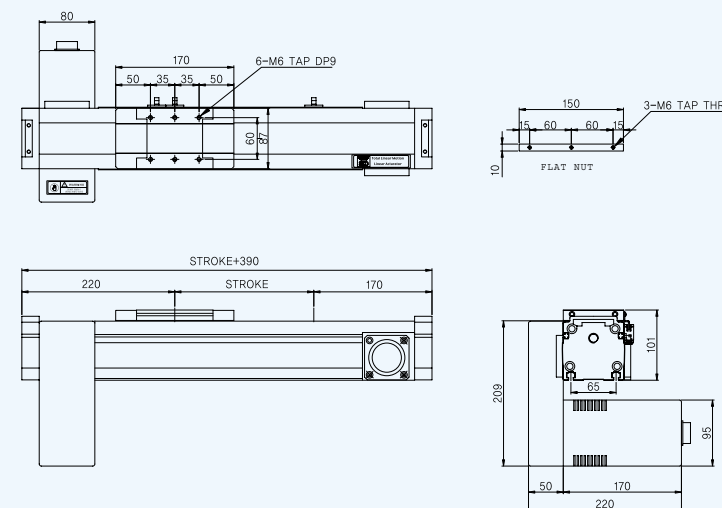
SB140- D3

Driver Motor Left direct connection Type: Clean Room(Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB140- D3	2000(mm/s)	25	1000	¥ Õ44.56	NO.15X4BX2R	¡¾0.1(mm)	400(W), ¡à60(mm)	12.5X(STROKE/100)

DRAWING & DIMENSION

SB140- D4

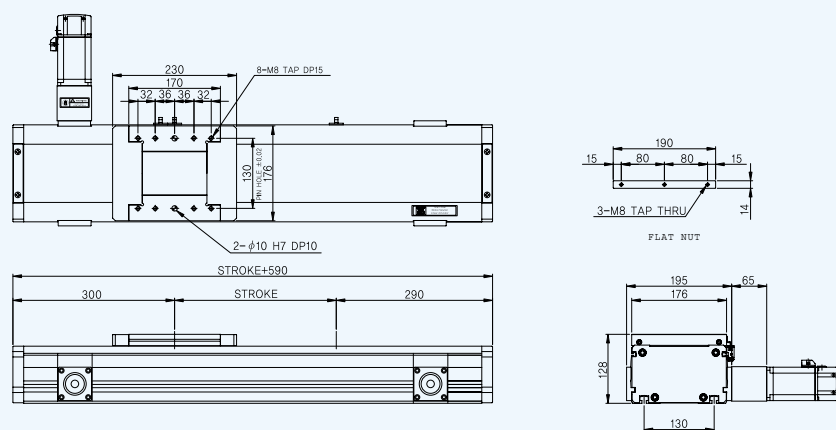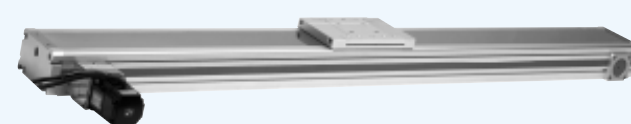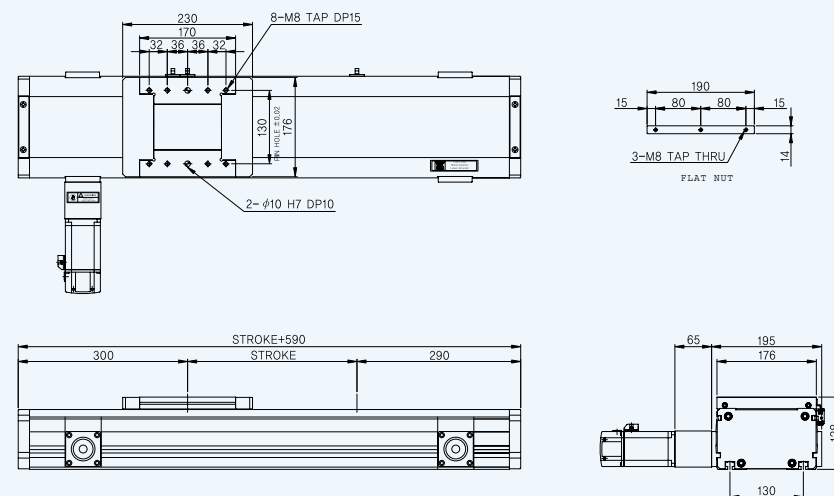Driver Motor Right direct connection Type: Clean Room(Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB140- D4	2000(mm/s)	25	1000	¥ Õ44.56	NO.15X4BX2R	¡¾0.1(mm)	400(W), ¡à60(mm)	12.5X(STROKE/100)

DRAWING & DIMENSION

SB140- P4

Driver Motor Left upper parallel Type: Clean Room (Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB140- P4	2000(mm/s)	25	1000	¥ Õ44.56	NO.15X4BX2R	¡¾0.1(mm)	400(W), ¡à60(mm)	12.5+(STROKE/100)

DRAWING & DIMENSION

SB140- P5

Driver Motor Right upper parallel Type: Clean Room (Class 10), Timming Belt

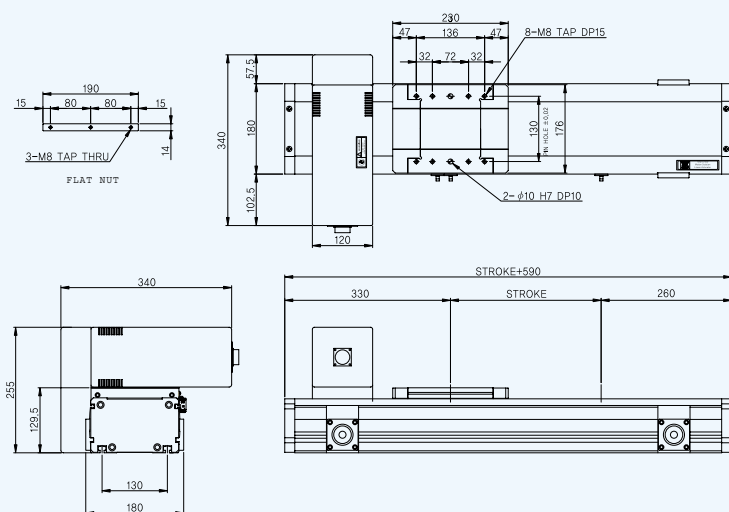| MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB140- P5	2000(mm/s)	25	1000	¥ Õ44.56	NO.15X4BX2R	¡¾0.1(mm)	400(W), ¡à60(mm)	12.5+(STROKE/100)

DRAWING & DIMENSION

SB140- P6

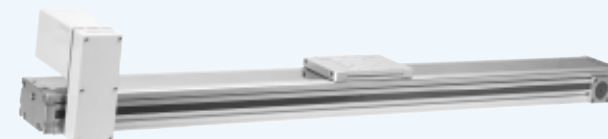Driver Motor Left down parallel Type: Clean Room (Class 10), Timming Belt

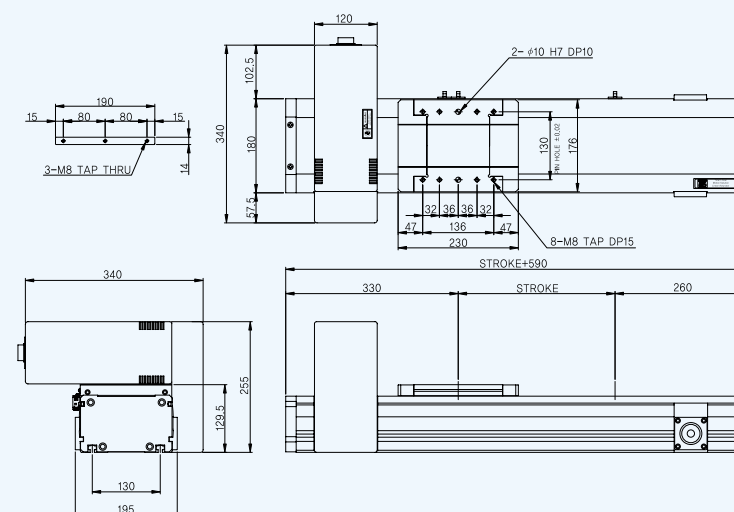| MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB140- P6	2000(mm/s)	25	1000	¥ Ô44.56	NO.15X4BX2R	¡¾0.1(mm)	400(W), ¡à60(mm)	12.5+(STROKE/100)

DRAWING & DIMENSION

SB140- P7

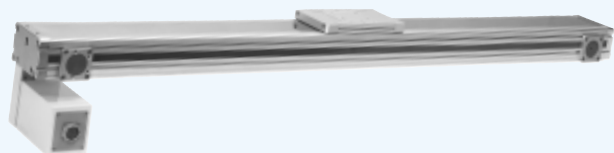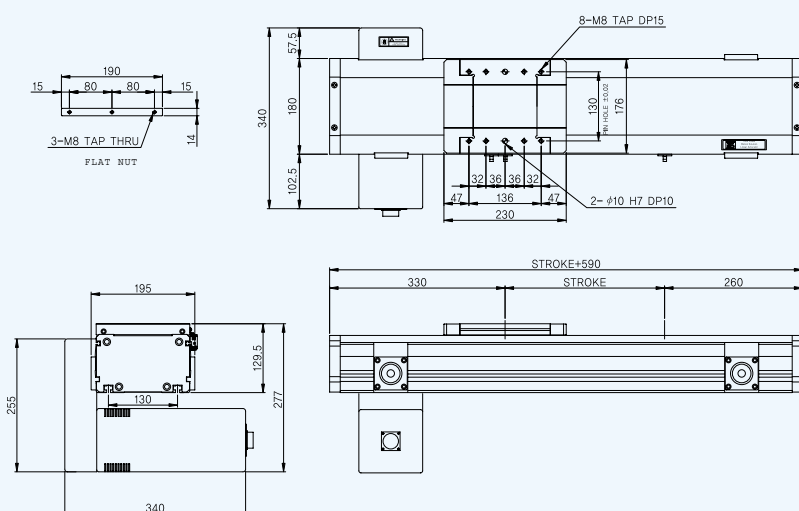Driver Motor Right down parallel Type: Clean Room (Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB140- P7	2000(mm/s)	25	1000	¥ Ô44.56	NO.15X4BX2R	¡¾0.1(mm)	400(W), ¡à60(mm)	12.5+(STROKE/100)

DRAWING & DIMENSION

SBC

Total Linear Motion Solution

SB180- D3

Driver Motor left direct connection Type: Clean Room(Class 10), Timming Belt
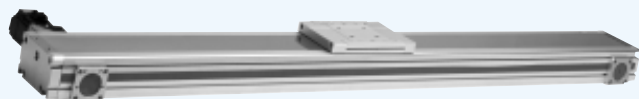
MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB180- D3	2000(mm/s)	50	3000	¥ Õ44.56	NO.20X4BX2R	¡¾0.1(mm)	750(W), ¡à80(mm)	28.7+ (2.17XSTROKE/100)

DRAWING & DIMENSION

SB180- D4

Driver Motor Right direct connection Type, Clean Room (Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB180- D4	2000(mm/s)	50	3000	¥ Õ44.56	NO.20X4BX2R	¡¾0.1(mm)	750(W), ¡à80(mm)	28.7+ (2.17XSTROKE/100)

DRAWING & DIMENSION

SB180- P4

Driver Motor Left upper parallel Type: Clean Room(Class 10), Timming Belt
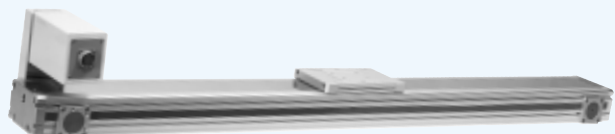
MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB180- P4	2000(mm/s)	50	3000	¥ Õ44.56	NO.20X4BX2R	¡¾0.1(mm)	750(W), ¡å80(mm)	28.7+ (2.17XSTROKE/100)

DRAWING & DIMENSION

SB180- P5

Driver Motor Right upper parallel Type: Clean Room (Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB180- P5	2000(mm/s)	50	3000	¥ Õ44.56	NO.20X4BX2R	¡¾0.1(mm)	750(W), ¡å80(mm)	28.7+ (2.17XSTROKE/100)

DRAWING & DIMENSION

SB180- P6

Driver Motor Left down parallel Type: Clean Room (Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB180- P6	2000(mm/s)	50	3000	¥ Õ44.56	NO.20X4BX2R	¡¾0.1(mm)	750(W), ¡à80(mm)	28.7+ (2.17XSTROKE/100)

DRAWING & DIMENSION

SB180- P7

Driver Motor Right down parallel Type: Clean Room(Class 10), Timming Belt

MODEL	LEAD(SPEED)	LOAD(kg)	MAX STROKE (mm)	PULLY DIAMETER	LINEAR GUIDE	REPEATABILITY	MAX MOTOR SPEC	WEIGHT(kg)
SB180- P7	2000(mm/s)	50	3000	¥ Õ44.56	NO.20X4BX2R	¡¾0.1(mm)	750(W), ¡à80(mm)	28.7+ (2.17XSTROKE/100)

DRAWING & DIMENSION

SBC
Total Linear Motion Solution
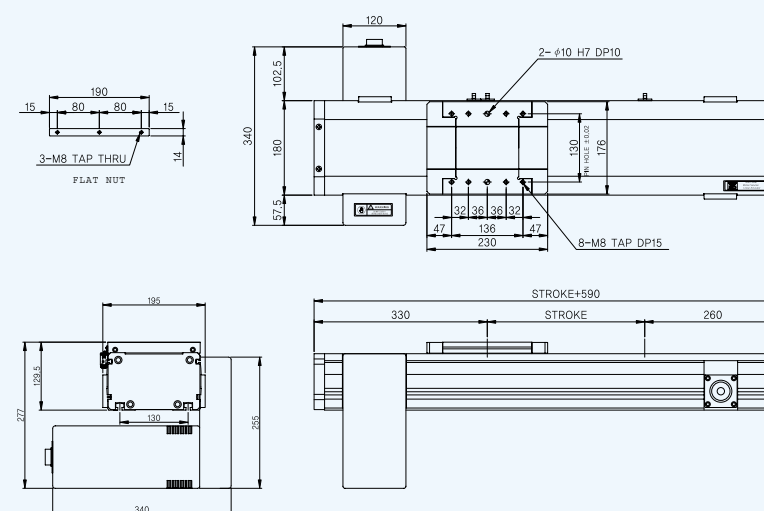
¥ ·. Linear Actuator Accessory

ROBO Cable

- Body connector of SBC Linear Actuator is standard. If necessary, extended cable can be supplied.
- Standard 1m, 3m, 5m, 7m, 19m
- ¡∅Motion cable - In case cable need lots of movement
- ¡∅Non- motion cable - In case cable movement is few or cable is fixed,

Ordering) 3m Motion cable ordering
Ordering example : RMC- 3MA

RMC	¡à ¡à	M	A
⬇	⬇	⬇	⬇
RMC : ROBO Cable	Cable length	Meter	A:Motion type B: Non- motion type

¡∅When you place an order, please order it with motor model.
¡∅Pin Map is supplied according to Motor model or Pin Map is indicated on the cable.

¥ ¸. Linear Actuator assembling example
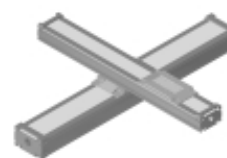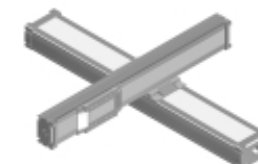
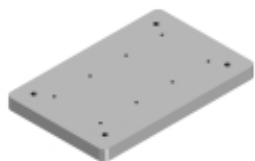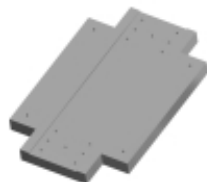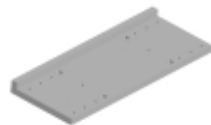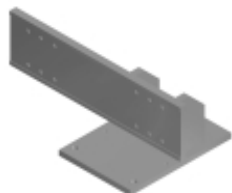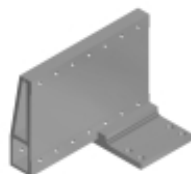|		
SSW- XY1	SSW- XY2	SSW- XY3
SSW- XY4	SSW- XZ1	SSW- XZ2
SSW- XZ3	SSW- YZ4	SSW- XYZ1
XYZ2	XYZ3	XYZ4
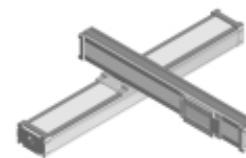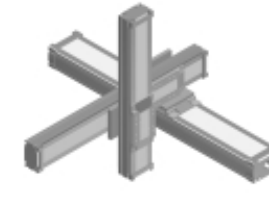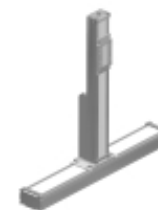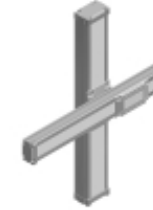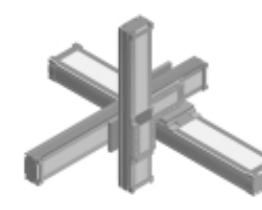
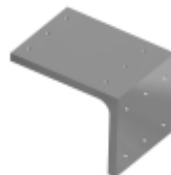# ¥ ¹. Assembling bracket

SSA

SSB

SSC

SSD

SSE

SSF

SSG

SSH

SSZ

SSJ

SSK

SSL