HIWIN® MIKROSYSTEM

Standard Single-Axis Linear Motor Stage

SSA

Technical Information

Optimal Produce Selection Tool

Catalog Download

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HIWIN® INDUSTRIE 4.0 Best Partner

Linear Motor Stage

Automated Transport /
AOI Application / Precision /
Semiconductor

- Iron-core Linear Motor
- Coreless Linear Motor
- Linear Turbo Motor LMT
- Planar Servo Motor
- Air Bearing Platform
- X-Y Stage • Gantry Systems
- Single-Axis Linear Motor Stage

Linear Motor

Machine tool / Touch panel industry /
Semiconductor industry /
Laser manufacturing machine /
Glass cutting machine

- Iron Core Linear Motor-LMSA, LMSA-Z, LMFA, LMFC, LMFP series
- Ironless Linear Motor-LMC, LMT series

Torque Motor & Direct Drive Motor

Machine Tools

- Torque Motor--
  TM-2/IM-2, TMRW Series

Inspection / Testing Equipment / Robot

- Direct Drive Motor--
  DMS, DMY, DMN, DMT Series

AC Servo Motor & Drive

Semiconductor / Packaging Machine /
SMT / Food Industry / LCD

- Drives--D1, D2T/D2T-LM, E1
- Motors--FR, E1

Linear Actuator

Hospital bed / Automatic window / Home care facility / Riveting /
Press-fitting / Surface checks / Bending

- Servo Actuator-LAA series
- LAM series
- LAS series
- LAN series
- LAC series

Positioning Measurement System

Cutting machines /
Traditional gantry milling machines /
Programmable drilling machines

- High Resolution
- Signal Translator
- High-precision Enclosed
- High Efficiency Counter

Semiconductor Subsystem

Semiconductor/LED/Panel

- EFEM
  (Equipment Front End Module)
- Wafer Robot
- Loadport
- Wafer Aligner

Multi-Axis Robot

Pick-and-Place / Assembly /
Array and Packaging / Semiconductor /
Electro-Optical Industry /
Automotive Industry / Food Industry

- Articulated Robot
- SCARA Robot
- Electric Gripper
- Integrated Electric Gripper

Single-Axis Robot

Precision / Semiconductor /
Medical / FPD

- KK, SK
- KS, KA
- KU, KE, KC

Torque Motor Rotary Table

Medical / Automotive Industry /
Machine Tools / Machinery Industry

- RAB Series
- RAS Series
- RCV Series
- RCH Series

Ballscrew

Precision Ground / Rolled

- Super S Series
- Super T Series
- Mini Roller
- Ecological & Economical Lubrication Module E2
- Rotating Nut (R1)
- Energy-Saving & Thermal-Controlling (Cool Type)
- Heavy Load Series (RD)
- Ball Spline

Linear Guideway

Automation / Semiconductor / Medical

- Ball Type--HG, EG, WE, MG, CG
- Quiet Type--QH, QE, QW, QR
- Other--RG, E2, PG, SE, RC

HIWIN® MIKROSYSTEM

Contents

SSA

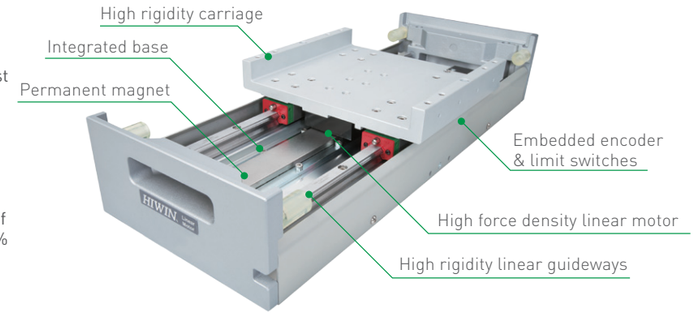
Short lead time and high accuracy

Standard Single-Axis linear motor stage

Description of Internal Structure

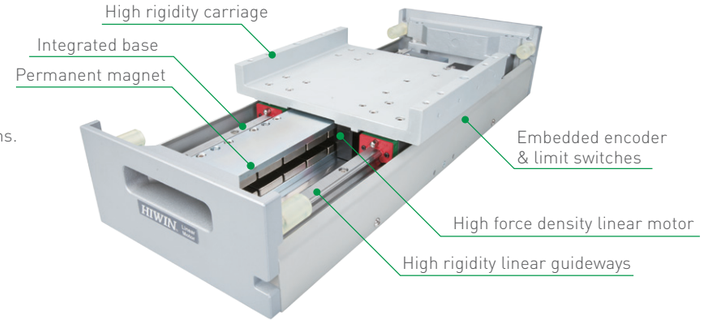
Iron-core Motors

- High force density linear motors maximize thrust in a limited space, suitable for high dynamic response.
- High-quality magnet has the advantages of high temperature resistance and excellent stability.
- With the velocity ripple compensation function of the E1 drive, velocity ripple reaches as low as 1% (10mm/s).



Ironless Motors

- The ironless linear motor has low inertia and is suitable for slow scanning/inspection applications.
- Utilizing a double row of high quality magnets increases the strength of magnetic field.



SSA Series

HIWIN MIKROSYSTEM Single-Axis Linear Motor Stage Features

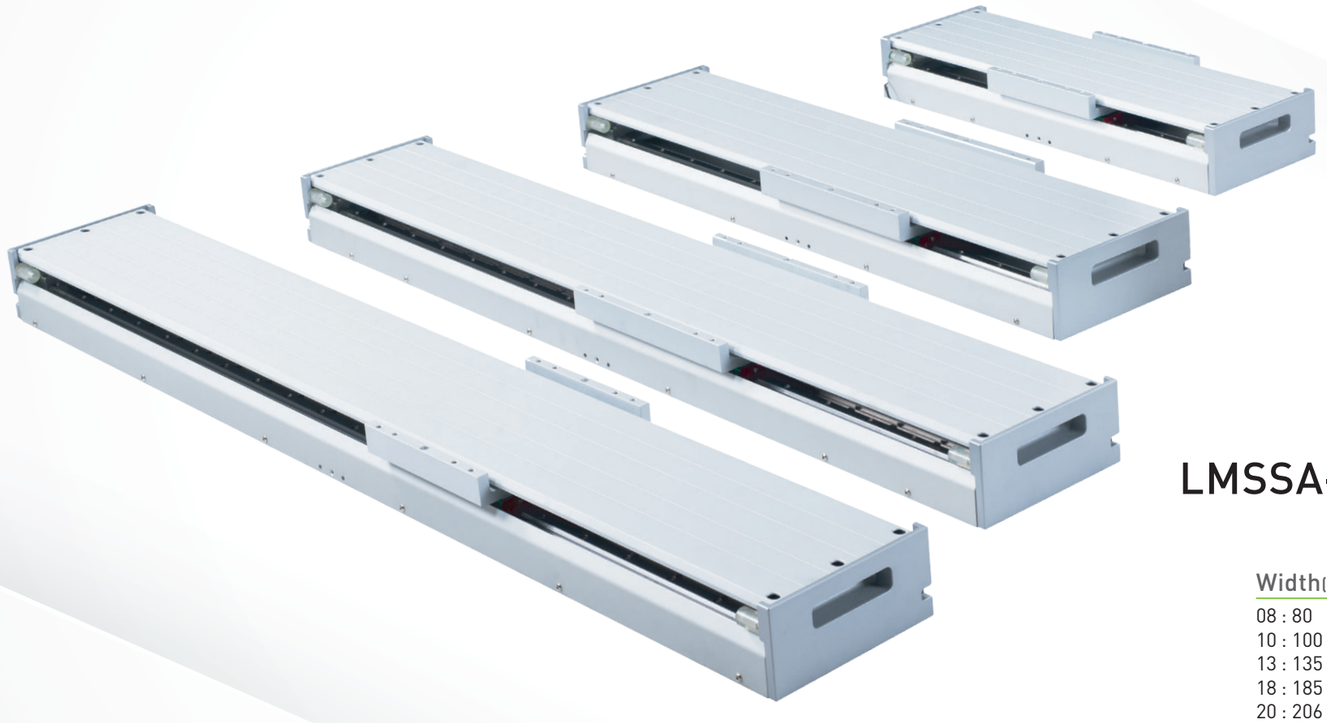
- High force density design paired with high speed response (3.2kHz) which maximizes linear motor performance.
- Embedded encoders and limit switches avoid environmental interference.
- Error mapping before shipment when purchased with Hiwin drives.

Max. Acceleration 5G

Max. Velocity 5m/s

Stroke 100~2700mm

Accuracy ±1μm



Cover Type

S cover	M cover
General Application (normal environment)	Laser cutting and 3D printing (harsh environment)
	

LMSSA-13S100-1-800-G5.3A-S-S-A0000

Width(mm)
08 : 80
10 : 100
13 : 135
18 : 185
20 : 206

Motor type
S : Iron core
C : Ironless

Rated force level(*1)
050, 100, 200, 300, 500, 700

Number of forcers
1 : Single forcer
2 : Dual forcers

Stroke(mm)
100~2700
(Available in 50 mm increment up to 1300mm and 100 mm increments up to 2700mm)

Encoder type(*1)
A : Analog optical
D : Analog magnetic
E : Digital 1μm resolution magnetic encoder
G : Digital 1μm resolution optical encoder
K : Digital 0.1μm resolution optical encoder
H : Hall encoder (Analog)
P : Absolute optical encoder 0.5μm (BiSS-C)

Cable length(*3)
3.3 : Power : 3m / Encoder : 3m
(For SSA-08,10)
5.3 : Power : 5m / Encoder : 3m
7.3 : Power : 7m / Encoder : 3m
(For SSA-13,18,20)

Limit switch
A : NPN,NC
B : PNP,NC

Cover
S : S cover
M : M cover

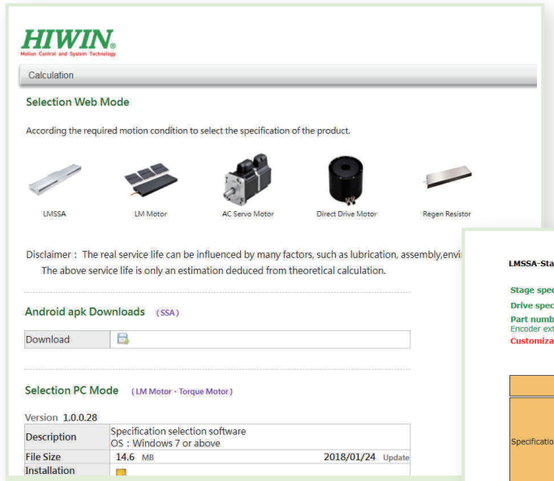
Color
S : Aluminum color
(For SSA-18,20)
B : Black

Voltage
A : Standard
B : High voltage
(For SSA S cover : SSA18,20 M cover)

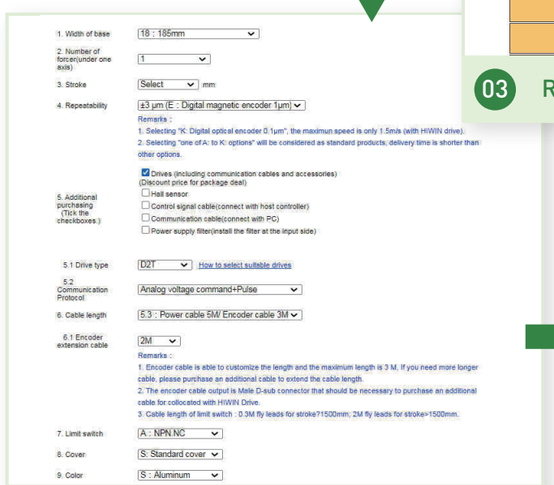
Custom code
0000 : Standard

Note:
1. Please refer Product Dimension and Specification on p.8~p.13.
2. Encoder extension cable is sold separately (see p.100).
3. The length of cable is measured from the motor/encoder.
   The length from the forcer plate is 0.5m shorter. For example, if the distance from the motor/encoder is 3m, the distance from the forcer plate is 2.5m

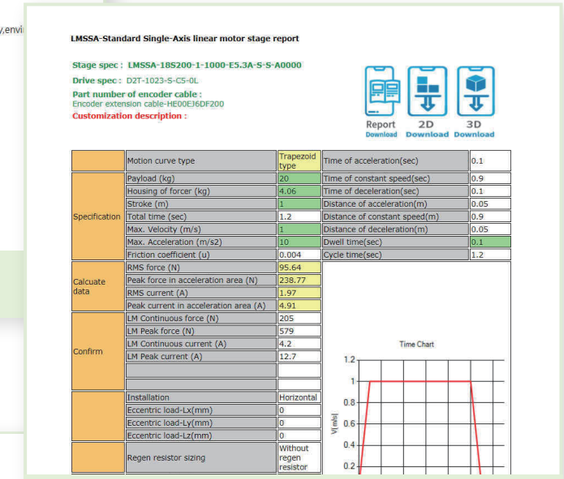
Quick selection program



01 Select motor type



02 Set conditions



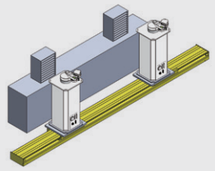
03 Review report and drawing

Use LMSSA selection tool now available!

Applications and Solutions

High speed positioning & High stiffness

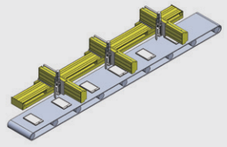
With E1-series drive, mechanical vibration and resonance can be greatly reduced. High stiffness provides superior positioning performance.



Pick & Place Positioning

Multistage and automated production

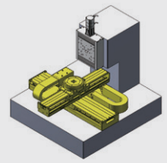
Standard modules can quickly meet the planning of production lines, and can simultaneously perform automated operations such as assembly, gluing and laser marking.



Pressing Gluing Laser

High precision inspection and machining

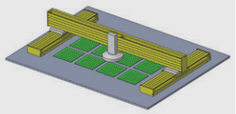
The E1-series drive compensation function improves settling time and position tracking error in precision inspection and machining process. Efficiency and production yield rate can be effectively boosted.



Positioning Laser

Dual drive gantry control

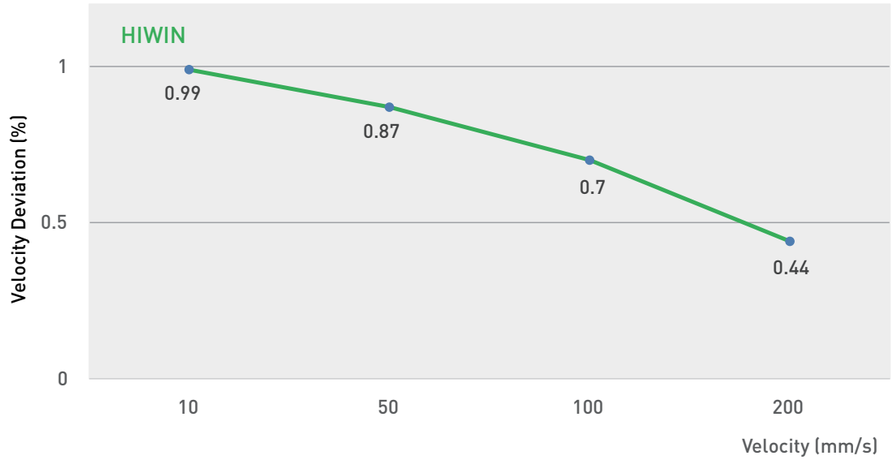
With E1-VG series drive, linear and rotational gantry control can be easily achieved.



Scanning Positioning

Ripple compensation function

With velocity ripple compensation function in E1-series drive, stages with ironcore motor can ensure a velocity ripple under 1%. Velocity stability of stages with ironless motor are also improved, making the cost of the solution more competitive in the market.



	Motors		Drive		Compensation program
HIWIN	 Ironless Linear Motor	+	 E1 Series	+	 Velocity Ripple Compensation

Note:
1. Optical encoders are recommended for low ripple applications.

Product Specification

Model No.	Cover	Motor Type	Rated force level	Base Width (mm)	Continuous Force (N)	Peak Force (N)	Max. Velocity (m/s)		Stroke(mm)	Repeatability (μm)	Standard Cable Length (M)	Color	Features	Drives
LMSSA-08S		Iron core	050	80	52	112	5		Single forcer：100~1400 Dual forcers ：100~1200	A：Analog optical (pitch:40μm) K：Digital Optical 0.1μm ↓ Repeatability：±1μm; Accuracy：±2μm --- G：Digital optical 1μm ↓ Repeatability：±2μm; Accuracy：±4μm --- E：Digital magnetic 1μm D：Analog magnetic (pitch1mm) ↓ Repeatability：±3μm; Accuracy：±6μm	Power 3M Encoder 3M --- Power 5M Encoder 3M	Black	• The slimmest model among the whole series products. (80mm)	D2T-400W D1-36 E1-400W
			100		104	224	5		Single forcer：100~1300 Dual forcers：100~1000					D2T-1kW D1-36 E1-1kW
LMSSA-10S			100	100	103	289	4.4		Single forcer：100~1400 Dual forcers：100~1200				• Smallest width of 100mm among all models with equivalent continuous force (205N).	D2T-400W D1-36 E1-400W
			200		205	579	4.4		Single forcer：100~1300 Dual forcers：100~1000					D2T-1kW D1-36 E1-1kW
LMSSA-13S			100	135	103	289	4.4		Single forcer：100~2700 Dual forcers：100~2500		Power 5M Encoder 3M --- Power 7M Encoder 3M		• Smallest width of 135mm among all models with 2 meters stroke.	D2T-400W D1-36 E1-400W
			200		205	579	4.4		Single forcer：100~2600 Dual forcers：100~2300					D2T-1kW D1-36 E1-1kW
			300		308	868	4.4		Single forcer：100~2500 Dual forcers：100~2100					D1-36 E1-2kW

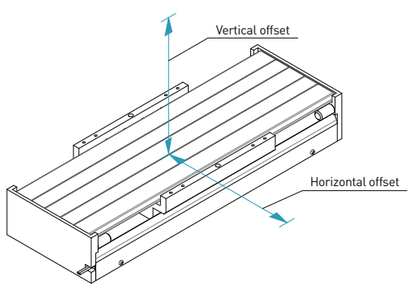
Model No.	Cover	Motor Type	Rated force level	Base Width (mm)	Continuous Force (N)	Peak Force (N)	Max. Velocity (m/s)		Stroke(mm)	Repeatability (μm)	Standard Cable Length (M)	Color	Features	Drives
LMSSA-18S		Iron core	100	185	103	289	4.4		Single forcer：100~2700 Dual forcers：100~2400	A：Analog optical (pitch:40μm) K：Digital Optical 0.1μm P：Absolute optical 0.5μm (BiSS-C) ↓ Repeatability：±1μm; Accuracy：±2μm ---------- G：Digital optical 1μm ↓ Repeatability：±2μm; Accuracy：±4μm ---------- E：Digital magnetic 1μm D：Analog magnetic (pitch1mm) ↓ Repeatability：±3μm; Accuracy：±6μm ---------- H：Hall encoder (Pitch 30mm) ※Iron core only ↓ Repeatability：±7.5μm	Power 5M Encoder 3M ---------- Power 7M Encoder 3M	Aluminum clear / Black	• Suitable to be used as lower axis in stack applications. • 2 colors available (Aluminum Clear & Black).	D2T-400W D1-36 E1-400W
			200		205	579	4.4		Single forcer：100~2600 Dual forcers ：100~2300					D2T-1kW D1-36 E1-1kW
			300		308	868	4.4		Single forcer：100~2500 Dual forcers：100~2000					D1-36 E1-2kW
LMSSA-18C		Ironless	100		75	300	5		Single forcer：100~2700 Dual forcers：100~2400				• Suitable to be used as lower axis in stack applications. • Low velocity ripple even at low velocity (1% @ 10mm/s). • 2 colors available (Aluminum Clear & Black).	D2T-1kW D1-36 E1-1kW
			200		150	600	5		Single forcer：100~2500 Dual forcers：100~2000					D2T-1kW D1-36 E1-1kW
LMSSA-20S		Iron core	300	206	362	1023	2.2		Single forcer：100~2600 Dual forcers：100~2300				• Model with biggest force among the whole series products (continuous force 725N). • High rigidity. • Fast point to point movement (acceleration 5G) • Suitable to be used as lower axis in stack applications. • 2 colors available (Aluminum Clear & Black).	D2T-1kW D1-36 E1-1kW
			500		544	1535	2.2		Single forcer：100~2500 Dual forcers：100~2000					D1-36 E1-2kW
			700		725	2048	2.3		Single forcer：100~2400 Dual forcers：100~1800					D1-36 E1-2kW
LMSSA-20C		Ironless	100		91	364	5		Single forcer：100~2600 Dual forcers：100~2300				• High rigidity. • Low velocity ripple even at low velocity (1% @ 10mm/s). • Suitable to be used as lower axis in stack applications. • 2 colors available (Aluminum Clear & Black).	D2T-1kW D1-36 E1-400W
			200		145	580	2.8		Single forcer：100~2500 Dual forcers：100~2000					D2T-1kW D1-36 E1-400W

Product Specification

		S Cover								M Cover					
Appearance															
Model		08S050		08S100		10S100		10S200		13S100		13S200		13S300	
Dinension	Cover	S	M	S	M	S	M	S	M	S	M	S	M	S	M
	Carriage Length (mm)	160		260		160		260		160		260		360	
	Carriage Width (mm)	100	144	100	144	110	164	110	164	135	198	135	198	135	198
	Base Width (mm)	80				100				135					
	Total Height (mm)	75	78	75	78	76	78	76	78	95	98	95	98	95	98
Spec	Continuous Force (N)	52		104		103		205		103		205		308	
	Peak Force (N)	112		224		289		579		289		579		868	
	Stroke (mm)	100~1300mm(50mm increments) ; 1300~2700mm(100mm increments)													
	Encoder Resolution	Analog optical 0.1μm / Digital optical 1μm / Digital optical 0.1μm / Digital magnetic 1μm / Analog magnetic 1μm													
	Repeatability	Table 1													
	Accuracy ※Note5	Table 1													
	Horizontal Straightness	N/A								±8 μm / 300mm (Stroke below1200mm) ※Note2					
	Vertical straightness	N/A								±8 μm / 300mm (Stroke below1200mm) ※Note2					
	Max. Velocity (m/s) ※Note3,4	5	5	5	5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
	Moving Mass (kg)	1.6	1.8	2.5	3	1.9	2.1	3	3.4	2.9	3.4	4.2	5.2	5.9	7.5

		S Cover										M Cover									
Appearance																					
Model		18S100		18S200		18S300		18C100		18C200		20S300		20S500		20S700		20C100		20C200	
Dinension	Linear Motor Type	Iron core						Ironless				Iron core						Ironless			
	Cover	S	M	S	M	S	M	S	M	S	M	S	M	S	M	S	M	S	M	S	M
	Carriage Length (mm)	180		240		370		180		370		240		370		470		240		370	
	Carriage Width (mm)	203	232	203	232	203	232	203	232	203	232	229	258	229	258	229	258	229	258	229	258
	Base Width (mm)	185										206									
	Total Height (mm)	88.7	93.7	88.7	93.7	88.7	93.7	88.7	93.7	88.7	93.7	91.7	94.7	91.7	94.7	91.7	94.7	91.7	94.7	91.7	94.7
Spec	Continuous Force (N)	103		205		308		75		150		362		544		725		91		145	
	Peak Force (N)	289		579		868		300		600		1023		1535		2048		364		580	
	Stroke (mm)	100~1300mm(50mm increments) ; 1300~2700mm(100mm increments)																			
	Encoder Resolution	Analog optical 0.1μm / Digital optical 1μm / Digital optical 0.1μm / Digital magnetic 1μm / Analog magnetic 1μm / Absolute optical 0.5μm / Hall encoder 1μm																			
	Repeatability	Table 1																			
	Accuracy ※Note5	Table 1																			
	Horizontal Straightness	±8 μm/300mm (Stroke below1200mm) ※Note2																			
	Vertical straightness	±8 μm/300mm (Stroke below1200mm) ※Note2																			
	Max. Velocity (m/s) ※Note3,4	4.4	4.4	4.4	4.4	4.4	4.4	5	5	5	5	2.2	2.2	2.2	2.2	2.3	2.3	5	5	2.8	2.8
	Moving Mass (kg)	3.1	4	4.4	5.6	6.2	8.1	3	3.9	5	6.9	6.4	7.3	8.3	9.7	11	12.8	4.2	5.1	6	7.4

Schematic diagram of offset load capacity



Note:
- For the load capability, refer to the "Offset Load Capacity Curve" on the page of each specification.
- It is recommended that the speed should not exceed 2m/s for vertical application.

Table 1. Encoder Repeatability and Accuracy

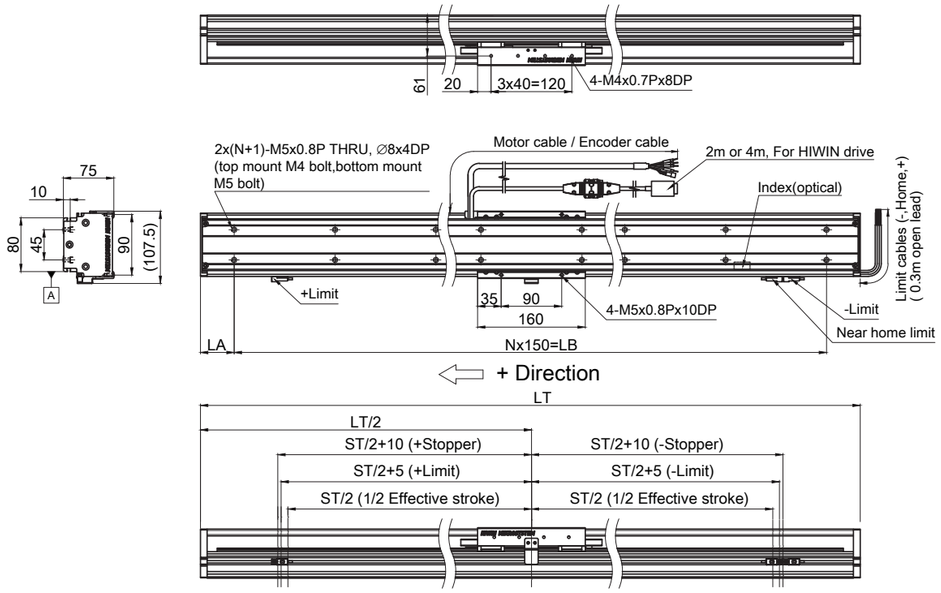
Type	Encoder	Repeatability (μm)	Accuracy (μm) Note 5
A	Analog optical 0.1μm	±1	±2
D	Analog magnetic 1μm	±3	±6
E	Digital magnetic 1μm	±3	±6
G	Digital optical 1μm	±2	±4
K	Digital optical 0.1μm	±1	±2
H	Hall encoder 1μm	±7.5	-
P	Absolute optical 0.5μm	±1	±2

Note:
1. Measurement is performed on granite platform according to HIWIN solution.
2. Horizontal and vertical straightness can be applied only in single forcer axis.
3. Max. velocity will be determined by stroke, payload, encoder resolution etc.
4. With digital 0.1μm resolution optical encoder, the max. velocity is 1.5m/s.
5. Error compensation table is provided if HIWIN drive is not included.

SSA-08 Series Single Forcer

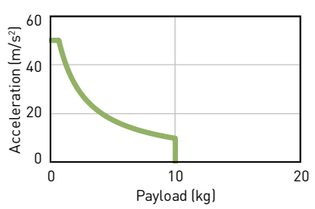
SSA-08S050
S cover

Stroke
100~1400

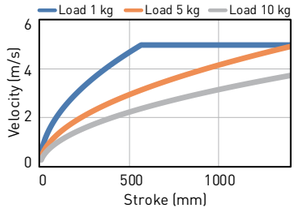


08S050-1-S																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1400
LT	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1650
N	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	75
LB	300	300	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500
Weight (kg)	6.3	6.8	7.2	7.6	8.0	8.5	8.8	9.2	9.6	10.0	10.5	10.9	11.2	11.6	12.1	12.5	12.9	13.3	13.6	14.1	14.5	14.9	15.3	15.8	16.1	16.9

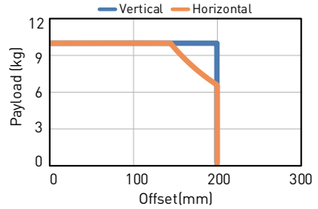
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

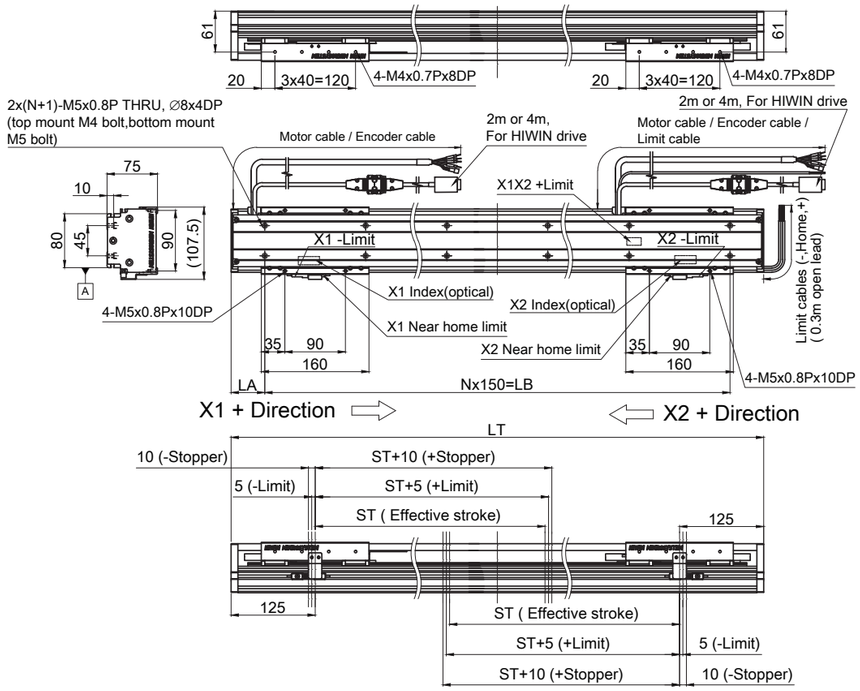


Note: Schematic of offset load please refer to P.12

SSA-08 Series Dual Forcers

SSA-08S050
S cover

Stroke
100~1200



08S050-2-S																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200				
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650				
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10				
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75				
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500				
Weight (kg)	9.2	9.6	10.0	10.5	10.9	11.3	11.6	12.1	12.5	12.9	13.3	13.8	14.1	14.5	14.9	15.3	15.8	16.2	16.5	16.9	17.4	17.8	18.2				

Model Description

LMSSA-08S050-□-□□□□-□□.□□-S-B-A0000

Cables
Please refer to page
5, 9, 11

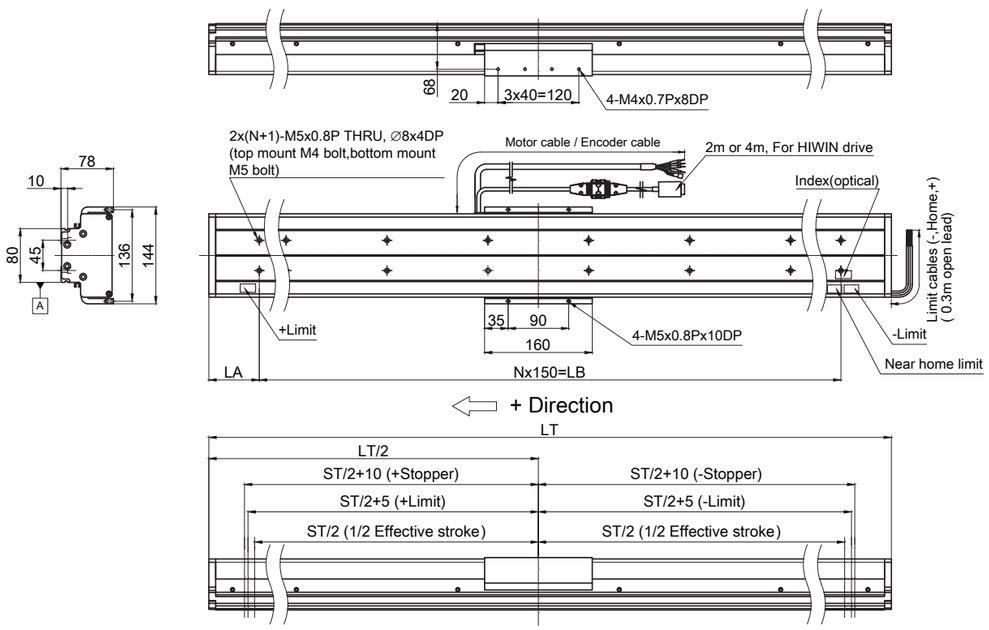
Number of forcers
1 : Single forcer
2 : Dual forcers

Stroke(mm)
100~1400 : Single forcer
100~1200 : Dual forcers

SSA-08 Series Single Forcer

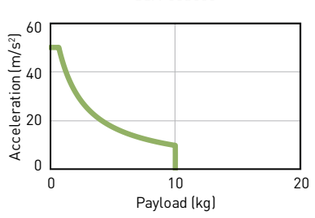
SSA-08S050
M cover

Stroke
100~1400

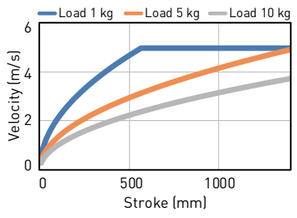


08S050-1-M																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1400
LT	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1650
N	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	75
LB	300	300	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500
Weight (kg)	6.8	7.3	7.8	8.2	8.7	9.1	9.5	9.9	10.4	10.9	11.3	11.8	12.1	12.6	13.1	13.5	14.0	14.4	14.8	15.2	15.7	16.2	16.6	17.1	17.4	18.3

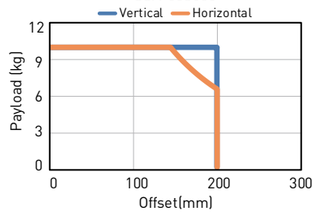
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

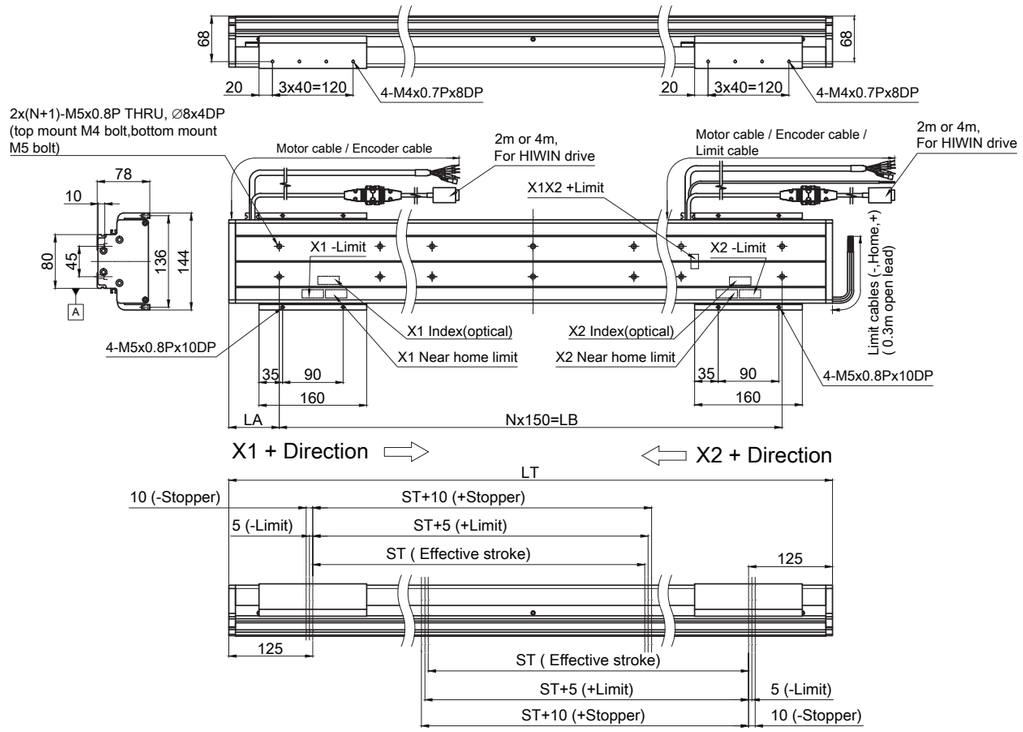


Note: Schematic of offset load please refer to P.12

SSA-08 Series Dual Forcers

SSA-08S050
M cover

Stroke
100~1200



08S050-2-M																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200				
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650				
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10				
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75				
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500				
Weight (kg)	10.0	10.5	10.9	11.4	11.9	12.3	12.7	13.1	13.6	14.0	14.5	15.0	15.3	15.8	16.2	16.7	17.2	17.6	18.0	18.4	18.9	19.3	19.8				

Model Description

LMSSA-08S050-□-□□□□-□□.□□-M-B-A0000

Number of forcers
1 : Single forcer
2 : Dual forcers

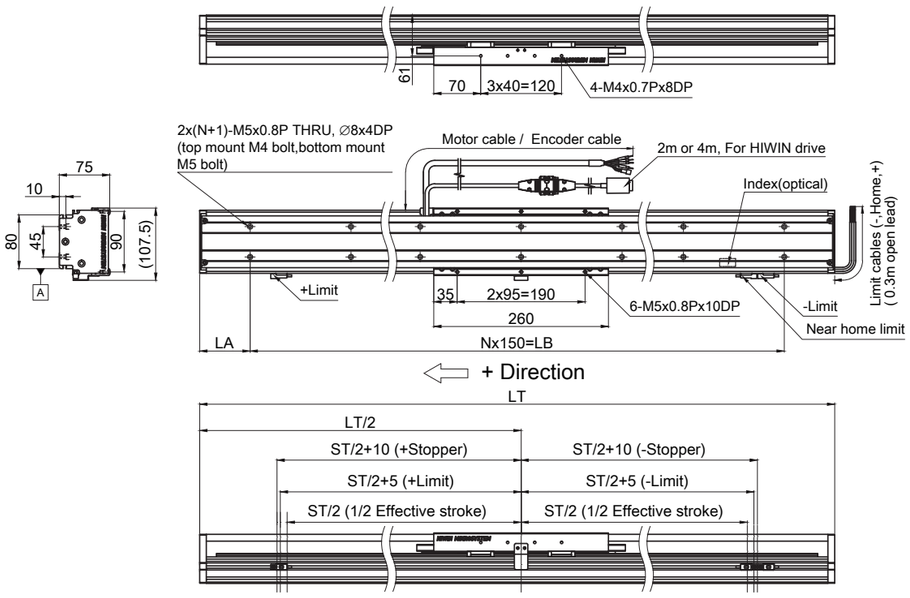
Stroke(mm)
100~1400 : Single forcer
100~1200 : Dual forcers

Cables
Please refer to page
5, 9, 11

SSA-08 Series Single Forcer

SSA-08S100
S cover

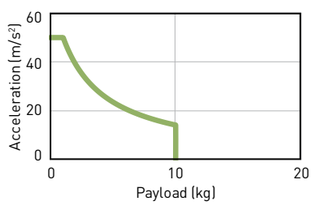
Stroke
100~1300



08S100-1-S																										
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	8.1	8.5	8.9	9.4	9.8	10.1	10.5	10.9	11.4	11.8	12.2	12.5	13.0	13.4	13.8	14.2	14.7	15.0	15.4	15.8	16.2	16.7	17.1	17.4	17.8

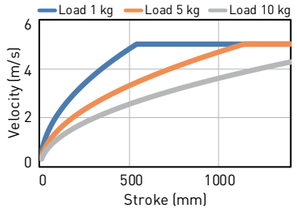
Acceleration-Payload Curve

SSA-08S100



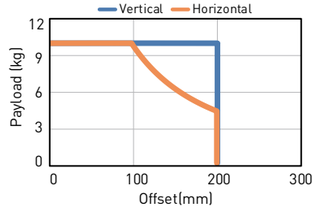
Velocity-Stroke Curve

SSA-08S100



Offset Load Capacity Curve

SSA-08S100

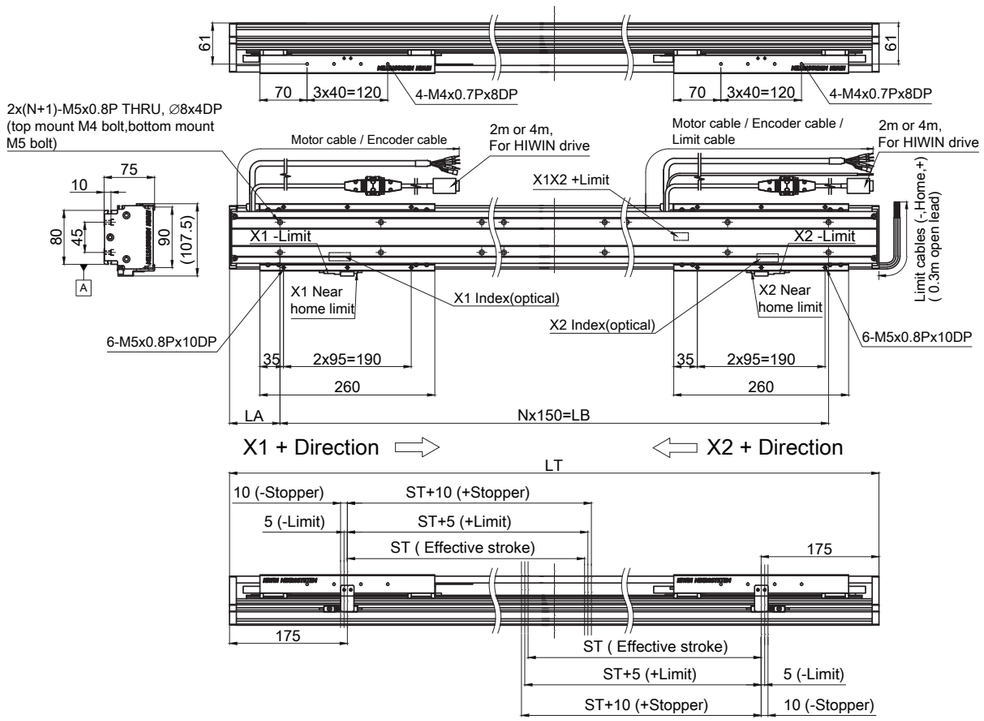


Note: Schematic of offset load please refer to P.12

SSA-08 Series Dual Forcers

SSA-08S100
S cover

Stroke
100~1000



08S100-2-S																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	12.5	12.9	13.3	13.7	14.0	14.5	14.9	15.3	15.8	16.2	16.5	16.9	17.3	17.8	18.2	18.6	18.9	19.3	19.8

Model Description

LMSSA-08S100-□-□□□□-□□.□□-S-B-A0000

Number of forcers
1 : Single forcer
2 : Dual forcers

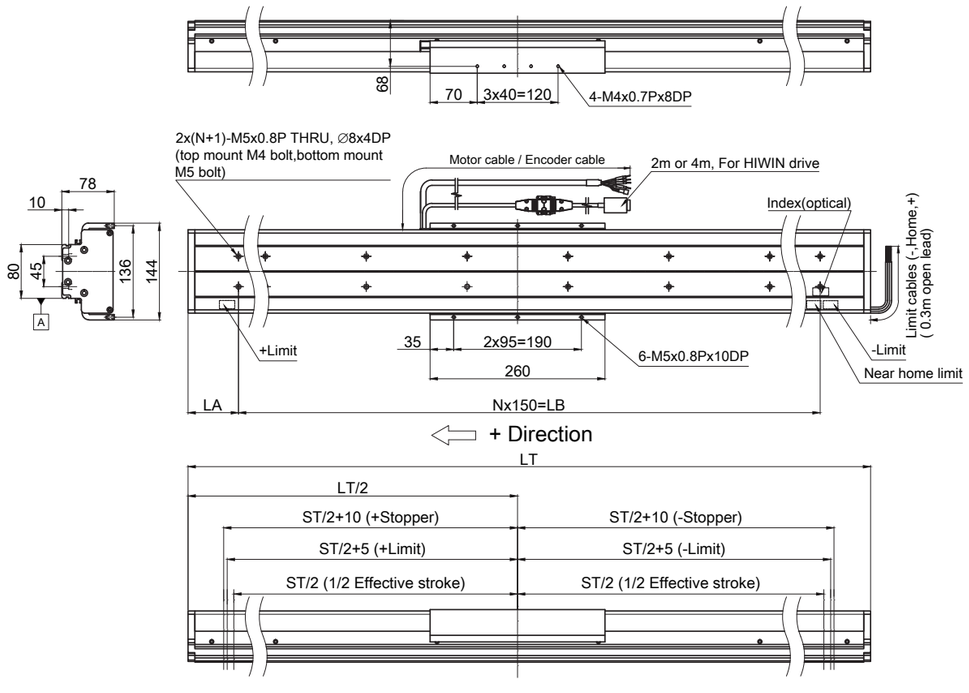
Stroke(mm)
100~1300 : Single forcer
100~1000 : Dual forcers

Cables
Please refer to page
5, 9, 11

SSA-08 Series Single Forcer

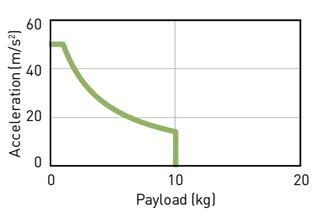
SSA-08S100
M cover

Stroke
100~1300

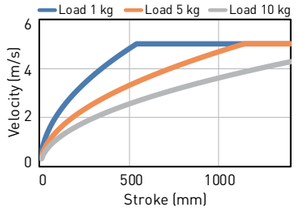


08S100-1-M																										
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	9.0	9.4	9.9	10.3	10.8	11.1	11.6	12.1	12.5	13.0	13.4	13.8	14.3	14.7	15.2	15.6	16.1	16.4	16.9	17.4	17.8	18.3	18.7	19.1	19.5

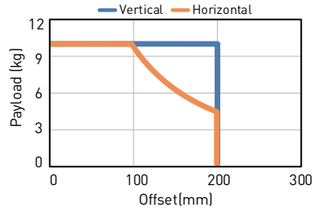
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

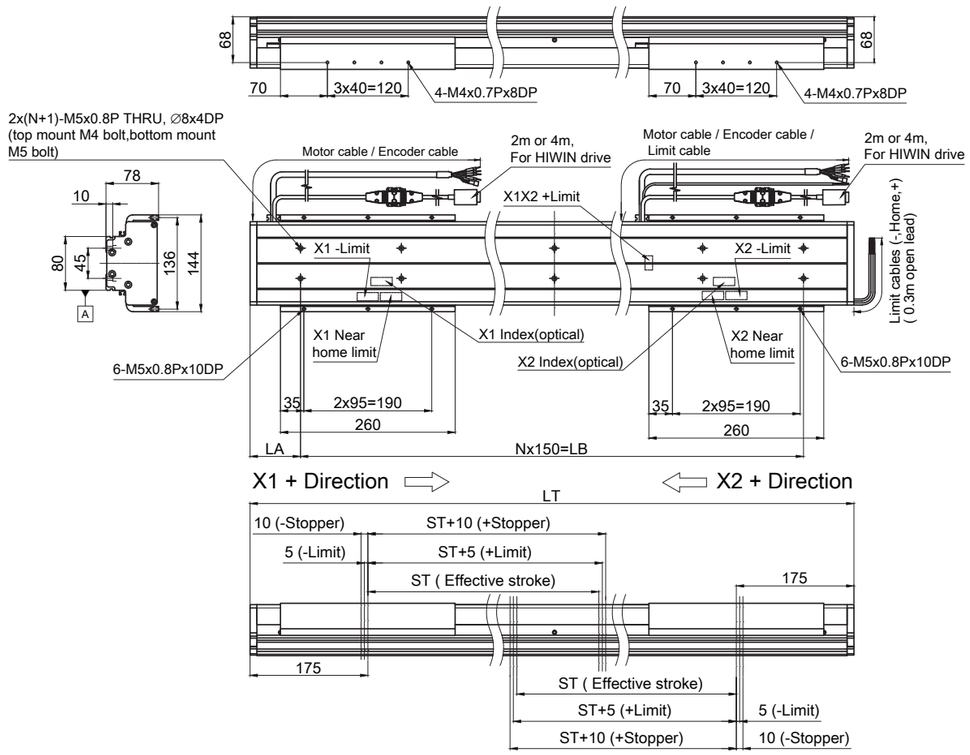


Note: Schematic of offset load please refer to P.12

SSA-08 Series Dual Forcers

SSA-08S100
M cover

Stroke
100~1000



08S100-2-M																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	14.0	14.5	15.0	15.4	15.8	16.2	16.7	17.1	17.6	18.1	18.4	18.9	19.3	19.8	20.2	20.7	21.1	21.5	22.0

Model Description

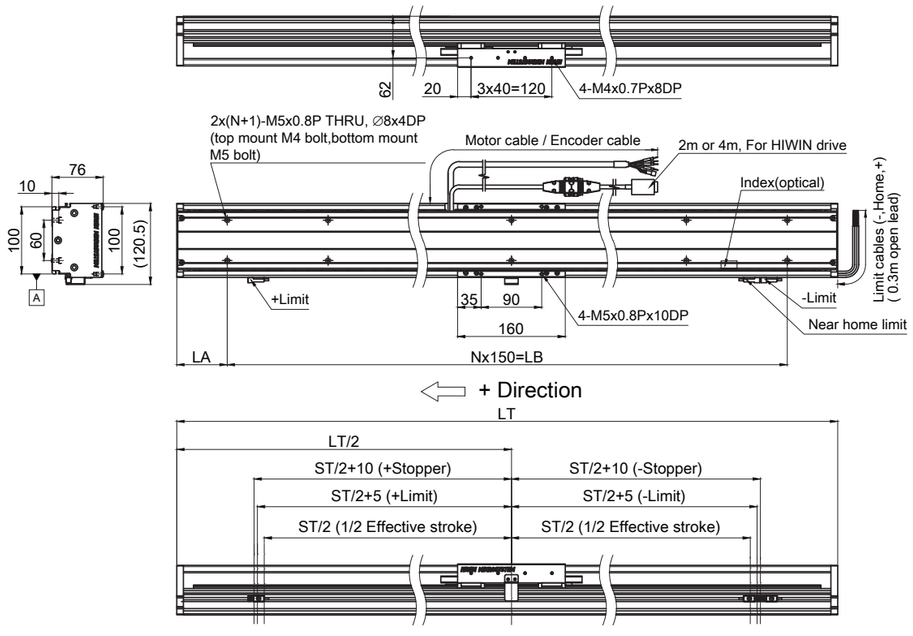
LMSSA-08S100-□-□□□□-□□.□□-M-B-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~1300 : Single forcer
  - 100~1000 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

SSA-10 Series Single Forcer

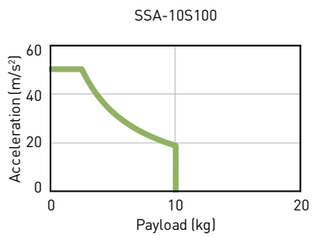
SSA-10S100
S cover

Stroke
100~1400

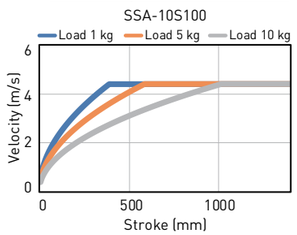


10S100-1-S																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1400
LT	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1650
N	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	75
LB	300	300	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500
Weight (kg)	7.4	7.9	8.5	8.8	9.3	9.9	10.4	10.9	11.5	11.8	12.3	12.9	13.4	13.9	14.5	14.8	15.3	15.9	16.4	16.9	17.5	17.8	18.3	18.9	19.4	20.5

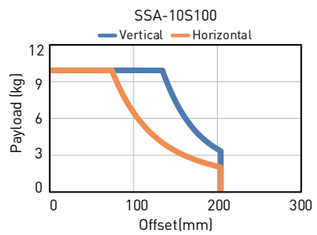
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

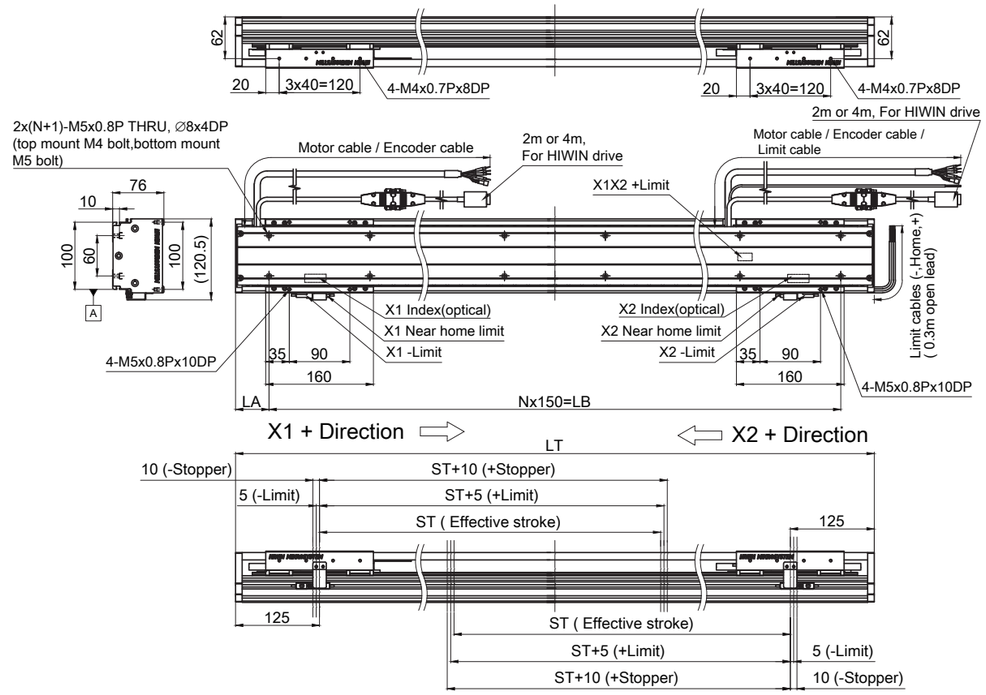


Note: Schematic of offset load please refer to P.12

SSA-10 Series Dual Forcers

SSA-10S100
S cover

Stroke
100~1200



10S100-2-S																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10	11	11	11	12
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500	1650	1650	1650	1800
Weight (kg)	10.8	11.3	11.8	12.2	12.7	13.3	13.8	14.3	14.8	15.2	15.7	16.3	16.8	17.3	17.8	18.2	18.7	19.3	19.8	20.3	20.8	21.2	21.7	22.3	22.8	23.3	23.8

Model Description

LMSSA-10S100-□-□□□□-□□.□□-S-B-A0000

Number of forcers
1 : Single forcer
2 : Dual forcers

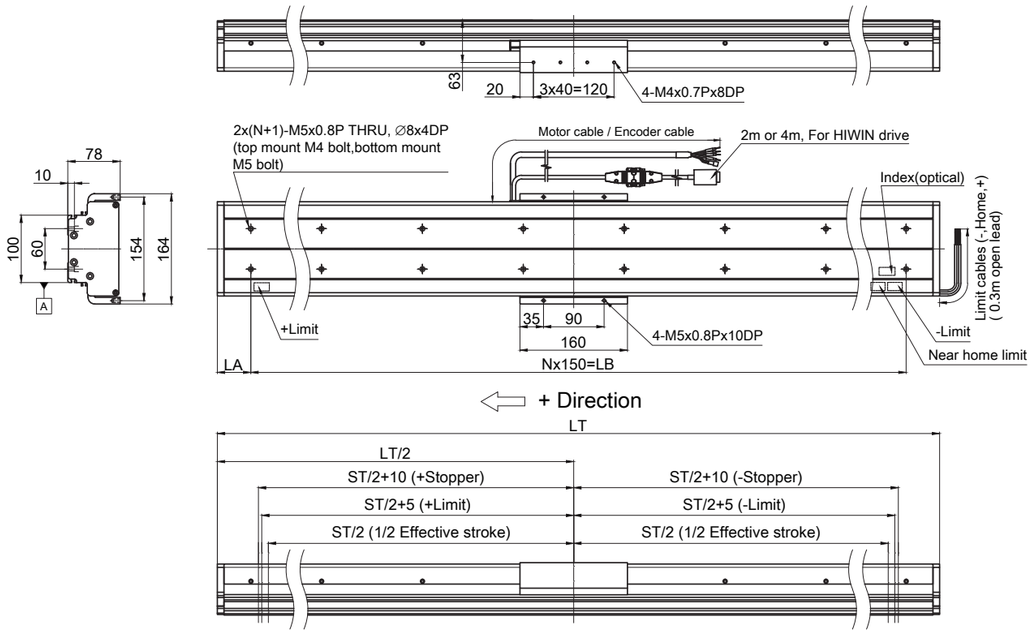
Stroke(mm)
100~1400 : Single forcer
100~1200 : Dual forcers

Cables
Please refer to page
5, 9, 11

SSA-10 Series Single Forcer

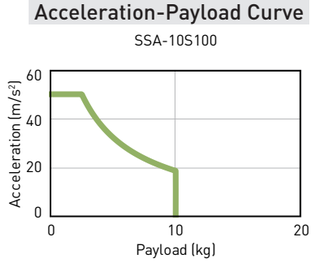
SSA-10S100
M cover

Stroke
100~1400

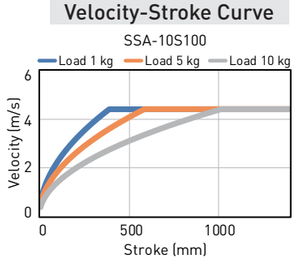


10S100-1-M																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1400
LT	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1650
N	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	75
LB	300	300	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500
Weight (kg)	7.5	8.0	8.5	8.9	9.4	9.9	10.4	10.9	11.4	11.7	12.2	12.7	13.2	13.7	14.2	14.5	15.0	15.5	16.1	16.6	17.1	17.4	17.9	18.4	18.9	19.9

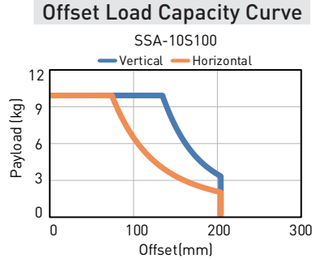
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

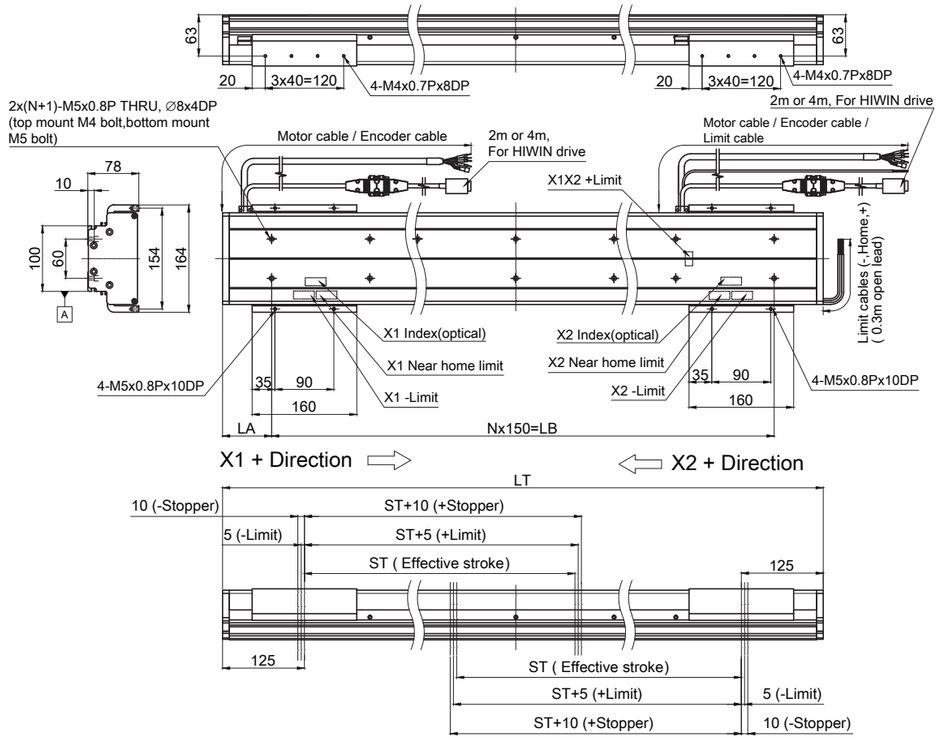


Note: Schematic of offset load please refer to P.12

SSA-10 Series Dual Forcers

SSA-10S100
M cover

Stroke
100~1200



10S100-2-M																											
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200				
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650				
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10				
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75				
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500				
Weight (kg)	11.0	11.5	12.0	12.3	12.8	13.3	13.8	14.3	14.8	15.2	15.7	16.2	16.7	17.2	17.7	18.0	18.5	19.0	19.5	20.0	20.5	20.9	21.4				

Model Description

LMSSA-10S100-□-□□□□-□□.□□-M-B-A0000

Number of forcers
1 : Single forcer
2 : Dual forcers

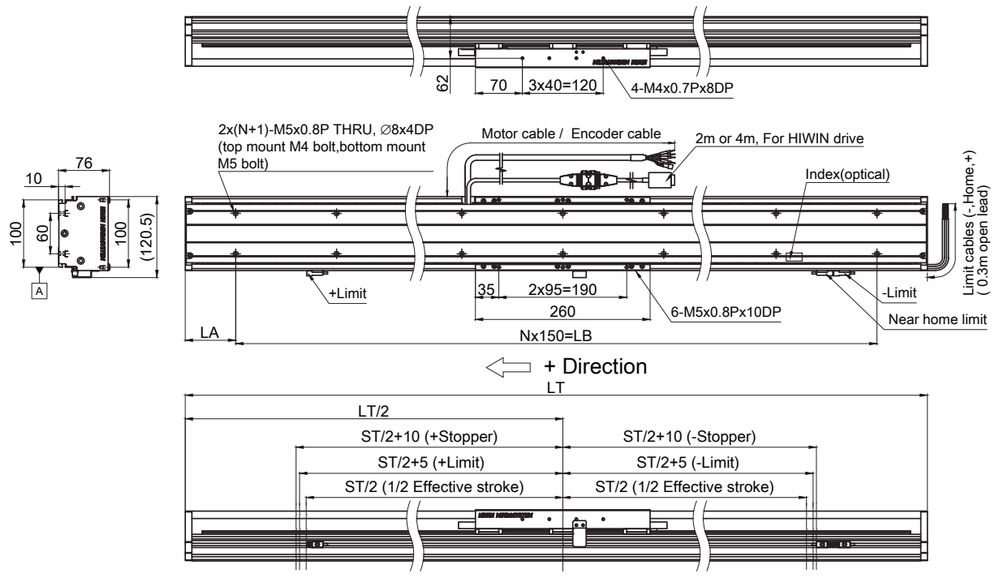
Stroke(mm)
100~1400 : Single forcer
100~1200 : Dual forcers

Cables
Please refer to page
5, 9, 11

SSA-10 Series Single Forcer

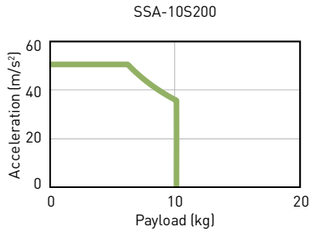
SSA-10S200
S cover

Stroke
100~1300

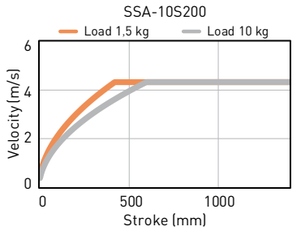


10S200-1-S																									
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	9.6	10.1	10.5	11.0	11.5	12.0	12.6	13.1	13.4	14.0	14.5	15.0	15.6	16.1	16.4	17.0	17.5	18.0	18.6	19.1	19.4	20.0	20.5	21.0	21.6

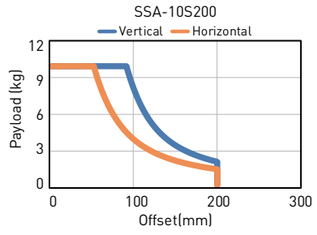
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

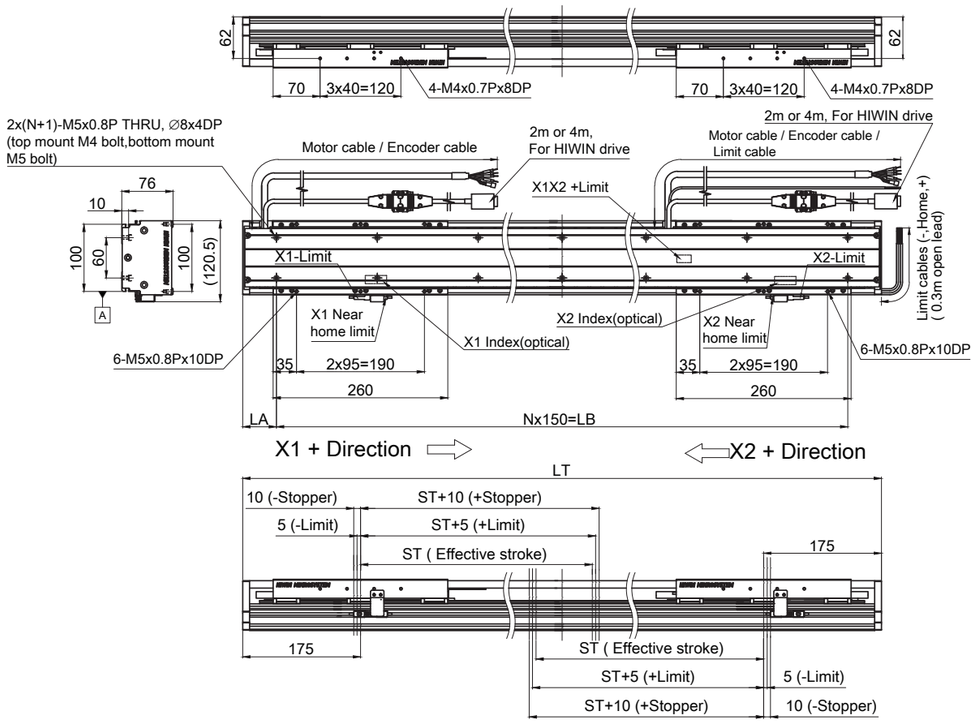


Note: Schematic of offset load please refer to P.12

SSA-10 Series Dual Forcers

SSA-10S200
S cover

Stroke
100~1000



10S200-2-S																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	14.9	15.5	16.0	16.5	17.0	17.4	17.9	18.5	19.0	19.5	20.0	20.4	20.9	21.5	22.0	22.5	23.0	23.4	23.9

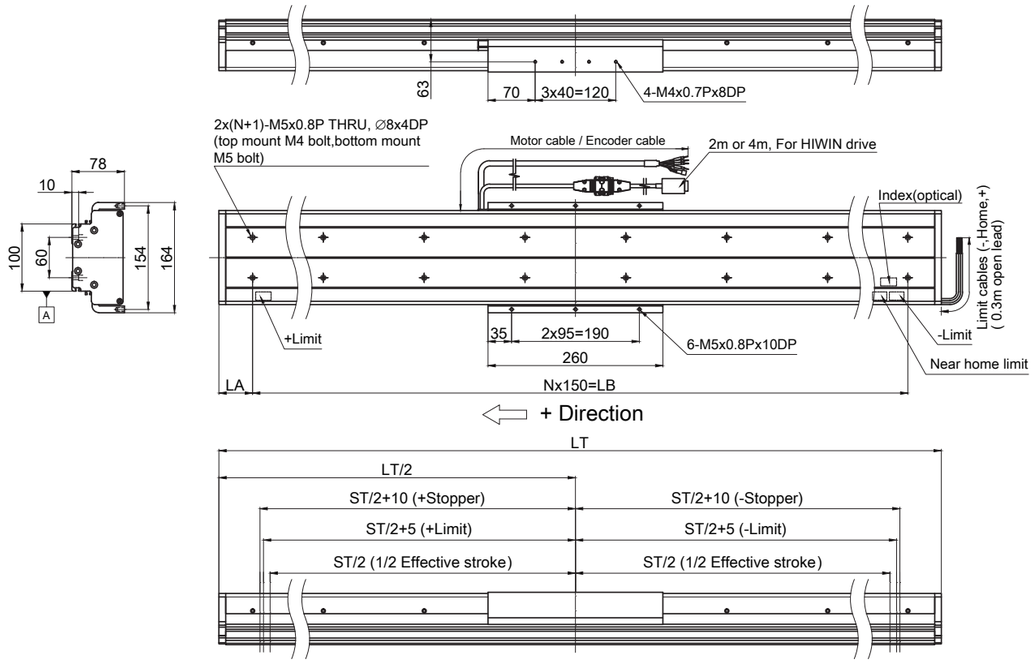
Model Description

LMSSA-10S200-□-□□□□-□□.□□-S-B-A0000

- Cables: Please refer to page 5, 9, 11
- Number of forcers: 1 : Single forcer; 2 : Dual forcers
- Stroke(mm): 100~1300 : Single forcer; 100~1000 : Dual forcers

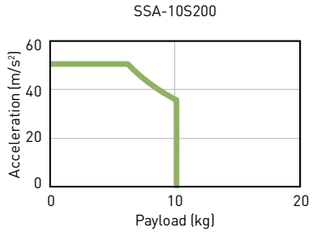
SSA-10 Series Single Forcer

SSA-10S200 M cover | Stroke 100~1300

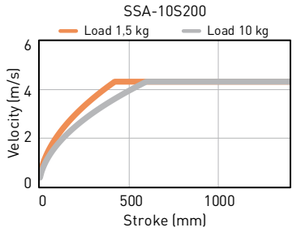


10S200-1-M																										
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	8	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	9.8	10.3	10.7	11.2	11.7	12.2	12.7	13.2	13.5	14.0	14.5	15.0	15.5	16.0	16.3	16.8	17.4	17.9	18.4	18.9	19.2	19.7	20.2	20.7	21.2

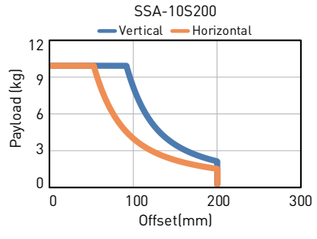
Acceleration-Payload Curve



Velocity-Stroke Curve



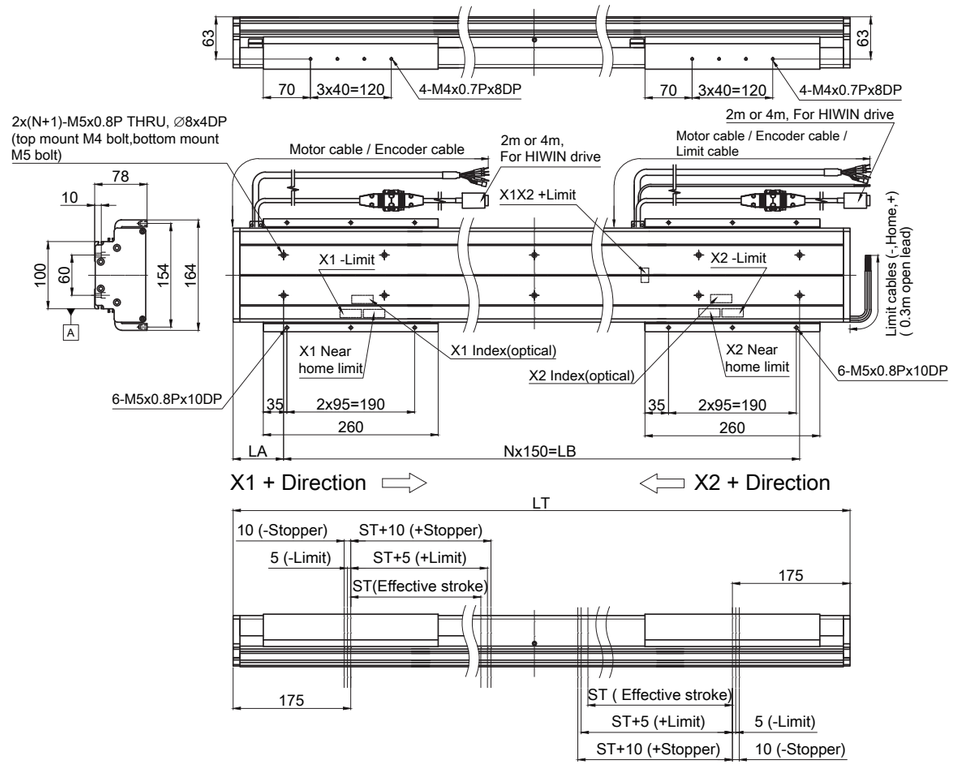
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-10 Series Dual Forcers

SSA-10S200 M cover | Stroke 100~1000



10S200-2-M																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
N	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500
Weight (kg)	15.4	15.9	16.4	16.9	17.4	17.8	18.3	18.8	19.3	19.8	20.3	20.6	21.1	21.6	22.1	22.6	23.1	23.5	24.0

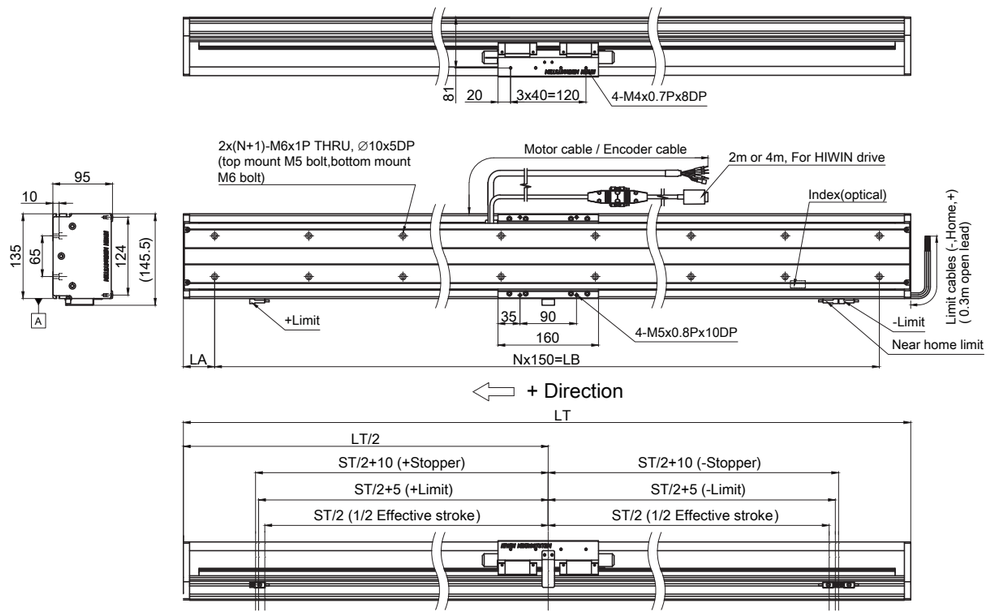
Model Description

LMSSA-10S200-□-□□□□-□□.□□-M-B-A0000

- Cables: Please refer to page 5, 9, 11
- Number of forcers: 1 : Single forcer; 2 : Dual forcers
- Stroke(mm): 100~1300 : Single forcer; 100~1000 : Dual forcers

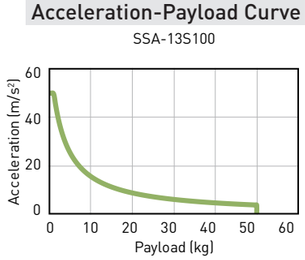
SSA-13 Series Single Forcer

SSA-13S100 S cover | Stroke 100~2700

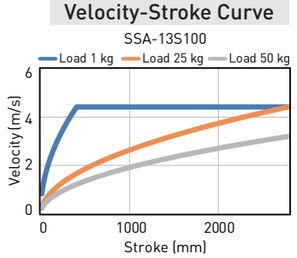


13S100-1-S																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
LT	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
N	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50
LB	300	300	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200
Weight (kg)	10.6	11.4	12.2	12.9	13.7	14.5	15.3	16.1	16.9	17.6	18.4	19.2	20.0	20.9	21.7	22.3	23.1	24.0	24.8	25.6
Stroke (ST)	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	-
LT	1350	1400	1450	1500	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-
N	8	9	9	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19	-
LA	75	25	50	75	25	75	50	25	75	50	25	75	50	25	75	50	25	75	50	-
LB	1200	1350	1350	1350	1500	1500	1650	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-
Weight (kg)	26.4	27.1	27.9	28.7	29.5	31.1	32.6	34.2	35.9	37.3	39.0	40.6	42.1	43.7	45.3	46.8	48.4	50.1	51.5	-

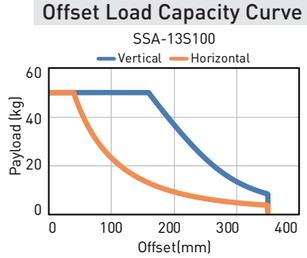
Acceleration-Payload Curve



Velocity-Stroke Curve



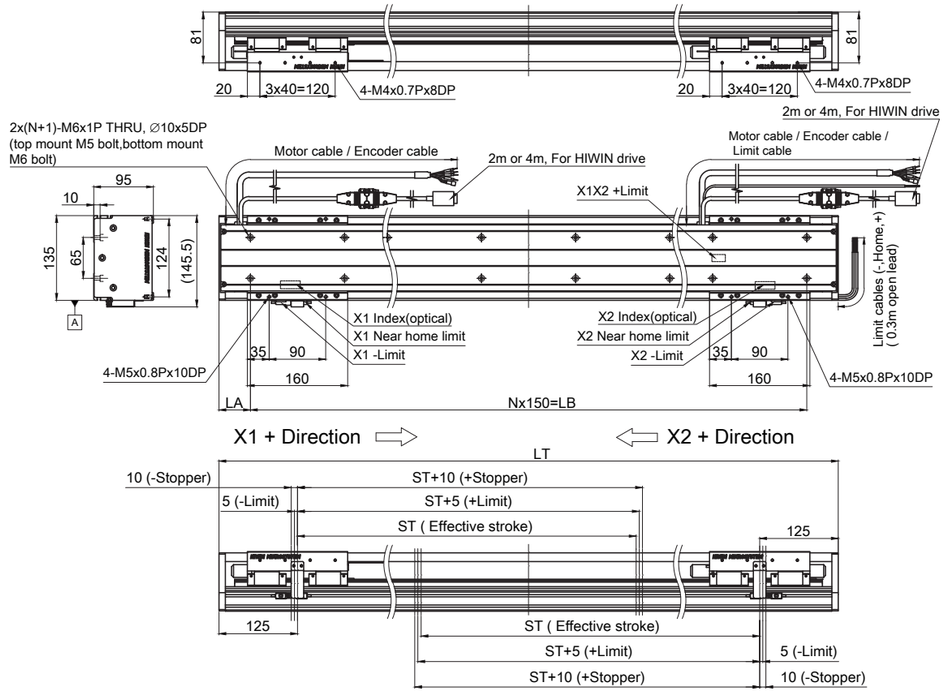
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-13 Series Dual Forcers

SSA-13S100 S cover | Stroke 100~2500



13S100-2-S																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000		
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450		
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9		
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50		
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350		
Weight (kg)	16.1	16.9	17.8	18.4	19.2	20.0	20.9	21.7	22.5	23.1	24.0	24.8	25.6	26.4	27.2	27.9	28.7	29.5	30.3		
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-		
LT	1500	1550	1600	1650	1700	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-		
N	9	10	10	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	-		
LA	75	25	50	75	25	50	25	75	50	25	75	50	25	75	50	25	75	50	-		
LB	1350	1500	1500	1500	1650	1650	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-		
Weight (kg)	31.1	32.0	32.6	33.4	34.2	35.1	36.7	38.2	39.8	41.4	42.9	44.5	46.2	47.6	49.3	50.9	52.4	54.0	-		

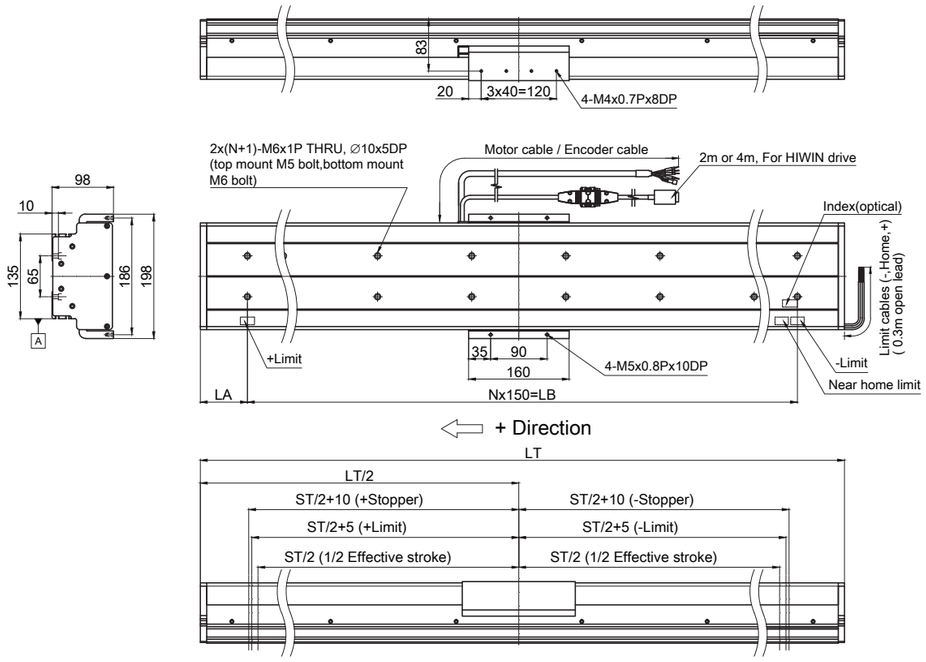
Model Description

LMSSA-13S100-□-□□□□-□□.□□-S-B-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2700 : Single forcer
  - 100~2500 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

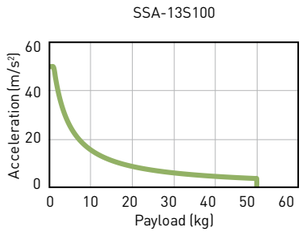
SSA-13 Series Single Forcer

SSA-13S100 M cover | Stroke 100~2700

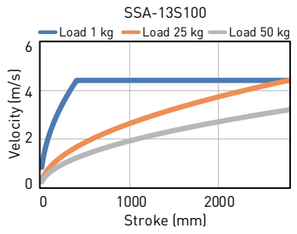


13S100-1-M																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
LT	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
N	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50
LB	300	300	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200
Weight (kg)	11.4	12.3	13.1	13.8	14.6	15.5	16.3	17.2	18.0	18.7	19.5	20.4	21.2	22.0	22.9	23.6	24.4	25.2	26.1	26.9
Stroke (ST)	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	-
LT	1350	1400	1450	1500	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-
N	8	9	9	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19	-
LA	75	25	50	75	25	75	50	25	75	50	25	75	50	25	75	50	25	75	50	-
LB	1200	1350	1350	1350	1500	1500	1650	1800	1800	1950	2100	35.2	2250	2400	2400	2550	2700	2700	2850	-
Weight (kg)	27.7	28.4	29.3	30.1	30.9	32.6	34.1	35.8	37.5	39.0	40.7	42.4	43.9	45.6	47.2	48.8	50.4	52.1	53.6	-

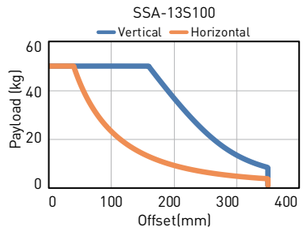
Acceleration-Payload Curve



Velocity-Stroke Curve



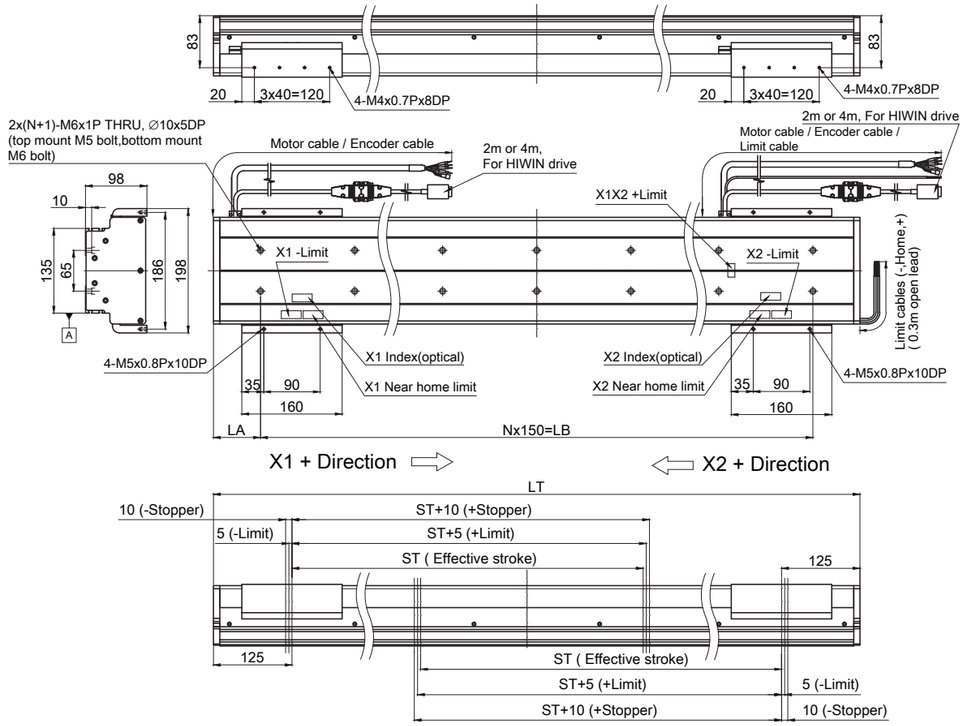
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-13 Series Dual Forcers

SSA-13S100 M cover | Stroke 100~2500



13S100-2-M																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350
Weight (kg)	17.6	18.4	19.2	19.9	20.8	21.6	22.4	23.3	24.1	24.8	25.6	26.5	27.3	28.1	29.0	29.7	30.5	31.3	32.2
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-
LT	1500	1550	1600	1650	1700	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-
N	9	10	10	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	-
LA	75	25	50	75	25	50	25	75	50	25	75	50	25	75	50	25	75	50	-
LB	1350	1500	1500	1500	1650	1650	1800	1800	35.2	2100	2100	2250	2400	2400	2550	2700	2700	2850	-
Weight (kg)	33.0	33.9	34.5	35.4	36.2	37.1	38.7	40.3	41.9	43.6	45.1	46.8	48.5	50.0	51.7	53.4	54.9	56.6	-

Model Description

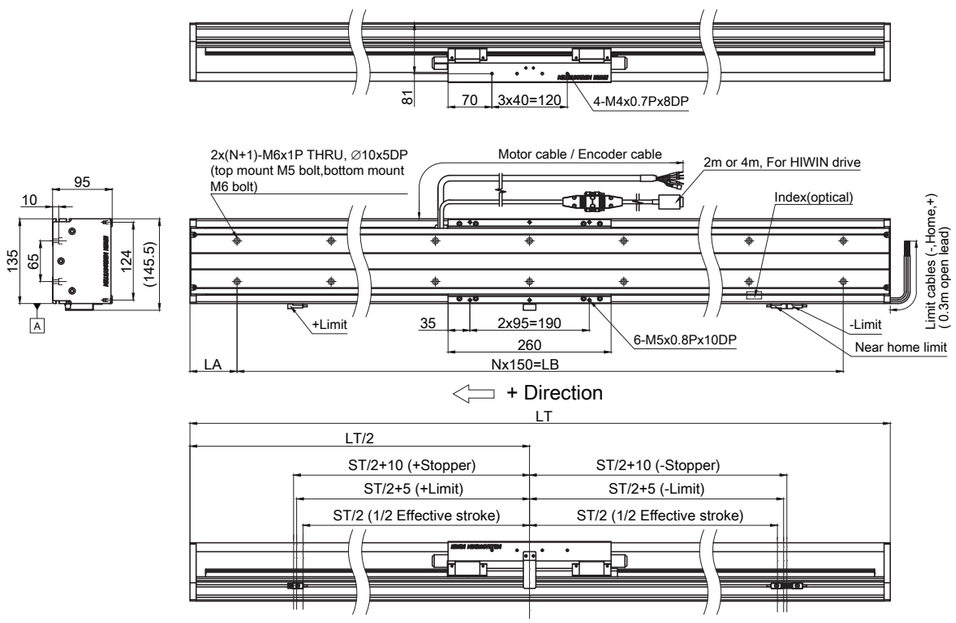
LMSSA-13S100-□-□□□□-□□.□□-M-B-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2700 : Single forcer
  - 100~2500 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

SSA-13 Series Single Forcer

SSA-13S200
S cover

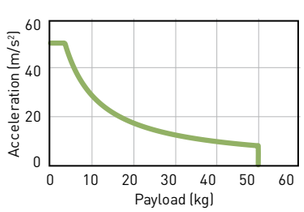
Stroke
100~2600



13S200-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200
Weight (kg)	13.5	14.3	15.0	15.8	16.6	17.4	18.3	19.1	19.7	20.5	21.4	22.2	23.0	23.8	24.5	25.3	26.1	26.9	27.7
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	9	9	9	10	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19
LA	25	50	75	25	50	75	50	25	75	50	25	75	50	25	75	50	25	75	50
LB	1350	1350	1350	1500	1500	1500	1650	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850
Weight (kg)	28.5	29.2	30.0	30.8	31.6	32.4	33.9	35.5	37.2	38.6	40.3	41.9	43.4	45.0	46.6	48.1	49.7	51.4	52.8

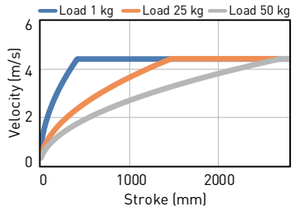
Acceleration-Payload Curve

SSA-13S200



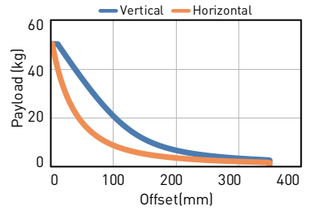
Velocity-Stroke Curve

SSA-13S200



Offset Load Capacity Curve

SSA-13S200

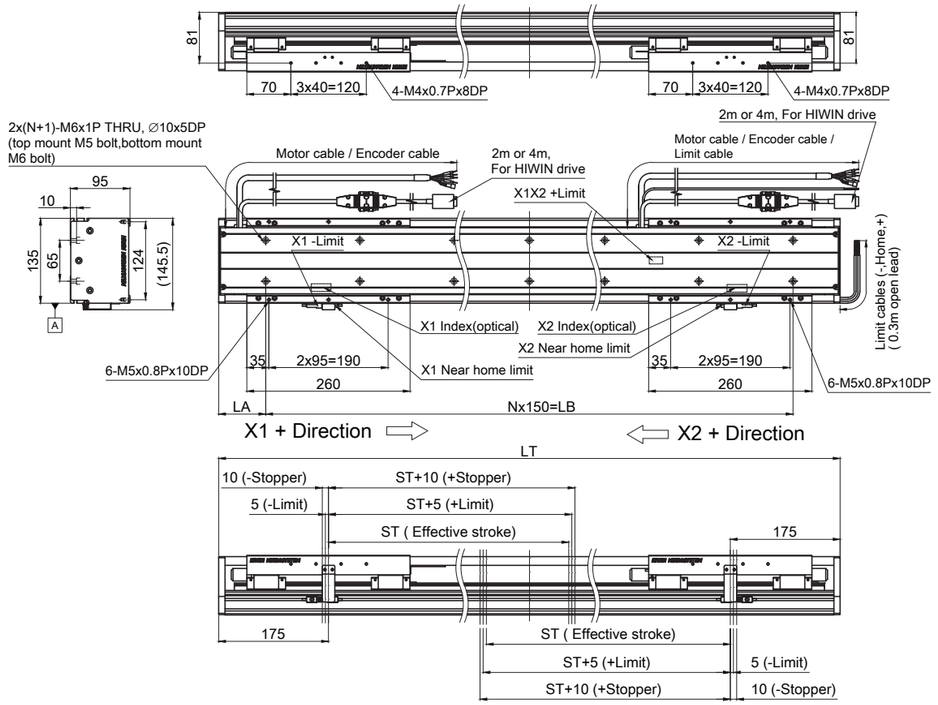


Note: Schematic of offset load please refer to P.12

SSA-13 Series Dual Forcers

SSA-13S200
S cover

Stroke
100~2300



13S200-2-S																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600
N	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50
LB	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500
Weight (kg)	21.8	22.6	23.5	24.3	25.1	25.7	26.6	27.4	28.2	29.0	29.8	30.5	31.3	32.1	32.9	33.7	34.6	35.2
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-
N	10	11	11	11	12	12	12	13	14	14	15	16	16	17	18	18	19	-
LA	75	25	50	75	25	50	75	50	25	75	50	25	75	50	25	75	50	-
LB	1500	1650	1650	1650	1800	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-
Weight (kg)	36.0	36.8	37.7	38.5	39.3	40.1	41.1	42.7	44.2	45.8	47.4	48.9	50.6	52.2	53.7	55.3	56.9	-

Model Description

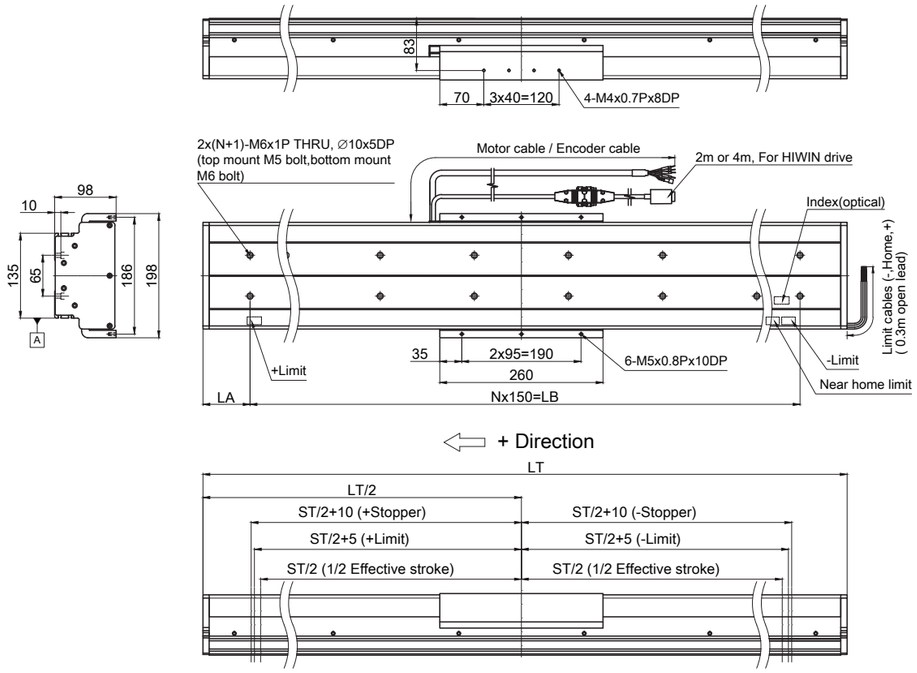
LMSSA-13S200-□-□□□□-□□.□□-S-B-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2600 : Single forcer
  - 100~2300 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

SSA-13 Series Single Forcer

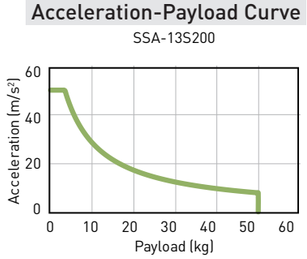
SSA-13S200
M cover

Stroke
100~2600

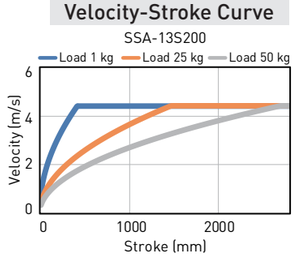


13S200-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
LB	300	450	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200
Weight (kg)	14.9	15.8	16.4	17.3	18.1	19.0	19.8	20.6	21.3	22.2	23.0	23.8	24.7	25.5	26.2	27.0	27.9	28.7	29.5
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	9	9	9	10	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19
LA	25	50	75	25	50	75	50	25	75	50	25	75	50	25	75	50	25	75	50
LB	1350	1350	1350	1500	1500	1500	1650	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850
Weight (kg)	30.4	31.1	31.9	32.7	33.6	34.4	35.9	37.6	39.3	40.8	42.5	44.2	45.7	47.4	49.0	50.6	52.2	53.9	55.4

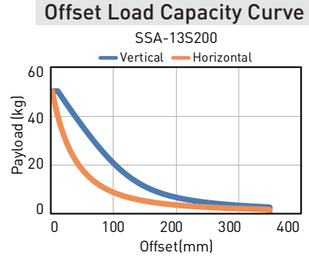
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

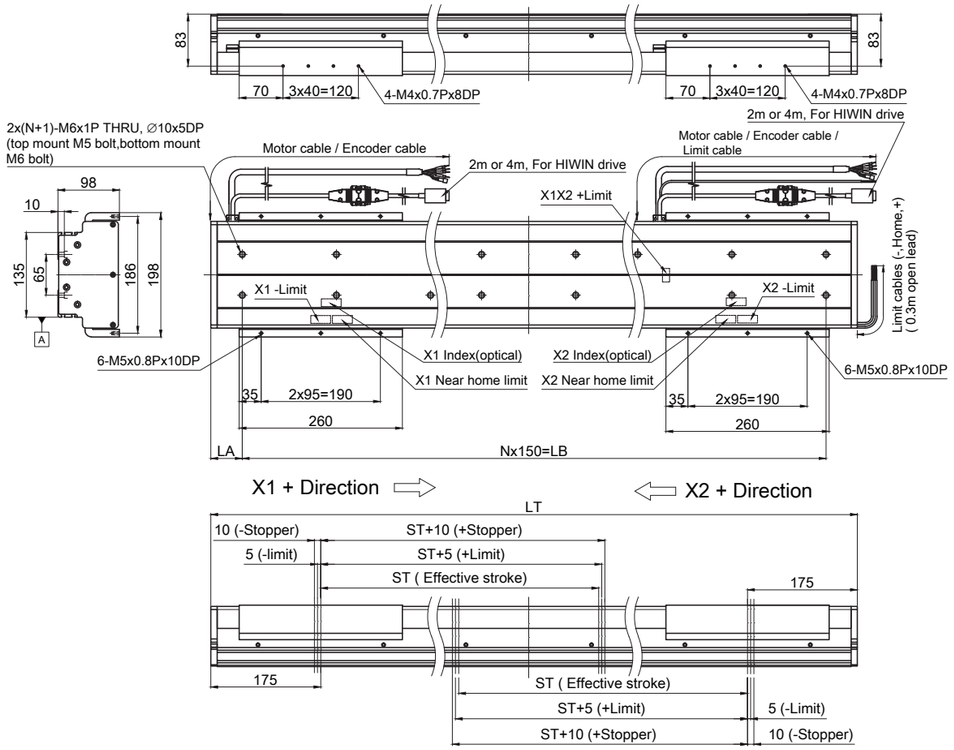


Note: Schematic of offset load please refer to P.12

SSA-13 Series Dual Forcers

SSA-13S200
M cover

Stroke
100~2300



13S200-2-M																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	
N	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	
LA	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	
LB	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	
Weight (kg)	24.4	25.2	26.0	26.9	27.7	28.4	29.2	30.1	30.9	31.7	32.6	33.3	34.1	34.9	35.8	36.6	37.5	38.1	
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-	
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-	
N	10	11	11	11	12	12	12	13	14	14	15	16	16	17	18	18	19	-	
LA	75	25	50	75	25	50	75	50	25	75	50	25	75	50	25	75	50	-	
LB	1500	1650	1650	1650	1800	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-	
Weight (kg)	39.0	39.8	40.7	41.5	42.3	43.2	44.2	45.9	47.4	49.0	50.7	52.2	53.9	55.6	57.1	58.8	60.5	-	

Model Description

LMSSA-13S200-□-□□□□-□□.□□-M-B-A0000

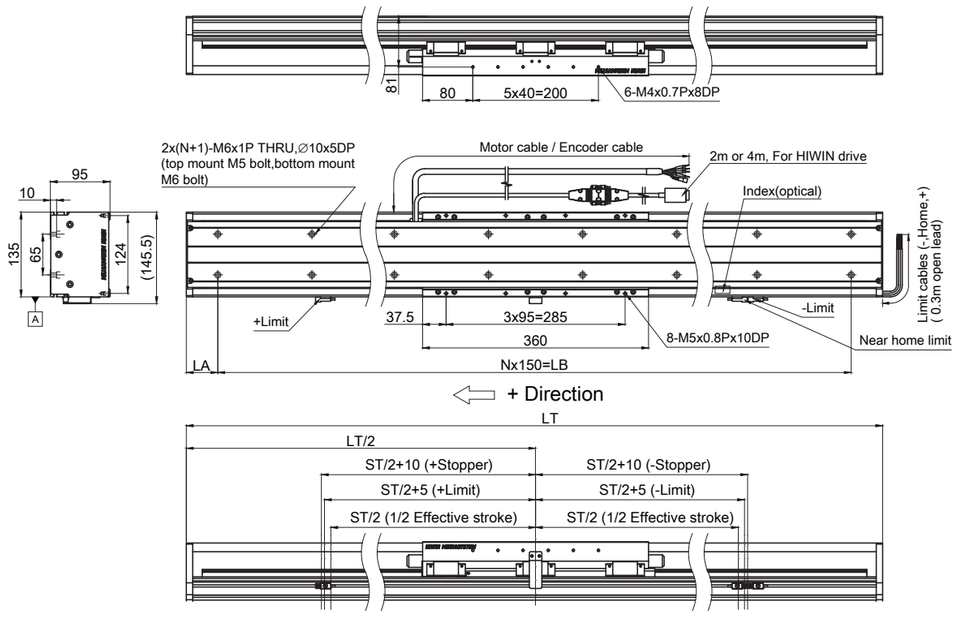
Number of forcers
1 : Single forcer
2 : Dual forcers

Stroke(mm)
100~2600 : Single forcer
100~2300 : Dual forcers

Cables
Please refer to page
5, 9, 11

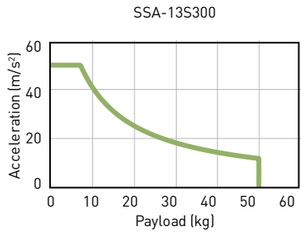
SSA-13 Series Single Forcer

SSA-13S300 S cover | Stroke 100~2500

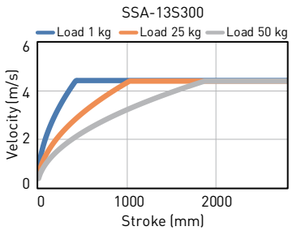


13S300-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	
Weight (kg)	16.7	17.5	18.3	19.1	20.0	20.8	21.4	22.2	23.1	23.9	24.7	25.5	26.2	27.0	27.8	28.6	29.4	30.2	30.9	
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-	
LT	1500	1550	1600	1650	1700	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-	
N	9	10	10	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	-	
LA	75	25	50	75	25	50	25	75	50	25	75	50	25	75	50	25	75	50	-	
LB	1350	1500	1500	1500	1650	1650	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-	
Weight (kg)	31.7	32.5	33.3	34.1	35.0	35.6	37.2	38.9	40.3	42.0	43.6	45.1	46.7	48.3	49.8	51.4	53.1	54.5	-	

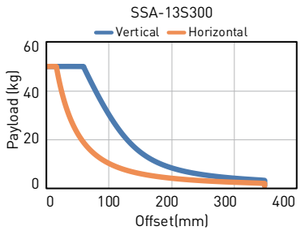
Acceleration-Payload Curve



Velocity-Stroke Curve



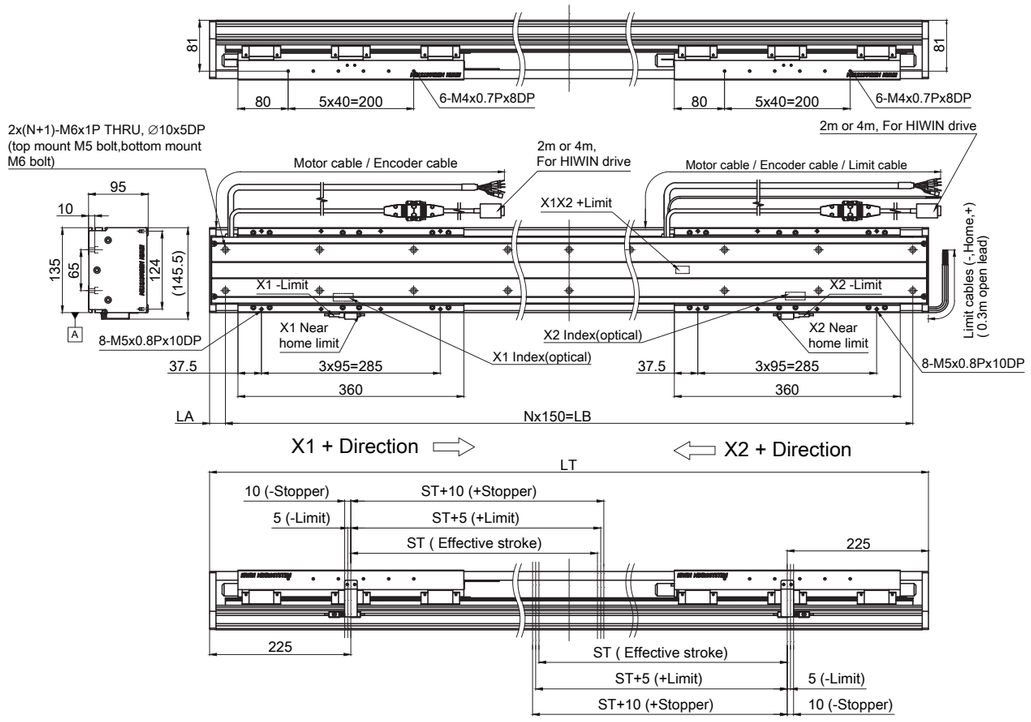
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-13 Series Dual Forcers

SSA-13S300 S cover | Stroke 100~2100



13S300-2-S																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900		
LT	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750		
N	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10	11	11		
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50		
LB	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500	1650	1650		
Weight (kg)	28.0	28.9	29.7	30.5	31.3	32.1	32.8	33.6	34.4	35.2	36.0	36.9	37.5	38.3	39.1	40.0	40.8		
Stroke (ST)	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	-		
LT	1800	1850	1900	1950	2000	2050	2100	2150	2250	2350	2450	2550	2650	2750	2850	2950	-		
N	11	12	12	12	13	13	13	14	14	15	16	16	17	18	18	19	-		
LA	75	25	50	75	25	50	75	25	75	50	25	75	50	25	75	50	-		
LB	1650	1800	1800	1800	1950	1950	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-		
Weight (kg)	41.6	42.2	43.1	43.9	44.7	45.5	46.3	47.0	48.6	50.2	51.7	53.3	55.0	56.4	58.1	59.7	-		

Model Description

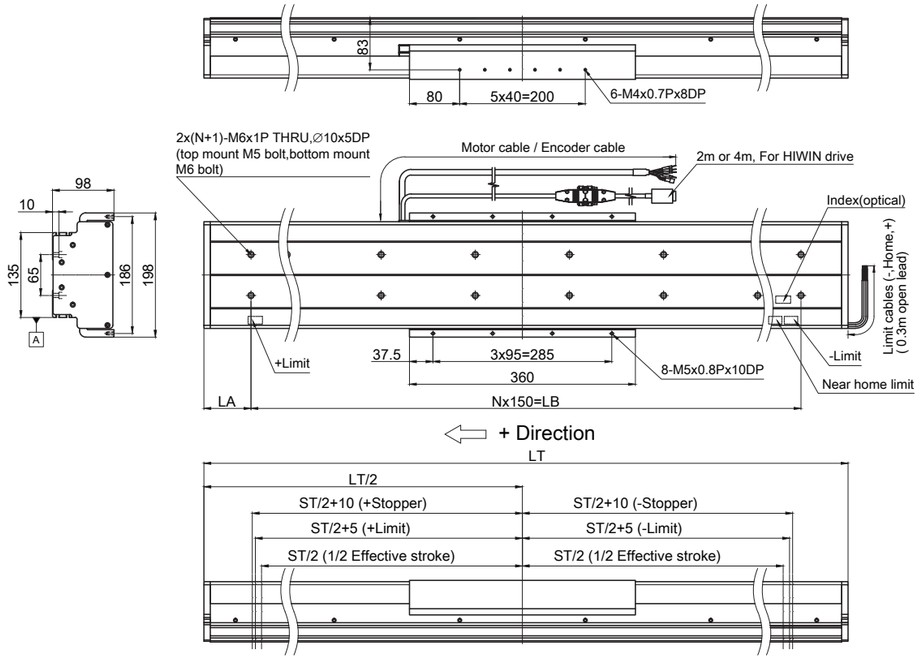
LMSSA-13S300-□-□□□□-□□.□□-S-B-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2500 : Single forcer
  - 100~2100 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

SSA-13 Series Single Forcer

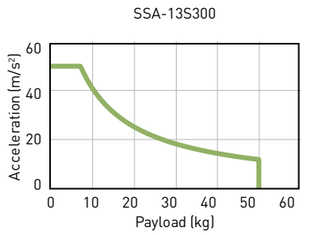
SSA-13S300
M cover

Stroke
100~2500

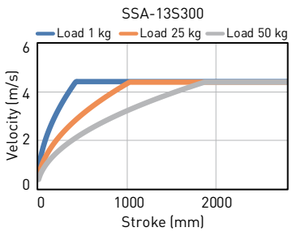


13S300-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
LT	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	
N	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	
LA	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	
LB	450	450	600	600	600	750	750	750	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	
Weight (kg)	18.7	19.6	20.4	21.3	22.1	22.9	23.6	24.5	25.3	26.1	27.0	27.8	28.5	29.3	30.2	31.0	31.8	32.7	33.4	
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-	
LT	1500	1550	1600	1650	1700	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-	
N	9	10	10	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	-	
LA	75	25	50	75	25	50	25	75	50	25	75	50	25	75	50	25	75	50	-	
LB	1350	1500	1500	1500	1650	1650	1800	1800	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-	
Weight (kg)	34.2	35.0	35.9	36.7	37.6	38.2	39.9	41.6	43.1	44.8	46.5	48.0	49.7	51.3	52.9	54.5	56.2	57.7	-	

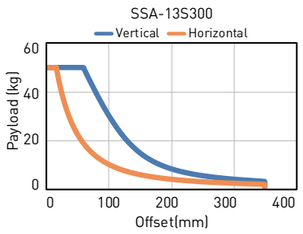
Acceleration-Payload Curve



Velocity-Stroke Curve



Offset Load Capacity Curve

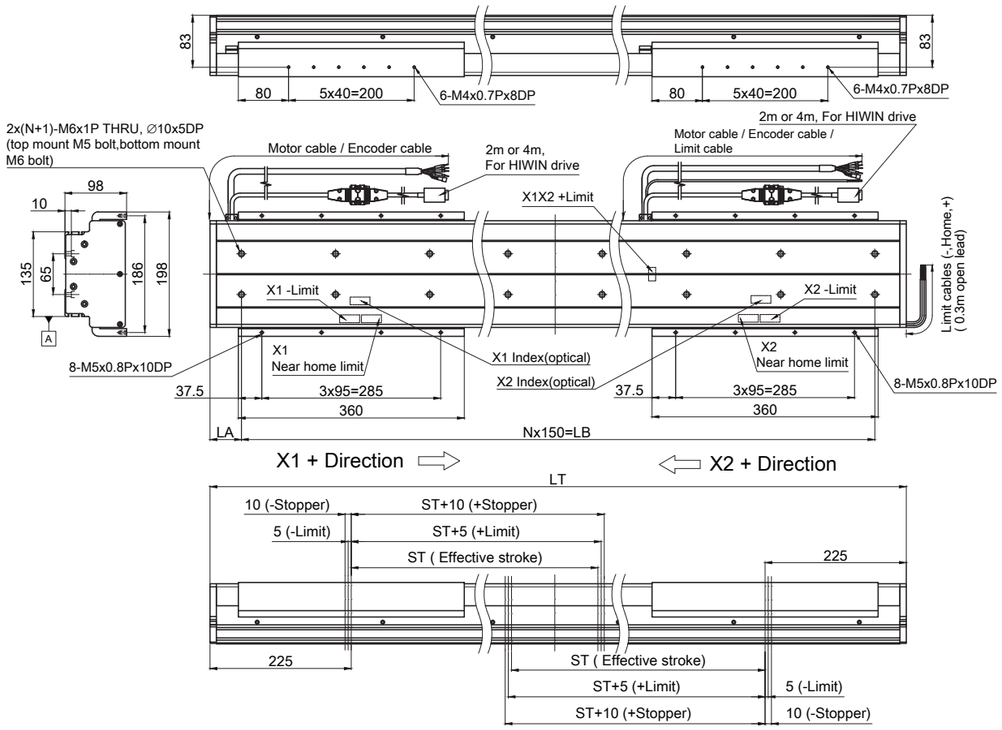


Note: Schematic of offset load please refer to P.12

SSA-13 Series Dual Forcers

SSA-13S300
M cover

Stroke
100~2100



13S300-2-M																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900		
LT	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750		
N	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10	11	11		
LA	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50		
LB	900	900	900	1050	1050	1050	1200	1200	1200	1350	1350	1350	1500	1500	1500	1650	1650		
Weight (kg)	31.7	32.5	33.3	34.2	35.0	35.9	36.5	37.4	38.2	39.1	39.9	40.7	41.4	42.2	43.1	43.9	44.8		
Stroke (ST)	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	-		
LT	1800	1850	1900	1950	2000	2050	2100	2150	2250	2350	2450	2550	2650	2750	2850	2950	-		
N	11	12	12	12	13	13	13	14	14	15	16	16	17	18	18	19	-		
LA	75	25	50	75	25	50	75	25	75	50	25	75	50	25	75	50	-		
LB	1650	1800	1800	1800	1950	1950	1950	2100	2100	2250	2400	2400	2550	2700	2700	2850	-		
Weight (kg)	45.6	46.3	47.1	48.0	48.8	49.6	50.5	51.2	52.8	54.5	56.0	57.7	59.4	60.9	62.6	64.3	-		

Model Description

LMSSA-13S300-□-□□□□-□□.□□-M-B-A0000

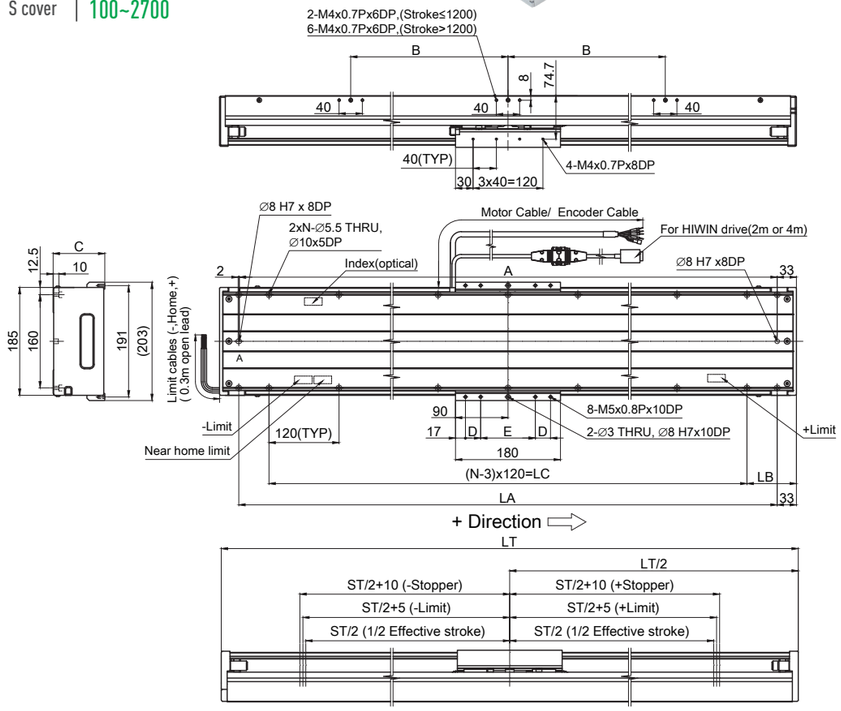
Number of forcers
1 : Single forcer
2 : Dual forcers

Stroke(mm)
100~2500 : Single forcer
100~2100 : Dual forcers

Cables
Please refer to page
5, 9, 11

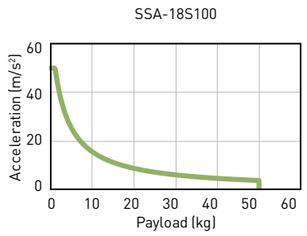
SSA-18 Series Single Forcer

SSA-18S100 S cover | Stroke 100~2700

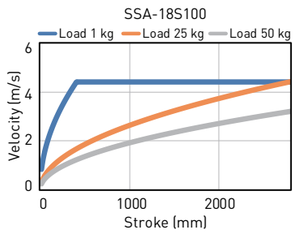


18S100-1-S																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
LT	390	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340
N	5	5	5	5	7	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13
LA	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274
LB	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70
LC	240	240	240	240	480	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200
A	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	88.7																			
D	26																			
E	94																			
Weight (kg)	10.0	10.8	12.0	12.9	13.8	14.7	15.6	16.5	17.4	18.3	19.2	20.1	21.0	21.9	22.8	23.7	24.6	25.5	26.4	27.3
Stroke (ST)	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	-
LT	1390	1440	1490	1540	1590	1690	1790	1890	1990	2090	2190	2290	2390	2490	2590	2690	2790	2890	2990	-
N	13	13	13	15	15	15	17	17	17	19	19	21	21	23	23	23	25	25	27	-
LA	1324	1374	1424	1474	1524	1624	1724	1824	1924	2024	2124	2224	2324	2424	2524	2624	2724	2824	2924	-
LB	95	120	145	50	75	125	55	105	155	85	135	65	115	45	95	145	75	125	55	-
LC	1200	1200	1200	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2400	2400	2400	2640	2640	2880	-
A	1323	1373	1423	1473	1523	1623	1723	1823	1923	2023	2123	2223	2323	2423	2523	2623	2723	2823	2923	-
B	-	-	-	360	360	360	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
C	88.7							108.7												-
D	26							50												-
E	94							46												-
Weight (kg)	28.2	29.1	30.0	30.9	31.8	33.6	35.4	38.4	40.2	42.0	43.8	45.6	47.4	49.2	51.0	52.7	54.5	56.3	58.1	-

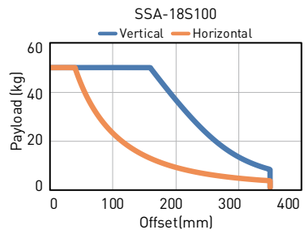
Acceleration-Payload Curve



Velocity-Stroke Curve



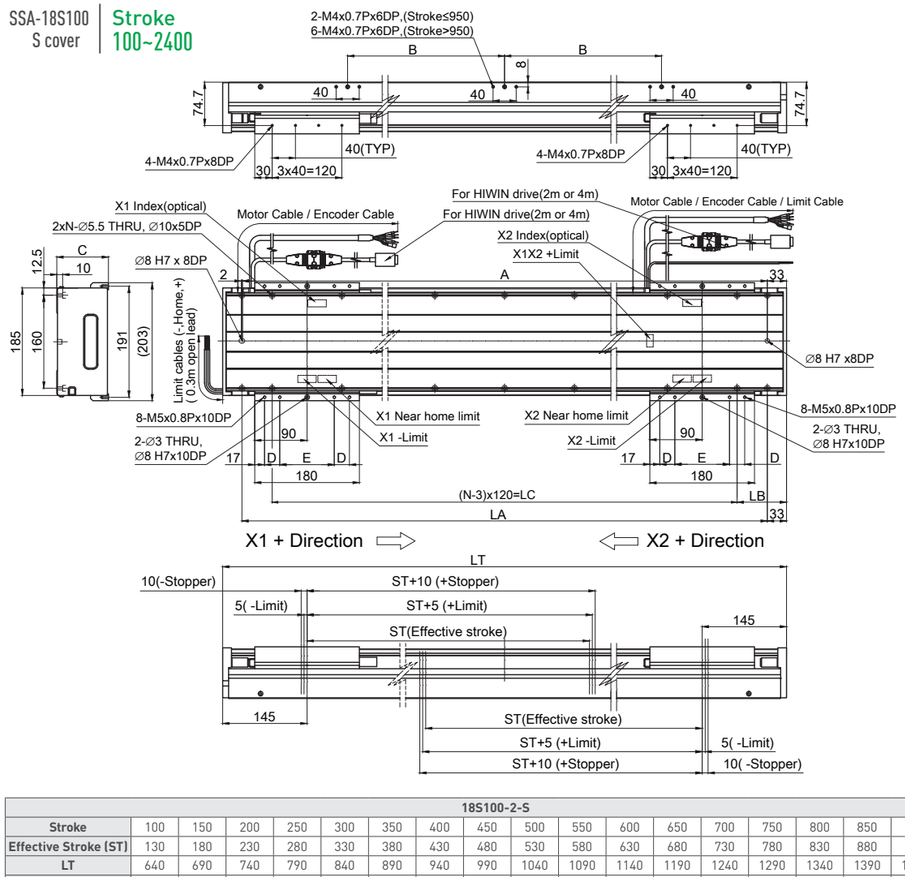
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18S100 S cover | Stroke 100~2400



18S100-2-S																		
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
Effective Stroke (ST)	130	180	230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980
LT	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490
N	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13	13	13	13
LA	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274	1324	1374	1424
LB	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145
LC	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200	1200	1200	1200
A	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273	1323	1373	1423
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	88.7																	
D	26																	
E	94																	
Weight (kg)	17.6	18.5	19.4	20.3	21.2	22.1	23.0	23.9	24.8	25.7	26.6	27.5	28.4	29.3	30.2	31.1	32.0	32.9
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Effective Stroke (ST)	1030	1080	1130	1180	1230	1280	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430
LT	1540	1590	1640	1690	1740	1790	1840	1940	2040	2140	2240	2340	2440	2540	2640	2740	2840	2940
N	15	15	15	15	15	17	17	17	19	19	19	21	23	23	23	25	25	25
LA	1474	1524	1574	1624	1674	1724	1774	1874	1974	2074	2174	2274	2374	2474	2574	2674	2774	2874
LB	50	75	100	125	150	55	80	130	60	110	160	90	20	70	120	50	100	150
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	1920	2160	2400	2400	2400	2640	2640	2640
A	1473	1523	1573	1623	1673	1723	1773	1873	1973	2073	2173	2273	2373	2473	2573	2673	2773	2873
B	360	360	360	360	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
C	88.7						108.7											
D	26						50											
E	94						46											
Weight (kg)	33.8	34.7	35.6	36.5	37.4	38.3	41.6	43.4	45.2	47.0	48.8	50.6	52.4	54.2	55.9	57.7	59.5	61.3

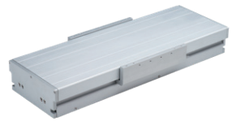
Model Description

LMSSA-18S100-□-□□□□-□□.□□-S-S-A0000

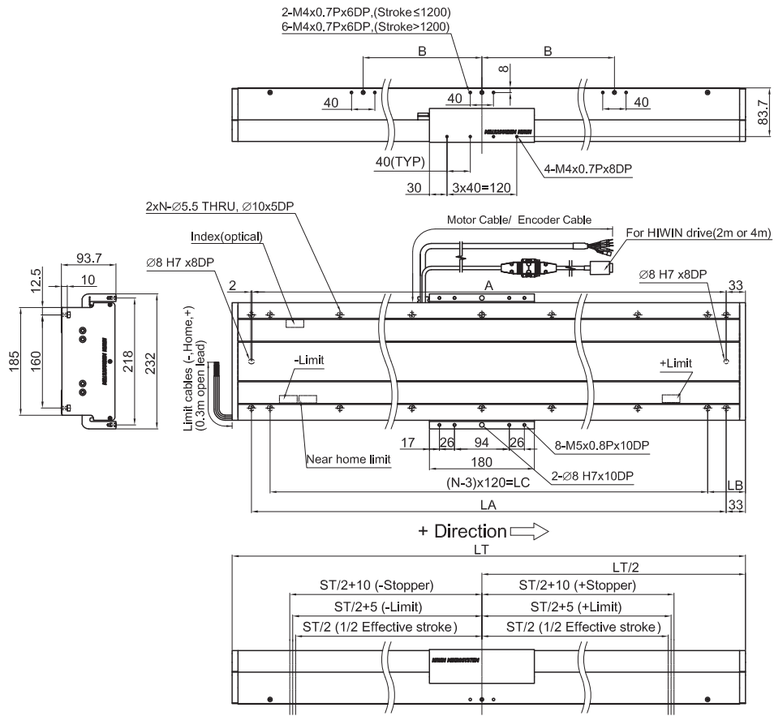
- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2700 : Single forcer
  - 100~2400 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

18 Series

SSA-18 Series Single Forcer

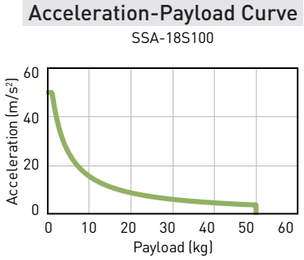


SSA-18S100 M cover | Stroke 100~2700

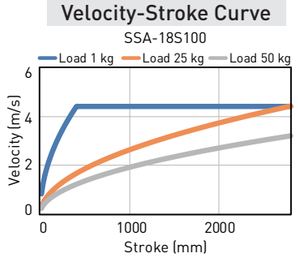


18S100-1-M																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
LT	390	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340
N	5	5	5	5	7	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13
LA	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274
LB	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70
LC	240	240	240	240	480	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200
A	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	11.1	11.9	13.2	14.1	15.0	16.0	16.9	17.8	18.7	19.7	20.6	21.5	22.5	23.4	24.3	25.3	26.2	27.1	28.1	29.0
Stroke (ST)	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	-
LT	1390	1440	1490	1540	1590	1690	1790	1890	1990	2090	2190	2290	2390	2490	2590	2690	2790	2890	2990	-
N	13	13	13	15	15	15	17	17	17	19	19	21	21	23	23	23	25	25	27	-
LA	1324	1374	1424	1474	1524	1624	1724	1824	1924	2024	2124	2224	2324	2424	2524	2624	2724	2824	2924	-
LB	95	120	145	50	75	125	55	105	155	85	135	65	115	45	95	145	75	125	55	-
LC	1200	1200	1200	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2400	2400	2400	2640	2640	2880	-
A	1323	1373	1423	1473	1523	1623	1723	1823	1923	2023	2123	2223	2323	2423	2523	2623	2723	2823	2923	-
B	-	-	-	360	360	360	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
Weight (kg)	29.9	30.8	31.8	32.7	33.6	35.5	37.4	39.4	41.3	43.1	45.0	46.9	48.7	50.6	52.4	54.3	56.2	58.0	59.9	-

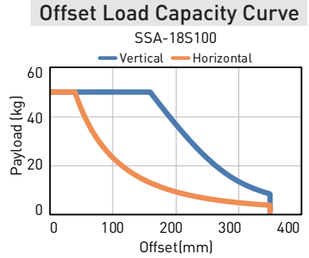
Acceleration-Payload Curve



Velocity-Stroke Curve



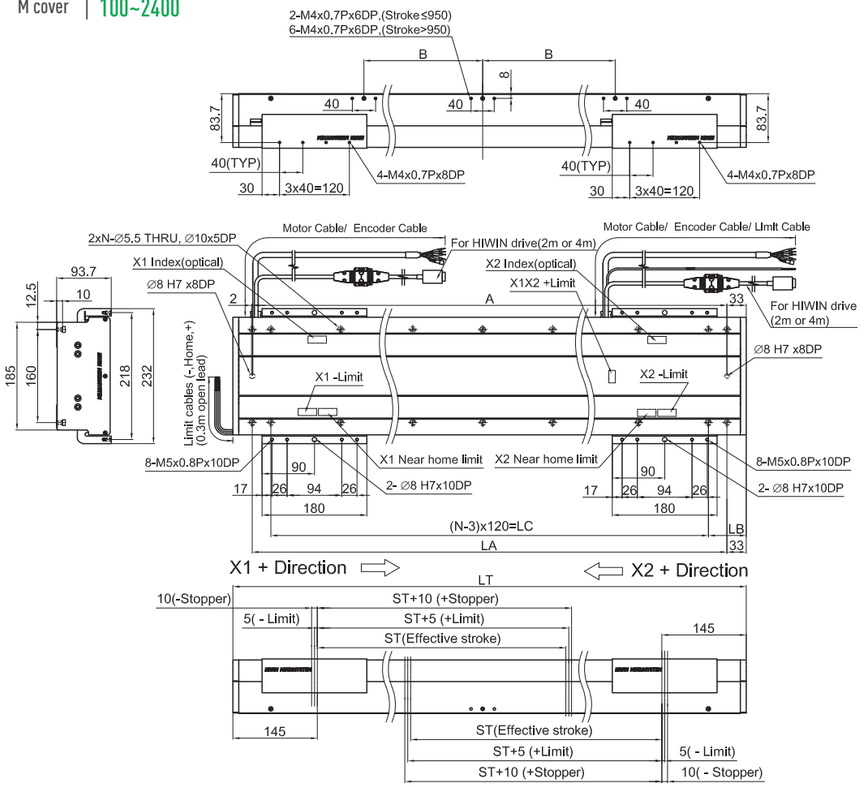
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18S100 M cover | Stroke 100~2400



18S100-2-M																				
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950		
Effective Stroke (ST)	130	180	230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980		
LT	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490		
N	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13	13	13	13		
LA	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274	1324	1374	1424		
LB	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145		
LC	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200	1200	1200	1200		
A	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273	1323	1373	1423		
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Weight (kg)	19.8	20.7	21.7	22.6	23.5	24.5	25.4	26.3	27.3	28.2	29.1	30.0	31.0	31.9	32.8	33.8	34.7	35.6		
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400		
Effective Stroke (ST)	1030	1080	1130	1180	1230	1280	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430		
LT	1540	1590	1640	1690	1740	1790	1840	1940	2040	2140	2240	2340	2440	2540	2640	2740	2840	2940		
N	15	15	15	15	15	17	17	17	19	19	19	21	23	23	23	25	25	25		
LA	1474	1524	1574	1624	1674	1724	1774	1874	1974	2074	2174	2274	2374	2474	2574	2674	2774	2874		
LB	50	75	100	125	150	55	80	130	60	110	160	90	20	70	120	50	100	150		
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	1920	2160	2400	2400	2400	2640	2640	2640		
A	1473	1523	1573	1623	1673	1723	1773	1873	1973	2073	2173	2273	2373	2473	2573	2673	2773	2873		
B	360	360	360	360	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080		
Weight (kg)	36.6	37.5	38.4	39.3	40.3	41.2	42.1	44.0	45.9	47.7	49.6	51.5	53.3	55.2	57.0	58.9	60.8	62.6		

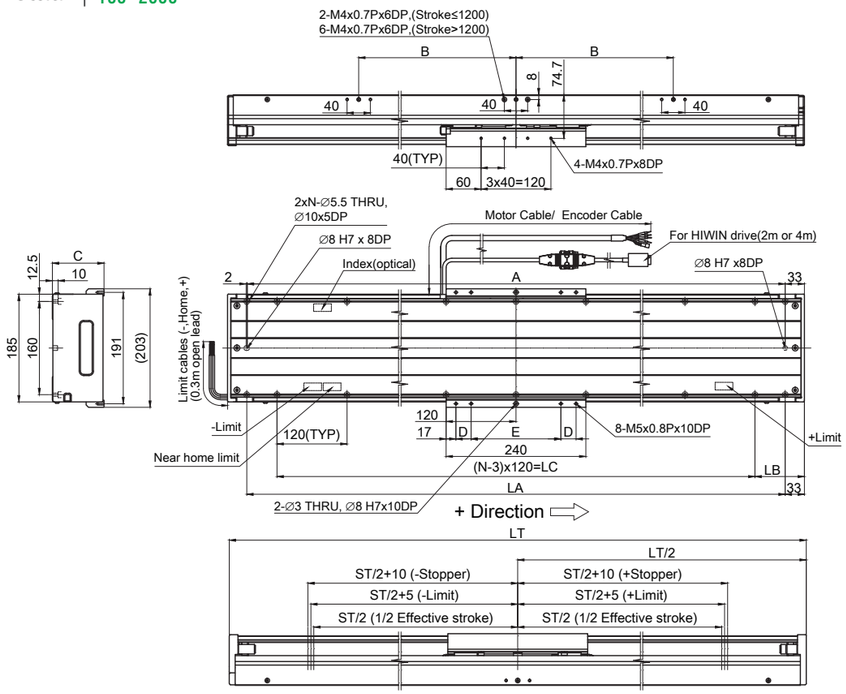
Model Description

LMSSA-18S100-□-□□□□-□□.□□-M-S-A0000

- Cables: Please refer to page 5, 9, 11
- Stroke(mm): 100~2700 : Single forcer; 100~2400 : Dual forcers
- Number of forcers: 1 : Single forcer; 2 : Dual forcers

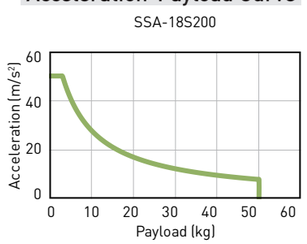
SSA-18 Series Single Forcer

SSA-18S200 S cover | Stroke 100~2600

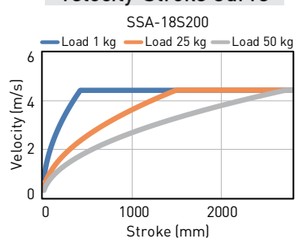


18S200-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	5	5	5	7	7	7	7	7	9	9	9	11	11	11	11	11	11	13	13
LA	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284
LB	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	75
LC	240	240	240	480	480	480	480	480	720	720	720	960	960	960	960	960	960	1200	1200
A	383	433	483	533	583	633	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	88.7																		
D	26																		
E	154																		
Weight (kg)	12.2	13.1	14.2	15.1	16.0	17.0	17.9	18.8	19.7	20.6	21.5	22.4	23.3	24.3	25.2	26.1	27.0	27.9	28.8
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	13	13	13	15	15	15	15	17	17	19	19	21	21	21	23	23	25	25	25
LA	1334	1384	1434	1484	1534	1584	1684	1784	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884
LB	100	125	150	55	80	105	155	85	135	65	115	45	95	145	75	125	55	105	155
LC	1200	1200	1200	1440	1440	1440	1440	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640
A	1333	1383	1433	1483	1533	1583	1683	1783	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883
B	-	-	-	-	360	360	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
C	88.7								108.7										
D	26								50.0										
E	154								106.0										
Weight (kg)	29.7	30.6	31.6	32.5	33.4	34.3	36.1	37.9	41.8	43.6	45.4	47.2	49.1	50.9	52.7	54.5	56.4	58.2	60.0

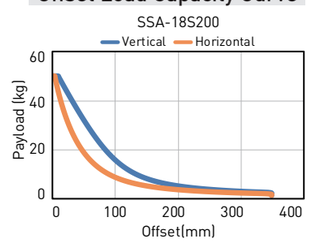
Acceleration-Payload Curve



Velocity-Stroke Curve



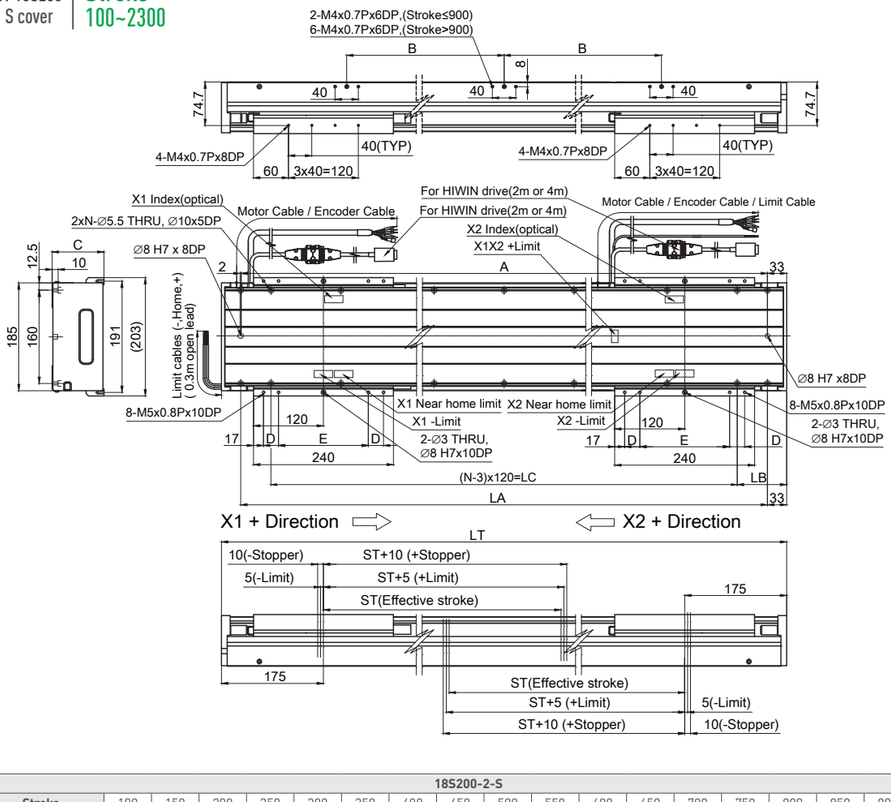
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18S200 S cover | Stroke 100~2300



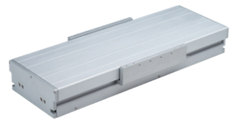
18S200-2-S																			
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	
Effective Stroke (ST)	120	170	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	
N	7	7	9	9	9	11	11	11	11	11	11	13	13	13	13	13	15	15	
LA	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534	
LB	135	160	65	90	115	20	45	70	95	120	145	50	75	100	125	150	55	80	
LC	480	480	720	720	720	960	960	960	960	960	960	1200	1200	1200	1200	1200	1440	1440	
A	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283	1333	1383	1433	1483	1533	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	
C	88.7																		
D	26																		
E	154																		
Weight (kg)	22.0	22.9	23.8	24.7	25.6	26.5	27.4	28.3	29.2	30.1	31.1	32.0	32.9	33.8	34.7	35.6	36.5	37.4	
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-	
Effective Stroke (ST)	1020	1070	1120	1170	1220	1270	1320	1420	1520	1620	1720	1820	1920	2020	2120	2220	2320	-	
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-	
N	15	15	15	15	17	17	17	19	19	21	21	21	23	23	25	25	25	-	
LA	1584	1634	1684	1734	1784	1834	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884	-	
LB	105	130	155	60	85	110	135	65	115	45	95	145	75	125	55	105	155	-	
LC	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640	-	
A	1583	1633	1683	1733	1783	1833	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883	-	
B	360	600	600	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	-	
C	88.7					108.7												-	
D	26					50.0												-	
E	154					50.0												-	
Weight (kg)	38.3	39.3	40.2	41.1	42.0	47.0	47.9	49.7	51.5	53.3	55.2	57.0	58.8	60.6	62.5	64.3	66.1	-	

Model Description

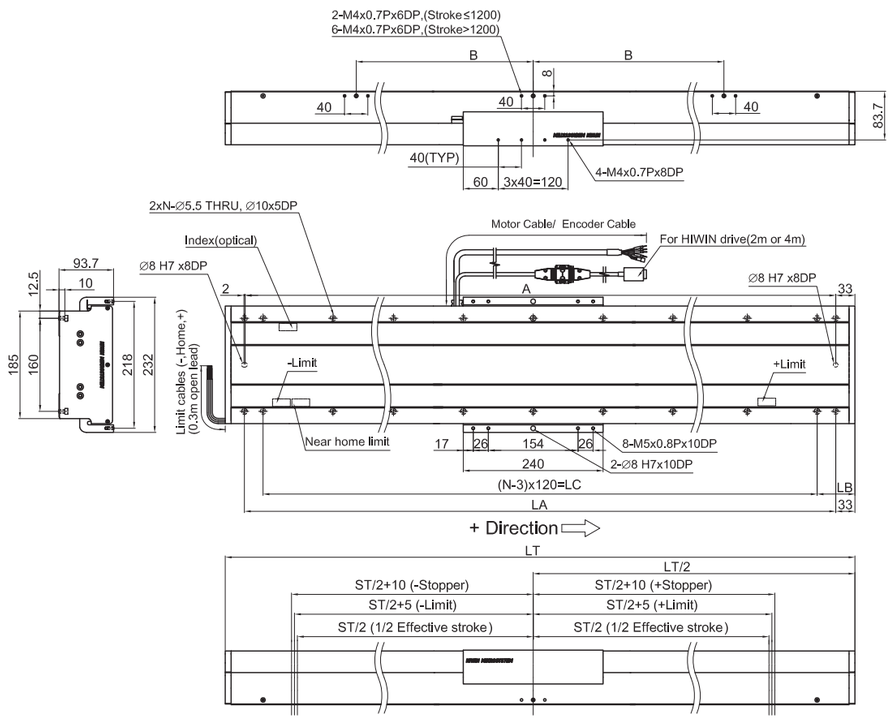
LMSSA-18S200-□-□□□□-□□.□□-S-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2600 : Single forcer
  - 100~2300 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

SSA-18 Series Single Forcer

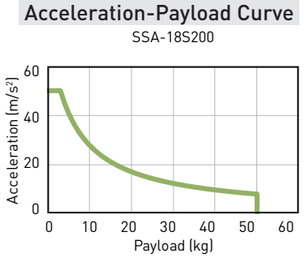


SSA-18S200 M cover | Stroke 100~2600

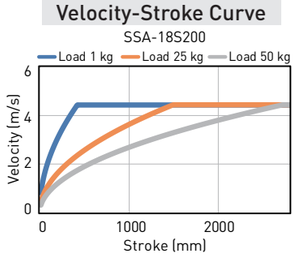


18S200-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	5	5	5	7	7	7	7	7	9	9	9	11	11	11	11	11	11	13	13
LA	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284
LB	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	75
LC	240	240	240	480	480	480	480	480	720	720	720	960	960	960	960	960	960	1200	1200
A	383	433	483	533	583	633	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	13.7	14.6	15.7	16.7	17.6	18.6	19.5	20.5	21.4	22.4	23.3	24.2	25.2	26.1	27.1	28.0	29.0	29.9	30.8
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	13	13	13	15	15	15	15	17	17	19	19	21	21	21	23	23	25	25	25
LA	1334	1384	1434	1484	1534	1584	1684	1784	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884
LB	100	125	150	55	80	105	155	85	135	65	115	45	95	145	75	125	55	105	155
LC	1200	1200	1200	1440	1440	1440	1440	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640
A	1333	1383	1433	1483	1533	1583	1683	1783	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883
B	-	-	-	-	360	360	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
Weight (kg)	31.8	32.7	33.7	34.6	35.6	36.5	38.4	40.3	42.2	44.1	46.0	47.8	49.7	51.6	53.5	55.4	57.3	59.2	61.1

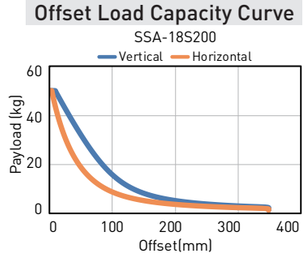
Acceleration-Payload Curve



Velocity-Stroke Curve



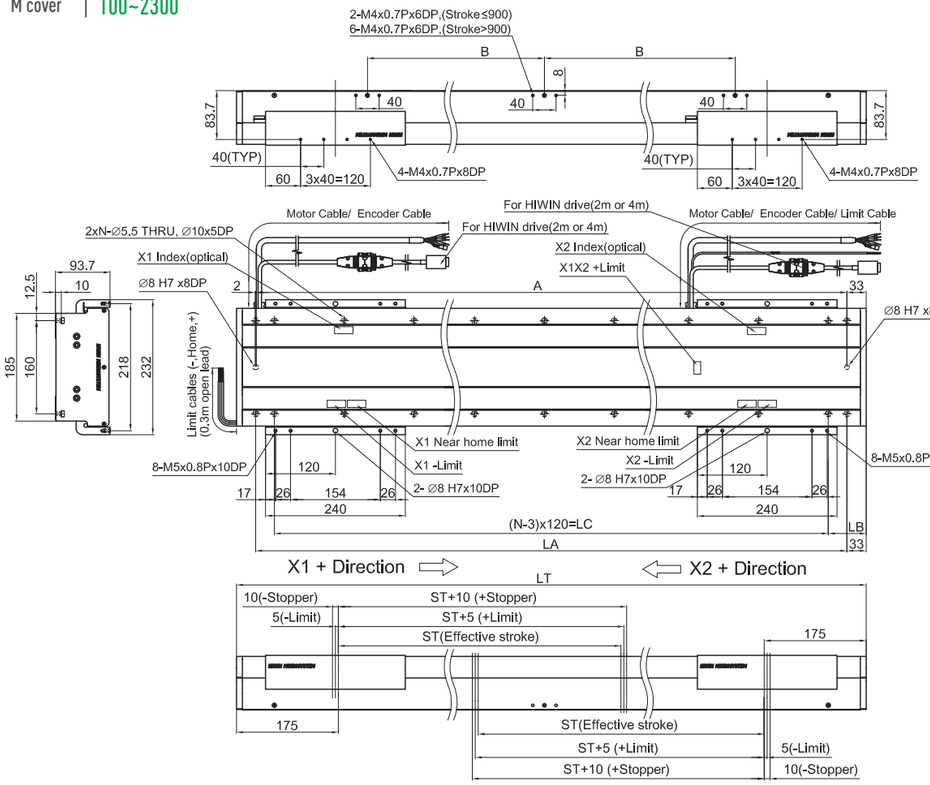
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18S200 M cover | Stroke 100~2300



18S200-2-M																			
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
Effective Stroke (ST)	120	170	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600
N	7	7	9	9	9	11	11	11	11	11	11	13	13	13	13	13	15	15
LA	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534
LB	135	160	65	90	115	20	45	70	95	120	145	50	75	100	125	150	55	80
LC	480	480	720	720	720	960	960	960	960	960	960	1200	1200	1200	1200	1200	1440	1440
A	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283	1333	1383	1433	1483	1533
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360
Weight (kg)	24.9	25.8	26.8	27.7	28.7	29.6	30.5	31.5	32.4	33.4	34.3	35.3	36.2	37.2	38.1	39.0	40.0	40.9
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-
Effective Stroke (ST)	1020	1070	1120	1170	1220	1270	1320	1420	1520	1620	1720	1820	1920	2020	2120	2220	2320	-
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-
N	15	15	15	15	17	17	17	19	19	21	21	21	23	23	25	25	25	-
LA	1584	1634	1684	1734	1784	1834	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884	-
LB	105	130	155	60	85	110	135	65	115	45	95	145	75	125	55	105	155	-
LC	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640	-
A	1583	1633	1683	1733	1783	1833	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883	-
B	360	600	600	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	-
Weight (kg)	41.9	42.8	43.8	44.7	45.6	46.6	47.5	49.4	51.3	53.2	55.0	56.9	58.8	60.7	62.6	64.4	66.3	-

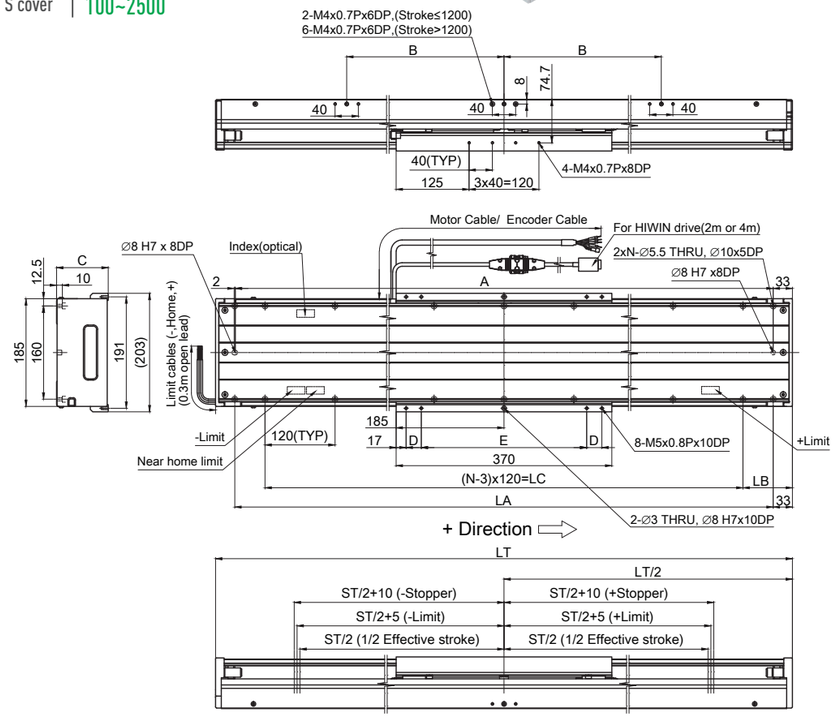
Model Description

LMSSA-18S200-□-□□□□-□□.□□-M-S-A0000

- Cables: Please refer to page 5, 9, 11
- Number of forcers: 1 : Single forcer; 2 : Dual forcers
- Stroke(mm): 100~2600 : Single forcer; 100~2300 : Dual forcers

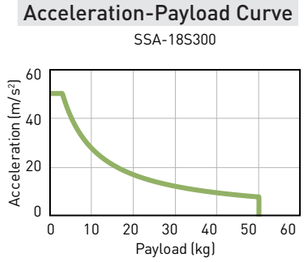
SSA-18 Series Single Forcer

SSA-18S300 S cover | Stroke 100~2500

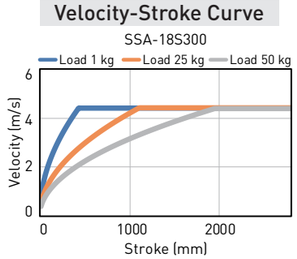


18S300-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	88.7																		
D	26																		
E	284																		
Weight (kg)	16.0	17.2	18.4	19.5	20.7	21.8	23.0	24.2	25.3	26.5	27.6	28.8	30.0	31.1	32.3	33.4	34.6	35.8	36.9
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880	-
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
C	88.7								108.7										
D	26								50.0										
E	284								236										
Weight (kg)	38.1	39.2	40.4	41.6	42.7	43.9	46.2	48.5	53.8	56.2	58.5	60.8	63.1	65.4	67.8	70.1	72.4	74.7	-

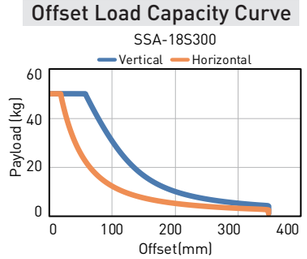
Acceleration-Payload Curve



Velocity-Stroke Curve



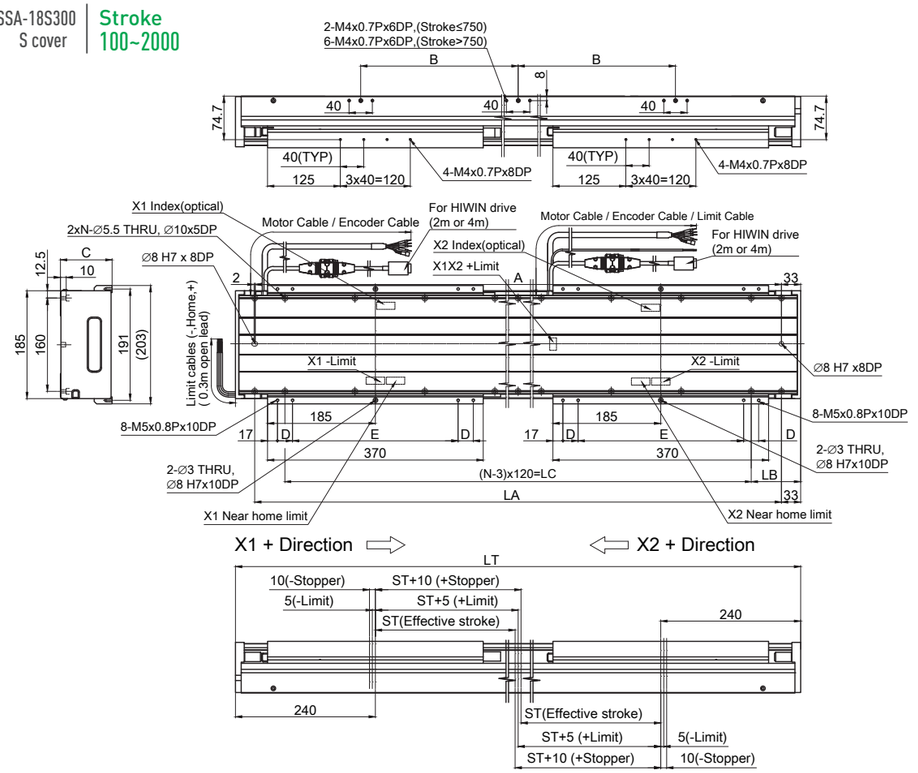
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18S300 S cover | Stroke 100~2000



18S300-2-S																
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600
C	88.7															
D	26															
E	284															
Weight (kg)	32.2	33.3	34.5	35.6	36.8	38.0	39.1	40.3	41.4	42.6	43.8	44.9	46.1	47.2	48.4	49.6
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000
Effective Stroke (ST)	940	990	1040	1080	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040
LT	1830	1880	1930	1590	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930
N	17	17	17	15	19	19	19	19	19	21	21	23	23	25	25	25
LA	1764	1814	1864	1524	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864
LB	75	100	125	75	55	80	105	130	155	85	135	65	115	45	95	145
LC	1680	1680	1680	1440	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640
A	1763	1813	1863	1523	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863
B	600	600	600	360	600	600	600	840	840	840	840	840	840	1080	1080	1080
C	88.7						108.7									
D	26						50									
E	284						236									
Weight (kg)	50.7	51.9	53.0	54.2	61.4	62.5	63.7	64.8	66.0	68.3	70.6	73.0	75.3	77.6	79.9	82.2

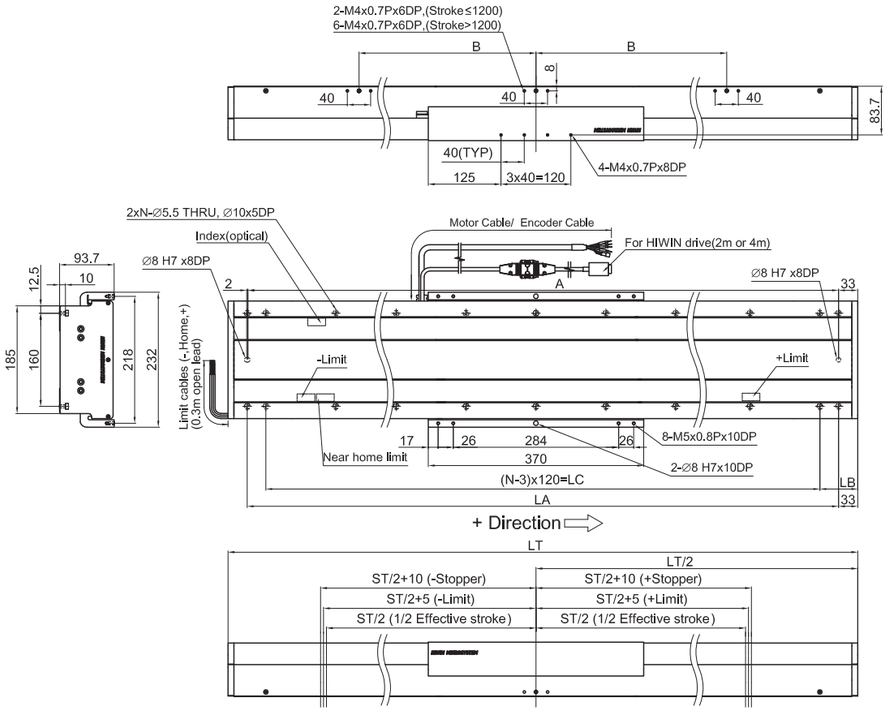
Model Description

LMSSA-18S300-□-□□□□-□□.□□-S-S-A0000

- Cables: Please refer to page 5, 9, 11
- Stroke(mm): 100~2500 : Single forcer; 100~2000 : Dual forcers
- Number of forcers: 1 : Single forcer; 2 : Dual forcers

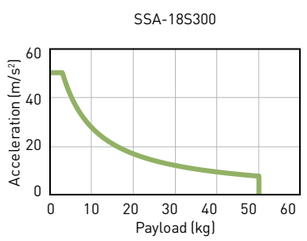
SSA-18 Series Single Forcer

SSA-18S300 M cover | Stroke 100~2500

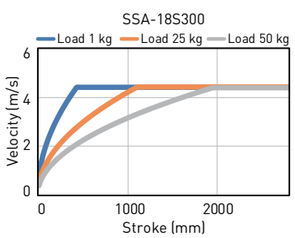


18S300-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	18.3	19.5	20.7	21.9	23.1	24.2	25.4	26.6	27.8	29.0	30.2	31.4	32.6	33.8	35.0	36.2	37.4	38.5	39.7
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880	-
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
Weight (kg)	40.9	42.1	43.3	44.5	45.7	46.9	49.3	51.7	54.0	56.4	58.8	61.2	63.6	66.0	68.3	70.7	73.1	75.5	-

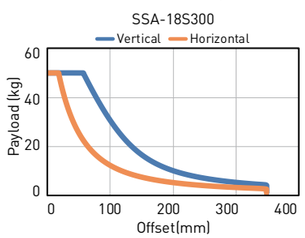
Acceleration-Payload Curve



Velocity-Stroke Curve



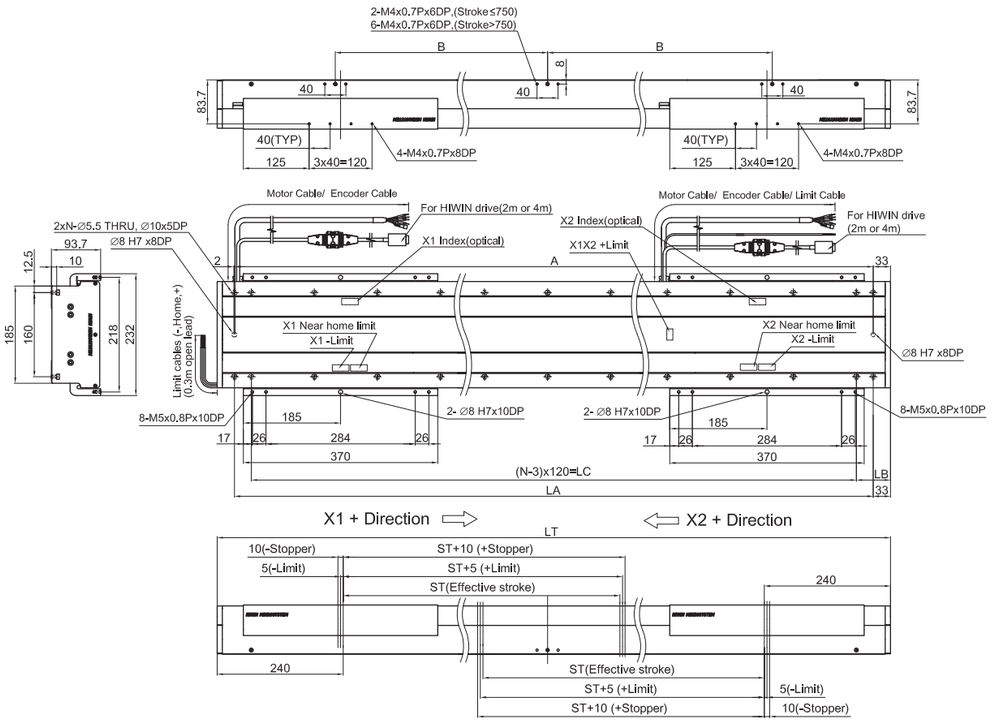
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18S300 M cover | Stroke 100~2000



18S300-2-M																
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600
Weight (kg)	36.7	37.9	39.1	40.3	41.5	42.7	43.9	45.1	46.2	47.4	48.6	49.8	51.0	52.2	53.4	54.6
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000
Effective Stroke (ST)	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040
LT	1830	1880	1930	1980	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930
N	17	17	17	17	19	19	19	19	19	21	21	23	23	25	25	25
LA	1764	1814	1864	1914	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864
LB	75	100	125	150	55	80	105	130	155	85	135	65	115	45	95	145
LC	1680	1680	1680	1680	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640
A	1763	1813	1863	1913	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863
B	600	600	600	600	600	600	600	840	840	840	840	840	840	1080	1080	1080
Weight (kg)	55.8	57.0	58.2	59.4	60.5	61.7	62.9	64.1	65.3	67.7	70.1	72.5	74.8	77.2	79.6	82.0

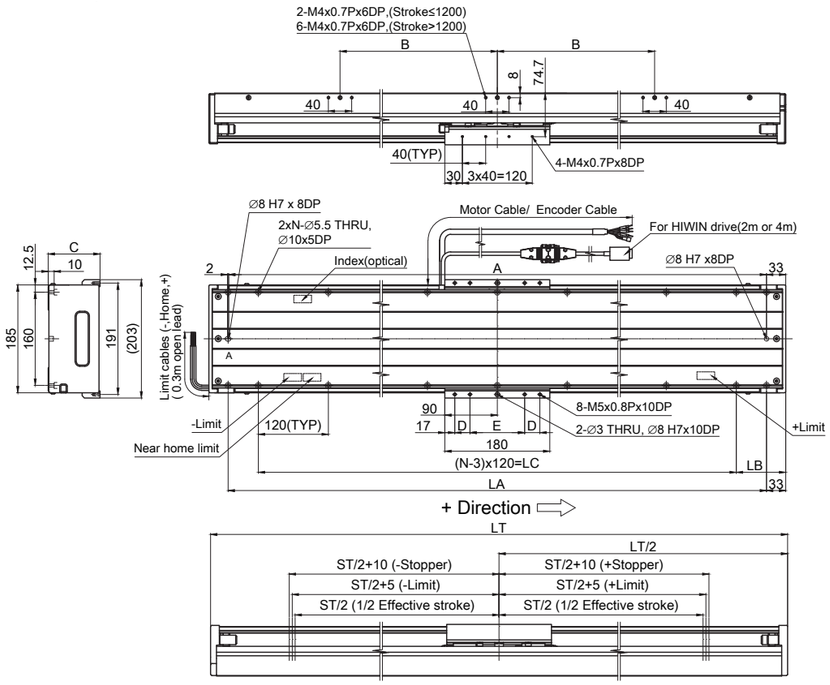
Model Description

LMSSA-18S300-□-□□□□-□□.□□-M-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2500 : Single forcer
  - 100~2000 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

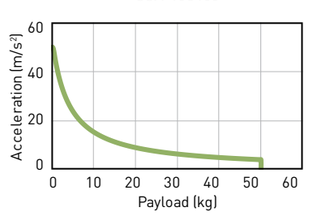
SSA-18 Series Single Forcer

SSA-18C100 S cover | Stroke 100~2700

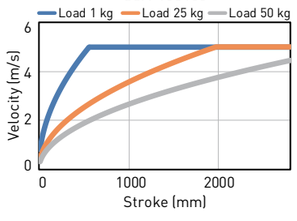


18C100-1-S																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
LT	390	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340
N	5	5	5	5	7	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13
LA	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274
LB	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70
LC	240	240	240	240	480	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200
A	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	88.7																			
D	26																			
E	94																			
Weight (kg)	13.5	14.5	15.9	17.0	18.1	19.2	20.3	21.4	22.5	23.7	24.8	25.9	27.0	28.1	29.2	30.3	31.4	32.6	33.7	34.8
Stroke (ST)	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	-
LT	1390	1440	1490	1540	1590	1690	1790	1890	1990	2090	2190	2290	2390	2490	2590	2690	2790	2890	2990	-
N	13	13	13	15	15	15	17	17	17	19	19	21	21	23	23	23	25	25	27	-
LA	1324	1374	1424	1474	1524	1624	1724	1824	1924	2024	2124	2224	2324	2424	2524	2624	2724	2824	2924	-
LB	95	120	145	50	75	125	55	105	155	85	135	65	115	45	95	145	75	125	55	-
LC	1200	1200	1200	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2400	2400	2400	2640	2640	2880	-
A	1323	1373	1423	1473	1523	1623	1723	1823	1923	2023	2123	2223	2323	2423	2523	2623	2723	2823	2923	-
B	-	-	-	360	360	360	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
C	88.7							108.7												-
D	26							50.0												-
E	94							46.0												-
Weight (kg)	35.9	37.0	38.1	39.2	40.3	42.6	44.8	48.2	50.4	52.7	54.9	57.1	59.3	61.5	63.8	66.0	68.2	70.4	72.7	-

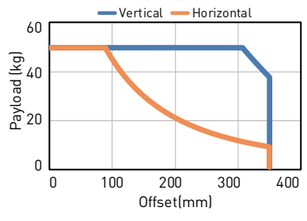
Acceleration-Payload Curve



Velocity-Stroke Curve



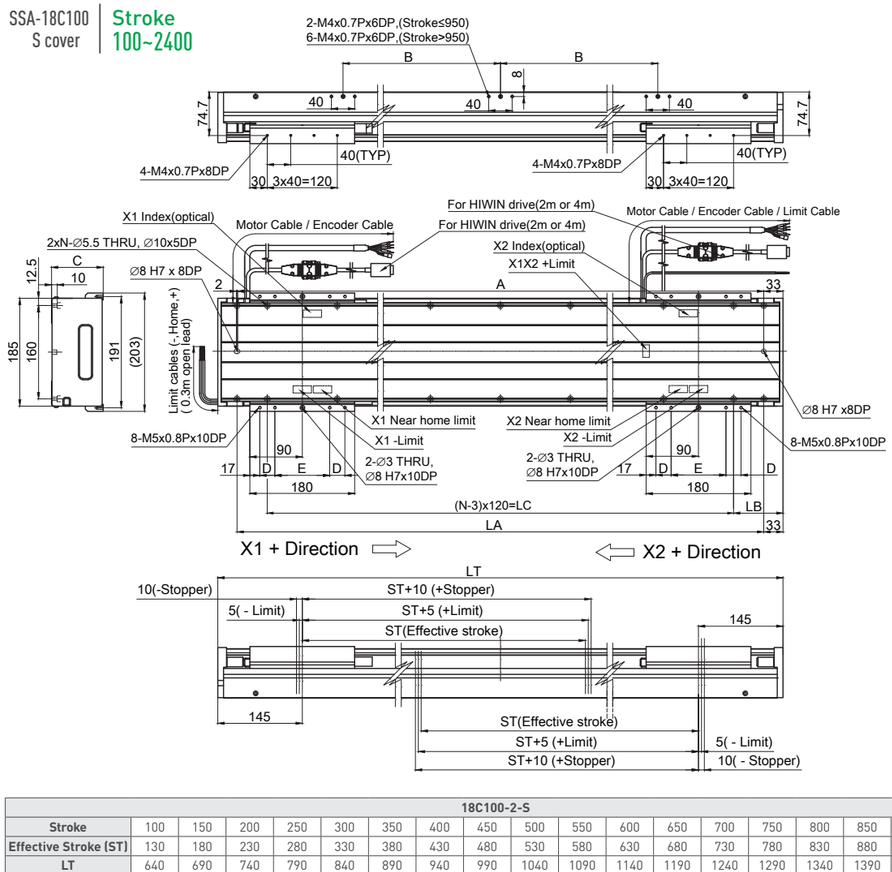
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18C100 S cover | Stroke 100~2400



18C100-2-S																			
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
Effective Stroke (ST)	130	180	230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980
LT	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490
N	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13	13	13	13
LA	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274	1324	1374	1424
LB	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145
LC	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200	1200	1200	1200
A	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273	1323	1373	1423
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	88.7																	
D	26																	
E	94																	
Weight (kg)	21.9	23.0	24.1	25.2	26.3	27.5	28.6	29.7	30.8	31.9	33.0	34.1	35.2	36.3	37.5	38.6	39.7	40.8
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Effective Stroke (ST)	1030	1080	1130	1180	1230	1280	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430
LT	1540	1590	1640	1690	1740	1790	1840	1940	2040	2140	2240	2340	2440	2540	2640	2740	2840	2940
N	15	15	15	15	15	17	17	17	19	19	19	21	23	23	23	25	25	25
LA	1474	1524	1574	1624	1674	1724	1774	1874	1974	2074	2174	2274	2374	2474	2574	2674	2774	2874
LB	50	75	100	125	150	55	80	130	60	110	160	90	20	70	120	50	100	150
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	1920	2160	2400	2400	2400	2640	2640	2640
A	1473	1523	1573	1623	1673	1723	1773	1873	1973	2073	2173	2273	2373	2473	2573	2673	2773	2873
B	360	360	360	360	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
C	88.7						108.7											
D	26						50.0											
E	94						46.0											
Weight (kg)	41.9	43.0	44.1	45.2	46.3	47.5	51.0	53.2	55.4	57.6	59.9	62.1	64.3	66.5	68.8	71.0	73.2	75.4

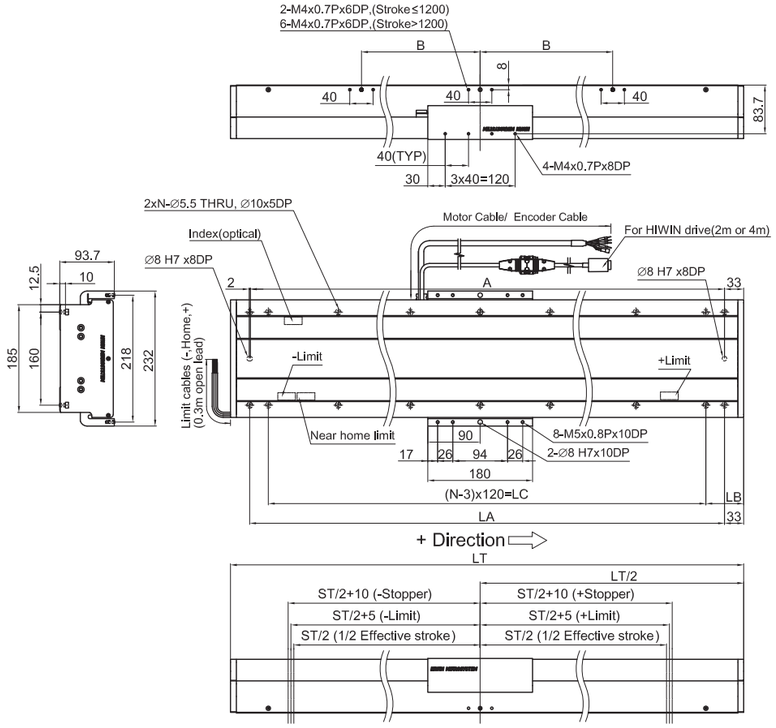
Model Description

LMSSA-18C100-□-□□□□-□□.□□-S-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2700 : Single forcer
  - 100~2400 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

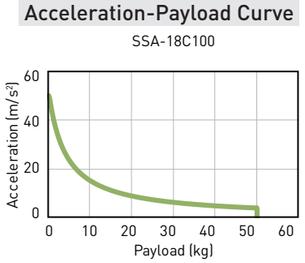
SSA-18 Series Single Forcer

SSA-18C100 M cover | Stroke 100~2700

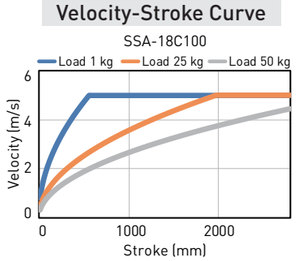


18C100-1-M																					
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
LT	390	440	490	540	590	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340
N	5	5	5	5	7	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13
LA	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274
LB	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70
LC	240	240	240	240	480	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200
A	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	14.6	15.7	17.0	18.2	19.3	20.5	21.6	22.8	23.9	25.0	26.2	27.3	28.5	29.6	30.8	31.9	33.0	34.2	35.3	36.5
Stroke (ST)	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	-
LT	1390	1440	1490	1540	1590	1690	1790	1890	1990	2090	2190	2290	2390	2490	2590	2690	2790	2890	2990	-
N	13	13	13	15	15	15	17	17	17	19	19	21	21	23	23	23	25	25	27	-
LA	1324	1374	1424	1474	1524	1624	1724	1824	1924	2024	2124	2224	2324	2424	2524	2624	2724	2824	2924	-
LB	95	120	145	50	75	125	55	105	155	85	135	65	115	45	95	145	75	125	55	-
LC	1200	1200	1200	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2400	2400	2400	2640	2640	2880	-
A	1323	1373	1423	1473	1523	1623	1723	1823	1923	2023	2123	2223	2323	2423	2523	2623	2723	2823	2923	-
B	-	-	-	360	360	360	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
Weight (kg)	37.6	38.8	39.9	41.0	42.2	44.5	46.8	49.3	51.5	53.8	56.1	58.4	60.7	63.0	65.3	67.5	69.8	72.1	74.4	-

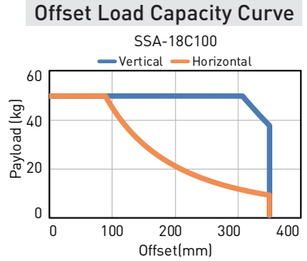
Acceleration-Payload Curve



Velocity-Stroke Curve



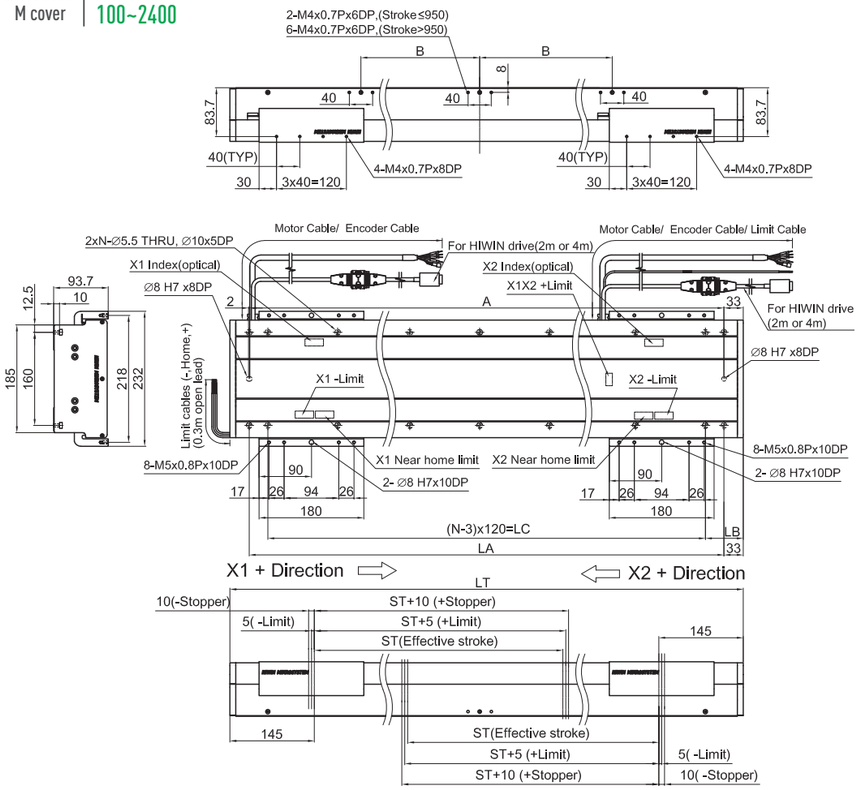
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18C100 M cover | Stroke 100~2400



18C100-2-M																			
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	
Effective Stroke (ST)	130	180	230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980	
LT	640	690	740	790	840	890	940	990	1040	1090	1140	1190	1240	1290	1340	1390	1440	1490	
N	7	7	7	7	9	9	9	9	9	11	11	11	13	13	13	13	13	13	
LA	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274	1324	1374	1424	
LB	80	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	
LC	480	480	480	480	720	720	720	720	720	960	960	960	1200	1200	1200	1200	1200	1200	
A	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273	1323	1373	1423	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Weight (kg)	24.1	25.3	26.4	27.6	28.7	29.8	31.0	32.1	33.3	34.4	35.6	36.7	37.8	39.0	40.1	41.3	42.4	43.6	
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	
Effective Stroke (ST)	1030	1080	1130	1180	1230	1280	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430	
LT	1540	1590	1640	1690	1740	1790	1840	1940	2040	2140	2240	2340	2440	2540	2640	2740	2840	2940	
N	15	15	15	15	15	17	17	17	19	19	19	21	23	23	23	25	25	25	
LA	1474	1524	1574	1624	1674	1724	1774	1874	1974	2074	2174	2274	2374	2474	2574	2674	2774	2874	
LB	50	75	100	125	150	55	80	130	60	110	160	90	20	70	120	50	100	150	
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	1920	2160	2400	2400	2400	2640	2640	2640	
A	1473	1523	1573	1623	1673	1723	1773	1873	1973	2073	2173	2273	2373	2473	2573	2673	2773	2873	
B	360	360	360	360	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	
Weight (kg)	44.7	45.9	47.0	48.1	49.3	50.4	51.6	53.9	56.1	58.4	60.7	63.0	65.3	67.6	69.9	72.2	74.5	76.7	

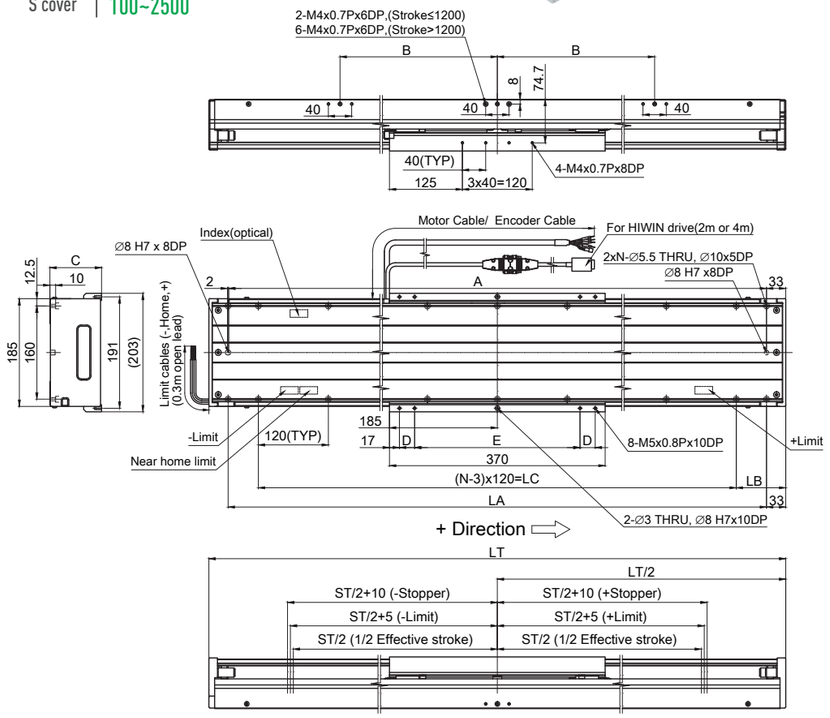
Model Description

LMSSA-18C100-□-□□□□-□□.□□-M-S-A0000

- Cables: Please refer to page 5, 9, 11
- Stroke(mm): 100~2700 : Single forcer; 100~2400 : Dual forcers
- Number of forcers: 1 : Single forcer; 2 : Dual forcers

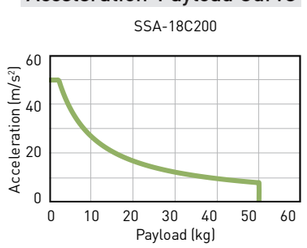
SSA-18 Series Single Forcer

SSA-18C200 S cover | Stroke 100~2500

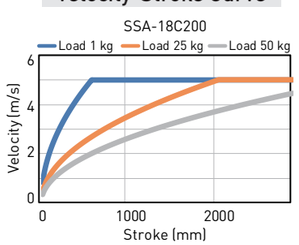


18C200-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	88.7																		
D	26																		
E	284																		
Weight (kg)	19.2	20.3	21.7	22.9	24.1	25.2	26.4	27.5	28.7	29.9	31.0	32.2	33.3	34.5	35.7	36.8	38.0	39.1	40.3
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880	-
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
C	88.7							108.7											-
D	26							50.0											-
E	284							236.0											-
Weight (kg)	41.5	42.6	43.8	44.9	46.1	47.3	49.6	51.9	57.2	59.5	61.9	64.2	66.5	68.8	71.1	73.5	75.8	78.1	-

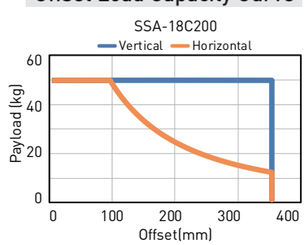
Acceleration-Payload Curve



Velocity-Stroke Curve



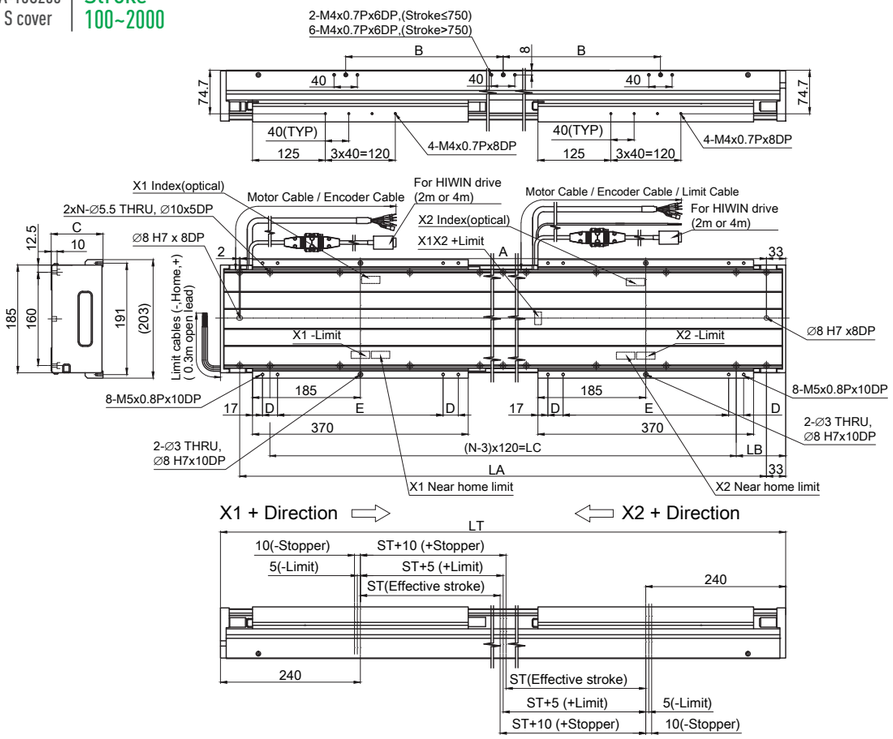
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18C200 S cover | Stroke 100~2000



18C200-2-S																
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600
C	88.7															
D	26															
E	284															
Weight (kg)	34.5	35.6	36.7	37.9	39.0	40.2	41.4	42.5	43.7	44.8	46.0	47.2	48.3	49.5	50.6	51.8
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000
Effective Stroke (ST)	940	990	1040	1080	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040
LT	1830	1880	1930	1590	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930
N	17	17	17	15	19	19	19	19	19	21	21	23	23	25	25	25
LA	1764	1814	1864	1524	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864
LB	75	100	125	75	55	80	105	130	155	85	135	65	115	45	95	145
LC	1680	1680	1680	1440	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640
A	1763	1813	1863	1523	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863
B	600	600	600	360	600	600	600	840	840	840	840	840	840	1080	1080	1080
C	88.7				108.7											
D	26				50											
E	284				236											
Weight (kg)	53.0	54.1	55.3	56.4	63.6	64.8	65.9	67.1	68.2	70.6	72.9	75.2	77.5	79.8	82.2	84.5

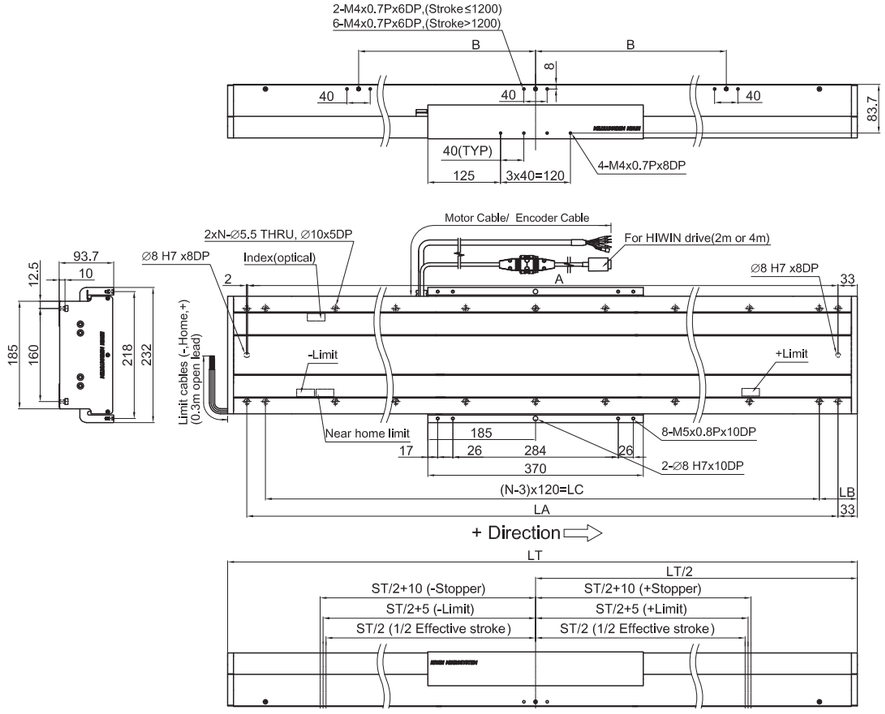
Model Description

LMSSA-18C200-□-□□□□-□□.□□-S-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2500 : Single forcer
  - 100~2000 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

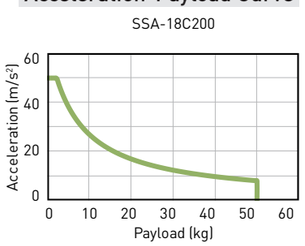
SSA-18 Series Single Forcer

SSA-18C200 M cover | Stroke 100~2500

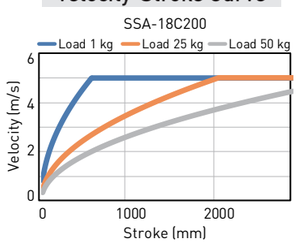


18C200-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15	
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440	
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Weight (kg)	21.5	22.6	24.0	25.2	26.4	27.6	28.8	30.0	31.2	32.4	33.6	34.8	36.0	37.2	38.3	39.5	40.7	41.9	43.1	
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-	
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-	
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-	
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-	
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-	
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880	-	
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-	
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-	
Weight (kg)	44.3	45.5	46.7	47.9	49.1	50.3	52.6	55.0	57.4	59.8	62.2	64.6	67.0	69.3	71.7	74.1	76.5	78.9	-	

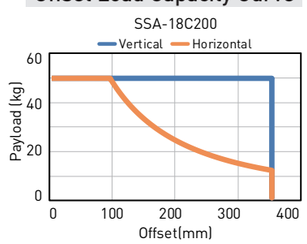
Acceleration-Payload Curve



Velocity-Stroke Curve



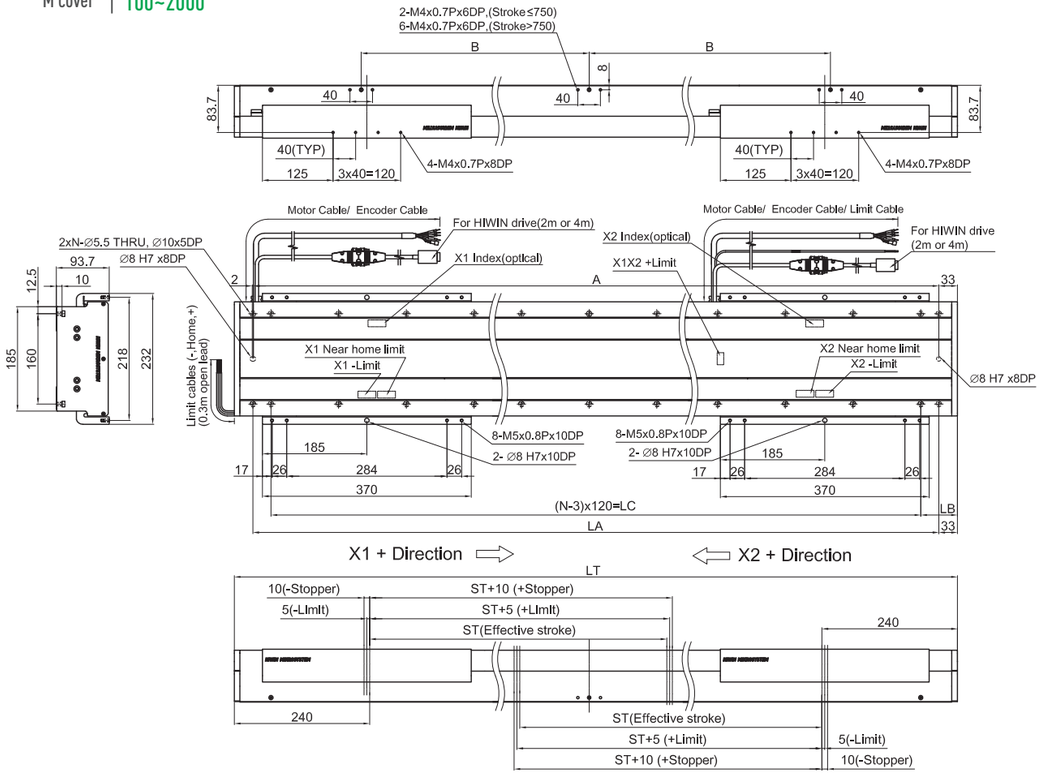
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-18 Series Dual Forcers

SSA-18C200 M cover | Stroke 100~2000



18C200-2-M																	
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890	
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780	
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17	
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714	
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680	
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600	
Weight (kg)	39.0	40.1	41.3	42.5	43.7	44.9	46.1	47.3	48.5	49.7	50.9	52.1	53.3	54.4	55.6	56.8	
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	
Effective Stroke (ST)	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040	
LT	1830	1880	1930	1980	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930	
N	17	17	17	17	19	19	19	19	19	21	21	23	23	25	25	25	
LA	1764	1814	1864	1914	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864	
LB	75	100	125	150	55	80	105	130	155	85	135	65	115	45	95	145	
LC	1680	1680	1680	1680	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640	
A	1763	1813	1863	1913	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863	
B	600	600	600	600	600	600	600	840	840	840	840	840	840	1080	1080	1080	
Weight (kg)	58.0	59.2	60.4	61.6	62.8	64.0	65.2	66.4	67.6	69.9	72.3	74.7	77.1	79.5	81.9	84.2	

Model Description

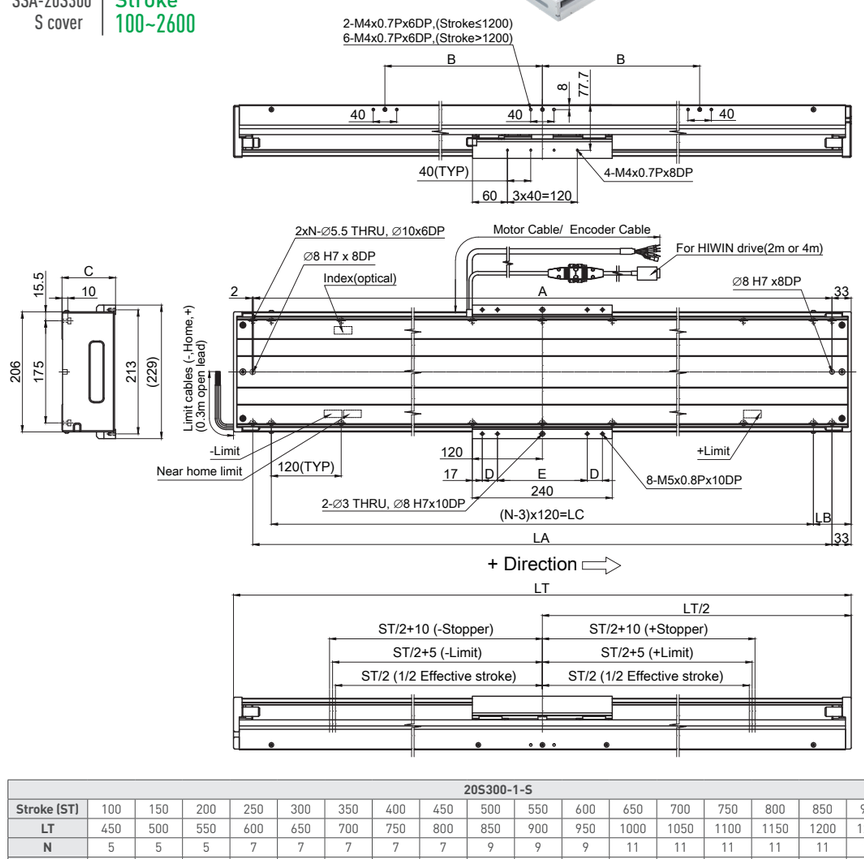
LMSSA-18C200-□-□□□□-□□.□□-M-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2500 : Single forcer
  - 100~2000 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

18 Series

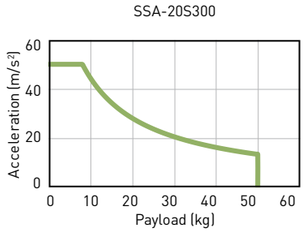
SSA-20 Series Single Forcer

SSA-20S300 S cover | Stroke 100~2600

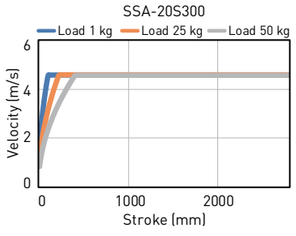


20S300-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	5	5	5	7	7	7	7	7	9	9	9	11	11	11	11	11	11	13	13
LA	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284
LB	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	75
LC	240	240	240	480	480	480	480	480	720	720	720	960	960	960	960	960	960	1200	1200
A	383	433	483	533	583	633	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	91.7																		
D	26																		
E	154																		
Weight (kg)	15.5	16.5	18.0	19.1	20.2	21.3	22.4	23.5	24.6	25.7	26.8	27.9	29.0	30.1	31.2	32.3	33.4	34.5	35.6
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	13	13	13	15	15	15	15	17	17	19	19	21	21	21	23	23	25	25	25
LA	1334	1384	1434	1484	1534	1584	1684	1784	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884
LB	100	125	150	55	80	105	155	85	135	65	115	45	95	145	75	125	55	105	155
LC	1200	1200	1200	1440	1440	1440	1440	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640
A	1333	1383	1433	1483	1533	1583	1683	1783	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883
B	-	-	-	-	360	360	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
C	91.7								111.7										
D	26								50										
E	154								106										
Weight (kg)	36.7	37.8	38.9	40.0	41.1	42.2	44.4	46.6	50.8	53.0	55.2	57.4	59.6	61.8	64.0	66.2	68.4	70.6	72.8

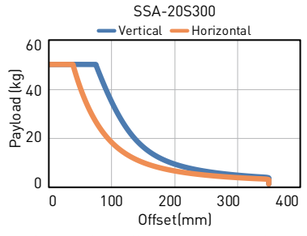
Acceleration-Payload Curve



Velocity-Stroke Curve



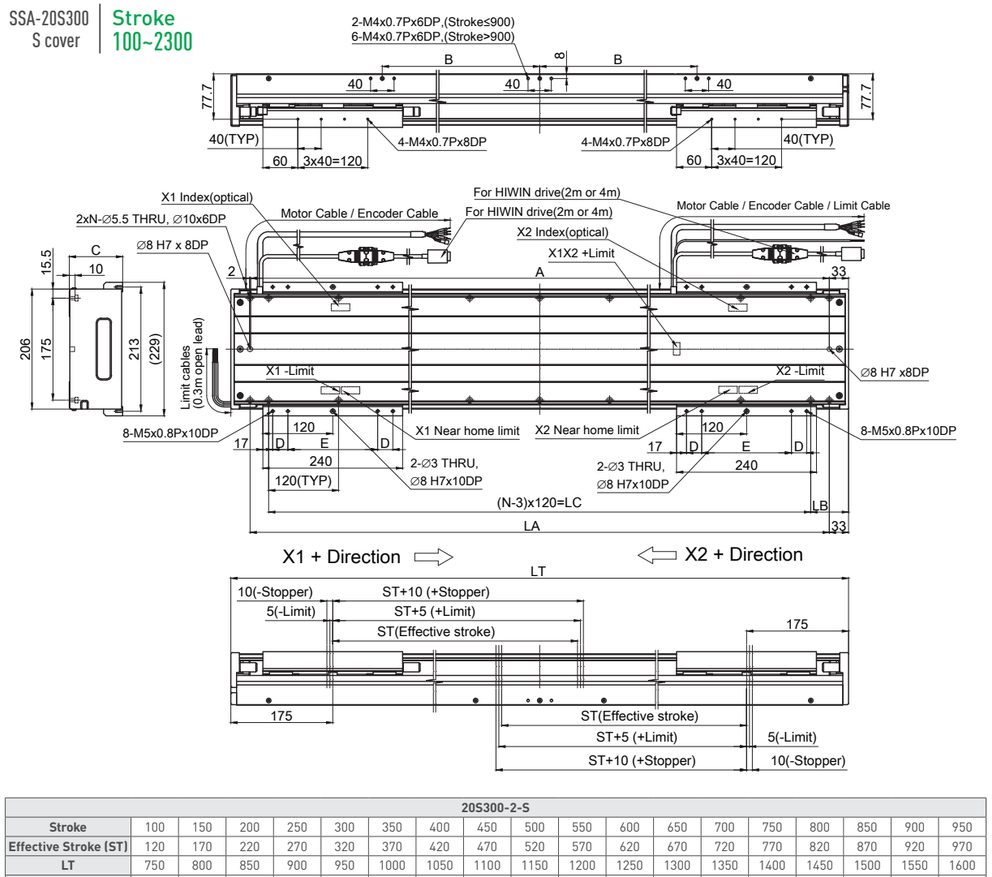
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20S300 S cover | Stroke 100~2300



20S300-2-S																			
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
Effective Stroke (ST)	120	170	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600
N	7	7	9	9	9	11	11	11	11	11	11	13	13	13	13	13	15	15
LA	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534
LB	135	160	65	90	115	20	45	70	95	120	145	50	75	100	125	150	55	80
LC	480	480	720	720	720	960	960	960	960	960	960	1200	1200	1200	1200	1200	1440	1440
A	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283	1333	1383	1433	1483	1533
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360
C	91.7																	
D	26																	
E	154																	
Weight (kg)	28.0	29.1	30.2	31.3	32.4	33.5	34.6	35.7	36.8	37.9	39.0	40.1	41.2	42.3	43.4	44.5	45.6	46.7
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-
Effective Stroke (ST)	1020	1070	1120	1170	1220	1270	1320	1420	1520	1620	1720	1820	1920	2020	2120	2220	2320	-
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-
N	15	15	15	15	17	17	17	19	19	21	21	21	23	23	25	25	25	-
LA	1584	1634	1684	1734	1784	1834	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884	-
LB	105	130	155	60	85	110	135	65	115	45	95	145	75	125	55	105	155	-
LC	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640	-
A	1583	1633	1683	1733	1783	1833	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883	-
B	360	600	600	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	-
C	91.7					111.7												-
D	26					50												-
E	154					106												-
Weight (kg)	47.8	48.9	50.0	51.1	52.2	55.3	56.4	58.6	60.8	66.0	67.2	69.4	71.6	73.8	76.0	78.2	80.4	-

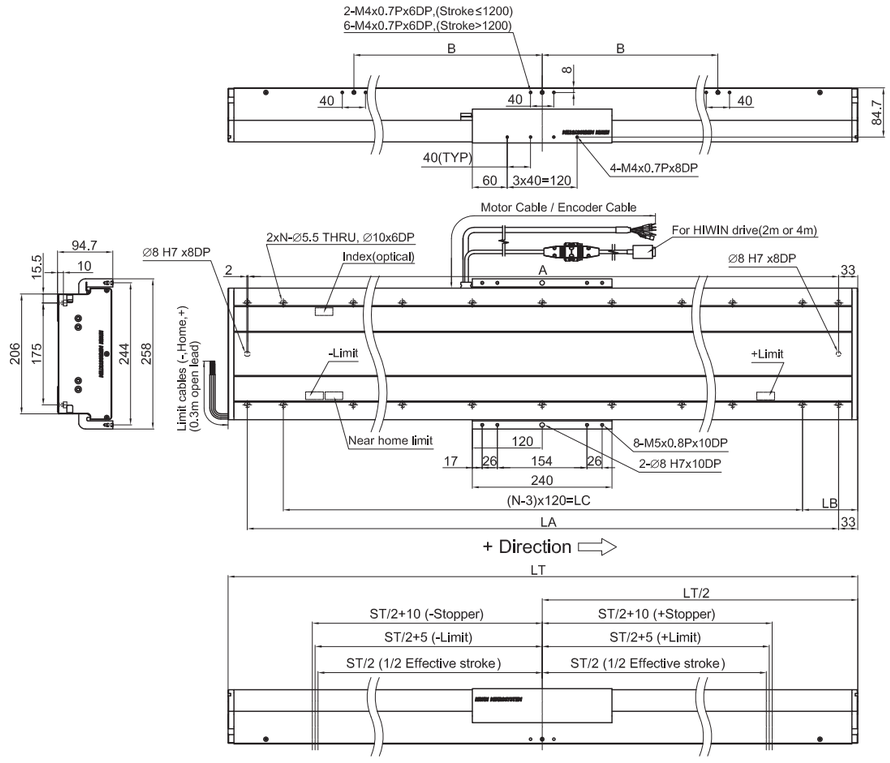
Model Description

LMSSA-20S300-□-□□□□-□□.□□-S-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2600 : Single forcer
  - 100~2300 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

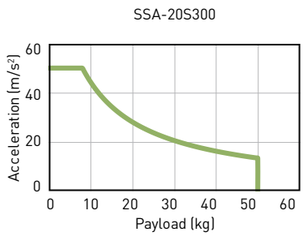
SSA-20 Series Single Forcer

SSA-20S300 M cover | Stroke 100~2600

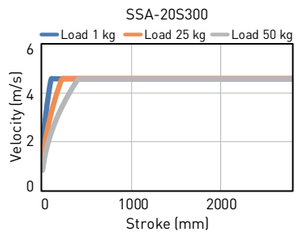


20S300-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	5	5	5	7	7	7	7	7	9	9	9	11	11	11	11	11	11	13	13
LA	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284
LB	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	75
LC	240	240	240	480	480	480	480	480	720	720	720	960	960	960	960	960	960	1200	1200
A	383	433	483	533	583	633	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	16.7	17.7	19.2	20.3	21.4	22.6	23.7	24.8	26.0	27.1	28.2	29.4	30.5	31.6	32.8	33.9	35.0	36.2	37.3
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	13	13	13	15	15	15	15	17	17	19	19	21	21	21	23	23	25	25	25
LA	1334	1384	1434	1484	1534	1584	1684	1784	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884
LB	100	125	150	55	80	105	155	85	135	65	115	45	95	145	75	125	55	105	155
LC	1200	1200	1200	1440	1440	1440	1440	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640
A	1333	1383	1433	1483	1533	1583	1683	1783	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883
B	-	-	-	-	360	360	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
Weight (kg)	38.4	39.6	40.7	41.8	43.0	44.1	46.4	48.7	50.9	53.2	55.5	57.7	60.0	62.3	64.5	66.8	69.1	71.3	73.6

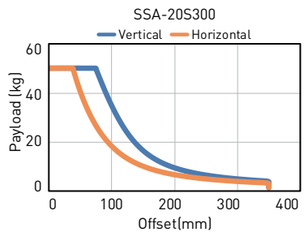
Acceleration-Payload Curve



Velocity-Stroke Curve



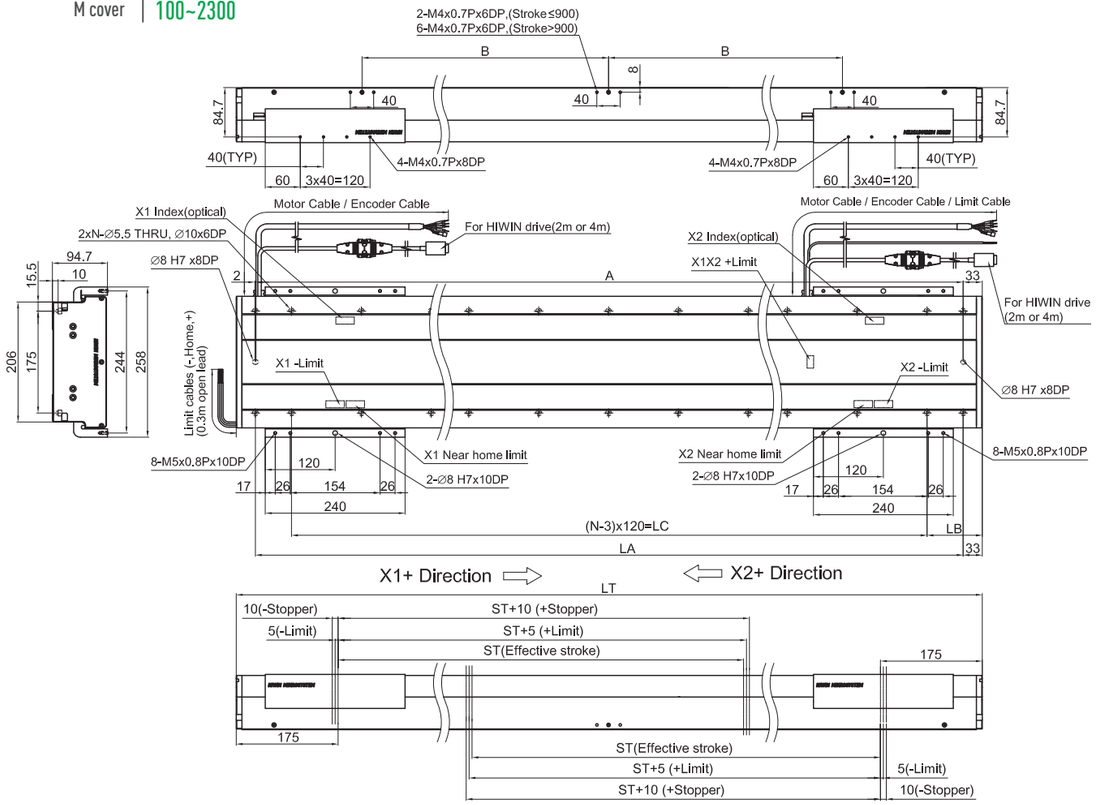
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20S300 M cover | Stroke 100~2300



20S300-2-M																			
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	
Effective Stroke (ST)	120	170	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	
N	7	7	9	9	9	11	11	11	11	11	11	13	13	13	13	13	15	15	
LA	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534	
LB	135	160	65	90	115	20	45	70	95	120	145	50	75	100	125	150	55	80	
LC	480	480	720	720	720	960	960	960	960	960	960	1200	1200	1200	1200	1200	1440	1440	
A	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283	1333	1383	1433	1483	1533	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	
Weight (kg)	30.3	31.5	32.6	33.8	34.9	36.0	37.2	38.3	39.4	40.6	41.7	42.8	44.0	45.1	46.2	47.4	48.5	49.6	
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-	
Effective Stroke (ST)	1020	1070	1120	1170	1220	1270	1320	1420	1520	1620	1720	1820	1920	2020	2120	2220	2320	-	
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-	
N	15	15	15	15	17	17	17	19	19	21	21	21	23	23	25	25	25	-	
LA	1584	1634	1684	1734	1784	1834	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884	-	
LB	105	130	155	60	85	110	135	65	115	45	95	145	75	125	55	105	155	-	
LC	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640	-	
A	1583	1633	1683	1733	1783	1833	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883	-	
B	360	600	600	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	-	
Weight (kg)	50.8	51.9	53.0	54.2	55.3	56.4	57.6	59.8	62.1	64.4	66.6	68.9	71.2	73.5	75.7	78.0	80.3	-	

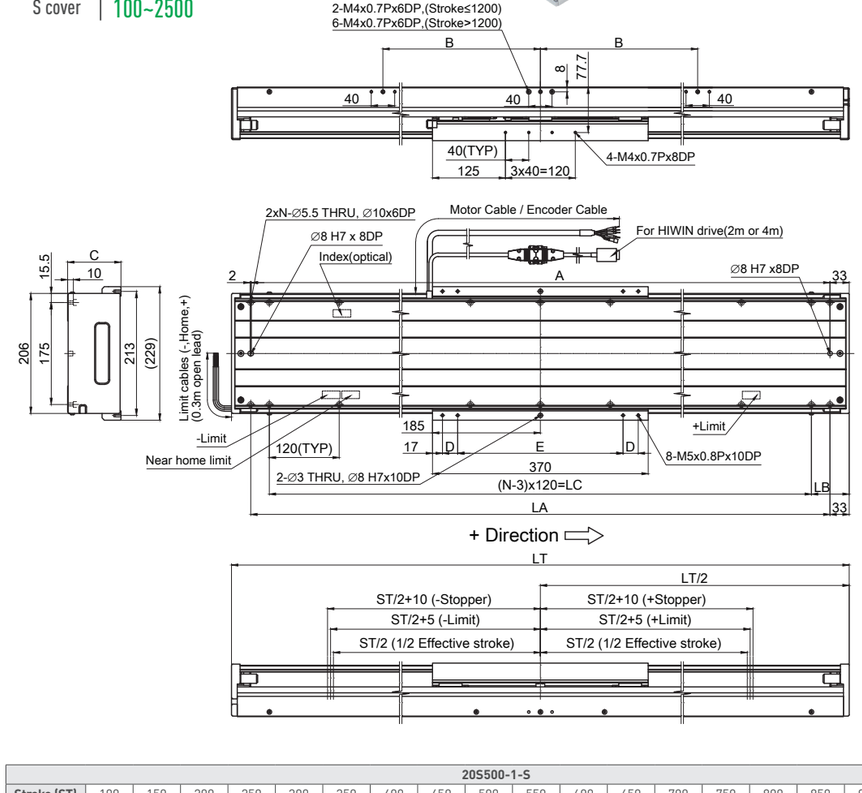
Model Description

LMSSA-20S300-□-□□□□-□□.□□-M-S-A0000

- Cables: Please refer to page 5, 9, 11
- Number of forcers: 1 : Single forcer; 2 : Dual forcers
- Stroke(mm): 100~2600 : Single forcer; 100~2300 : Dual forcers

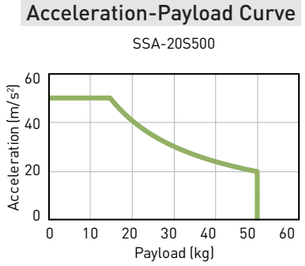
SSA-20 Series Single Forcer

SSA-20S500 S cover | Stroke 100~2500

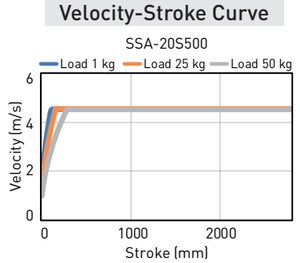


20S500-1-S																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	97.1																		
D	26																		
E	284																		
Weight (kg)	20.6	21.6	23.1	24.2	25.4	26.5	27.7	28.8	30.0	31.1	32.3	33.4	34.6	35.7	36.9	38.0	39.2	40.3	41.5
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880	-
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
C	91.7								111.7										-
D	26								50										-
E	284								236										-
Weight (kg)	42.6	43.8	44.9	46.1	47.2	48.4	50.7	53.0	58.3	60.6	62.9	65.2	67.5	69.8	72.1	74.4	76.7	79.0	-

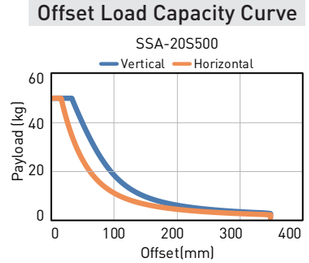
Acceleration-Payload Curve



Velocity-Stroke Curve



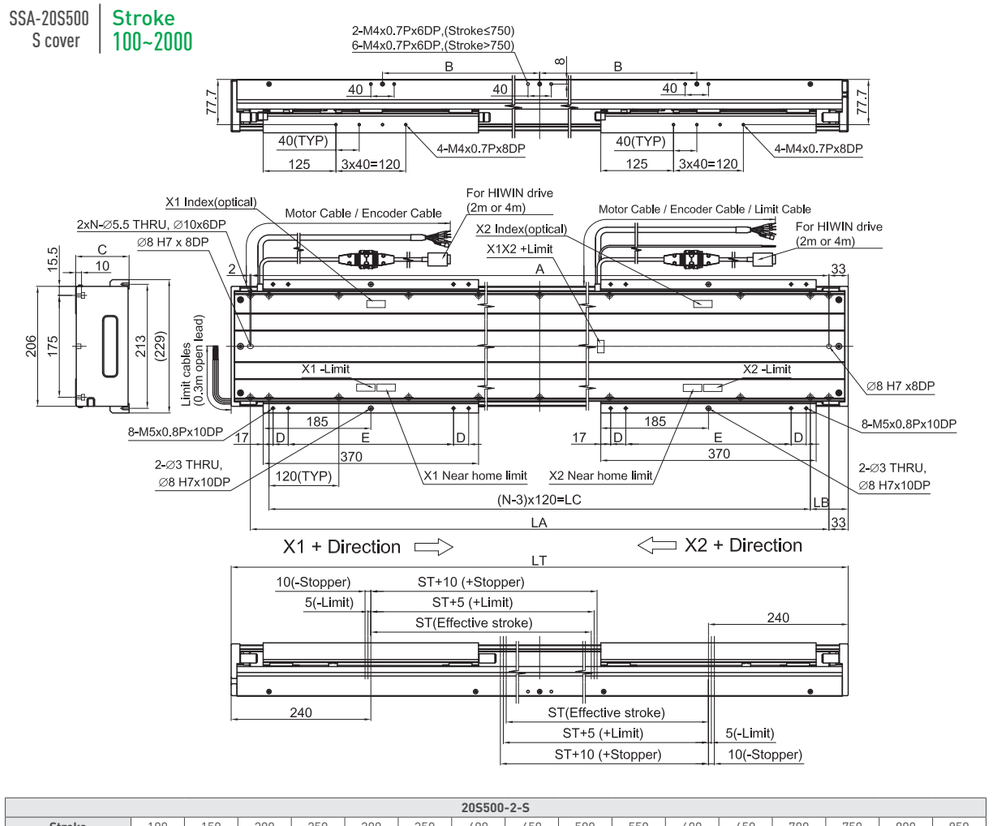
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20S500 S cover | Stroke 100~2000



20S500-2-S																
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600
C	91.7															
D	26															
E	284															
Weight (kg)	39.2	40.4	41.6	42.7	43.9	45.0	46.2	47.3	48.5	49.6	50.8	51.9	53.1	54.2	55.4	56.5
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000
Effective Stroke (ST)	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040
LT	1830	1880	1930	1980	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930
N	17	17	17	17	19	19	19	19	19	21	21	23	23	25	25	25
LA	1764	1814	1864	1914	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864
LB	75	100	125	150	55	80	105	130	155	85	135	65	115	45	95	145
LC	1680	1680	1680	1680	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640
A	1763	1813	1863	1913	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863
B	600	600	600	600	600	600	600	840	840	840	840	840	840	1080	1080	1080
C	91.7				111.7											
D	26				50											
E	284				236											
Weight (kg)	57.7	58.8	60.0	61.1	68.3	69.4	70.6	71.7	72.8	75.1	77.4	79.7	82.0	84.3	86.6	88.9

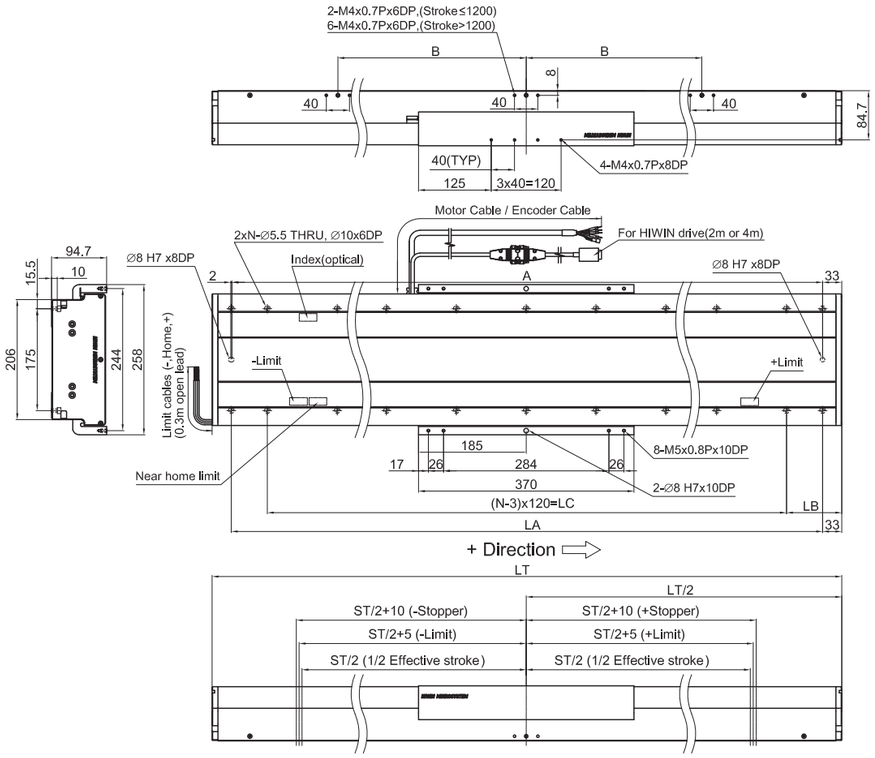
Model Description

LMSSA-20S500-□-□□□□-□□.□□-S-S-A0000

- Cables: Please refer to page 5, 9, 11
- Number of forcers: 1 : Single forcer; 2 : Dual forcers
- Stroke(mm): 100~2500 : Single forcer; 100~2000 : Dual forcers

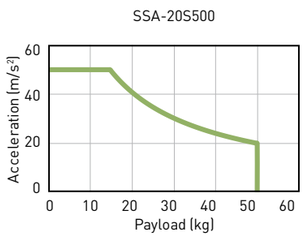
SSA-20 Series Single Forcer

SSA-20S500 M cover | Stroke 100~2500

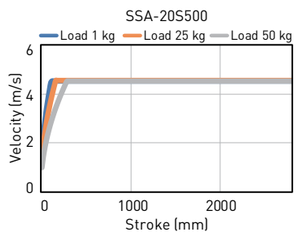


20S500-1-M																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	22.3	23.4	24.9	26.1	27.3	28.5	29.7	30.9	32.0	33.2	34.4	35.6	36.8	38.0	39.1	40.3	41.5	42.7	43.9
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880	-
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-
Weight (kg)	45.0	46.2	47.4	48.6	49.8	51.0	53.3	55.7	58.1	60.4	62.8	65.1	67.5	69.9	72.2	74.6	77.0	79.3	-

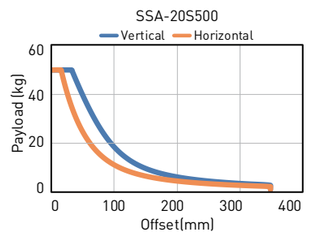
Acceleration-Payload Curve



Velocity-Stroke Curve



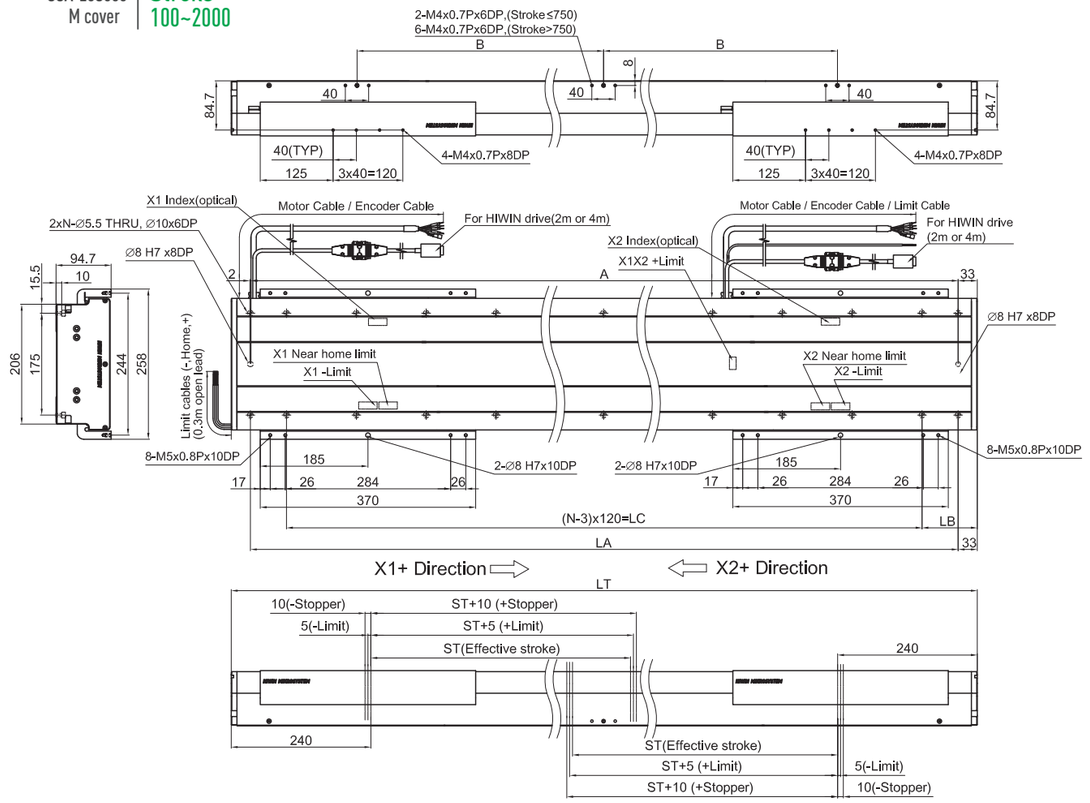
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20S500 M cover | Stroke 100~2000



20S500-2-M																	
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600
Weight (kg)	42.9	44.1	45.3	46.5	47.7	48.9	50.0	51.2	52.4	53.6	54.8	56.0	57.1	58.3	59.5	60.7
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000
Effective Stroke (ST)	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040
LT	1830	1880	1930	1980	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930
N	17	17	17	17	19	19	19	19	19	21	21	23	23	25	25	25
LA	1764	1814	1864	1914	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864
LB	75	100	125	150	55	80	105	130	155	85	135	65	115	45	95	145
LC	1680	1680	1680	1680	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640
A	1763	1813	1863	1913	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863
B	600	600	600	600	600	600	600	840	840	840	840	840	840	1080	1080	1080
Weight (kg)	61.9	63.0	64.2	65.4	66.6	67.8	69.0	70.1	71.3	73.7	76.1	78.4	80.8	83.1	85.5	87.9

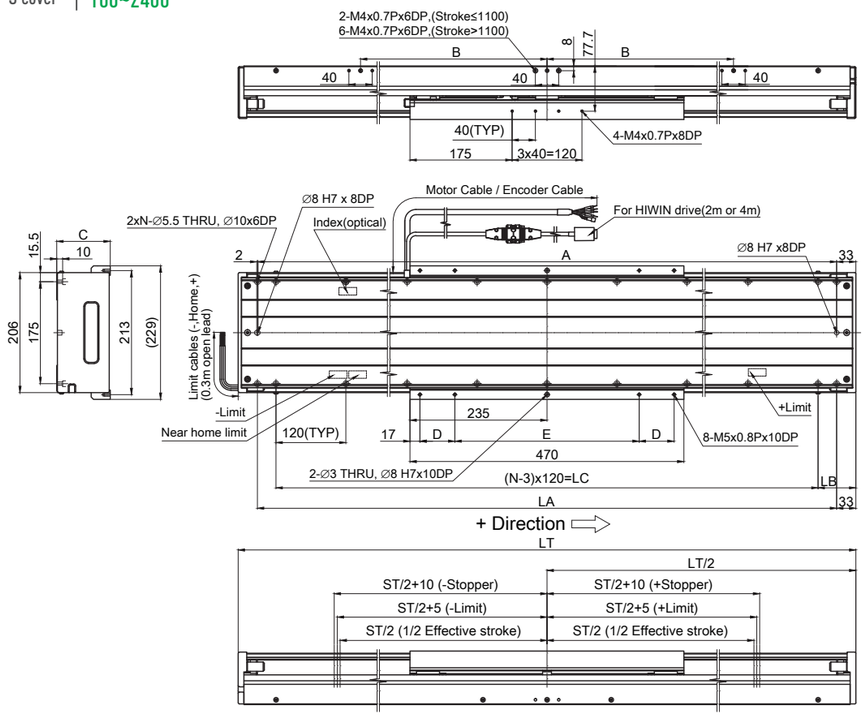
Model Description

LMSSA-20S500-□-□□□□-□□.□□-M-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2500 : Single forcer
  - 100~2000 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

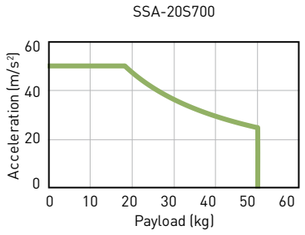
SSA-20 Series Single Forcer

SSA-20S700 S cover | Stroke 100~2400

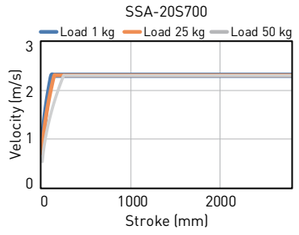


20S700-1-S																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
LT	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530
N	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15	15
LA	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464
LB	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	45
LC	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440	1440
A	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	91.7																	
D	60																	
E	316																	
Weight (kg)	25.1	26.3	27.4	28.5	29.7	30.8	32.0	33.1	34.3	35.4	36.6	37.7	38.9	40.0	41.2	42.3	43.5	44.6
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
LT	1580	1630	1680	1730	1780	1830	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980
N	15	15	15	15	17	17	17	17	19	19	21	21	21	23	25	25	25	27
LA	1514	1564	1614	1664	1714	1764	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914
LB	70	95	120	145	50	75	100	150	80	130	60	110	160	90	20	70	120	50
LC	1440	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880
A	1513	1563	1613	1663	1713	1763	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913
B	-	-	-	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080
C	91.7									111.7								
D	60									120.0								
E	316									196.0								
Weight (kg)	45.8	46.9	48.1	49.2	50.4	51.5	52.7	55.0	60.3	62.6	64.9	67.2	69.5	71.8	74.1	76.4	78.7	81.0

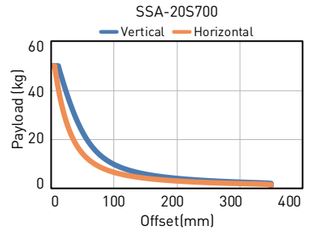
Acceleration-Payload Curve



Velocity-Stroke Curve



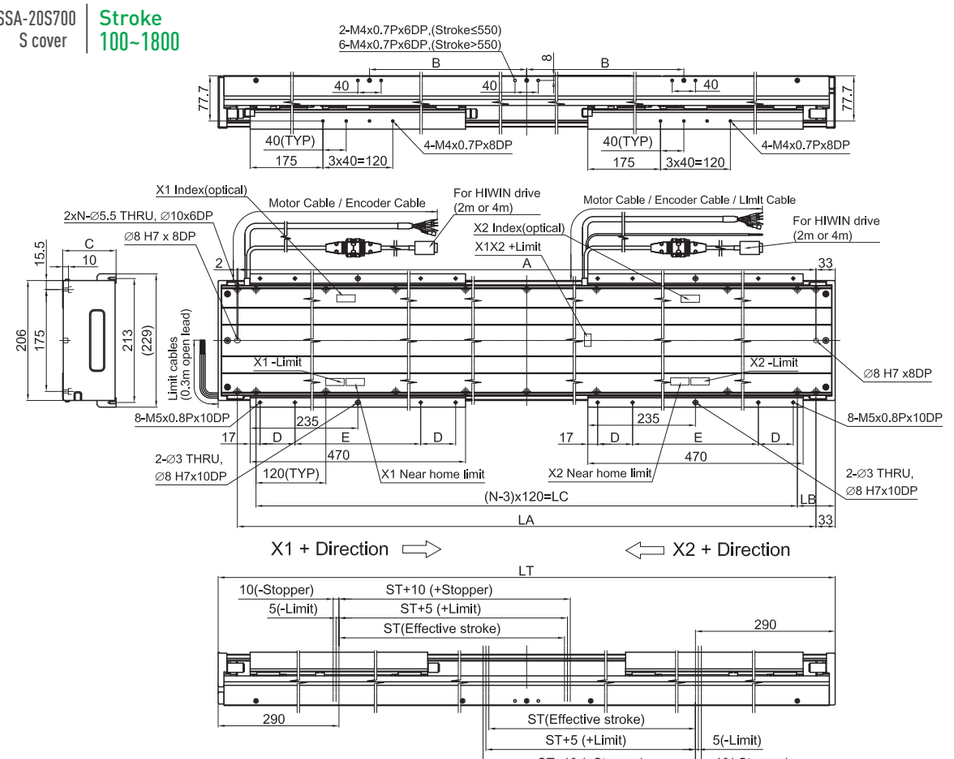
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20S700 S cover | Stroke 100~1800



20S700-2-S																
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	
LT	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780	1830	1880	1930	
N	11	13	13	13	13	15	15	15	15	15	15	17	17	17	17	
LA	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714	1764	1814	1864	
LB	160	40	65	90	115	20	45	70	95	120	145	50	75	100	125	
LC	960	1200	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680	1680	1680	1680	
A	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713	1763	1813	1863	
B	-	-	-	-	-	-	-	-	-	-	600	600	600	600	600	
C	91.7															
D	60															
E	316															
Weight (kg)	48.2	49.4	50.5	51.7	52.8	54.0	55.1	56.3	57.4	58.6	59.7	60.9	62.0	63.2	64.3	
Stroke (ST)	850	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	
Effective Stroke (ST)	890	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	
LT	1980	2030	2080	2130	2180	2230	2280	2330	2380	2430	2530	2630	2730	2830	2930	
N	17	19	19	19	19	19	21	21	21	21	23	23	25	25	25	
LA	1914	1964	2014	2064	2114	2164	2214	2264	2314	2364	2464	2564	2664	2764	2864	
LB	150	55	80	105	130	155	60	85	110	135	65	115	45	95	145	
LC	1680	1920	1920	1920	1920	1920	2160	2160	2160	2160	2400	2400	2640	2640	2640	
A	1913	1963	2013	2063	2113	2163	2213	2263	2313	2363	2463	2563	2663	2763	2863	
B	600	600	600	600	840	840	840	840	840	840	840	840	1080	1080	1080	
C	91.7	111.7														
D	60	120														
E	316	196														
Weight (kg)	65.5	69.6	71.8	72.9	74.1	75.2	76.4	77.5	78.6	79.8	82.1	84.4	86.7	89.0	91.3	

Model Description

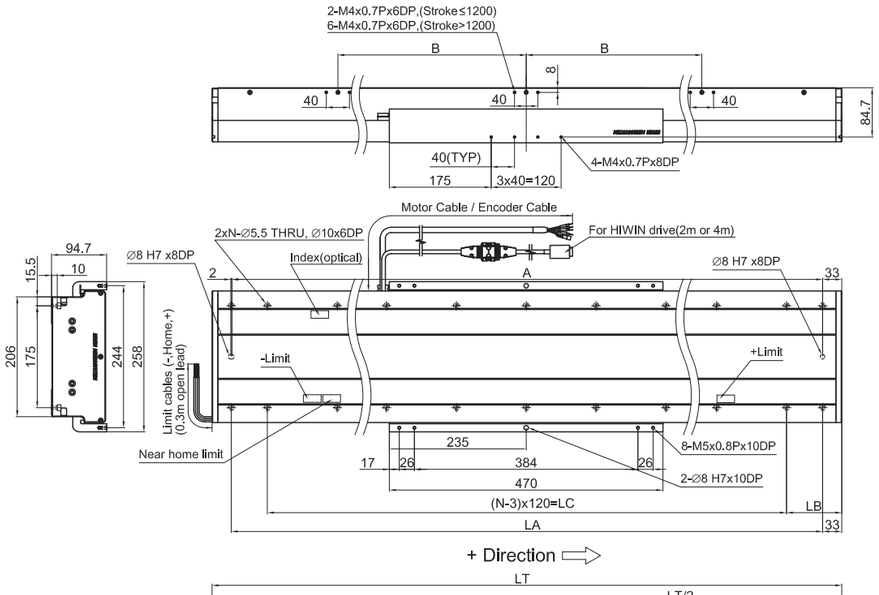
LMSSA-20S700-□-□□□□-□□.□□-S-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2400 : Single forcer
  - 100~1800 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

20 Series

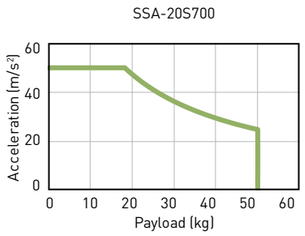
SSA-20 Series Single Forcer

SSA-20S700 M cover | Stroke 100~2400

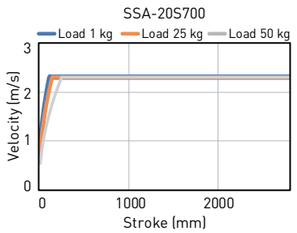


20S700-1-M																			
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
LT	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530
N	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15	15
LA	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464
LB	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	45
LC	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440	1440
A	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	27.4	28.6	29.7	30.9	32.1	33.3	34.5	35.7	36.8	38.0	39.2	40.4	41.6	42.7	43.9	45.1	46.3	47.5
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
LT	1580	1630	1680	1730	1780	1830	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980
N	15	15	15	15	17	17	17	17	19	19	21	21	21	23	25	25	25	27
LA	1514	1564	1614	1664	1714	1764	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914
LB	70	95	120	145	50	75	100	150	80	130	60	110	160	90	20	70	120	50
LC	1440	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880
A	1513	1563	1613	1663	1713	1763	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913
B	-	-	-	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080
Weight (kg)	48.7	49.8	51.0	52.2	53.4	54.6	55.8	58.1	60.5	62.8	65.2	67.6	69.9	72.3	74.7	77.0	79.4	81.8

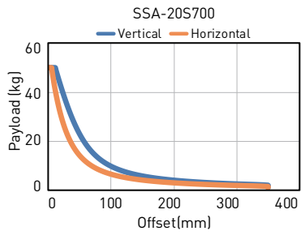
Acceleration-Payload Curve



Velocity-Stroke Curve



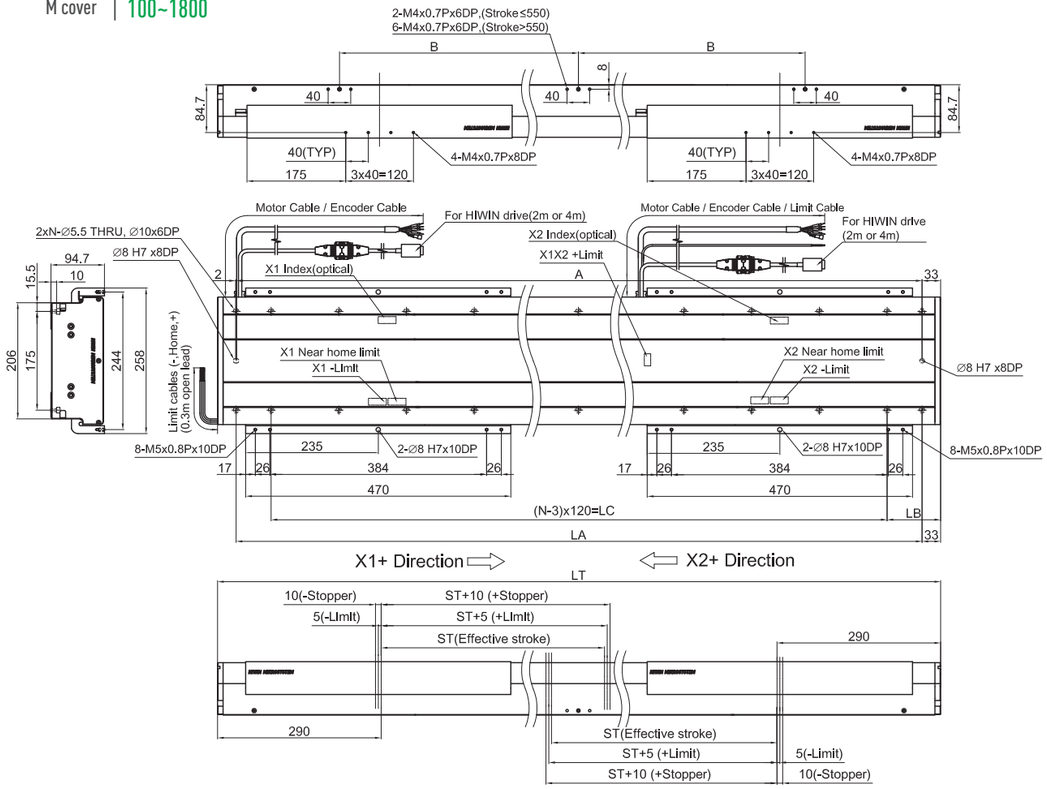
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20S700 M cover | Stroke 100~1800



20S700-2-M																
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	
LT	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780	1830	1880	1930	
N	11	13	13	13	13	15	15	15	15	15	15	17	17	17	17	
LA	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714	1764	1814	1864	
LB	160	40	65	90	115	20	45	70	95	120	145	50	75	100	125	
LC	960	1200	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680	1680	1680	1680	
A	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713	1763	1813	1863	
B	-	-	-	-	-	-	-	-	-	-	600	600	600	600	600	
Weight (kg)	52.9	54.1	55.3	56.5	57.6	58.8	60.0	61.2	62.4	63.5	64.7	65.9	67.1	68.3	69.5	
Stroke (ST)	850	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	
Effective Stroke (ST)	890	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	
LT	1980	2030	2080	2130	2180	2230	2280	2330	2380	2430	2530	2630	2730	2830	2930	
N	17	19	19	19	19	19	21	21	21	21	23	23	25	25	25	
LA	1914	1964	2014	2064	2114	2164	2214	2264	2314	2364	2464	2564	2664	2764	2864	
LB	150	55	80	105	130	155	60	85	110	135	65	115	45	95	145	
LC	1680	1920	1920	1920	1920	1920	2160	2160	2160	2160	2400	2400	2640	2640	2640	
A	1913	1963	2013	2063	2113	2163	2213	2263	2313	2363	2463	2563	2663	2763	2863	
B	600	600	600	600	840	840	840	840	840	840	840	840	1080	1080	1080	
Weight (kg)	70.6	71.8	73.0	74.2	75.4	76.6	77.7	78.9	80.1	81.3	83.6	86.0	88.4	90.7	93.1	

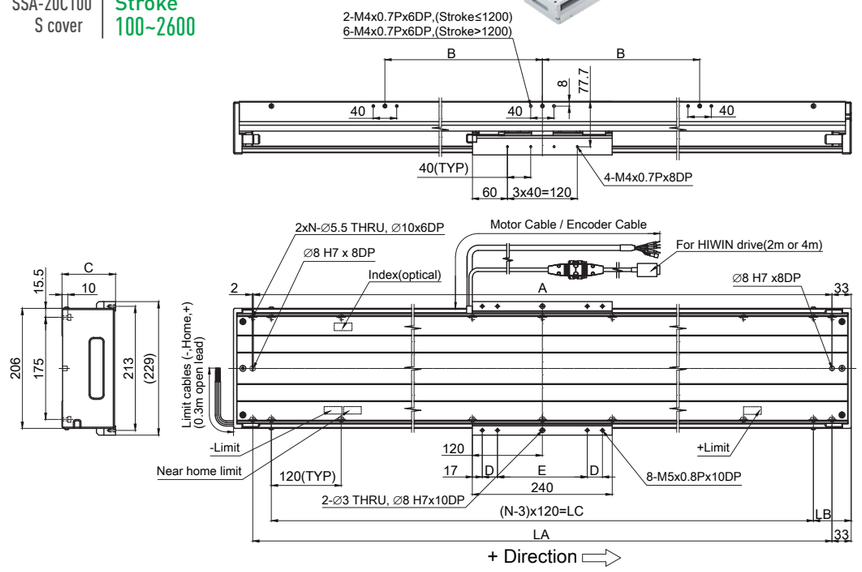
Model Description

LMSSA-20S700-□-□□□□-□□.□□-M-S-A0000

- Cables: Please refer to page 5, 9, 11
- Stroke(mm): 100~2400 : Single forcer; 100~1800 : Dual forcers
- Number of forcers: 1 : Single forcer; 2 : Dual forcers

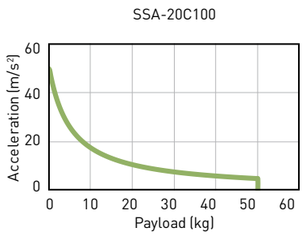
SSA-20 Series Single Forcer

SSA-20C100 S cover | Stroke 100~2600



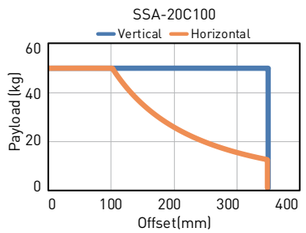
20C100-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	5	5	5	7	7	7	7	7	9	9	9	11	11	11	11	11	11	13	13
LA	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284
LB	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	75
LC	240	240	240	480	480	480	480	480	720	720	720	960	960	960	960	960	960	1200	1200
A	383	433	483	533	583	633	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	91.7																		
D	26																		
E	154																		
Weight (kg)	16.1	17.5	19.4	20.9	22.4	23.9	25.4	26.9	28.4	29.9	31.4	32.9	34.4	36.0	37.5	39.0	40.5	42.0	43.5
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	13	13	13	15	15	15	15	17	17	19	19	21	21	21	23	23	25	25	25
LA	1334	1384	1434	1484	1534	1584	1684	1784	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884
LB	100	125	150	55	80	105	155	85	135	65	115	45	95	145	75	125	55	105	155
LC	1200	1200	1200	1440	1440	1440	1440	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640
A	1333	1383	1433	1483	1533	1583	1683	1783	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883
B	-	-	-	-	360	360	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
C	91.7								111.7										
D	26								50										
E	154								106										
Weight (kg)	45.0	46.5	48.0	49.5	51.0	52.6	55.6	58.6	63.6	66.6	69.6	72.7	75.7	78.7	81.7	84.7	87.8	90.8	93.8

Acceleration-Payload Curve



Velocity-Stroke Curve

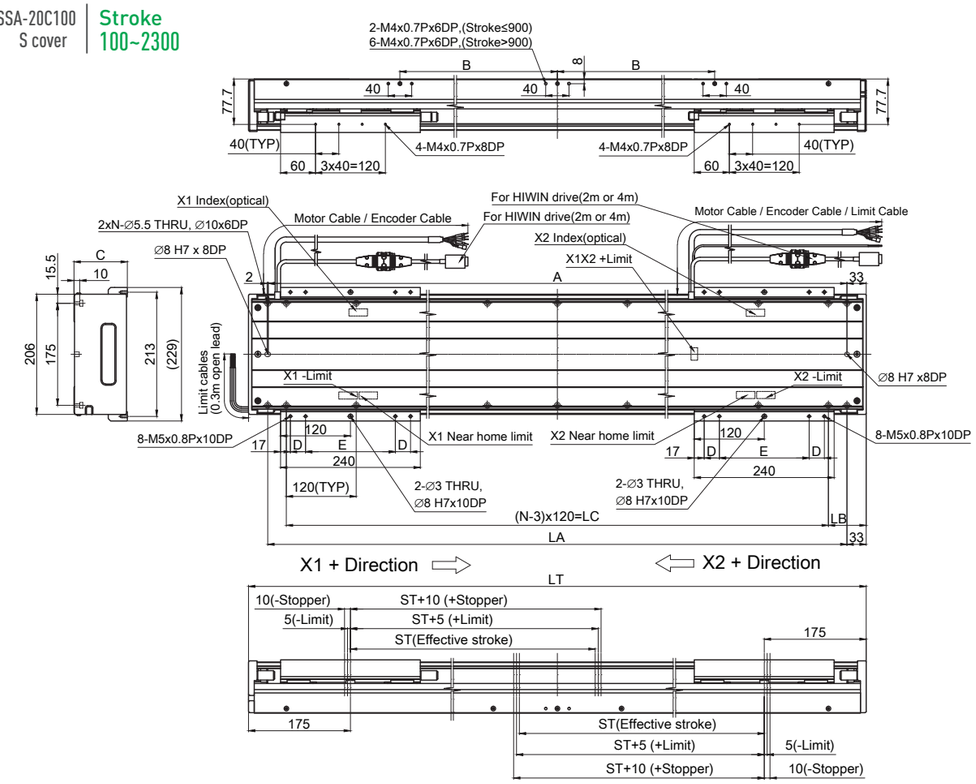
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20C100 S cover | Stroke 100~2300



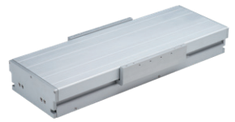
20C100-2-S																		
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
Effective Stroke (ST)	120	170	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600
N	7	7	9	9	9	11	11	11	11	11	11	13	13	13	13	13	15	15
LA	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534
LB	135	160	65	90	115	20	45	70	95	120	145	50	75	100	125	150	55	80
LC	480	480	720	720	720	960	960	960	960	960	960	1200	1200	1200	1200	1200	1440	1440
A	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283	1333	1383	1433	1483	1533
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360
C	91.7																	
D	26																	
E	154																	
Weight (kg)	29.3	30.8	32.3	33.8	35.3	36.8	38.3	39.9	41.4	42.9	44.4	45.9	47.4	48.9	50.4	51.9	53.4	54.9
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-
Effective Stroke (ST)	1020	1070	1120	1170	1220	1270	1320	1420	1520	1620	1720	1820	1920	2020	2120	2220	2320	-
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-
N	15	15	15	15	17	17	17	19	19	21	21	21	23	23	25	25	25	-
LA	1584	1634	1684	1734	1784	1834	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884	-
LB	105	130	155	60	85	110	135	65	115	45	95	145	75	125	55	105	155	-
LC	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640	-
A	1583	1633	1683	1733	1783	1833	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883	-
B	360	600	600	600	600	600	600	600	600	840	840	840	840	1080	1080	1080	-	
C	91.7					111.7												-
D	26					50												-
E	154					106												-
Weight (kg)	56.5	58.0	59.5	61.0	62.5	68.0	69.5	72.5	75.5	78.6	81.6	84.6	87.6	90.6	93.7	96.7	99.7	-

Model Description

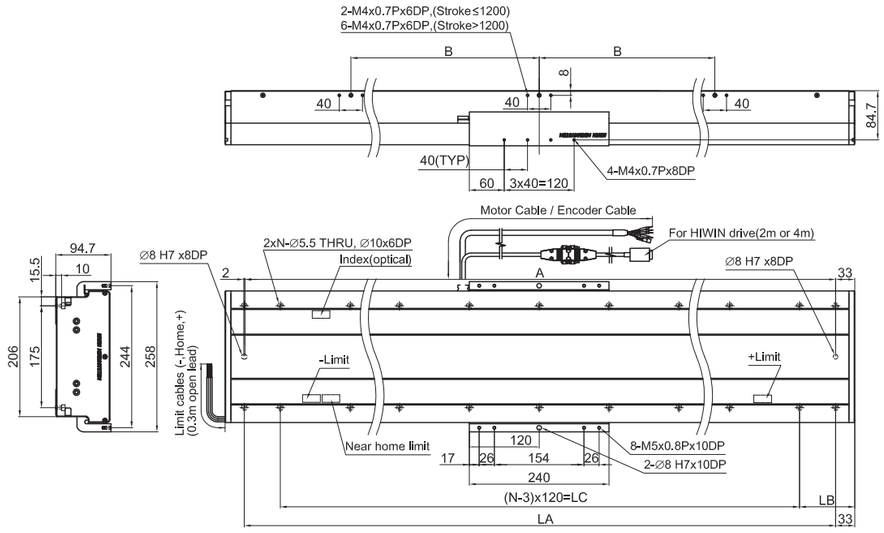
LMSSA-20C100-□-□□□□-□□.□□-S-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2600 : Single forcer
  - 100~2300 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

SSA-20 Series Single Forcer

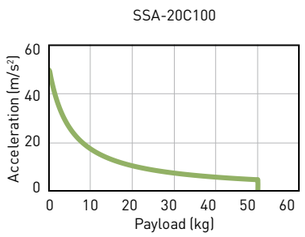


SSA-20C100 M cover | Stroke 100~2600

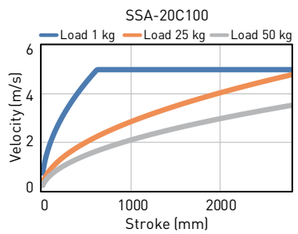


20C100-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
LT	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
N	5	5	5	7	7	7	7	7	9	9	9	11	11	11	11	11	11	13	13
LA	384	434	484	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284
LB	105	130	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	75
LC	240	240	240	480	480	480	480	480	720	720	720	960	960	960	960	960	960	1200	1200
A	383	433	483	533	583	633	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weight (kg)	17.3	18.7	20.6	22.1	23.6	25.2	26.7	28.3	29.8	31.4	32.9	34.4	36.0	37.5	39.1	40.6	42.2	43.7	45.2
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
LT	1400	1450	1500	1550	1600	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
N	13	13	13	15	15	15	15	17	17	19	19	21	21	21	23	23	25	25	25
LA	1334	1384	1434	1484	1534	1584	1684	1784	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884
LB	100	125	150	55	80	105	155	85	135	65	115	45	95	145	75	125	55	105	155
LC	1200	1200	1200	1440	1440	1440	1440	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640
A	1333	1383	1433	1483	1533	1583	1683	1783	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883
B	-	-	-	-	360	360	600	600	600	600	600	840	840	840	840	840	1080	1080	1080
Weight (kg)	46.8	48.3	49.9	51.4	53.0	54.5	57.6	60.7	63.7	66.8	69.9	73.0	76.1	79.2	82.3	85.3	88.4	91.5	94.6

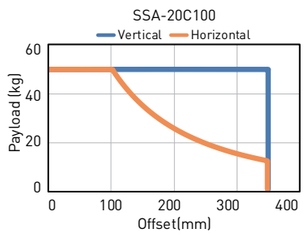
Acceleration-Payload Curve



Velocity-Stroke Curve



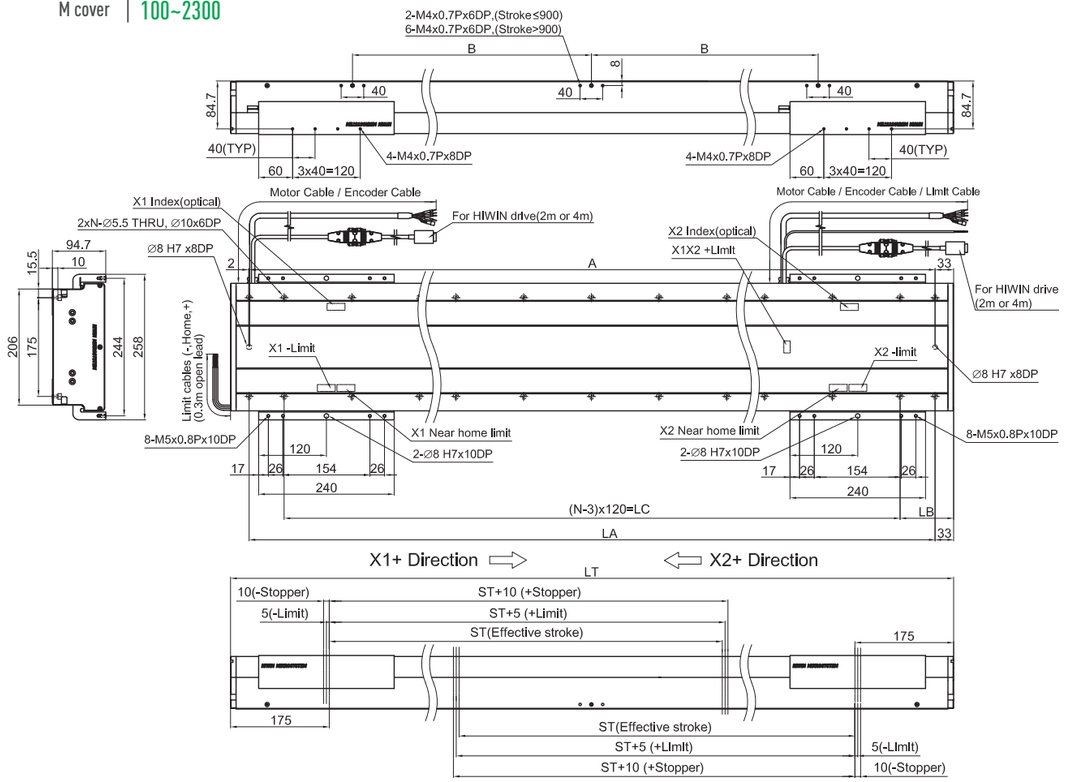
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20C100 M cover | Stroke 100~2300



20C100-2-M																			
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	
Effective Stroke (ST)	120	170	220	270	320	370	420	470	520	570	620	670	720	770	820	870	920	970	
LT	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	
N	7	7	9	9	9	11	11	11	11	11	11	13	13	13	13	13	15	15	
LA	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534	
LB	135	160	65	90	115	20	45	70	95	120	145	50	75	100	125	150	55	80	
LC	480	480	720	720	720	960	960	960	960	960	960	1200	1200	1200	1200	1200	1440	1440	
A	683	733	783	833	883	933	983	1033	1083	1133	1183	1233	1283	1333	1383	1433	1483	1533	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	
Weight (kg)	30.9	32.4	33.9	35.5	37.0	38.6	40.1	41.6	43.2	44.7	46.3	47.8	49.4	50.9	52.4	54.0	55.5	57.1	
Stroke (ST)	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	-	
Effective Stroke (ST)	1020	1070	1120	1170	1220	1270	1320	1420	1520	1620	1720	1820	1920	2020	2120	2220	2320	-	
LT	1650	1700	1750	1800	1850	1900	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	-	
N	15	15	15	15	17	17	17	19	19	21	21	21	23	23	25	25	25	-	
LA	1584	1634	1684	1734	1784	1834	1884	1984	2084	2184	2284	2384	2484	2584	2684	2784	2884	-	
LB	105	130	155	60	85	110	135	65	115	45	95	145	75	125	55	105	155	-	
LC	1440	1440	1440	1680	1680	1680	1680	1920	1920	2160	2160	2160	2400	2400	2640	2640	2640	-	
A	1583	1633	1683	1733	1783	1833	1883	1983	2083	2183	2283	2383	2483	2583	2683	2783	2883	-	
B	360	600	600	600	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	-	
Weight (kg)	58.6	60.2	61.7	63.2	64.8	66.3	67.9	71.0	74.0	77.1	80.2	83.3	86.4	89.5	92.5	95.6	98.7	-	

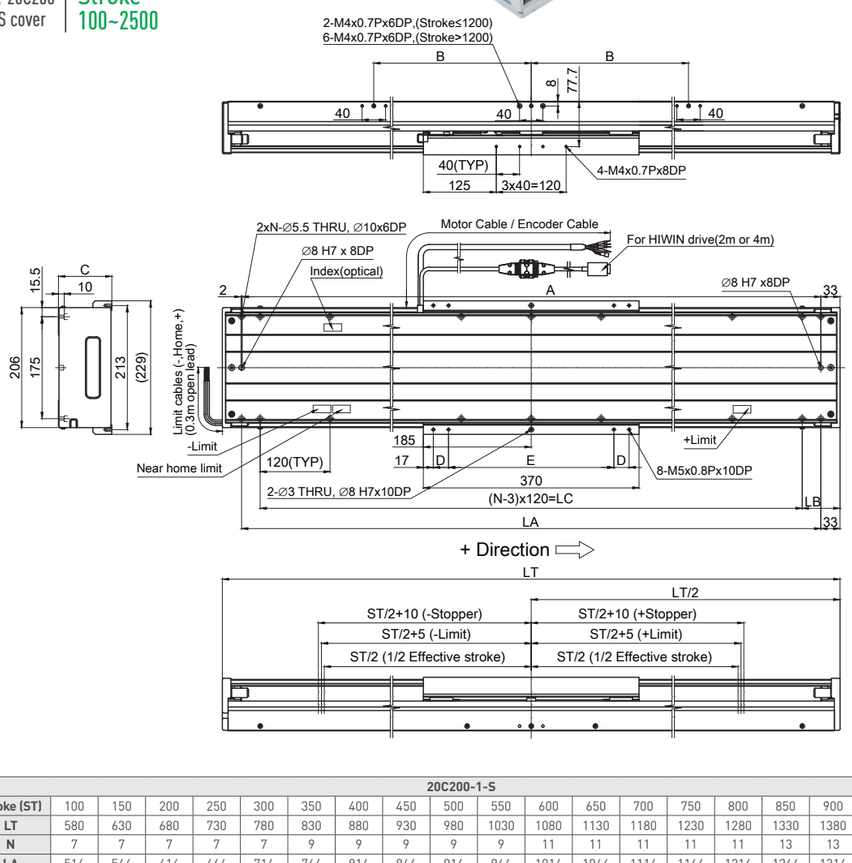
Model Description

LMSSA-20C100-□-□□□□-□□.□□-M-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2600 : Single forcer
  - 100~2300 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

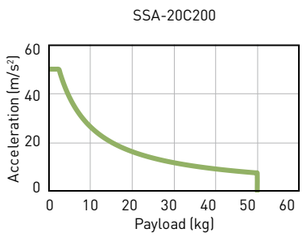
SSA-20 Series Single Forcer

SSA-20C200 S cover | Stroke 100~2500



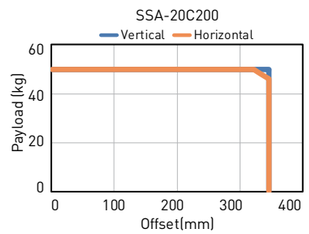
20C200-1-S																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15	
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440	
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	97.1																			
D	26																			
E	284																			
Weight (kg)	20.4	21.9	23.8	25.4	26.9	28.5	30.0	31.6	33.2	34.7	36.3	37.9	39.4	41.0	42.5	44.1	45.7	47.2	48.8	
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-	
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-	
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-	
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-	
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-	
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880	-	
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-	
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-	
C	91.7								111.7										-	
D	26								50										-	
E	284								236										-	
Weight (kg)	50.4	51.9	53.5	55.1	56.6	58.2	61.3	64.4	70.6	73.7	76.8	79.9	83.1	86.2	89.3	92.4	95.6	98.7	-	

Acceleration-Payload Curve



Velocity-Stroke Curve

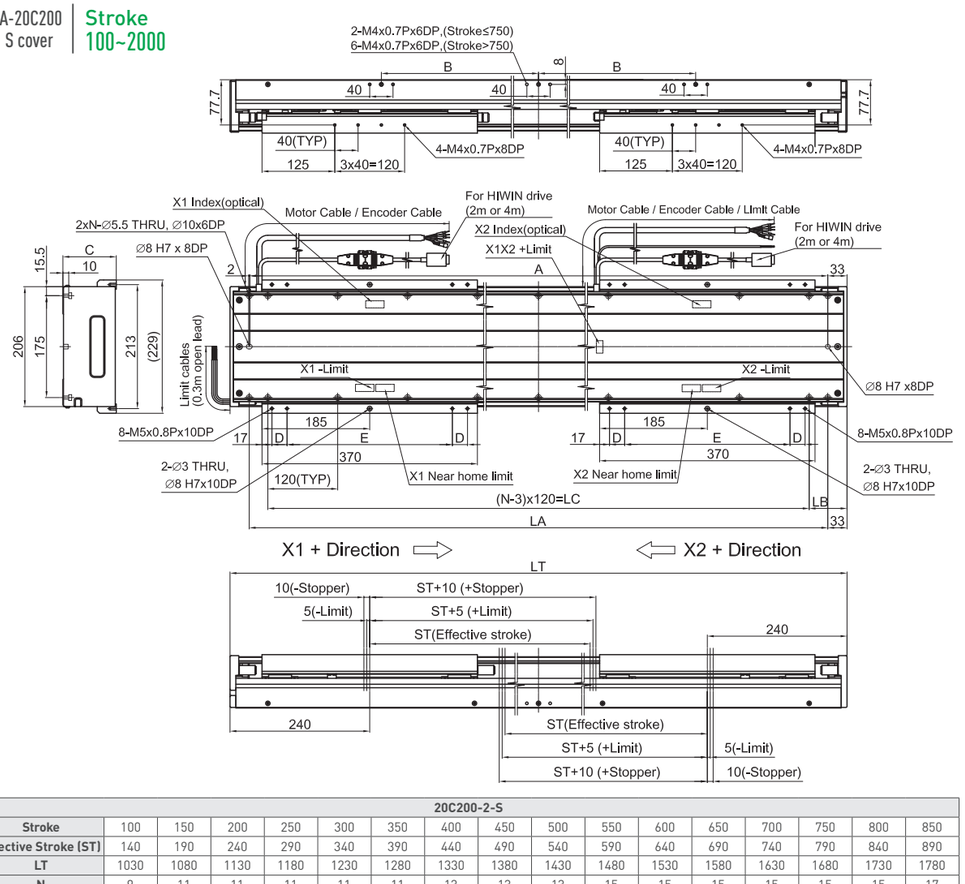
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20C200 S cover | Stroke 100~2000



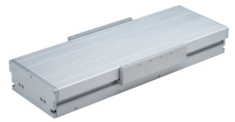
20C200-2-S																
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600
C	91.7															
D	26															
E	284															
Weight (kg)	40.3	41.9	43.4	45.0	46.5	48.1	49.7	51.2	52.8	54.4	55.9	57.5	59.0	60.6	62.2	63.7
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000
Effective Stroke (ST)	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040
LT	1830	1880	1930	1980	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930
N	17	17	17	17	19	19	19	19	19	21	21	23	23	25	25	25
LA	1764	1814	1864	1914	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864
LB	75	100	125	150	55	80	105	130	155	85	135	65	115	45	95	145
LC	1680	1680	1680	1680	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640
A	1763	1813	1863	1913	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863
B	600	600	600	600	600	600	600	840	840	840	840	840	840	1080	1080	1080
C	91.7				111.7											
D	26				50											
E	284				236											
Weight (kg)	65.3	66.9	68.4	70.0	77.5	79.1	80.7	82.2	83.8	86.9	90.1	93.2	96.3	99.4	102.6	105.7

Model Description

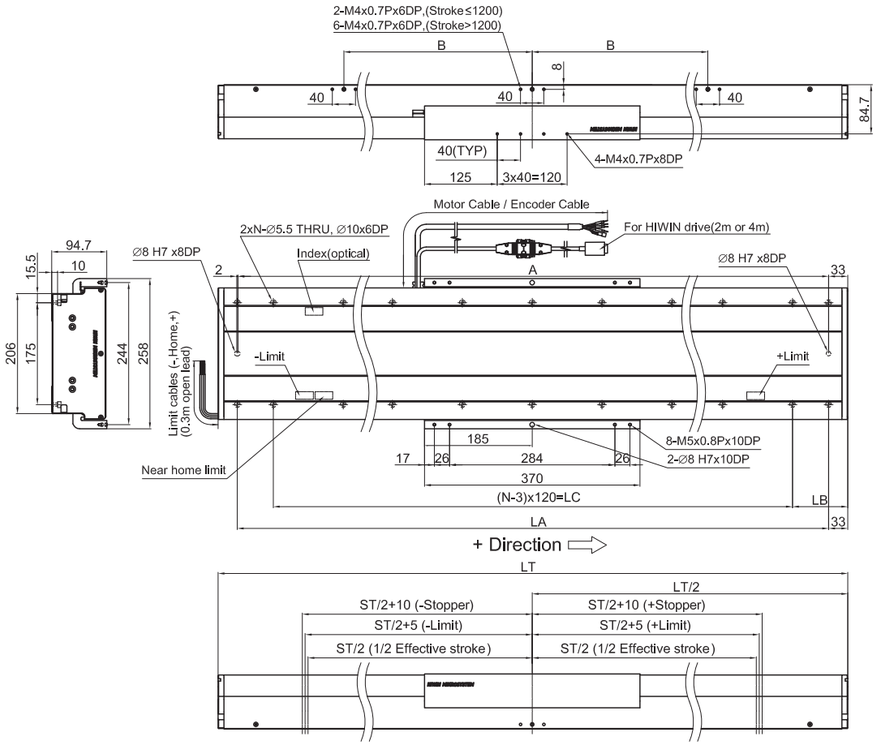
LMSSA-20C200-□-□□□□-□□.□□-S-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2600 : Single forcer
  - 100~2300 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

SSA-20 Series Single Forcer

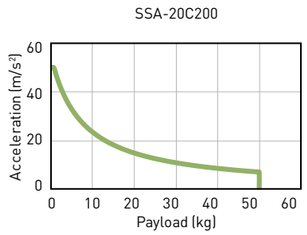


SSA-20C200 M cover | Stroke 100~2500



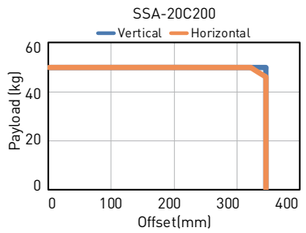
20C200-1-M																				
Stroke (ST)	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
LT	580	630	680	730	780	830	880	930	980	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	
N	7	7	7	7	7	9	9	9	9	9	11	11	11	11	11	13	13	13	15	
LA	514	564	614	664	714	764	814	864	914	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	
LB	50	75	100	125	150	55	80	105	130	155	60	85	110	135	160	65	90	115	20	
LC	480	480	480	480	480	720	720	720	720	720	960	960	960	960	960	1200	1200	1200	1440	
A	513	563	613	663	713	763	813	863	913	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Weight (kg)	22.2	23.7	25.6	27.2	28.8	30.4	32.0	33.6	35.2	36.8	38.4	40.0	41.6	43.2	44.8	46.4	48.0	49.6	51.2	
Stroke (ST)	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	-	
LT	1530	1580	1630	1680	1730	1780	1880	1980	2080	2180	2280	2380	2480	2580	2680	2780	2880	2980	-	
N	15	15	15	15	15	17	17	17	19	19	21	21	21	23	25	25	25	27	-	
LA	1464	1514	1564	1614	1664	1714	1814	1914	2014	2114	2214	2314	2414	2514	2614	2714	2814	2914	-	
LB	45	70	95	120	145	50	100	150	80	130	60	110	160	90	20	70	120	50	-	
LC	1440	1440	1440	1440	1440	1680	1680	1680	1920	1920	2160	2160	2160	2400	2640	2640	2640	2880		
A	1463	1513	1563	1613	1663	1713	1813	1913	2013	2113	2213	2313	2413	2513	2613	2713	2813	2913	-	
B	-	-	-	-	600	600	600	600	600	840	840	840	840	840	1080	1080	1080	1080	-	
Weight (kg)	52.8	54.4	56.0	57.6	59.2	60.8	64.0	67.1	70.3	73.5	76.7	79.9	83.1	86.3	89.5	92.7	95.9	99.1	-	

Acceleration-Payload Curve



Velocity-Stroke Curve

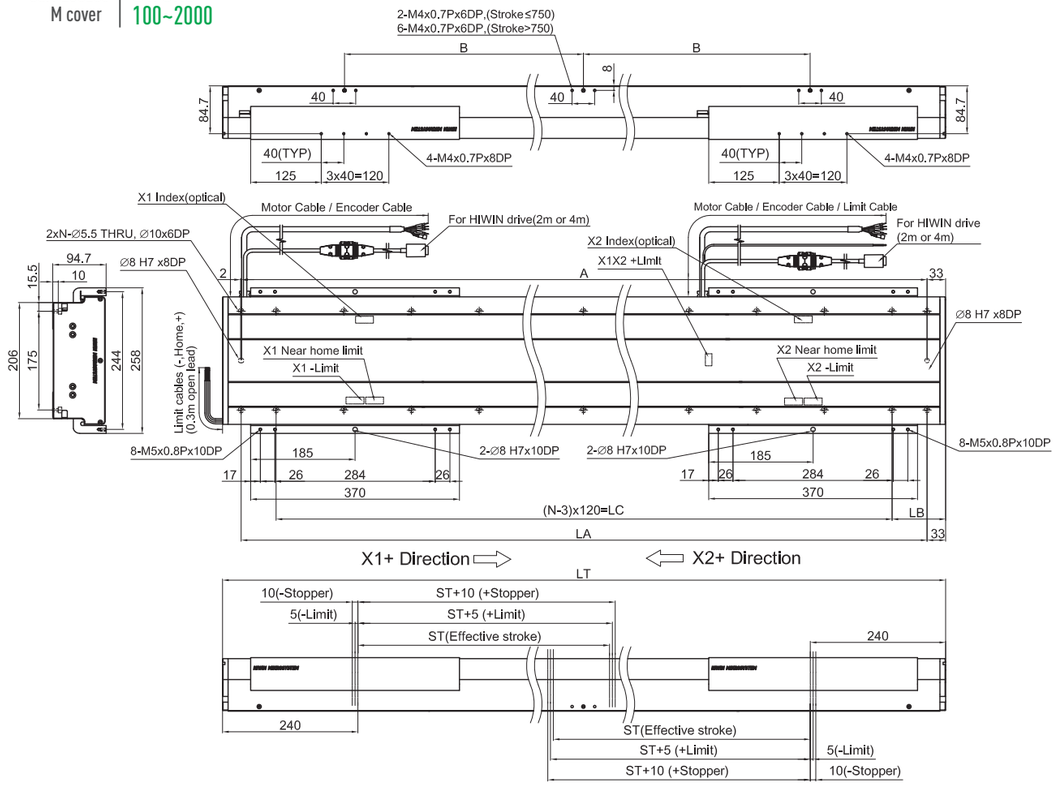
Offset Load Capacity Curve



Note: Schematic of offset load please refer to P.12

SSA-20 Series Dual Forcers

SSA-20C200 M cover | Stroke 100~2000



20C200-2-M																	
Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	
Effective Stroke (ST)	140	190	240	290	340	390	440	490	540	590	640	690	740	790	840	890	
LT	1030	1080	1130	1180	1230	1280	1330	1380	1430	1480	1530	1580	1630	1680	1730	1780	
N	9	11	11	11	11	11	13	13	13	15	15	15	15	15	15	17	
LA	964	1014	1064	1114	1164	1214	1264	1314	1364	1414	1464	1514	1564	1614	1664	1714	
LB	155	60	85	110	135	160	65	90	115	20	45	70	95	120	145	50	
LC	720	960	960	960	960	960	1200	1200	1200	1440	1440	1440	1440	1440	1440	1680	
A	963	1013	1063	1113	1163	1213	1263	1313	1363	1413	1463	1513	1563	1613	1663	1713	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600	
Weight (kg)	44.0	45.6	47.2	48.7	50.3	51.9	53.5	55.1	56.7	58.3	59.9	61.5	63.1	64.7	66.3	67.9	
Stroke (ST)	900	950	1000	1050	1100	1150	1200	1250	1300	1400	1500	1600	1700	1800	1900	2000	
Effective Stroke (ST)	940	990	1040	1090	1140	1190	1240	1290	1340	1440	1540	1640	1740	1840	1940	2040	
LT	1830	1880	1930	1980	2030	2080	2130	2180	2230	2330	2430	2530	2630	2730	2830	2930	
N	17	17	17	17	19	19	19	19	19	21	21	23	23	25	25	25	
LA	1764	1814	1864	1914	1964	2014	2064	2114	2164	2264	2364	2464	2564	2664	2764	2864	
LB	75	100	125	150	55	80	105	130	155	85	135	65	115	45	95	145	
LC	1680	1680	1680	1680	1920	1920	1920	1920	1920	2160	2160	2400	2400	2640	2640	2640	
A	1763	1813	1863	1913	1963	2013	2063	2113	2163	2263	2363	2463	2563	2663	2763	2863	
B	600	600	600	600	600	600	600	840	840	840	840	840	840	1080	1080	1080	
Weight (kg)	69.5	71.1	72.7	74.3	75.9	77.5	79.1	80.7	82.3	85.5	88.7	91.8	95.0	98.2	101.4	104.6	

Model Description

LMSSA-20C200-□-□□□□-□□.□□-M-S-A0000

- Number of forcers
  - 1 : Single forcer
  - 2 : Dual forcers
- Stroke(mm)
  - 100~2500 : Single forcer
  - 100~2000 : Dual forcers
- Cables
  - Please refer to page 5, 9, 11

20 Series

Drive

Drive

The advantages and selection suggestions of drive

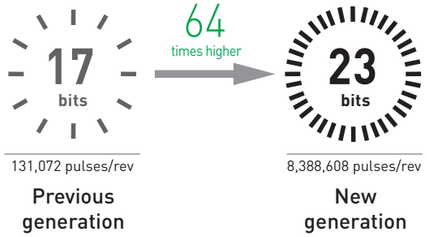
Type		D2T-LM 	D1 	E1 
Continuous Current (Arms)		5.1	8.5	12
Selection Suggestions		Simple and Basic Operation	High Current (Force), the Application of Analog Signal	High Dynamic Response, Ripple Compensation and Gantry Control
Features	EtherCAT / mega-ulink	●	●	●
	MECHATROLINK III			●
	Supports Digital Encoder Signal	●	●	●
	Supports Analog Encoder Signal		●	● Note 1
	Supports Absolute Encoder Signal			● Note 1
	Supports Hall Encoder		●	● Note 1
	Error Mapping	●	●	●
	Vibration Suppression Function	●	●	●
	Optimized Closed-Loop Frequency Response	●	●	●
	Programmable PDL	●	●	●
	Hall Sensor		●	● Note 1
	Temperature Detection and Control Function		●	● Note 1
	High Acceleration & Deceleration / Fast Settling Time			●
	Position Trigger (PT)			●
	Safe Torque OFF Function			●
	Ripple Compensation			●
	Gantry Structure			●

Note:
1. Excellent Smart Cube (ESC) is required.

E1 Drive

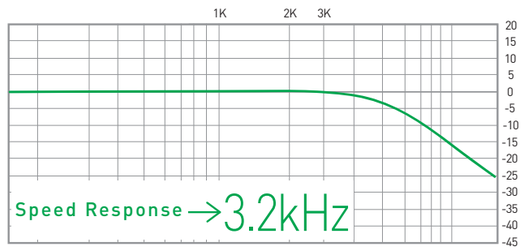
- 3.2 kHz speed response
- Tuneless function
- Advanced auto tuning
- Ripple compensation
- Unique gantry control function
- Network with industrial communication devices
- Supports various motor types
- Built-in STO function
- Supports various types of encoders, such as Digital,Analog, Tamagawa, EnDat and Biss-C

1 Higher Accuracy



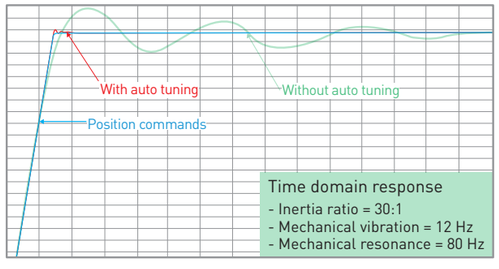
2 3.2kHz Speed Response

Higher speed reponse, faster settling and higher throughput.



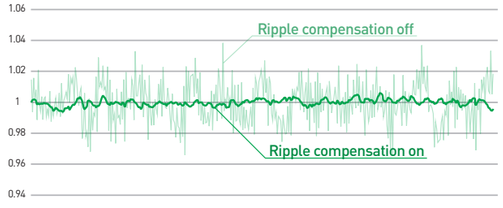
3 Advanced Auto Tuning

This function supports automatic loop gains tuning and filters adjustment to suppress mechanical vibration and resonance, which optimizes machine performance.



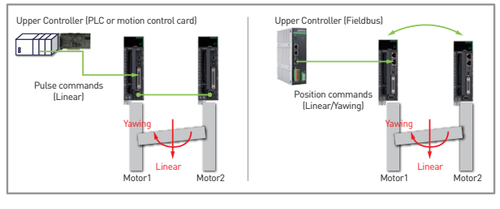
4 Ripple Compensation

Effectively suppresses the speed ripple caused by motor cogging. This function is especially useful for mechanism in which high control gains are not allowed.



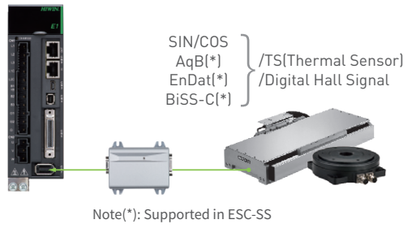
5 Unique Gantry Control Function

With the connection of two E1 drives, the linear and yawing movement of a gantry can be easily optimized.



6 Compatible Encoder Types

Built-in interface to receive digital encoder signals. Tamagawa serial encoder interface is also supported. With an ESC(Excellent Smart Cube), E1 can support other types of encoders, such as analog (SIN/COS), EnDat and BiSS-C.



Note(*): Supported in ESC-SS

Model Description

ED1 S – V N – 0 4 2 2 – 0 1 – 0 0

Type
S : Standard (Voltage command+Pulse)
F : Fieldbus [Note 1]

Control Interface
V : Voltage command+Pulse
E : EtherCAT
H : mega-ulink
L : MECHATRONLINK III

Special Function
G : Gantry
N : None

Rated Output (Compatible Motor)
04 : 400W
(08S050、10S100、13S100、18S100、20C100、20C200)
10 : 1kW
(08S100、10S200、13S200、18S200、18C100、18C200、20S300)
20 : 2kW
(13S300、18S300、20S500、20S700)

AC Phase
2 : Single / Three phase

AC Voltage
2 : 100 Vac ~ 240 Vac

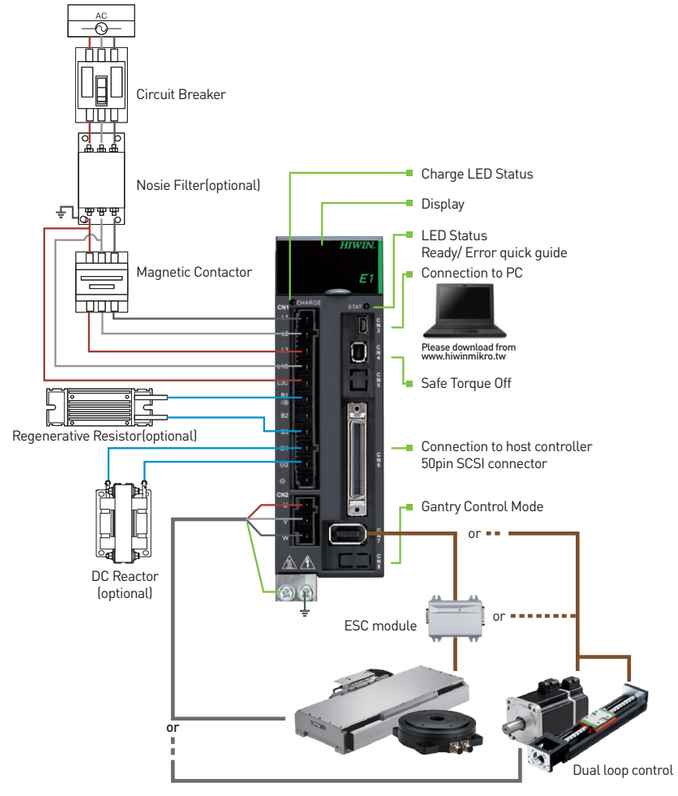
Motor Type
A : AC Servo motor
0 : General (AC、LM、DM、TM)

Safety Certification
1 : STO safety function

Reserved
Reserved

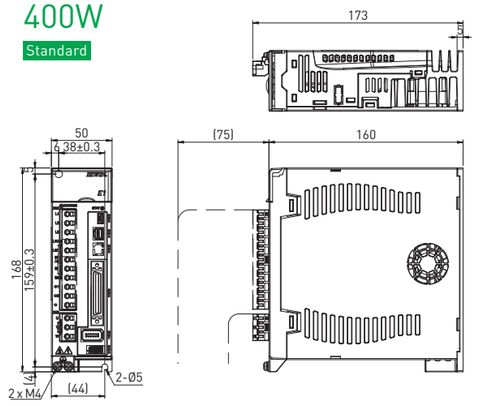
Note1.
EtherCAT® is a registered trademark of Beckhoff Automation Co., Ltd.
MECHATROLINK is a registered trademark of MECHATROLINK Members Association.
PROFINET® is a registered trademark of PROFIBUS & PROFINET International (PI).
Note2.
EnDat® is a registered trademark of HEIDENHAIN GmbH.
BiSS® is a registered trademark of iC-Haus GmbH.

Wiring Diagram

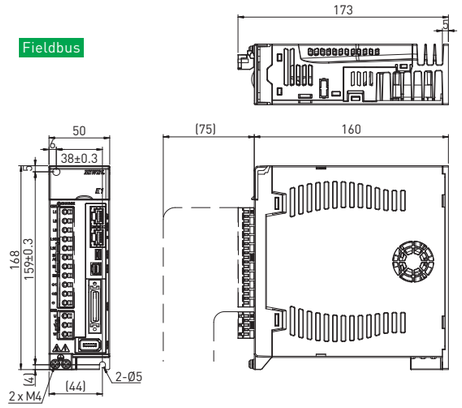


400W

Standard

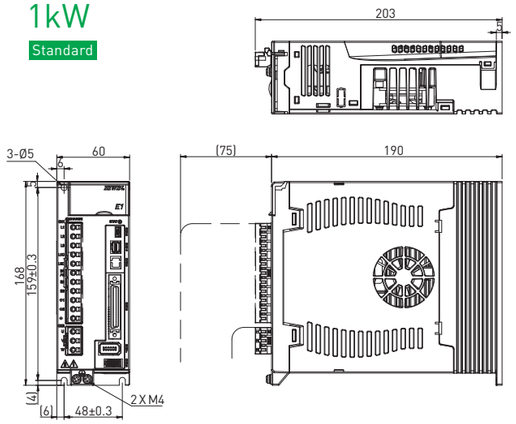


Fieldbus

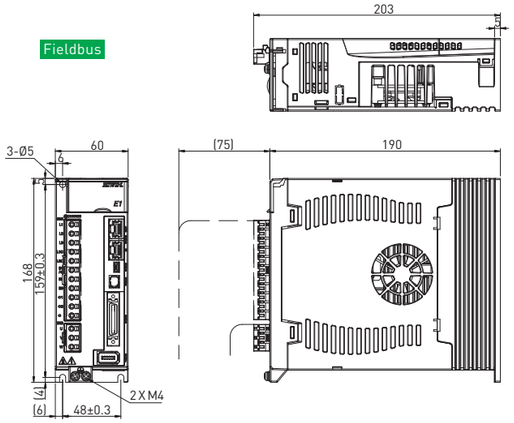


1kW

Standard

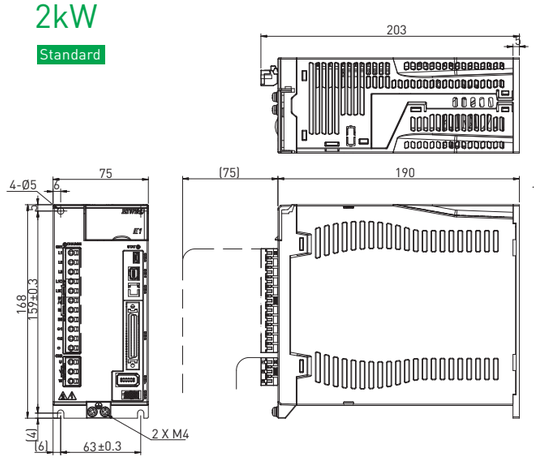


Fieldbus

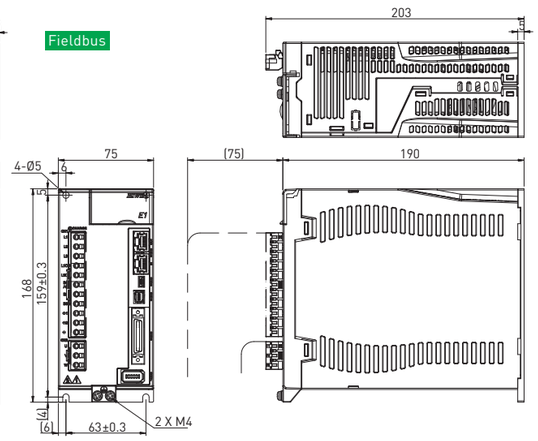


2kW

Standard



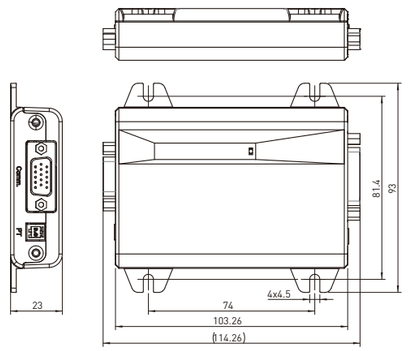
Fieldbus



Unit: mm

ESC Hardware

Excellent Smart Cube(ESC)



Item	Specification					
Max. Output Voltage	+5.0 V ±5%					
Max. Output Current	650mA					
Encoder Type	Digital Hall Sensor	Incremental Sign		Absolute Type		
	Hall U / V / W	SIN / COS / Reference	A / B / Index	BiSS-C	Tamagawa	EnDat 2.1 / 2.2
Signal Bandwidth	2kHz	1 MHz (multiplier factor : 4096 times)	4MHz	5MHz	5MHz	4MHz
Max. Resolution	-	-	-	64 bit		
Input Signal Format	5V CMOS / TTL	Differential (RS422)		Differential (RS485)		
Over-Temperature Protection	PTC					
Ambient Temperature	0°C to + 45°C					
Storage Temperature	-20°C to + 65°C					
IP Rating	IP20					

Name	HIWIN Part Number	Description
ESC encoder communication cable.	HE00EJUDA100	ESC to E1 drive encoder communication port

Model Description

ESC – S S – S 0 1

Signal Format
SS : SIN/COS + A/B + Biss-C + EnDat

Reserved
S01 : Full function type
S02 : General type

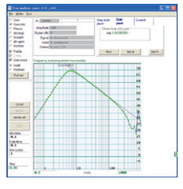
E1 Specification

Rated Output			400 W	1 kW	2 kW
Input Power	Single Phase Main Power	Rated Voltage (Line to Line)	AC 100 ~ 120 Vrms，50~60 Hz AC 200 ~ 240 Vrms，50~60 Hz		-
		Rated Current (Arms)	2.9	6.5	-
	Three Phase Main Power	Rated Voltage (Line to Line)	AC 200 ~ 240 Vrms，50~60 Hz		
		Rated Current (Arms)	1.46	3.3	11.3
	Control Power		1 Ø/AC 100 ~ 120 Vrms，50~60 Hz		-
			1 Ø/AC 200 ~ 240 Vrms，50~60 Hz		
Output Power	Phase Voltage		3 Ø/AC 240 Vrms max.		
	Max Rated Power (W)		400	1 k	2 k
	Peak Current (Arms)		10	23.3	42
	Rated Current (Arms)		2.5	5.6	12
Cooling Method			Fan cooling		
Control Method			IGBT PWM space vector control		
PWM Modulation Frequency			16 kHz		8 kHz
Applicable Motor			AC/DM/LM (Depending on encoder type, Excellent Smart Cube (ESC) may be required.)		
STAT LED Indicator			• Blinking red: Error • Blinking green: Ready • Green: Enabled • There is no STAT LED indicator on Fieldbus servo drive.		
CHARGE LED Indicator			• Red: The main power is supplied. • No light: The main power is not supplied.		
Dynamic Brake			• Built-in dynamic brake circuit • 400 W: no built-in dynamic brake resistor • Delay time of relay: 20 ms		
Built-in Resistor for Dynamic Brake			-	10 Ω /10 W	
Analog Output			• Channel: 2 • Resolution: 12 bit • Output voltage range: ±10 V • Accuracy: ±2% • Maximum output current: ±10 mA		
Control Function	Position Mode	Command Source	Pulse command from controller		
		Signal Type	• Pulse/Direction • CW/CCW • AqB		
		Isolated Circuit	High-speed optical coupler		
		Input Signal	Differential input (2.8 V ≦ high and low potential difference ≦ 3.7 V) or single-ended input(12~24 VDC)		
		Maximum Input Bandwidth	• Differential: 5 Mpps • Single-ended: 200 kpps		
		Electronic Gear	• Gear ratio: pulses/counts • Pulses: 1~1,073,741,824 • Counts: 1~1,073,741,824		
	Velocity Mode	Command Source	DC voltage command from controller		
		Analog Input: Impedance	14 kΩ		
		Analog Input: Signal Format	±10 Vdc		
		Analog Input: Maximum Input Bandwidth	100 Hz		
		Analog Input: Specification	16 bit A/D input (V-REF+/-)		
	Torque Mode	Command Source	DC voltage command from controller		
		Analog Input: Impedance	14 kΩ		
		Analog Input: Signal Format	±10 Vdc		
		Analog Input: Maximum Input Bandwidth	100 Hz		
		Analog Input: Specification	16 bit A/D input (T-REF+/-)		
Control Mode			1. Position mode 2. Velocity mode 3. Torque mode 4. Full-closed loop mode (Dual loop mode)		

Rated Output			400 W	1 kW	2 kW
Encoder	Power Supply		+5.1 Vdc ±5%, 700 mA		
	Signal Format	Serial signal	Resolution: 23 bit (Single-turn/multi-turn absolute encoder) Bandwidth: 5 MHz		
		Incremental signal (Digital differential TTL signal)	AqB and Z-phase signals The maximum input bandwidth of each phase is 5 MHz. Quadruple frequency, 20 Mcounts/s		
	Safety Function		• Encoder power malfunction detection • Short circuit protection • Undervoltage protection • Overvoltage protection • Encoder alarm protection (Digital differential TTL signal)		
	Position Counting Range		Short circuit protection		
	Linear Motor / Direct Drive Motor		Undervoltage protection		
Encoder Feedback	Emulated Encoder Output (Fieldbus servo drive does not support)	Z Phase	1. Serial encoder and incremental encoder (AqB、sin/cos) are supported. 2. The width of output signal can be adjusted by parameter. 3. Digital differential signal output 4. Z-phase open collector output is supported. 5. Two output methods can be selected. • Only outputs one Z-phase signal for total travel distance. • Outputs one Z-phase signal per one revolution.		
		A / B Phase	1. Serial encoder and digital encoder (AqB) are supported. 2. Differential signal output. The maximum output bandwidth is 18 Mcount/s. 3. The scaling of output can be adjusted. For instance, ten encoder counts = one emulated encoder count.		
	Buffered Encoder Output	Z Phase	1. Only supports digital encoder (AqB). 2. Differential signal output 3. Supports Z phase open-collector output.		
		A / B Phase	1. Only supports digital encoders (AqB). 2. Differential signal output, maximum output bandwidth 20 Mcount/s.		
Computer Communication	Standard USB2.0 (Mini USB type)		Connect the servo drive with your computer to set parameters, monitor physical quantities and execute trial operation via Thunder.		
General-purpose I/O	Input		The functions of general-purpose inputs (Optical couplers) can be defined by users. E1 series servo drive provides ten general-purpose inputs (I1 to I10). Fieldbus servo drive only provides eight general-purpose inputs (I1 to I8) 24 V/5 mA (Each input pin)		
	Output		The functions of general-purpose outputs (Optical couplers) can be defined by users. E1 series servo drive provides five general-purpose outputs (O1 to O5) 24 V/0.1 A (Each output pin)		
	Position Trigger (PT)		The pins for position trigger (PT) output function are CN6-46 and 47 (Differential signal). Differential 3.3 V, maximum current 20 mA, maximum output bandwidth 10 MHz.		
Regenerative Energy Protection	Regenerative Resistor		• 400 W: Without built-in regenerative resistor Connect to external regenerative resistor if needed. • 1 kW/1.2 kW: With built-in regenerative resistor.Connect to external regenerative resistor to increase regenerative capacity.		
	Built-in Regenerative Resistor		-	40 Ω / 40 W	12 Ω / 60 W
	Power Capacity [uF]		820	1410	
	Protection of Regenerative Resistor Enabled		+HV > 370 Vdc		
	Protection of Regenerative Resistor Disabled		+HV < 360 Vdc		
	Overvoltage Protection		390 Vdc		
Optional Function			Gantry synchronization control function		
Environment	Operating Temperature		0~45 °C		
	Storage Temperature		-20 °C ~65 °C		
	Humidity		Operating and storage temperature: 20 to 85% RH (Non-condensing)		
	Altitude		Altitude 1,000 M or lower above sea level		
	Vibrating		Less than 0.5 G, Frequency 10 to 500 Hz, No continuous use under resonance frequency		
	IP Rating		IP20		

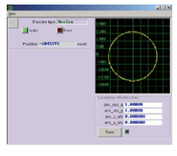
D1 Drive

- 100-240 VAC power input
- Supports STP/DIR, CW/CCW, A/B pulse formats (differential/single-ended interface)
- Supports ±10V voltage or digital commands for velocity or force / torque modes
- Built-in function of error compensation, vibration suppression



Optimization Tool

D1 provides powerful and easy-to-use optimization tools. A user can use the closed-loop frequency response function and real-time response graph will be displayed on the PC. The best gain values of the system can be set easily according to the response graph.

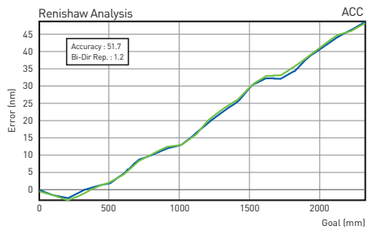


Analog Encoder Can Work with Resolution Units Smaller than Nanometer

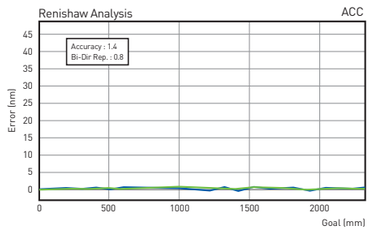
When using an analog encoder, a user is allowed to set the resolution to very small units. D1 is able to realize precise control based on units smaller than nanometer.

Error Mapping

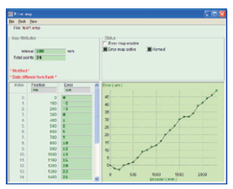
D1 drive supports error mapping to encoder feedback and compensation table building, which contains up to 16,000 points. With this function, the positioning accuracy of the system can be optimized in any control mode.



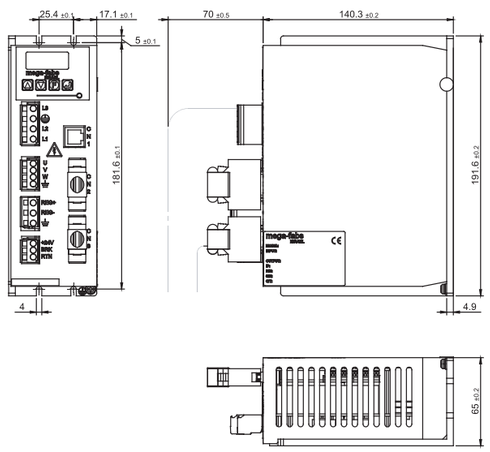
Before Error Mapping



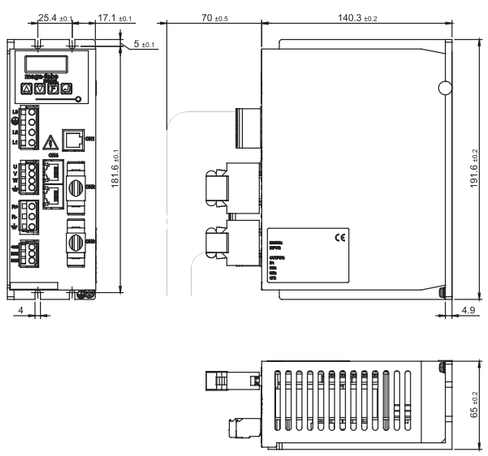
After Error Mapping



Standard



Fieldbus



D1 Model Description

D1-36-S2-2-0-00

Rated Output
36 : 36 A

Communication Interface
S : Standard format RS232
(No fieldbus interface)
E : EtherCAT (CoE)
F : EtherCAT (mega-ulink)

Encoder type
2 : Analog
3 : Digital

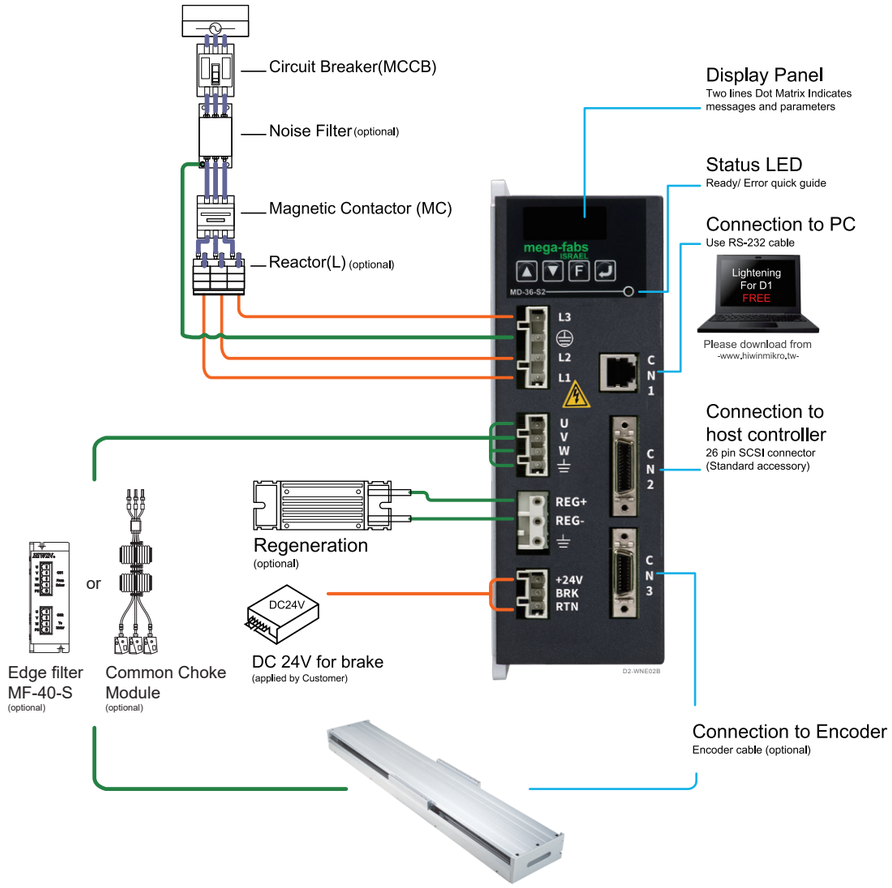
Reserved Code
00 : Standard

Heat Sink
0 : Without heat sink
1 : High profile (H1)

Input Voltage
2 : Single/Three-Phase 220Vac

Note:
Model code can be generated via the sizing program on our website.

D1 Wiring Diagram



D1 Specification (User Manual" V3.0)

D1			D1-36
Input Power	Voltage		100 - 240 Vac±10%
	Frequency		47 to 63Hz
	Phase		1Ø or 3Ø
	Control Voltage		+24 Vdc 10%
	Control Current		1 A minimum
Output Power	Continuous Current		12 A_amp(8.5 A_rms) (Note: with external heat sink)
	Instantaneous Current		36 A_amp (25.4 A_rms)
	Allowable Continuous Time for Instantaneous Current		1 second maximum
Drive Startup Time			1~2 seconds
Drive Reset Time			3~4 seconds
Main Circuit Control			IGBT PWN space vector control
Control Motor Type			• 13 bit AC servo motor • Linear motor • Torque motor
Status LED Indicator			Red: Error ； Green: Servo ready
Position Mode	Input Port		[I9, I9M], [I10, I10M] differential inputs or I9, I10 single end inputs
	Pulse Command Mode		• Pulse / Direction • CW / CCW • AqB
	Maximum Input Pulse Frequency	Differential Signal	Pulse (2M pulses/s max.) ； Quad A/B (8M counts/s max.)
		Single End Signal	Pulse (500K pulses/s max.) ； Quad A/B (2M counts/s max.)
	Command Source		Pulse from controller
	Electronic Gear		Electronic gear ratio: pulses/ counts Pulses: 1~2147483647 ； Counts: 1~2147483647
Velocity Mode	Analog Input Command	Input Impedance	10 KΩ
		Voltage Range	± 10 Vdc
		Time Constant	2.2 us
		Resolution	12 bits
	Digital Input Command	PWM 100%	I9: PWM = 0% - 100% I10: Direction = 1/0
		PWM 50%	I9: PWM = 50% ± 50% I10: No function
		Frequency Range	36.5 KHz minimum, 100 KHz maximum
		Pulse Width Limit	220 ns minimum
	Command Source		Voltage or PWM from controller

D1			D1-36
Force/ Torque Mode	Analog Input Command		Same as velocity mode.
	Digital Input Command		Same as velocity mode.
	Command Source		Voltage or PWN from controller
Encoder Type	Operating Voltage		+5 Vdc ± 5% @400 mA
	Digital	Input Signal	A, / A, B, / B, Z, / Z, RS422 differential signal
		Bandwidth	5 MHz line frequency, x 4 frequency: 20 M counts/s
	Analog	Input Amplitude	1 Vpp (sin/cos), differential signal
		Bandwidth	1 MHz maximum line (cycle) frequency
		Resolution	Maximum 65528 counts/ cycle
Encoder Counting Range			-2147483648~2147483647 (32 bits) The motor commutation is normal and is not affected by encoder counting range
Buffered Encoder Output	Digital Encoder		• Without being processed by the servo drive, A/B phase signals are directly sent to the controller. (Maximum 18 M counts/s, digital AqB output, differential signal output) • Without being processed by the servo drive, Z phase signals are directly sent to the controller. (Differential signal) • The delay time between the time the servo drive receives encoder signal from the encoder and the time the servo drive outputs signal from output pin is less than 100 nanosecond. (ns)
	Analog Encoder		• Maximum 18 M counts/s, digital AqB output, differential signal output • The resolution is the grating period of analog encoder/4. (If grating period = 40 μm, the resolution of buffered encoder output = 10 μm/count) • The delay time between the time the servo drive receives encoder signal from the encoder and the time the servo drive outputs signal from output pin is less than 100 nanosecond (ns).
Emulated Encoder Output			• Maximum 18 M counts/s, digital AqB output, differential signal output • The ratio of encoder input to emulated encoder output can be adjusted. The width of emulated index signal output can be adjusted. • Linear motor: (1) Outputs one index (Z phase) signal per travel distance. • Rotary motor: (1) Outputs one index (Z phase) signal per travel distance (2) Outputs one index (Z phase) signal per motor revolution The maximum delay time between the time the servo drive receives encoder signal from the encoder and the time the servo drive outputs signal from output pin is 66.67 us.
Digital Hall Signal			Digital single-ended signal with 120 degrees phase difference HA, HB, HC

D1		D1-36
Communication	Interface	Connect to PC via RS232
	Protocol	• Full-duplex • Baud rate: 9,600 ~ 115,200 bps • Binary
Programmable I/O Interface	Digital Input	74HC14 Schmitt trigger input Inputs [I1~I6] [I11, I12] [I9, I10] 10 digital inputs are provided. Note: When I9 and I10 are set for digital inputs, they cannot be programmed as general inputs.
	Digital Output	0.3 Adc max, +40 Vdc max (Open drain) [O1~O3]
	Brake Output	Brake [O4], 1 Adc max.
PDL Editor	The Maximum Storage for Codes	32K Bytes
	Storage for Variables	800 Bytes
	Supported Variable Type	Float: 32 bits Integer: 16 bits and 32 bits (Array and pointer are supported.)
	Execution Cycle	66.67 us
	Multitasking	Four tasks can be run at the same time.
	Control Commands for Program Flow	Supports commands such as "if", "else", "while loop", "for loop", "goto", "till", etc.
	Operator	Includes arithmetic operators, logic operators and comparison operators.
	Task Synchronization	Supports Lock and Unlock commands to perform task synchronization.
	Length Limit for User-defined Name	• Variable: 17 characters • Label: 24 characters • Proc: 24 characters
Regenerative Resistor	Resistor	External connection
	Voltage Threshold for Activation	+HV > 390 Vdc
	Voltage Threshold for Deactivation	+HV < 380 Vdc
	Hysteresis	10 V ± 0.5 Vdc
	DC Link Capacity	1880 uF
Protection Function		Short circuit, Overvoltage (> 400 Vdc ± 5%), Position error too big, Encoder error, Motor cable lost connection, Drive over temperature (IGBT > 80°C ± 3°C), Motor over temperature, Undervoltage (< 60 Vdc), I2T over current protection
Error Compensation	Motor Type	Linear motor
	Compensation Method	Creates error map to compensate encoder error by means of linear interpolation.
	Storage Point	Maximum 5,000 points
	Storage Location	Flash ROM, disk file
	Unit	μm, count
	Enabling Method	Activated after internal homing or by an external input signal.
Frequency Suppression Range for Vibration Suppression Filter (VSF)		0.1 Hz~200 Hz

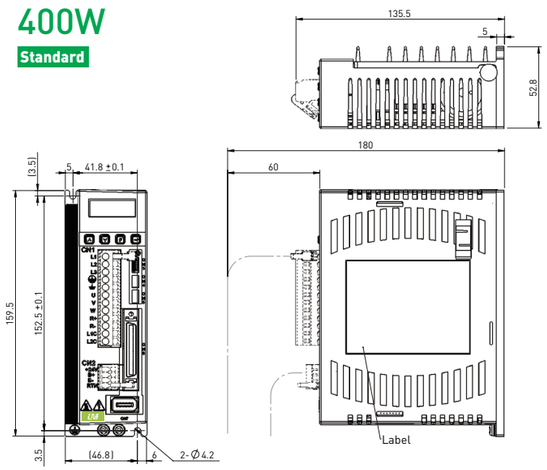
D1		D1-36
Environment	Operating Temperature	0~50°C (If temperature is above 55 °C, ventilation system is compulsory.)
	Storage Temperature	-20°C ~ 65°C
	Humidity	0 to 90%RH (non-condensing)
	Altitude	Below 1,000m above sea level
	Vibration	1G (10 to 500 Hz)
	IP Rating	IP20
Cooling System		Natural cooling or external heat sinks
Weight		1,250 g (min.)
Dimensions		191.6 mm X 139.8 mm X 64.8 mm
Case		Complies with CE U.L. Spec 94 V-0 Flammability Rating

D2T-LM Drive

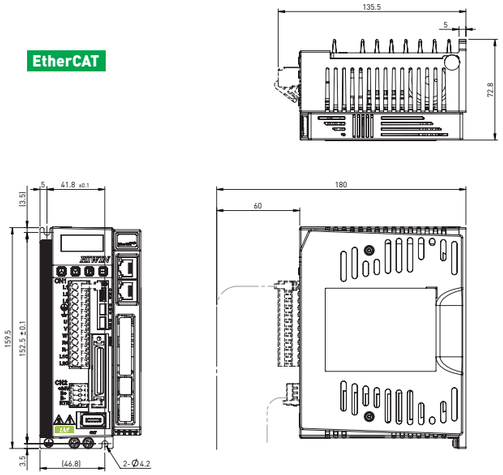
- High Speed Response
- High Acceleration Response
- Built-In Accuracy Improvement Function
- Vibration Suppression Function
- Electronic Gear Ratio and Encoder Emulator
- PDL General Motion Language

400W

Standard

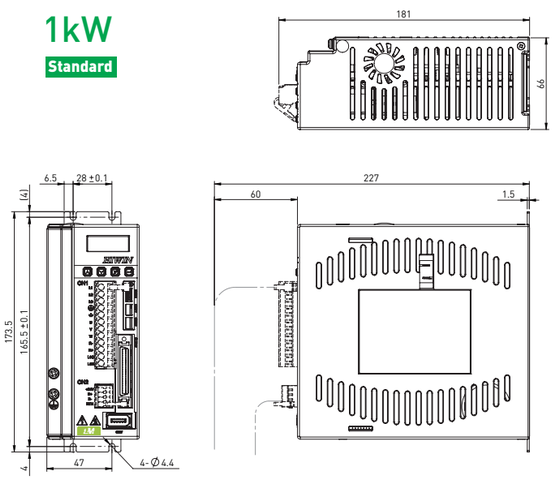


EtherCAT

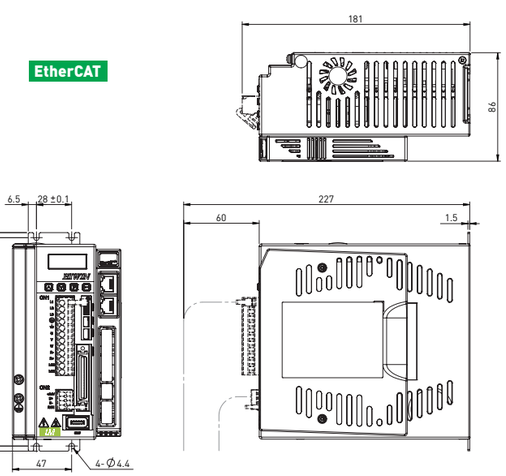


1kW

Standard



EtherCAT



D2T-LM Model Description

D 2 T - 0 4 2 3 - S - B 5 - 0 L

Rated Output (Compatible Motor)
04 : 400W
(08S050、10S100、13S100、18S100、20C100、20C200)
10 : 1kW
(08S100、10S200、13S200、18S200、
18C100、18C200、20S300)
(Not applicable if the above specifications are not listed)

Input Power
23 : Single/Three-phase 220 Vac

Control Interface
S : Voltage command+pulse
E : EtherCAT
F : mega-ulink

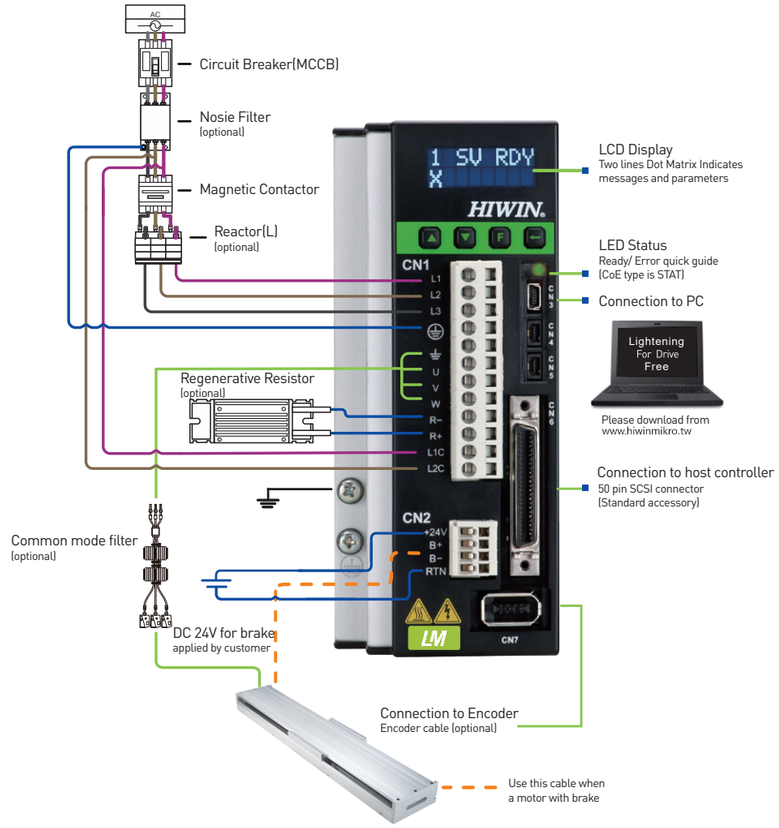
Motor Code
0L : Linear motor series only

Enocder Interface
5 : Digital TTL (AqB)

Frame Size
B : 400W
C : 1kW

Note:
Model code can be generated via the sizing program on our website.

D2T-LM Wiring Diagram



D2T-LM Specification (User Manual" V1.2)

Basic Specifications	Input Power 220V	Main Power	Frame B-C	Single/Three-phase, 200 - 240 Vac 50/60Hz
		Control Power	Frame B-C	Single phase, 200 - 240 Vac 50/60Hz
	Output Power	Power		Frame B: 400W; frame C: 1.0KW
		Continuous Current		Frame B: 2.5 Arms; frame C: 5.1 Arms
		Peak Current		Frame B: 7.5 Arms; frame C: 15.3 Arms
		Sustainable Duration of Peak Current		Maximum 1 second
	Environment	Temperature		Operation temperature: 0°C to 45°C (if over 55°C, a ventilation system is compulsory.) Storage temperature: -20°C to 65°C
		Humidity		0 to 90%RH (Non-condensing)
		Altitude		Altitude 1,000 M or lower above sea level
		Vibration		1G (10 to 500Hz)
	Installation Pollution Level			II
	Control Method			IGBT PWM space vector control
	Encoder Input	Feedback Resolution		Digital TTL
		Frequency		5M pulse/sec (Before Quadrature);20M count/sec (After Quadrature).
		Other		The linear encoder should be the digital AqB encoder.
	Parallel I/O Connector	Control Signal	Input	Linear encoder should be digital AqB encoder.
			Output	5 (general purpose)
		Analog Signal	Input	1 (12-bit A/D)
			Output	2 (analog monitor)
		Pulse Signal	Input	2 (low-speed channel,high-speed channel)
			Output	4 (line driver:3 outputs; open collector:1 output)
	Brake Connector	Control Signal	Output	Connection with brake. (1 Adc max). Also, it is programmable for general-purpose output.
	Dynamic Brake			No built-in dynamic brake. External relay and brake resistor are needed.
	Communication Function		USB	Used to connect with PC, 115,200 bps
	Front Panel			LCD status display: dot matrix 8*2 characters with 4 buttons; LED status indicator lights (green, red)
	Control Mode			Switchable control modes (1) Position control; (2) Velocity control; (3) Torque control ; (4) Position/velocity control; (5) Position/torque control ; (6) Velocity/torque control;
Function Specifications	Position Control	Control Input		(1) Command pulse inhibit; (2) Axis enable; (3) Switch between primary and secondary CG; (4) Electronic gear selection; (5) Left limit switch; (6) Switch between primary and secondary mode; (7) Clear error; (8) Right limit switch, etc.
		Control Output		(1) Servo ready; (2) Errors; (3) In-position; (4) Zero speed detected, etc.
		Pulse Input	Maximum Input Pulse Frequency	Photo-coupler interface (single-ended input): 250 Kpps; Line driver interface (differential input): 4 Mpps (16M count/s with AqB).
			Signal Format of Input Pulse	(1) Pulse/direction (Pulse/Dir); (2) Pulse up/pulse down (CW/CCW); (3) Quadrature (AqB).
			Electronic Gear (Division/ Multiplication of Command Pulse)	Gear ratio: pulses/counts Pulses: 1 - 2,147,483,647; counts: 1 – 2,147,483,647.
			Smoothing Filter	Smooth factor: 1 - 500
		VSF		VSF can remove the vibration frequency that occurs during the movement. It can also reduce the vibration caused by the system's structure to enhance productivity.

Velocity Control	Control Input		(1) Zero speed clamp; (2) Axis enable; (3) Switch between primary and secondary CG (4) Left limit switch (5) Switch between primary and secondary mode (6) Clear error (7) Right limit switch, etc.
	Control Output		(1) Servo ready; (2) Errors; (3) In-velocity; (4) Zero speed detection, etc.
	PWM Input	Velocity Command Input	Velocity commands can be provided by the duty cycle of PWM input. Parameters are used to set the scale and command direction.
	Analog Input	Velocity Command Input	Velocity command can be provided by the analog voltage. Parameters are used to set the scale and command direction. (+/-10Vdc 12-bits resolution)
	Zero Speed Clamp		The input of zero speed clamp is possible.
Torque Control	Control Input		(1) Axis enable;(2) Switch between primary and secondary CG; (3) Left limit switch; (4) Switch between primary and secondary mode; (5) Clear error; (6) Right limit switch, etc.
	Control Output		(1) Servo ready; (2) Errors; (3) In-velocity; (4) Zero speed detected, etc.
	PWM Input	Torque Command Input	Torque commands can be provided by the duty cycle of PWM input. Parameters are used to set the scale and command direction.
	Analog Input	Torque Command Input	Torque commands can be provided by the analog voltage. Parameters are used to set the scale and command direction. (+/-10Vdc 12-bits resolution)
	Speed Limit Function		The parameter for speed limit can be set.
Common	Emulated Encoder Feedback Output		Can be arbitrarily set (The maximum frequency of frame B - C models is 18M count/s)
	Protection Function		(1) Motor short detected; (2) Over voltage detected (> 390 Vdc ± 5%); (3) Position error too big;(4) Encoder error; (5) Soft-thermal threshold reached; (6) Motor maybe disconnected; (7) Amplifier over temperature (IGBT > 80°C ± 3°C); (8) Under voltage detected; (9) 5V for encoder card fail; (10) Phase initialization error (11) Serial encoder communication error
	Error Log		Errors and warnings are saved in the non-volatile memory.
	Process Design Language (PDL)		Maximum code capacity: 32 KBytes
			Variable storage capacity: 800 Bytes
			Supported variable type: (1) Float type: 32 bits; (2) Integer type: 16 and 32 bits; (3) Array and pointer supported.
			Execution cycle: 66.67 us
			4 tasks can be executed simultaneously.
			Support if, else, while loop, for loop, goto, till, and other commands to control program flow.
			Support arithmetic operators, logical operators, and comparison operators.
			Support lock and unlock commands to control the synchronization of multi-tasks.
			Maximum length of user-defined name: (1) variable: 17 characters (2) label: 24 characters (3) proc: 24 characters
	Error Mapping		Method: Establish error map to compensate the encoder error by using the linear interpolation.
			Storage point: Maximum 5,000 points.
			Storage location: Flash ROM; disc file.
			Unit: count.
			Enable method: activated after internal homing or by an external input signal.
	Regeneration	Resistor	Need external connection, and have no built-in regenerative resistor.
		Voltage Threshold for Activation	+HV > 370Vdc
		Voltage Threshold for Deactivation	+HV < 360Vdc
		DC Link Capacity	frame B: 820 uF; frame C: 1,410 uF

Cable and Pin Assignment

Power Cable Pin Assignment

Iron core Motor (A:Standard)	
Signal	Color
U	Brown
V	White
W	Gray
GND	Shield
T+	Yellow
T-	Green
	Shield

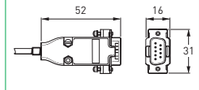
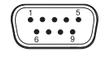
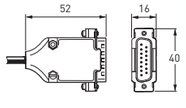
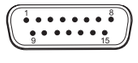
Iron core Motor (B:High voltage)	
Signal	Color
U	Black-1
V	Black-2
W	Black-3
GND	Green / Yellow
T+	Brown
T-	Blue
	Shield

Ironless Motor (A:Standard)	
Signal	Color
U	Brown
V	White
W	Grey
GND	Shield
T+	Yellow
T-	Green
	Shield

Limit Switch Pin Diagram

Limit Switch			
Work	Function	Signal	Color
+Limit / -Limit / Near home sensor	Power	12V~24V	Brown
		0V	Blue
	Output	NPN / PNP	Black

Encoder Cable Pin Assignment (Stage wiring side)

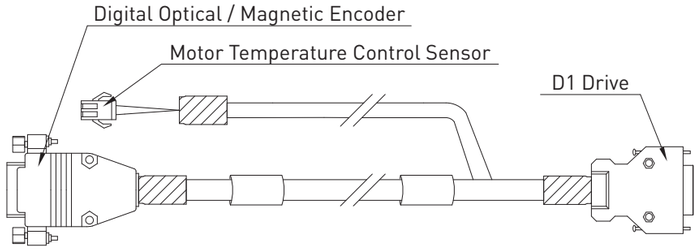
Type	Connector type	
D-Sub 9-pin (Male)		
D-Sub 15-pin (Male)		

	D-Sub 15-pin		D-Sub 9-pin
Pin no.	Analog	Digital	BiSS-C
	A,D,H	E,G,K	P
1	Sin-	-	-
2	Cos-	0V	MA+
3	V0+	-	MA-
4	5V	Z-	5V
5	5V	B-	5V
6	-	A-	SLO+
7	-	5V	SLO-
8	-	5V	0V
9	Sin+	0V	0V
10	Cos+	-	-
11	V0-	-	-
12	0V	Z+	-
13	0V	B+	-
14	-	A+	-
15	-	-	-
Plug housing	Shielding	Shielding	Shielding

Encoder Extension Cable

Pin assignment

Housing (F)	Color	Signal	SCSI 20P(M)
1	Brown	T+	14
2	Blue	T-	15
D-Sub 15P (F)	Color	Signal	
7	Brown	5V	3
	Green		
2	White	0V	2
	Yellow		
14	Gray	A+	4
6	Pink	A-	5
13	Blue	B+	6
5	Red	B-	7
12	Black	Z+	8
4	Violet	Z-	9
3	White/Green	Encoder Alarm	18
15	Inner Shield		20
Case	Outer Shield		1

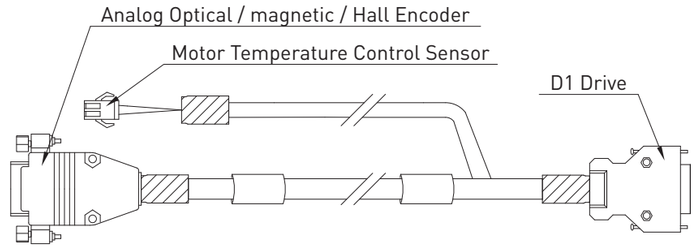


Corresponding Encoder (E,G,K) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
D1	HE00VJQ81100	HE00VJQ84200	HE00VJQ84400

Pin assignment

Housing (F)	Color	Signal	SCSI 20P(M)
1	Brown	T+	14
2	Blue	T-	15
D-Sub 15P (F)	Color	Signal	
4	Brown	5V	3
12	White	0V	2
9	Green	V1+	16
1	Yellow	V1-	17
10	Blue	V2+	18
2	Red	V2-	19
3	Violet	V0+	8
11	Grey	V0-	9
15	Inner Shield		20
Case	Outer Shield		1,Case

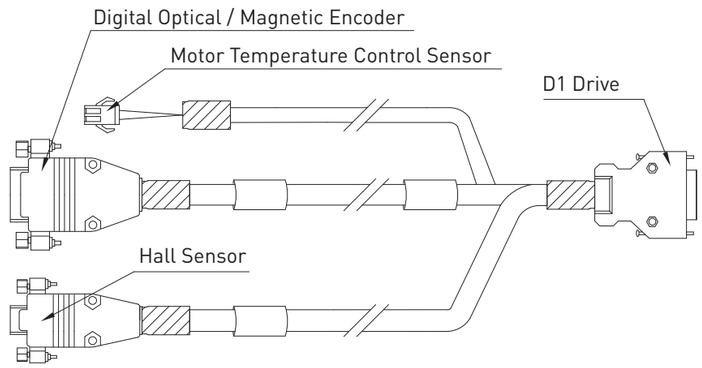


Corresponding Encoder (A,D,H) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
D1	HE00VJQ86300	HE00VJQ85600	HE00VJQ85700

Pin assignment

Housing (F)	Color	Signal	SCSI 20P(M)
1	Brown	T+	14
2	Blue	T-	15
D-Sub 15P (F)	Color	Signal	
7	Brown	5V	3
	Orange		
2	White	0V	2
	Black		
14	Green	A+	4
6	Yellow	A-	5
13	Blue	B+	6
5	Red	B-	7
12	Violet	Z+	8
4	Gray	Z-	9
3	Pink	Encoder Alarm	18
15	Inner Shield		20
Case	Outer Shield		1
D-Sub 9P(F)	Color	Signal	
1	Brown	5V	3
2	White	Hall A	11
3	Grey	Hall B	12
4	Yellow	Hall C	13
5	Green	0V	10
Case	Shield		1

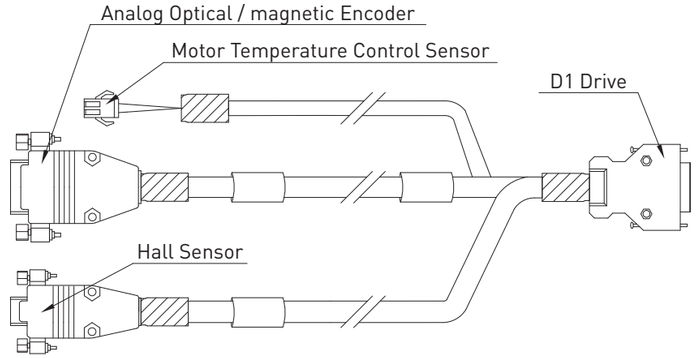


Corresponding Encoder (E,G,K) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
D1	HE00VJQ81000	HE00VJQ87200	HE00VJQ87400

Pin assignment

Housing (F)	Color	Signal	SCSI 20P(M)
1	Brown	T+	14
2	Blue	T-	15
D-Sub 15P (F)	Color	Signal	
4	Brown	5V	3
12	White	0V	2
9	Green	V1+	16
1	Yellow	V1-	17
10	Blue	V2+	18
2	Red	V2-	19
3	Violet	V0+	8
11	Grey	V0-	9
15	Inner Shield		20
Case	Outer Shield		1,Case
D-Sub 9P(F)	Color	Signal	
1	Brown	5V	3
2	White	Hall A	11
3	Grey	Hall B	12
4	Yellow	Hall C	13
5	Green	0V	10
Case	Shield		1

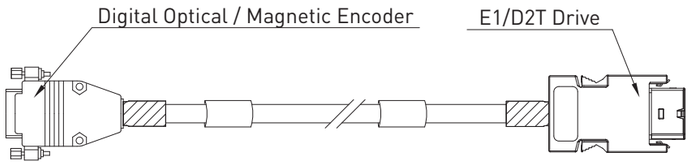


Corresponding Encoder (A,D) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
D1	HE00VJQ86400	HE00VJQ85800	HE00VJQ85900

Pin assignment

D-Sub 15P (F)	Color	Signal	R-36210 (F)
7	Brown	5V	1
8	Pink		
2	White	0V	2
9	Black		
11	Orange	PS+	3
3	Clear	PS-	4
14	Green	A+	5
6	Yellow	A-	6
13	Blue	B+	7
5	Red	B-	8
12	Violet	Z+	9
4	Gray	Z-	10
15	Inner Shield		2
Case	Outer Shield		Case

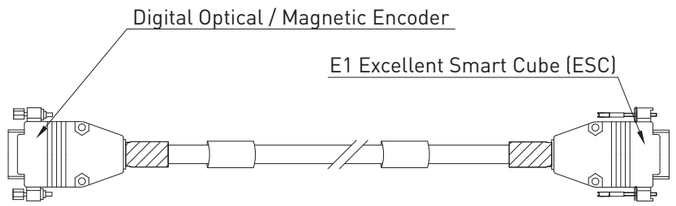


Corresponding Encoder (E,G,K) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
D2T/E1	HE00EJ6DFH00	HE00EJ6DF200	HE00EJ6DF400

Pin assignment

D-Sub 15P (F)	Color	Signal	(HD)VGA 26Pin(M)
7	White	5V	4
8	Green		
2	Brown	0V	13
9	Yellow		
14	Grey	V1+	19
6	Pink	V1-	20
13	Blue	V2+	21
5	Red	V2-	22
12	Black	V0+	3
4	Violet	V0-	12
11	White/Green	E+	7
3	Brown/Green	E-	17
15	Inner Shield		15
Case	Outer Shield		Case

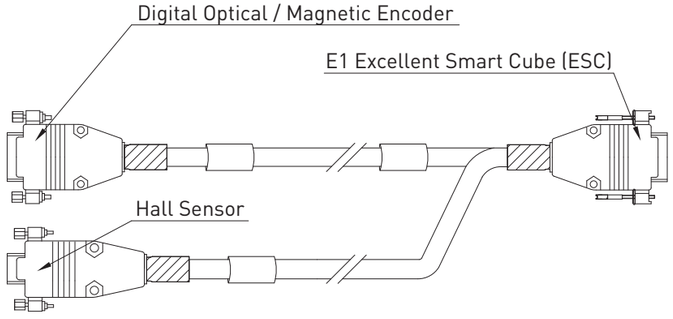


Corresponding Encoder (E,G,K) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
E1	HE00EKTDBQ00	HE00EKTDB200	HE00EKTDB400

Pin assignment

D-Sub 15P (F)	Color	Signal	(HD)VGA 26Pin(M)
7	White	5V	4
8	Green		
2	Brown	0V	13
9	Yellow		
14	Grey	V1+	19
6	Pink	V1-	20
13	Blue	V2+	21
5	Red	V2-	22
12	Black	V0+	3
4	Violet	V0-	12
11	White/Green	E+	7
3	Brown/Green	E-	17
15	Inner Shield		15
Case	Outer Shield		Case
D-Sub 9P(F)	Color	Signal	
1	Brown	5V	5
2	White	Hall U	8
3	Grey	Hall V	18
4	Yellow	Hall W	9
5	Green	0V	14
Case	Shield		Case

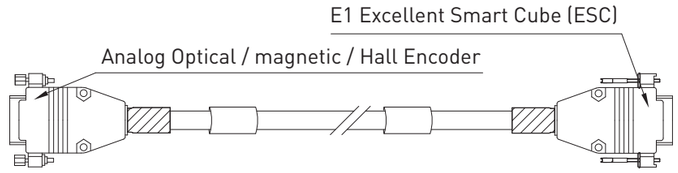


Corresponding Encoder (E,G,K) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
E1	HE00EKTDAQ00	HE00EKTDA200	HE00EKTDA400

Pin assignment

D-Sub 15P (F)	Color	Signal	(HD)VGA 26Pin(M)
4	White	5V	4
5	Green		5
12	Brown	0V	13
13	Yellow		14
9	Grey	V1+	1
1	Pink	V1-	10
10	Blue	V2+	2
2	Red	V2-	11
3	Black	V0+	3
11	Violet	V0-	12
15	Inner Shield		15
Case	Outer Shield		Case

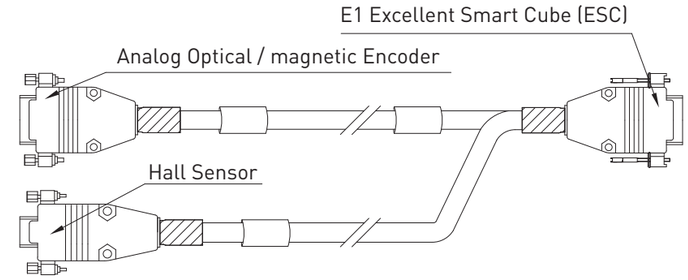


Corresponding Encoder (A,D,H) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
E1	HE00EK1DAQ00	HE00EK1DA200	HE00EK1DA400

Pin assignment

D-Sub 15P (F)	Color	Signal	(HD)VGA 26Pin(M)
4	White	5V	4
5	Green		5
12	Brown	0V	13
13	Yellow		14
9	Grey	V1+	1
1	Pink	V1-	10
10	Blue	V2+	2
2	Red	V2-	11
3	Black	V0+	3
11	Violet	V0-	12
15	Inner Shield		15
Case	Outer Shield		Case
D-Sub 9P(F)	Color	Signal	
1	Brown	5V	5
2	White	Hall U	8
3	Grey	Hall V	18
4	Yellow	Hall W	9
5	Green	0V	14
Case	Shield		Case

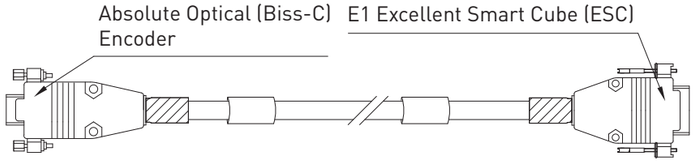


Corresponding Encoder (A,D) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
E1	HE00EJVDAQ00	HE00EJVDA200	HE00EJVDA400

Pin assignment

D-Sub 9P (F)	Color	Signal	(HD)VGA 26Pin(M)
4	Brown	5V	4
5	Brown		5
8	White	0V	13
9	Green		14
6	Gray	DATA+	23
7	Pink	DATA-	24
2	Violet	CLK+	7
3	Blue	CLK-	17
Case	Outer Shield		Case



Corresponding Encoder (P) Extension Cable Number

Drive	Cable Length		
	0.4M	2M	4M
E1	HE00EKSDAQ00	HE00EKSDA200	HE00EKSDA400

Single-Axis Linear Motor Stage Technical Information

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