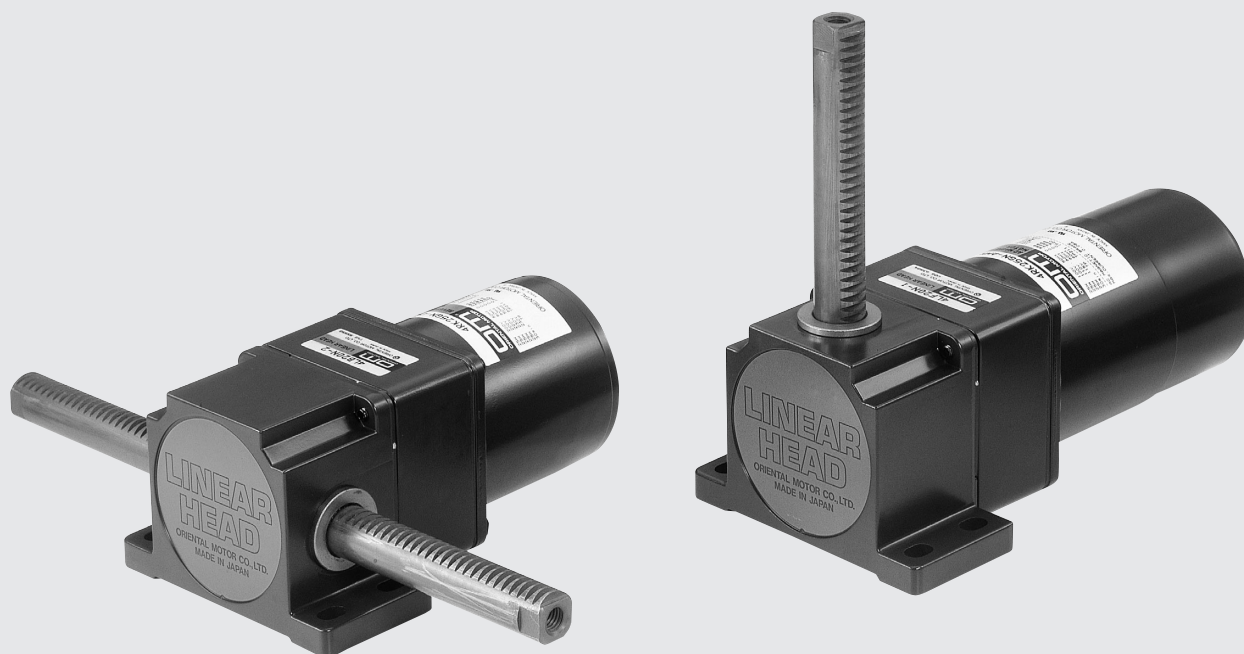




(The motor shown in the photograph is sold separately.)

Linear Heads LH Series

Additional Information

Technical ReferenceF-1
General InformationG-1

0L TypeD-20
2L TypeD-22
4L TypeD-26
5L-U TypeD-30

Linear Heads LH Series

The **LH** Series of linear heads with a rack-and-pinion mechanism are coupled with standard AC compact motors. They easily produce linear motion such as pressing and reversing.



B Type
Reversible Motors (horizontal)
(The motor shown in the photograph is sold separately.)



F Type
Reversible Motors (vertical)
(With Terminal Box)



Electromagnetic
Brake Motors

Applications and Recommended Motor Combinations

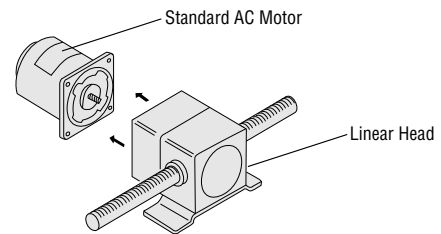
Refer to table on page D-19.

Note:

OL Type is coupled to a dedicated motor.

Wide Variety

A wide variety of linear heads are available, depending on basic speed, length of rack, maximum transportable mass, direction of rack movement in respect to the mounting face etc.



Types of Linear Heads

Linear Head Type	Basic Speed [inch/s (mm/s)] ^{*2}				Max. Transportable Mass ^{*3} lb. (kg)	Rack Stroke in. (mm)							Page
	0.24 (6)	0.47 (12)	0.94 (24)	2.13 (54)		3.94 (100)	7.87 (200)	11.81 (300)	15.75 (400)	19.69 (500)	23.62 (600)	27.56 (700)	
OL	●	●	●	—	22 (10)	●	●	—	—	—	—	—	D-20
2L^{*1}	—	●	●	●	44 (20)	●	●	●	●	●	—	—	D-22
4L	—	●	●	●	154 (70)	●	●	●	●	●	●	●	D-26
5L-U	—	●	●	●	308 (140)	●	●	●	●	●	●	●	D-30

^{*1} The basic speed of **2L** type is 0.47 inch/s (12 mm/s), 1.18 inch/s (30 mm/s), 2.36 inch/s (60 mm/s).

^{*2} Basic speed is based on the synchronous speed (1800 r/min at 60Hz). The actual speed varies with the load or power supply frequency.

^{*3} The maximum transportable mass is determined by the strength of the linear head. Just as when connecting a gearhead to a motor, increasing the gear ratio (reducing the speed) generates greater transportable mass, but the motor should always be operated below the maximum permissible transportable mass. The maximum transportable mass is the value when operating the rack in a horizontal direction. When operating in a vertical direction, subtract the mass of the rack from the value. The maximum transportable mass is the value when combined with a reversible motor. The value varies with basic speed.

Product Number Code

4 L F 45 N - 3

Linear
Heads

Direction of Rack Travel

F: Vertical stroke type (Rack travels vertically to mounting face)

B: Horizontal stroke type (Rack travels horizontally to mounting face)

Speed Indication

Theoretical rack speed

The basic speed of the linear head is based on the rated speed of the motor at 1,800 (r/min)

Type of Gear

N: GN type (for use with GN type pinion shaft motor)

U: GU type (for use with GU type pinion shaft motor)

Rack Stroke

1: 3.94 in. (100 mm)

2: 7.87 in. (200 mm)

3: 11.81 in. (300 mm)

4: 15.75 in. (400 mm)

5: 19.69 in. (500 mm)

6: 23.62 in. (600 mm)

7: 27.56 in. (700 mm)

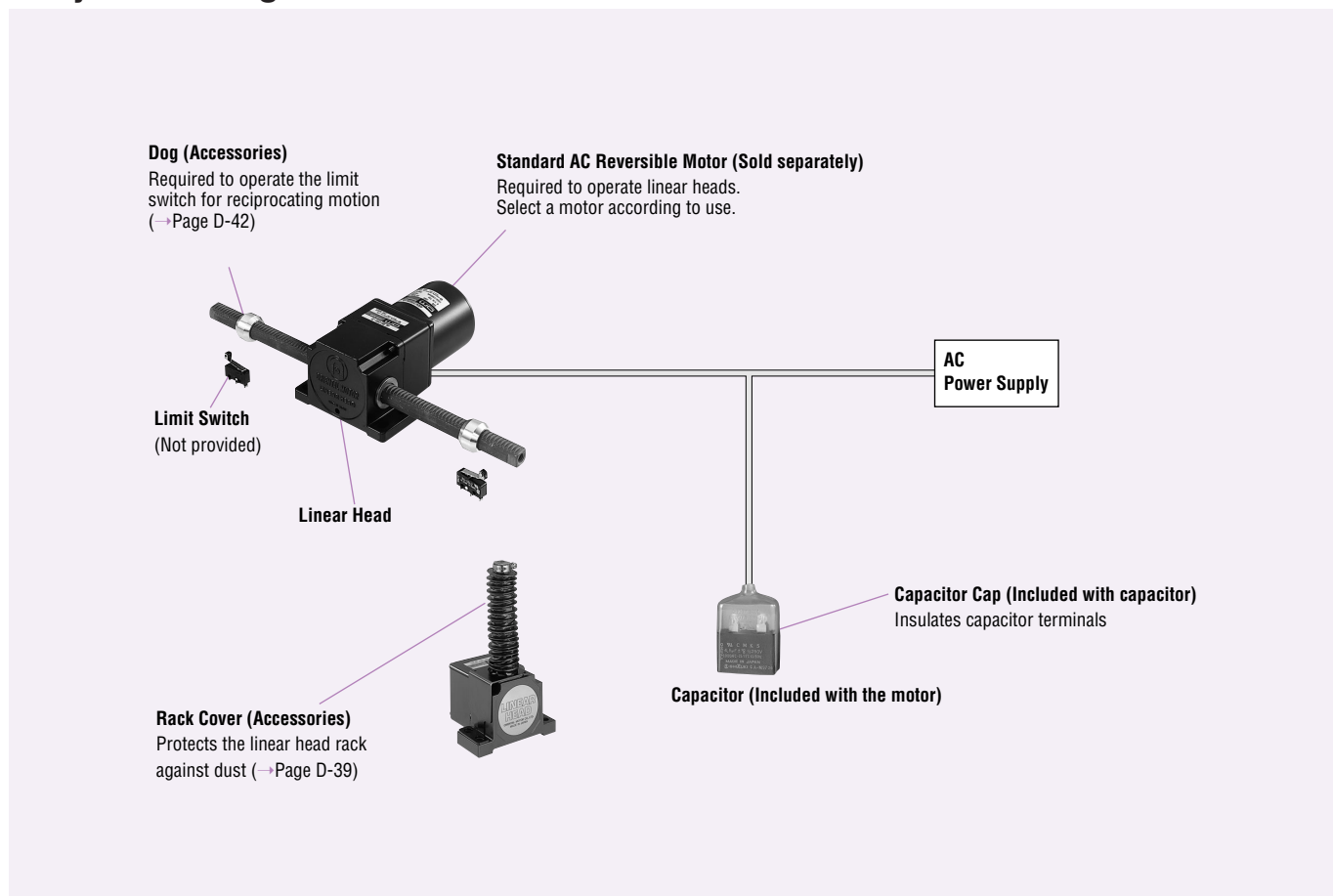
0: is coupled to a motor with 1.65 in. (42 mm) sq. mounting face

2: Can be coupled directly to a motor with 2.36 in. (60 mm) sq. mounting face

4: Can be coupled directly to a motor with 3.35 in. (80 mm) sq. mounting face

5: Can be coupled directly to a motor with 3.54 in. (90 mm) sq. mounting face

System Configuration



Example of system configuration when a linear head and a standard AC reversible motor is used.

Applications and Recommended Motor Combinations

Application	Applicable Motor	0L Type	2L Type	4L Type	5L-U Type
Constant Speed	Reversible Motors	0RK1GN-AUL	2RK6GN-AW(T)U 2RK6GN-CW(T)E	4RK25GN-AW(T)U 4RK25GN-CW(T)E	5RK60GU-AW(T)U 5RK60GU-CW(T)E 5RK90GU-AW(T)U 5RK90GU-CW(T)E
Position Holding	Electromagnetic Brake Motors	—	2RK6GN-AWMU 2RK6N-CWME	4RK25GN-AWMU 4RK25GN-CWME 4IK25GN-SWM	5RK60GU-AWMU 5RK60GU-CWME 5IK60GU-SWM 5RK90GU-AWMU 5RK90GU-CWME 5IK90GU-SWM
Thrust Linear Motion	Torque Motors	—	—	4TK10GN-AUL	—

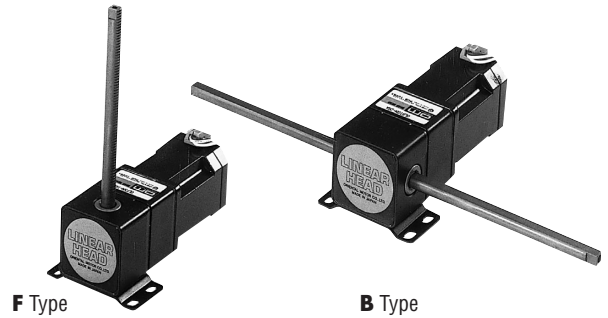
- Torque motors do not have a built-in friction brake. Be sure that a torque motor has no holding brake force even when stopping during vertical operations. When operating a torque motor at high-speed, ensure that the rack does not hit an object and stop, since this can add excessive torque to the linear head and subject it to inertial shock which can significantly shorten its life.

LH Series

OL Type

Max. Transportable Mass 22 lb. (10 kg)

(The maximum transportable mass varies with basic speed and the motor combination.)



(The motor shown in the photograph is sold separately.)

Specifications

Basic Speed	Linear Head	Rack Stroke
0.24 inch/s (6 mm/s)	OLB5N-1, OLB5N-2 OLF5N-1, OLF5N-2	1: 3.94 inch (100 mm) 2: 7.87 inch (200 mm)
0.47 inch/s (12 mm/s)	OLB10N-1, OLB10N-2 OLF10N-1, OLF10N-2	
0.94 inch/s (24 mm/s)	OLB20N-1, OLB20N-2 OLF20N-1, OLF20N-2	

- Basic speed is based on the synchronous speed (1800 r/min at 60 Hz). The actual speed varies with the load or power supply frequency.
- Holding force is provided by the built-in friction brake of the reversible motor. The values given in the table vary depending on the temperature and the time of operation, and thus should only be used as a reference.
- The maximum load mass that can be driven when operating the mechanism vertically is the maximum transportable mass less the rack mass.
- When operating the mechanism horizontally, using a guide or similar device to bear the load, ensure that the load mass is less than the maximum transportable mass.

Max. Permissible Overhung Load

Stroke	Max. Permissible Overhung Load
3.94 inch (100 mm)	2.7 lb. (12 N)
7.87 inch (200 mm)	1.8 lb. (8 N)

Overrun

Linear Head	Overrun inch (mm)
OL□5N-□	0.06 (1.4)
OL□10N-□	0.11 (2.8)
OL□20N-□	0.19 (4.7)

Product Line

Rack Stroke inch (mm)	Basic Speed		
	0.24 inch/s (6 mm/s)	0.47 inch/s (12 mm/s)	0.94 inch/s (24 mm/s)
3.94 (100)	OLB5N-1 OLF5N-1	OLB10N-1 OLF10N-1	OLB20N-1 OLF20N-1
7.87 (200)	OLB5N-2 OLF5N-2	OLB10N-2 OLF10N-2	OLB20N-2 OLF20N-2

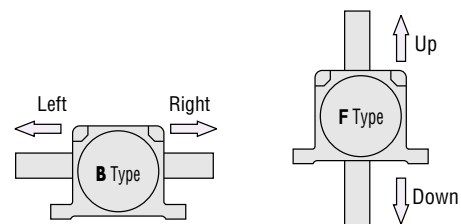
Connection and Operation

Direction of Rack Movement

The direction of rack movement is determined by the direction of motor rotation.

Linear Head	Motor Rotation	
	CW	CCW
OLB10N-□ OLB20N-□	Right	Left
OLF10N-□ OLF20N-□	Up	Down
OLB5N-□	Left	Right
OLF5N-□	Down	Up

- Dogs (Accessories, →Page D-42) and limit switches are necessary to stop or reverse rack movement.
- Direction of rack movement is as viewed from the front side of the linear head.

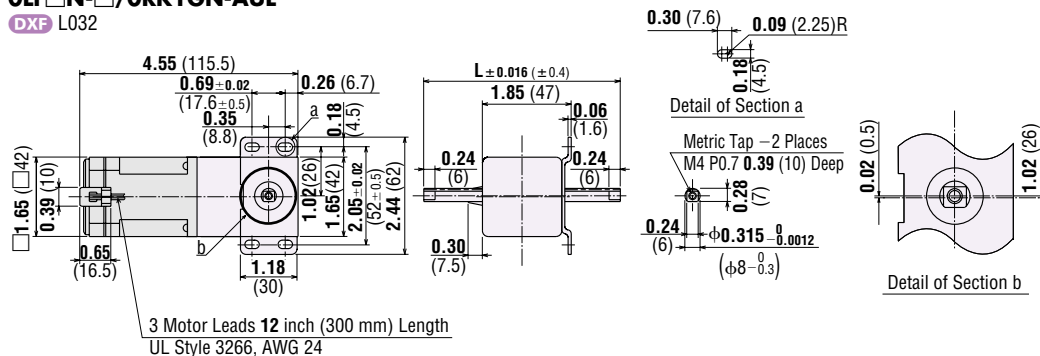


Dimensions Scale 1/4, Unit = inch (mm)

- For **OLF** type (Vertical Stroke) Rack module 0.5, Pressure angle 20°

OLF□N-□/ORK1GN-AUL

DXF L032



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF*
OLF□N-1	3.94 (100)	6.307 (160.2)	1.23 (0.56)	0.11 (0.05)	D026U
OLF□N-2	7.87 (200)	10.264 (260.7)	1.32 (0.60)	0.20 (0.09)	

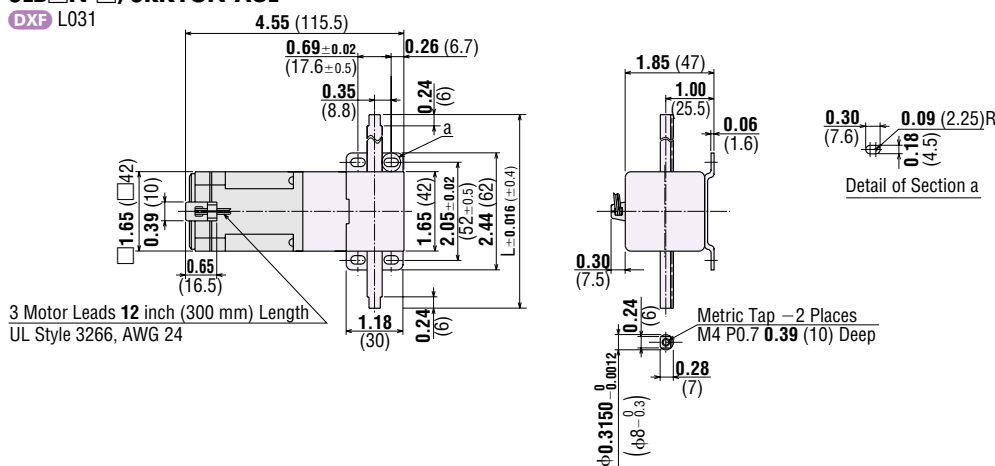
- Enter the number which indicates the basic speed in the box (□) within the model number. (See page D-20)
- The use of a trip dog may change the effective stroke length.

* The DXF file only includes a drawing of the linear head. The motor drawing is not included.

- For **OLB** type (Horizontal Stroke) Rack module 0.5, Pressure angle 20°

OLB□N-□/ORK1GN-AUL

DXF L031



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF*
OLB□N-1	3.94 (100)	6.307 (160.2)	1.23 (0.56)	0.11 (0.05)	D025U
OLB□N-2	7.87 (200)	10.264 (260.7)	1.32 (0.60)	0.20 (0.09)	

- Enter the number which indicates the basic speed in the box (□) within the model number.
- The use of a trip dog may change the effective stroke length.

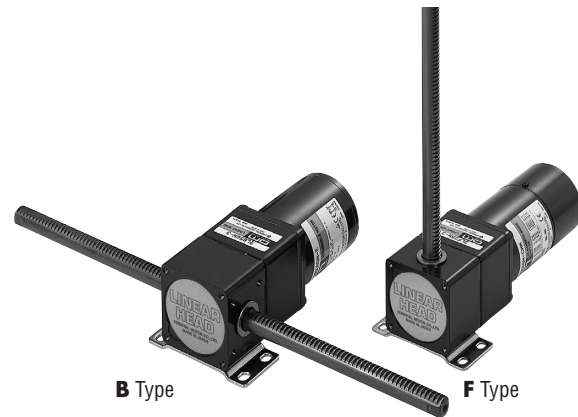
* The DXF file only includes a drawing of the linear head. The motor drawing is not included.

LH Series

2L Type

Max. Transportable Mass 44 lb. (20 kg)

(The maximum transportable mass varies with basic speed and the motor combination.)



(The motor shown in the photograph is sold separately.)

Specifications

Basic Speed	Linear Head	Rack Stroke inch (mm)
0.47 inch/s (12 mm/s)	2LB10N -□	1: 3.94 (100) 2: 7.87 (200) 3: 11.81 (300) 4: 15.75 (400) 5: 19.69 (500)
	2LF10N -□	
1.18 inch/s (30 mm/s)	2LB25N -□	
	2LF25N -□	
2.36 inch/s (60 mm/s)	2LB50N -□	
	2LF50N -□	

- Enter the number which indicates the stroke length in the box (□) within the model number.
- Basic speed figures are based on synchronous speed. (60 Hz: 1800 r/min)
The actual speed varies with the load or frequency of the power source.

Motor Combinations

Motor Type	Motor Model	Page
Reversible Motor	2RK6GN-AW(T)U	A-74
	2RK6GN-CW(T)E	
Electromagnetic Brake Motor	2RK6GN-AWMU	A-132
	2RK6GN-CWME	

- * The motors listed are typical combinations. Other motors can be combined if they are 2.36 in. sq. (60 mm sq.), **GN** pinion motors.
The characteristics for different combinations can be found using the "Linear Head Characteristics" formula.
(**Technical Reference** → Page F-50)

Max. Permissible Overhung Load

Stroke inch (mm)	Max. Permissible Overhung Load lb. (N)
3.94 (100)	12.3 (55)
7.87 (200)	9 (40)
11.81 (300)	6.7 (30)
15.75 (400)	5.6 (25)
19.69 (500)	4.5 (20)

Performance Examples

Reversible Motor (2RK6GN-AWU)

Item \ Linear Head	2LB10N-□	2LB25N-□	2LB50N-□
	2LF10N-□	2LF25N-□	2LF50N-□
Max. Transportable Mass lb. (kg)	44 (20)	31 (14)	17.4 (7.9)
Holding Force lb. (N)	16.2 (72)	6.5 (29)	3.1 (14)

- Holding force is provided by the built-in friction brake of the reversible motor. The values given in the table vary depending on the temperature and the time of operation, and thus should only be used as a reference.

Electromagnetic Brake Motor (2RK6GN-AWMU)

Item \ Linear Head	2LB10N-□	2LB25N-□	2LB50N-□
	2LF10N-□	2LF25N-□	2LF50N-□
Max. Transportable Mass lb. (kg)	44 (20)	31 (14)	17.4 (7.9)
Holding Force lb. (N)	45 (200)	38 (170)	19.8 (88)

- The maximum load mass that can be driven when operating the mechanism vertically is the maximum transportable mass less the rack mass.
- When operating the mechanism horizontally using a guide or similar device to bear the load, ensure that the load mass is less than the maximum transportable mass.

Note:

- When a motor other than the ones shown above is used, the characteristics may be different. The characteristics can be found using the "Linear Head Characteristics" formula.

(Technical Reference → Page F-50)

Overrun Unit = inch (mm)

Motor \ Linear Head	2LB10N-□	2LB25N-□	2LB50N-□
	2LF10N-□	2LF25N-□	2LF50N-□
2RK6GN-AWU	0.10 (2.6)	0.25 (6.4)	0.51 (13)
2RK6GN-AWMU	0.05 (1.3)	0.13 (3.2)	0.25 (6.4)

Overrun at motor shaft is estimated to be 6 revolutions for reversible motors and 3 revolutions for electromagnetic brake motors.

- The maximum load mass that can be driven when operating the mechanism vertically is the maximum transportable mass less the rack mass.
- When operating the mechanism horizontally using a guide or similar device to bear the load, ensure that the load mass is less than the maximum transportable mass.

Product Line

Rack Stroke inch (mm)	Basic Speed		
	0.47 inch/s (12 mm/s)	1.18 inch/s (30 mm/s)	2.36 inch/s (60 mm/s)
3.94 (100)	2LB10N-1	2LB25N-1	2LB50N-1
	2LF10N-1	2LF25N-1	2LF50N-1
7.87 (200)	2LB10N-2	2LB25N-2	2LB50N-2
	2LF10N-2	2LF25N-2	2LF50N-2
11.81 (300)	2LB10N-3	2LB25N-3	2LB50N-3
	2LF10N-3	2LF25N-3	2LF50N-3
15.75 (400)	2LB10N-4	2LB25N-4	2LB50N-4
	2LF10N-4	2LF25N-4	2LF50N-4
19.69 (500)	2LB10N-5	2LB25N-5	2LB50N-5
	2LF10N-5	2LF25N-5	2LF50N-5

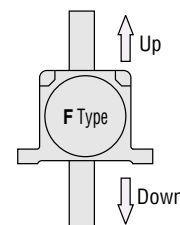
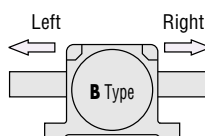
Connection and Operation

Direction of Rack Movement

The direction of rack movement is determined by the direction of motor rotation.

Linear Head	Motor Rotation	
	CW	CCW
2LB10N-□ 2LB50N-□	Right	Left
2LF10N-□ 2LF50N-□	Down	Up
2LB25N-□	Left	Right
2LF25N-□	Up	Down

- Enter the number which indicates the stroke length in the box (□) within the model number. (See page D-22)
- Dogs (Accessories, → Page D-42) and limit switches are required to stop or reverse rack movement.
- Direction of rack movement is as viewed from the front side of the linear head.

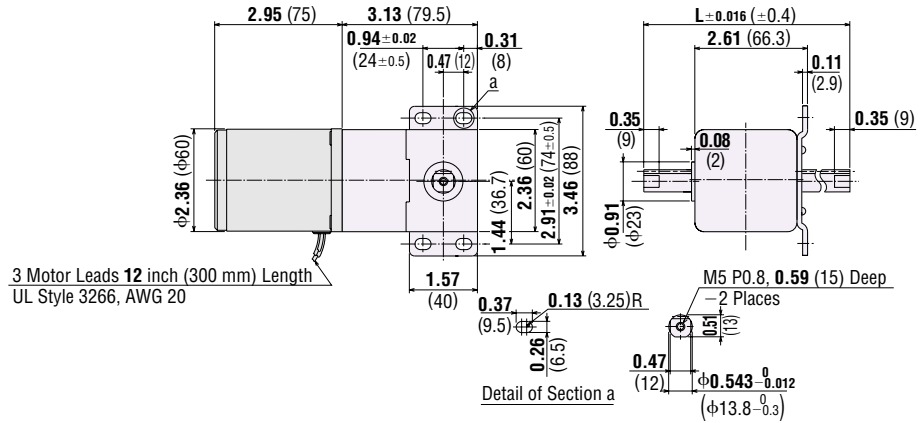


Dimensions Scale 1/4, Unit = inch (mm)

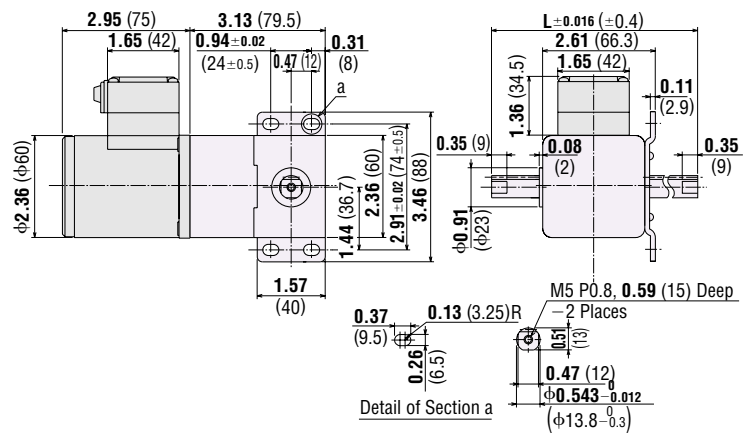
For **2LF** type (Vertical Stroke) ☐ Rack module 1, Pressure angle 20°

☐

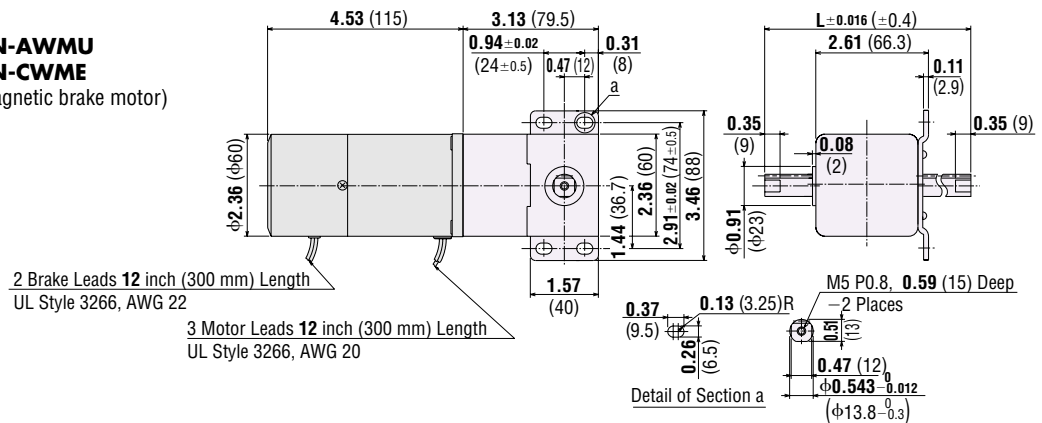
2LF☐N-☐/**2RK6GN-AWU**
2RK6GN-CWE
 (Reversible motor)
DXF L004



2LF☐N-☐/**2RK6GN-AWTU**
2RK6GN-CWTE
 (Terminal box motor)
DXF L005



2LF☐N-☐/**2RK6GN-AWMU**
2RK6GN-CWME
 (Electromagnetic brake motor)
DXF L006



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF*
2LF ☐ N-1	3.94 (100)	6.925 (175.9)	2.0 (0.9)	0.44 (0.2)	D028
2LF ☐ N-2	7.87 (200)	10.886 (276.5)	2.2 (1.0)	0.66 (0.3)	
2LF ☐ N-3	11.81 (300)	14.843 (377.0)	2.4 (1.1)	0.88 (0.4)	
2LF ☐ N-4	15.75 (400)	18.799 (477.5)	2.6 (1.2)	1.10 (0.5)	
2LF ☐ N-5	19.69 (500)	22.756 (578.0)	2.9 (1.3)	1.32 (0.6)	

• Enter the number which indicates the basic speed in the box (☐) within the model number.

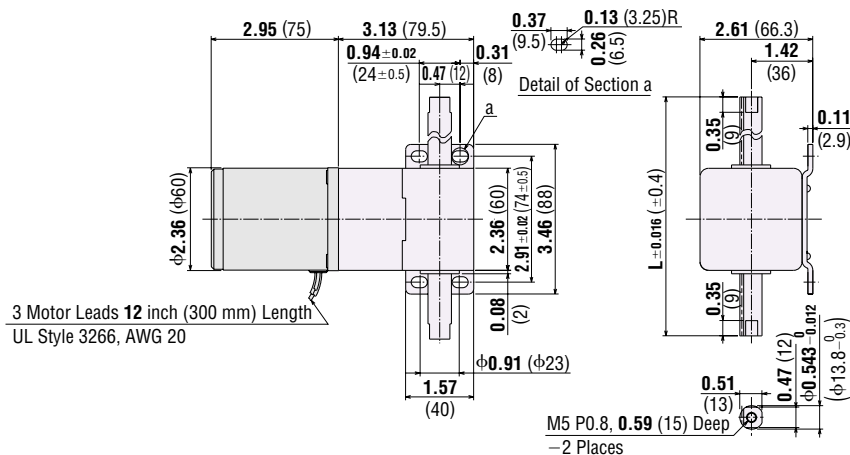
• The use of a dog may change the effective stroke length.

* The DXF file only includes a drawing of the linear head. The motor drawing is not included.

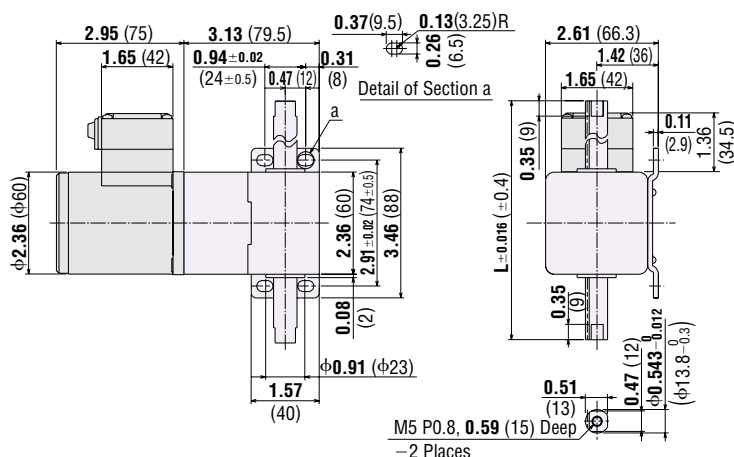
For **2LB** type (Horizontal Stroke) Rack module 1, Pressure angle 20°

□

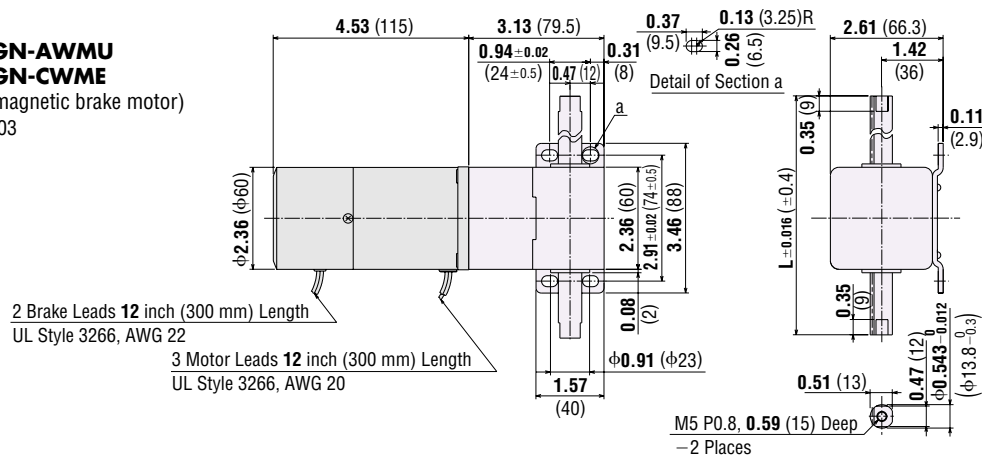
2LB□N-□/2RK6GN-AWU
2RK6GN-CWE
(Reversible motor)
DXF L001



2LB□N-□/2RK6GN-AWTU
2RK6GN-CWTE
(Terminal box motor)
DXF L002



2LB□N-□/2RK6GN-AWMU
2RK6GN-CWME
(Electromagnetic brake motor)
DXF L003



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF*
2LB□N-1	3.94 (100)	6.925 (175.9)	2.0 (0.9)	0.44 (0.2)	D027
2LB□N-2	7.87 (200)	10.886 (276.5)	2.2 (1.0)	0.66 (0.3)	
2LB□N-3	11.81 (300)	14.843 (377.0)	2.4 (1.1)	0.88 (0.4)	
2LB□N-4	15.75 (400)	18.799 (477.5)	2.6 (1.2)	1.10 (0.5)	
2LB□N-5	19.69 (500)	22.756 (578.0)	2.9 (1.3)	1.32 (0.6)	

•Enter the number which indicates the basic speed in the box (□) within the model number.

•The use of a dog may change the effective stroke length.

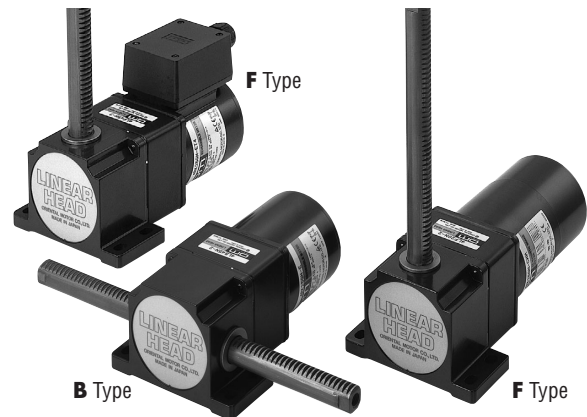
* The DXF file only includes a drawing of the linear head. The motor drawing is not included.

LH Series

4L Type

Max. Transportable Mass 154 lb. (70 kg)

(The maximum transportable mass varies with basic speed and the motor combination.)



(The motor shown in the photograph is sold separately.)

Specifications

Basic Speed	Linear Head	Rack Stroke inch (mm)
0.47 inch/s (12 mm/s)	4LB10N -□	1: 3.94 (100)
	4LF10N -□	2: 7.87 (200)
		3: 11.81 (300)
0.94 inch/s (24 mm/s)	4LB20N -□	4: 15.75 (400)
	4LF20N -□	5: 19.69 (500)
		6: 23.62 (600)
2.13 inch/s (54 mm/s)	4LB45N -□	7: 27.56 (700)
	4LF45N -□	

- Enter the number which indicates the stroke length in the box (□) within the model number.
- Basic speed figures are based on synchronous speed (60 Hz : 1800 r/min). The actual speed varies with the load or frequency of the power source.

Motor Combinations

Motor Type	Motor Model	Page
Reversible Motor	4RK25GN-AW(T)U	A-82
	4RK25GN-CW(T)E	
	4RK25GN-AWMU	
Electromagnetic Brake Motor	4RK25GN-CWME	A-142
	4IK25GN-SWM	
Torque Motor	4TK10GN-AUL	A-111

The motors listed are typical combinations. Other motors can be combined if they are 3.15 inch sq. (80 mm sq.), **GN** pinion motors. The characteristics for different combinations can be found using the "Linear Head Characteristics" formula.

(**Technical Reference** →Page F-50)

Max. Permissible Overhung Load

Stroke inch (mm)	Max. Permissible Overhung Load lb. (N)
3.94 (100)	27 (120)
7.87 (200)	20 (90)
11.81 (300)	15.7 (70)
15.75 (400)	13.5 (60)
19.69 (500)	11.2 (50)
23.62 (600)	9 (40)
27.56 (700)	9 (40)

Performance Examples

Reversible Motor (4RK25GN-AWU)

Item \ Linear Head	4LB10N-□	4LB20N-□	4LB45N-□
	4LF10N-□	4LF20N-□	4LF45N-□
Max. Transportable Mass lb. (kg)	154 (70)	128 (58)	68.2 (31)
Holding Force lb. (N)	47 (210)	22 (100)	11.2 (50)

- Holding force is provided by the built-in friction brake of the reversible motor. The values given in the table vary depending on the temperature and the time of operation, and thus should only be used as reference.

Electromagnetic Brake Motor (4RK25GN-AWMU)

Item \ Linear Head	4LB10N-□	4LB20N-□	4LB45N-□
	4LF10N-□	4LF20N-□	4LF45N-□
Max. Transportable Mass lb. (kg)	154 (70)	128 (58)	68.2 (31)
Holding Force lb. (N)	157 (700)	157 (700)	74 (330)

- The maximum load mass that can be driven when operating the mechanism vertically is the maximum transportable mass less the rack mass.
- When operating the mechanism horizontally using a guide or similar device to bear the load, ensure that the load mass is less than the maximum transportable mass.

Note:

- When a motor other than the ones shown above is used, the characteristics may be different. The characteristics can be found using the "Linear Head Characteristics" formula.

(Technical Reference →Page F-50)

Overrun Unit = inch (mm)

Motor \ Linear Head	4LB10N-□	4LB20N-□	4LB45N-□
	4LF10N-□	4LF20N-□	4LF45N-□
4RK25GN-AWU	0.11 (2.7)	0.21 (5.4)	0.43 (11)
4RK25GN-AWMU	0.05 (1.3)	0.11 (2.7)	0.22 (5.6)

Overrun at motor shaft is estimated to be 6 revolutions for reversible motors and 3 revolutions for electromagnetic brake motor.

- The maximum load mass that can be driven when operating the mechanism vertically is the maximum transportable mass less the rack mass.
- When operating the mechanism horizontally using a guide or similar device to bear the load, ensure that the load mass is less than the maximum transportable mass.

Product Line

Rack Stroke inch (mm)	Basic Speed		
	0.47 inch/s (12 mm/s)	0.94 inch/s (24 mm/s)	2.13 inch/s (54 mm/s)
3.94 (100)	4LB10N-1	4LB20N-1	4LB45N-1
	4LF10N-1	4LF20N-1	4LF45N-1
7.87 (200)	4LB10N-2	4LB20N-2	4LB45N-2
	4LF10N-2	4LF20N-2	4LF45N-2
11.81 (300)	4LB10N-3	4LB20N-3	4LB45N-3
	4LF10N-3	4LF20N-3	4LF45N-3
15.75 (400)	4LB10N-4	4LB20N-4	4LB45N-4
	4LF10N-4	4LF20N-4	4LF45N-4
19.69 (500)	4LB10N-5	4LB20N-5	4LB45N-5
	4LF10N-5	4LF20N-5	4LF45N-5
23.62 (600)	4LB10N-6	4LB20N-6	4LB45N-6
	4LF10N-6	4LF20N-6	4LF45N-6
27.56 (700)	4LB10N-7	4LB20N-7	4LB45N-7
	4LF10N-7	4LF20N-7	4LF45N-7

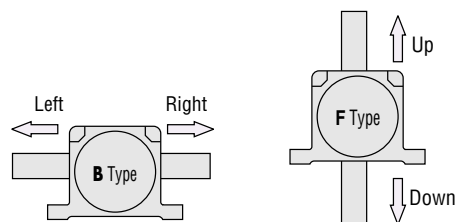
Connection and Operation

Direction of Rack Movement

The direction of rack movement is determined by the direction of motor rotation.

Linear Head	Motor Rotation	
	CW	CCW
4LB10N-□	Left	Right
4LB20N-□		
4LF10N-□	Up	Down
4LF20N-□		
4LB45N-□	Right	Left
4LF45N-□	Down	Up

- Enter the number which indicates the stroke length in the box (□) within the model number. (See page D-26)
- Dogs (Accessories, →Page D-42) and limit switches are required to stop or reverse rack movement.
- Direction of rack movement is as viewed from the front side of the linear head.

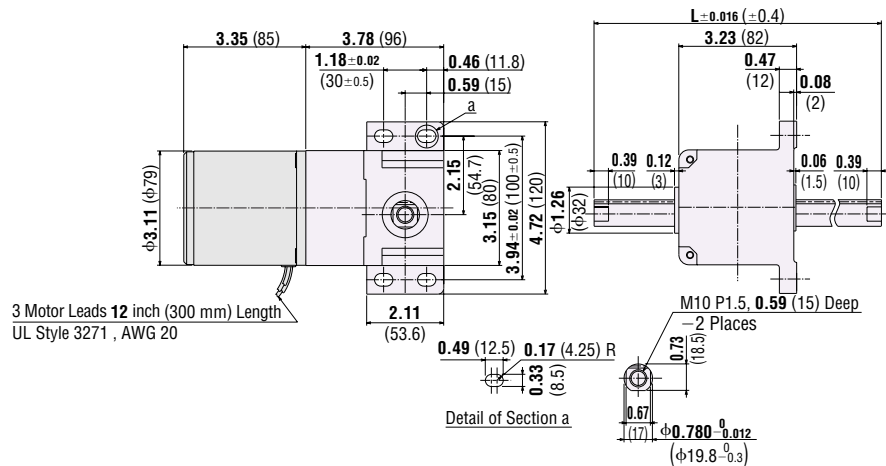


Dimensions Scale 1/4, Unit = inch (mm)

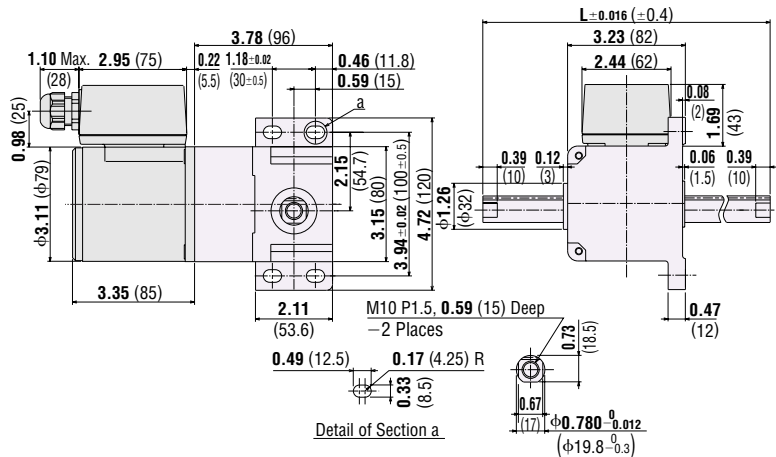
For **4LF** type (Vertical Stroke) **□** Rack module 1.25, Pressure angle 20°

□

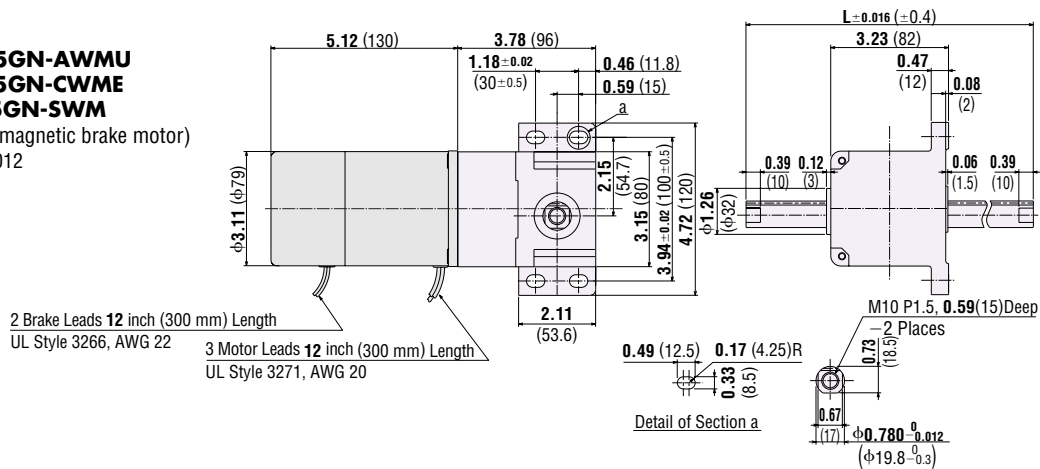
4LF□N-□/4RK25GN-AWU
4RK25GN-CWE
 (Reversible motor)
DXF L010



4LF□N-□/4RK25GN-AWTU
4RK25GN-CWTE
 (Terminal box motor)
DXF L011



4LF□N-□/4RK25GN-AWMU
4RK25GN-CWME
4IK25GN-SWM
 (Electromagnetic brake motor)
DXF L012



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF [※]
4LF□N-1	3.94 (100)	7.890 (200.4)	3.5 (1.6)	0.9 (0.4)	D030
4LF□N-2	7.87 (200)	11.909 (302.5)	4.0 (1.8)	1.5 (0.7)	
4LF□N-3	11.81 (300)	15.776 (400.7)	4.4 (2.0)	2.0 (0.9)	
4LF□N-4	15.75 (400)	19.795 (502.8)	4.8 (2.2)	2.4 (1.1)	
4LF□N-5	19.69 (500)	23.661 (601.0)	5.3 (2.4)	2.9 (1.3)	
4LF□N-6	23.62 (600)	27.681 (703.1)	5.7 (2.6)	3.5 (1.6)	
4LF□N-7	27.56 (700)	31.547 (801.3)	6.2 (2.8)	4.0 (1.8)	

•Enter the number which indicates the basic speed in the box (□) within the model number. (See page D-26)

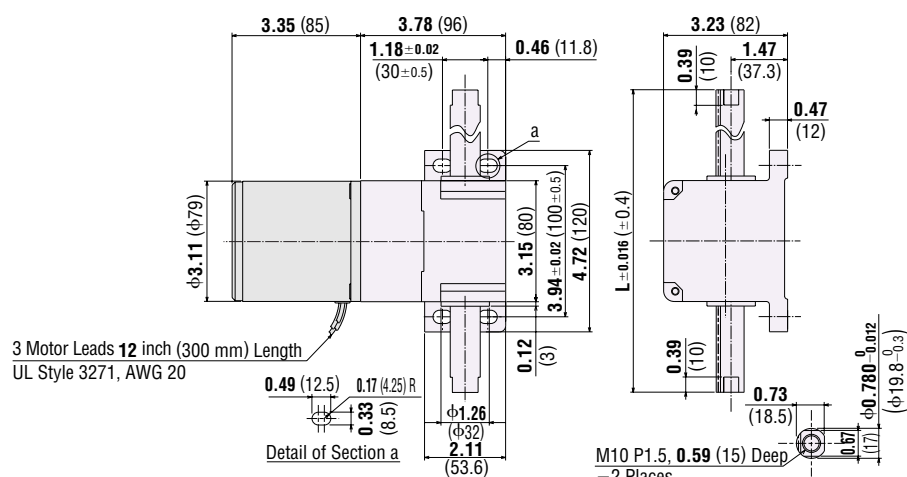
•The use of a dog may change the effective stroke length.

※ The DXF file only includes a drawing of the linear head. The motor drawing is not included.

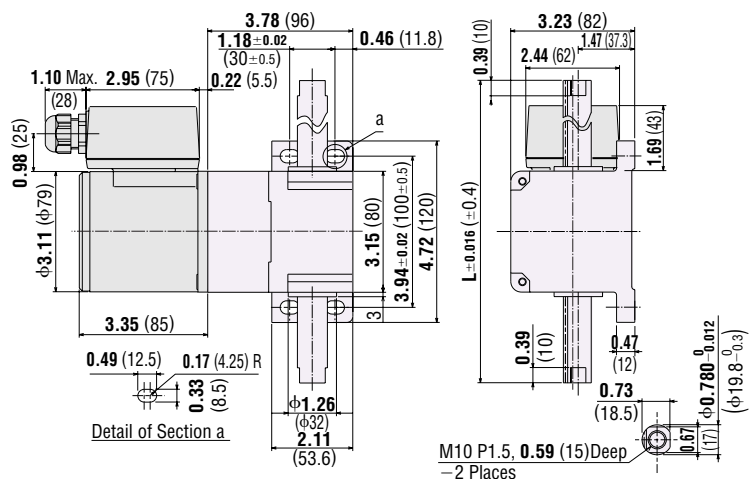
For **4LB** type (Horizontal Stroke) □ Rack module 1.25, Pressure angle 20°

□

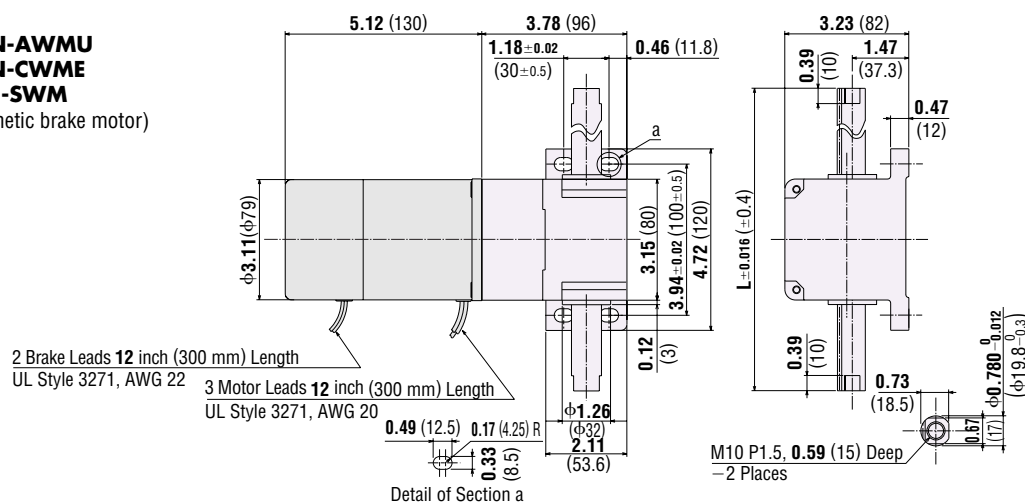
4LB□N-□/4RK25GN-AWU
4RK25GN-CWE
(Reversible motor)
DXF L007



4LB□N-□/4RK25GN-AWTU
4RK25GN-CWTE
(Terminal box motor)
DXF L008



4LB□N-□/4RK25GN-AWMU
4RK25GN-CWME
4IK25GN-SWM
(Electromagnetic brake motor)
DXF L009



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF*
4LB□N-1	3.94 (100)	7.890 (200.4)	3.5 (1.6)	0.9 (0.4)	D029
4LB□N-2	7.87 (200)	11.909 (302.5)	4.0 (1.8)	1.5 (0.7)	
4LB□N-3	11.81 (300)	15.776 (400.7)	4.4 (2.0)	2.0 (0.9)	
4LB□N-4	15.75 (400)	19.795 (502.8)	4.8 (2.2)	2.4 (1.1)	
4LB□N-5	19.69 (500)	23.661 (601.0)	5.3 (2.4)	2.9 (1.3)	
4LB□N-6	23.62 (600)	27.681 (703.1)	5.7 (2.6)	3.5 (1.6)	
4LB□N-7	27.56 (700)	31.547 (801.3)	6.2 (2.8)	4.0 (1.8)	

•Enter the number which indicates the basic speed in the box (□) within the model number. (See page D-26)

•The use of a dog may change the effective stroke length.

* The DXF file only includes a drawing of the linear head. The motor drawing is not included.

LH Series

5L-U Type

Max. Transportable Mass 308 lb. (140 kg)

(The maximum transportable mass varies with basic speed and the motor combination.)



(The motor shown in the photograph is sold separately.)

Specifications

Basic Speed	Linear Head	Rack Stroke inch (mm)
0.47 inch/s (12 mm/s)	5LB10U -□	1: 3.94 (100)
	5LF10U -□	2: 7.87 (200)
		3: 11.81 (300)
0.94 inch/s (24mm/s)	5LB20U -□	4: 15.75 (400)
	5LF20U -□	5: 19.69 (500)
		6: 23.62 (600)
2.13 inch/s (54 mm/s)	5LB45U -□	7: 27.56 (700)
	5LF45U -□	

- Enter the number which indicates the stroke length in the box (□) within the model number.
- Basic speed figures are based on synchronous speed (60 Hz: 1800 r/min). The actual speed varies with the load or frequency of the power source.

Motor Combinations

Motor Type	Motor Model	Page
Reversible Motor	5RK60GU-AW(T)U	A-92
	5RK60GU-CW(T)E	
	5RK90GU-AW(T)U	A-97
	5RK90GU-CW(T)E	
Electromagnetic Brake Motor	5RK60GU-AWMU	A-152
	5RK60GU-CWME	
	5IK60GU-SWM	
	5RK90GU-AWMU	A-157
	5RK90GU-CWME	
	5IK90GU-SWM	

- * The motors listed are typical combinations. Other motors can be combined if they are 3.54 inch sq. (90 mm sq.), **GU** pinion motors. The characteristics for different combinations can be found using the "Linear Head Characteristics" formula.
(**Technical Reference** → Page F-50)

Max. Permissible Overhung Load

Stroke inch (mm)	Max. Permissible Overhung Load lb. (N)
3.94 (100)	29 (130)
7.87 (200)	22 (100)
11.81 (300)	18 (80)
15.75 (400)	13.5 (60)
19.69 (500)	11.2 (50)
23.62 (600)	11.2 (50)
27.56 (700)	9 (40)

Performance Examples

Reversible Motors

Linear Head Motor	5LB10U-□ 5LF10U-□		5LB20U-□ 5LF20U-□		5LB45U-□ 5LF45U-□	
	Max. Transportable Mass lb. (kg)	Holding Force lb. (N)	Max. Transportable Mass lb. (kg)	Holding Force lb. (N)	Max. Transportable Mass lb. (kg)	Holding Force lb. (N)
5RK60GU-AWU	308 (140)	135 (600)	308 (140)	67 (300)	156 (71)	27 (120)
5RK90GU-AWU	308 (140)	135 (600)	308 (140)	67 (300)	226 (103)	27 (120)

- Holding force is provided by the built-in friction brake of the reversible motor. The values given in the table vary depending on the temperature and the time of operation, and thus should only be used as reference.

Electromagnetic Brake Motors

Linear Head Motor	5LB10U-□ 5LF10U-□		5LB20U-□ 5LF20U-□		5LB45U-□ 5LF45U-□	
	Max. Transportable Mass lb. (kg)	Holding Force lb. (N)	Max. Transportable Mass lb. (kg)	Holding Force lb. (N)	Max. Transportable Mass lb. (kg)	Holding Force lb. (N)
5RK60GU-AWMU	308 (140)	310 (1400)	308 (140)	310 (1400)	156 (71)	71 (790)
5RK90GU-AWMU	308 (140)	310 (1400)	308 (140)	310 (1400)	226 (103)	258 (1150)

- The maximum load mass that can be driven when operating the mechanism vertically is the maximum transportable mass less the rack mass.
- When operating the mechanism horizontally using a guide or similar device to bear the load, ensure that the load mass is less than the maximum transportable mass.

Note:

- When a motor other than the ones shown above is used, the characteristics may be different. The characteristics can be found using the "Linear Head Characteristics" formula.

(Technical Reference →Page F-50)

Overrun Unit = inch (mm)

Linear Head Motor	5LB10U-□ 5LF10U-□	5LB20U-□ 5LF20U-□	5LB45U-□ 5LF45U-□
	0.10 (2.6)	0.20 (5.1)	0.51 (13)
5RK60GU-AWU 5RK90GU-AWU			
5RK60GU-AWMU 5RK90GU-AWMU	0.05 (1.3)	0.10 (2.6)	0.25 (6.3)

Overrun at motor shaft is estimated to be 6 revolutions for reversible motors and 3 revolutions for electromagnetic brake motors.

- The maximum load mass that can be driven when operating the mechanism vertically is the maximum transportable mass less the rack mass.
- When operating the mechanism horizontally using a guide or similar device to bear the load, ensure that the load mass is less than the maximum transportable mass.

Product Line

Rack Stroke inch (mm)	Basic Speed		
	0.47 inch/s (12 mm/s)	0.94 inch/s (24 mm/s)	2.13 inch/s (54 mm/s)
3.94 (100)	5LB10U-1 5LF10U-1	5LB20U-1 5LF20U-1	5LB45U-1 5LF45U-1
7.87 (200)	5LB10U-2 5LF10U-2	5LB20U-2 5LF20U-2	5LB45U-2 5LF45U-2
11.81 (300)	5LB10U-3 5LF10U-3	5LB20U-3 5LF20U-3	5LB45U-3 5LF45U-3
15.75 (400)	5LB10U-4 5LF10U-4	5LB20U-4 5LF20U-4	5LB45U-4 5LF45U-4
19.69 (500)	5LB10U-5 5LF10U-5	5LB20U-5 5LF20U-5	5LB45U-5 5LF45U-5
23.62 (600)	5LB10U-6 5LF10U-6	5LB20U-6 5LF20U-6	5LB45U-6 5LF45U-6
27.56 (700)	5LB10U-7 5LF10U-7	5LB20U-7 5LF20U-7	5LB45U-7 5LF45U-7

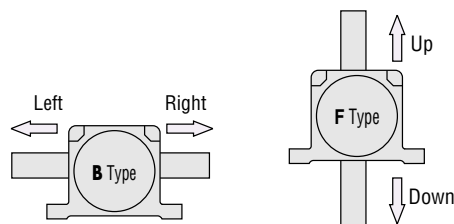
Connection and Operation

Direction of Rack Movement

The direction of rack movement is determined by the direction of motor rotation.

Linear Head	Motor Rotation	
	CW	CCW
5LB10U-□ 5LB20U-□	Left	Right
5LF10U-□ 5LF20U-□	Down	Up
5LB45U-□	Right	Left
5LF45U-□	Up	Down

- Enter the number which indicates the stroke length in the box (□) within the model number. (See page D-30)
- Dogs (Accessories, →Page D-42) and limit switches are required to stop or reverse rack movement.
- Direction of rack movement is as viewed from the front side of the linear head.

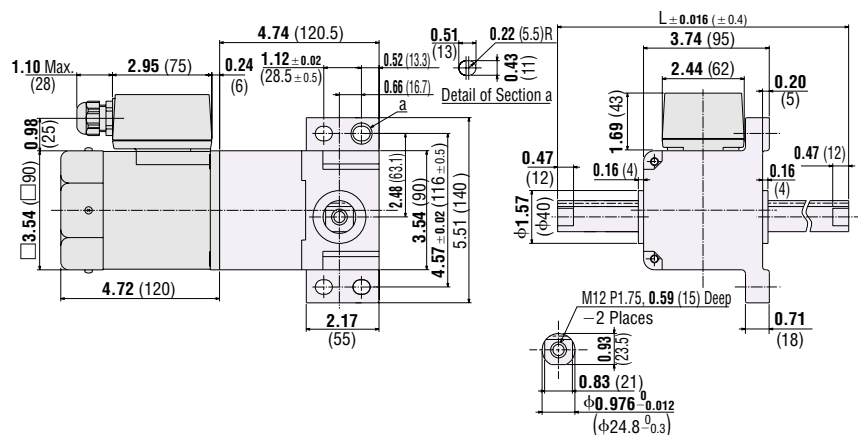


Unit = **inch** (mm)

DXF L025

3 Motor Leads **12 inch (300 mm) Length**
UL Style 3271, AWG 20

DXF L026



DXF | 027

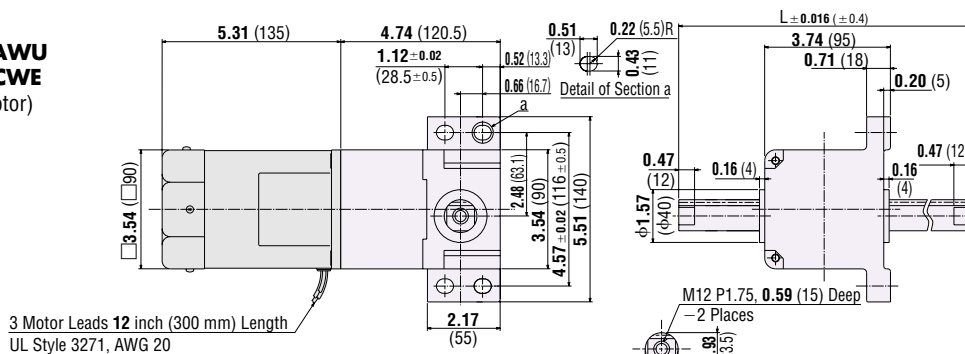
20 inch (500 mm) Length

D032

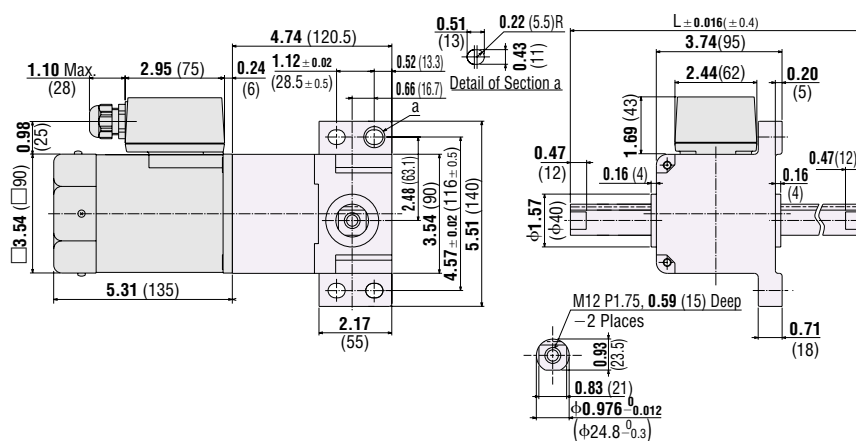
For **5LF** type (Vertical Stroke) Rack module 2, Pressure angle 20°

□

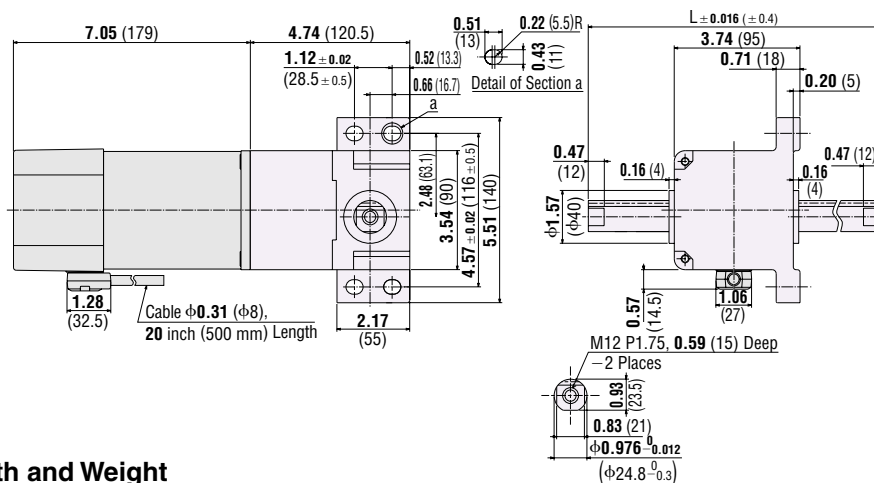
5LF□U-□/5RK90GU-AWU
5RK90GU-CWE
(Reversible motor)
DXF L028



5LF□U-□/5RK90GU-AWTU
5RK90GU-CWTE
(Terminal box motor)
DXF L029



5LF□U-□/5RK90GU-AWMU
5RK90GU-CWME
5IK90GU-SWM
(Electromagnetic
brake motor)
DXF L030



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF*
5LF□U-1	3.94 (100)	10.141 (257.6)	7.0 (3.2)	2.0 (0.9)	D032
5LF□U-2	7.87 (200)	14.098 (358.1)	7.9 (3.6)	2.6 (1.2)	
5LF□U-3	11.81 (300)	18.055 (458.6)	8.6 (3.9)	3.5 (1.6)	
5LF□U-4	15.75 (400)	22.016 (559.2)	9.5 (4.3)	4.2 (1.9)	
5LF□U-5	19.69 (500)	25.972 (659.7)	10.1 (4.6)	5.1 (2.3)	
5LF□U-6	23.62 (600)	29.933 (760.3)	11.0 (5.0)	6.0 (2.7)	
5LF□U-7	27.56 (700)	33.890 (860.8)	11.9 (5.4)	6.6 (3.0)	

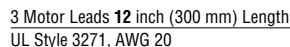
•Enter the number which indicates the basic speed in the box (□) within the model number. (See page D-30)

•The use of a dog may change the effective stroke length.

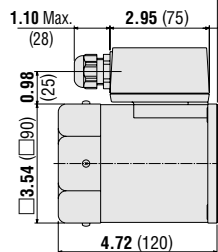
* The DXF file only includes a drawing of the linear head. The motor drawing is not included.

1

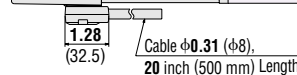
DXF L019



DXF L020



DXF L021



M12 P1.75, **0.59** (15) Deep / **0.93**
—2 Places (23.5)

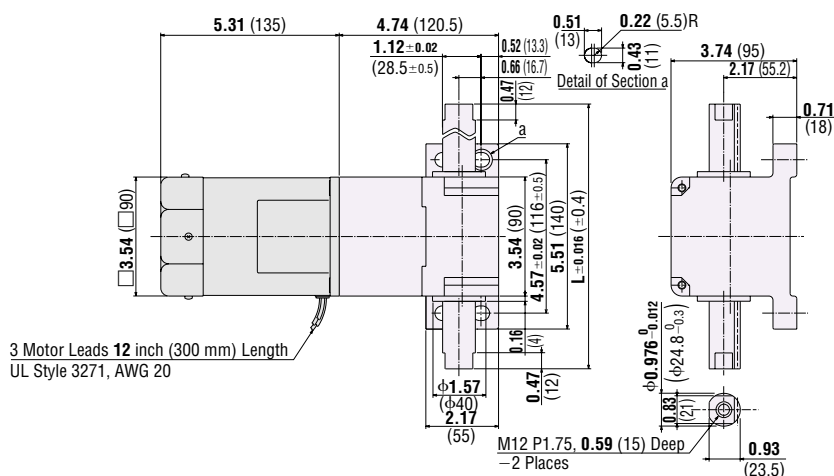
D031

- * The DXF file only includes a drawing of the linear head. The motor drawing is not included.

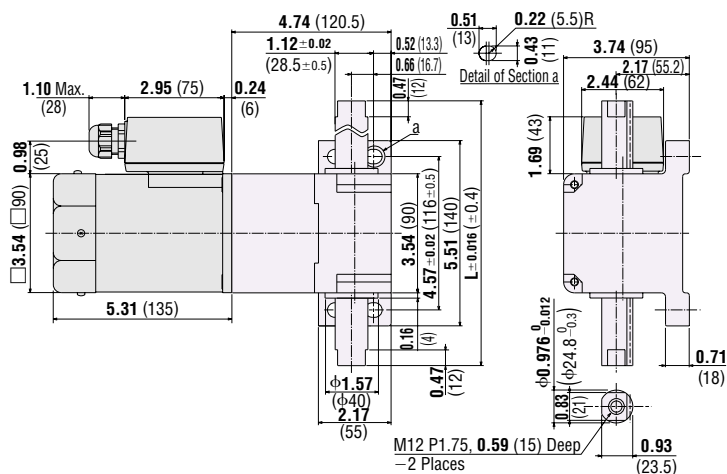
For **5LB** type (Horizontal Stroke) Rack module 2, Pressure angle 20°



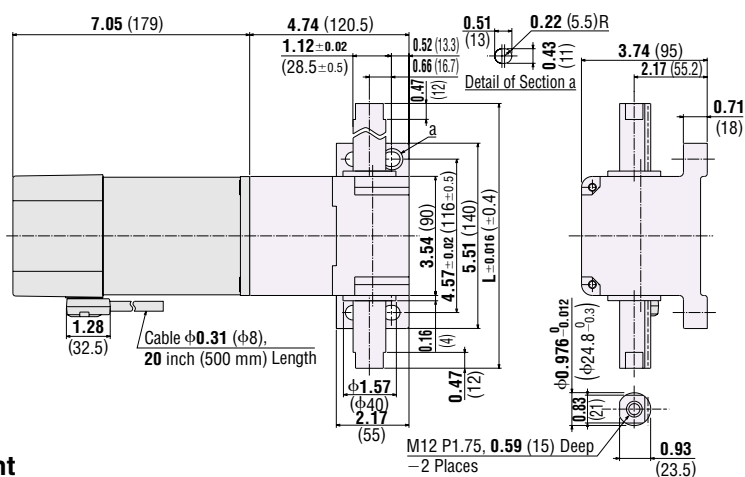
5LB□U-□/5RK90GU-AWU
5RK90GU-CWE
(Reversible motor)
DXF L022



5LB□U-□/5RK90GU-AWTU
5RK90GU-CWTE
(Terminal box motor)
DXF L023



5LB□U-□/5RK90GU-AWMU
5RK90GU-CWME
5IK90GU-SWM
(Electromagnetic brake motor)
DXF L024



Stroke Length, Rack Length and Weight

Linear Head	Stroke inch (mm)	Total Length L inch (mm)	Weight lb. (kg)	Rack Weight lb. (kg)	DXF*
5LB□U-1	3.94 (100)	10.141 (257.6)	7.0 (3.2)	2.0 (0.9)	D031
5LB□U-2	7.87 (200)	14.098 (358.1)	7.9 (3.6)	2.6 (1.2)	
5LB□U-3	11.81 (300)	18.055 (458.6)	8.6 (3.9)	3.5 (1.6)	
5LB□U-4	15.75 (400)	22.016 (559.2)	9.5 (4.3)	4.2 (1.9)	
5LB□U-5	19.69 (500)	25.972 (659.7)	10.1 (4.6)	5.1 (2.3)	
5LB□U-6	23.62 (600)	29.933 (760.3)	11.0 (5.0)	6.0 (2.7)	
5LB□U-7	27.56 (700)	33.890 (860.8)	11.9 (5.4)	6.6 (3.0)	

• Enter the number which indicates the basic speed in the box (□) within the model number. (See page D-30)

• The use of a dog may change the effective stroke length.

* The DXF file only includes a drawing of the linear head. The motor drawing is not included.

