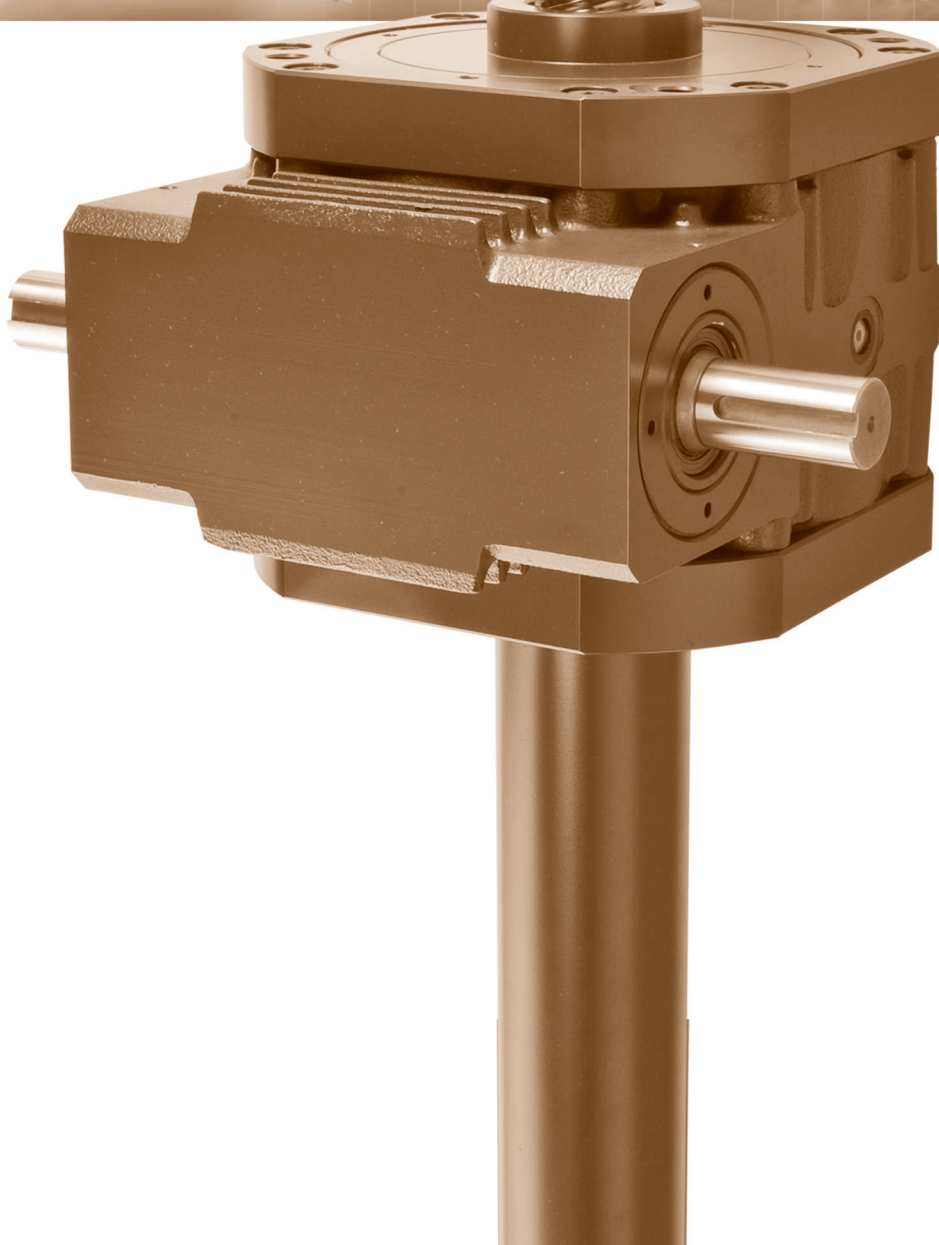




Linispeed Jack



Feature and basic specification	—	165
Application	—————	169
Model number designation	—————	171
Specifications	—————	173
Selection	—————	179
Technical data	—————	183

Moving workpieces easily and accurately is required.

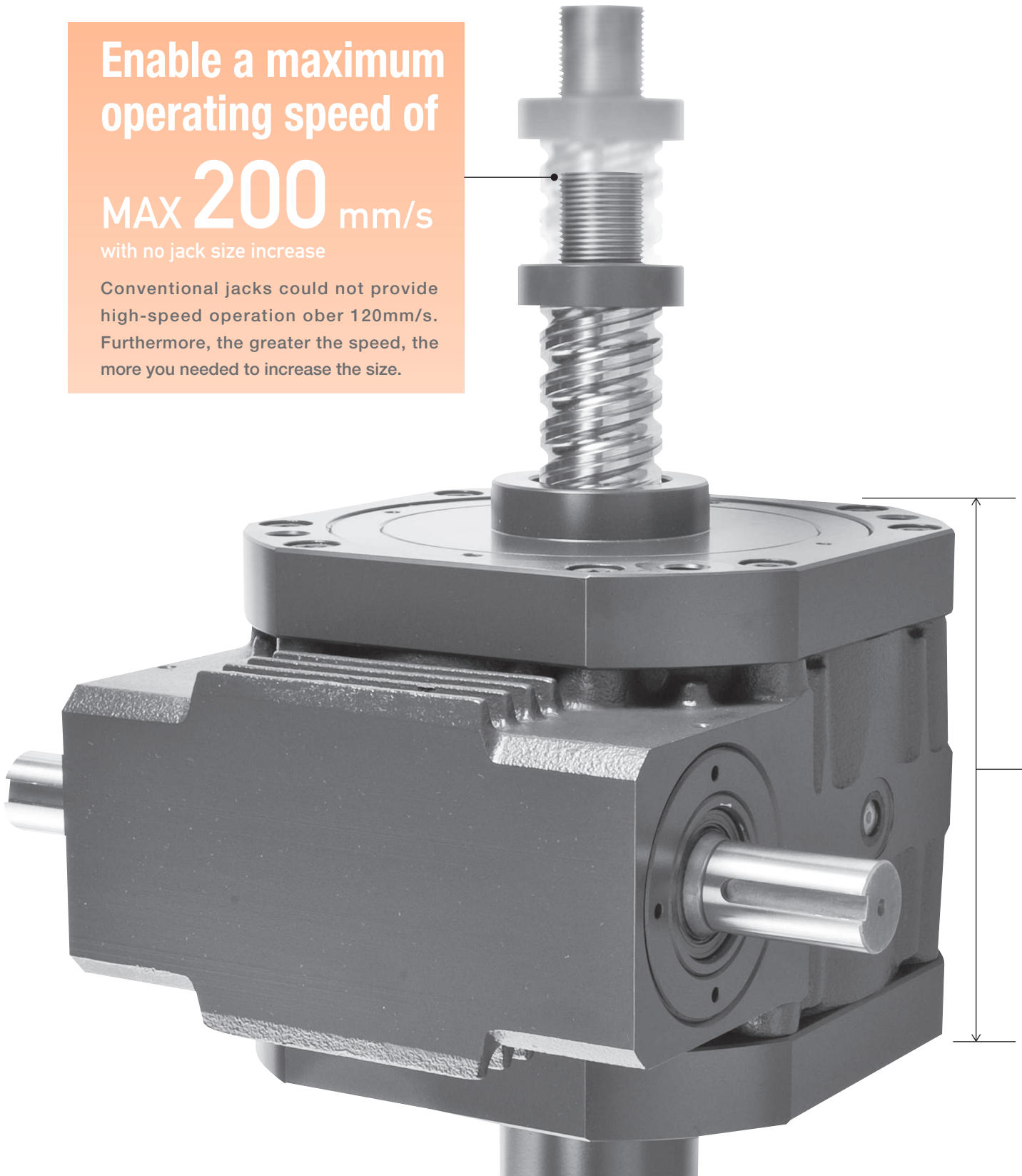
Here at Tsubaki, we have developed the Linispeed Jack, which further improves the performance of jacks and maximizes the capacity of servomotors. Linispeed Jack achieved high level of speed and frequency.

Enable a maximum
operating speed of

MAX 200 mm/s

with no jack size increase

Conventional jacks could not provide high-speed operation ober 120mm/s. Furthermore, the greater the speed, the more you needed to increase the size.



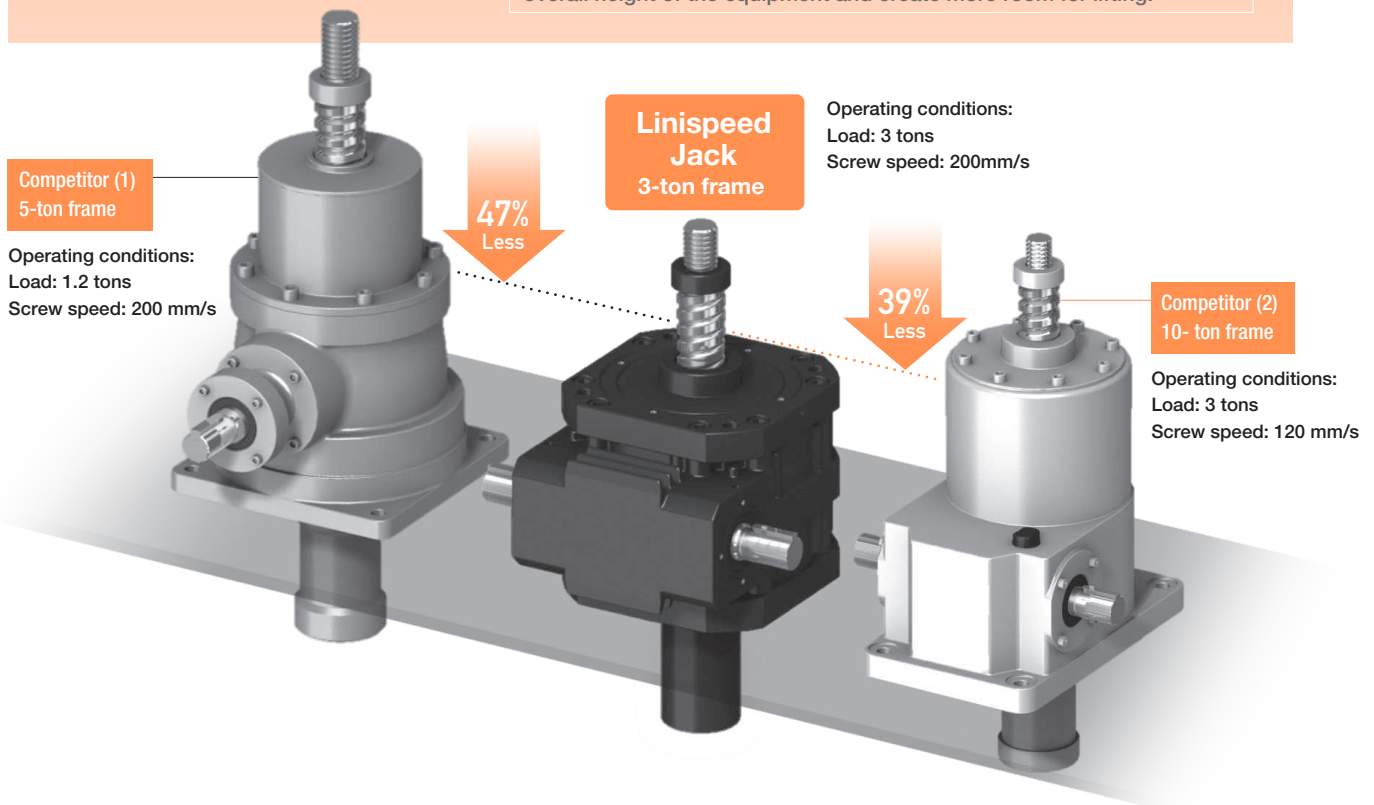
Lower height

(Compared to our competitor)

47% reduction

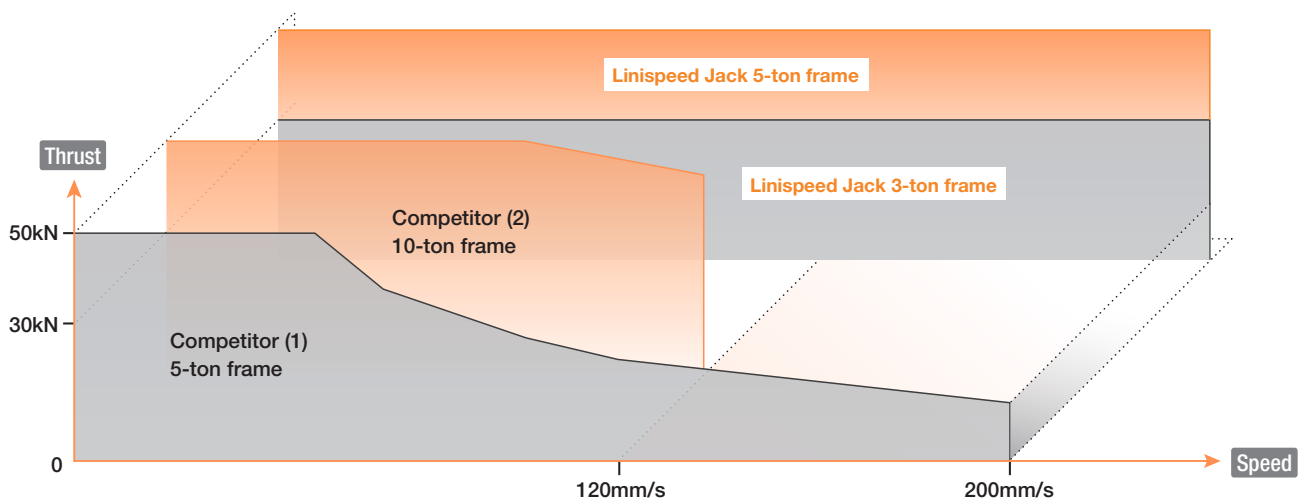
The ball nut is built into the gear case for a low floor profile. This reduces the overall height of the device.

The Linispeed Jack features a compact design by incorporating the ball nut within the gear case and enables a low-floor design by reducing the dead space caused by the nut height. This allows users to lower the overall height of the equipment and create more room for lifting.

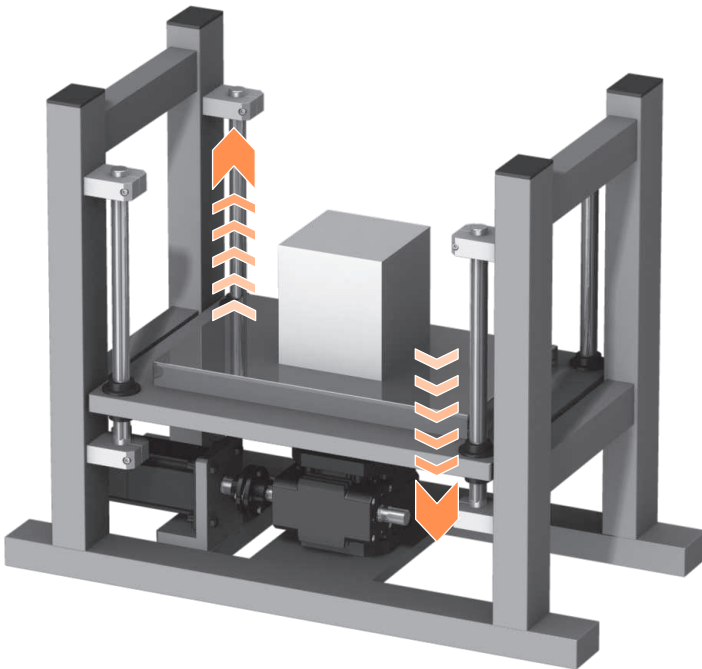


Constant-Thrust Characteristics Allows a Reduced Size

Since conventional jacks had limited thrust at high speed, it was necessary to increase the jack frame size. Linispeed Jack can reach high speeds without the frame up size.



High-speed operation and a lower height.



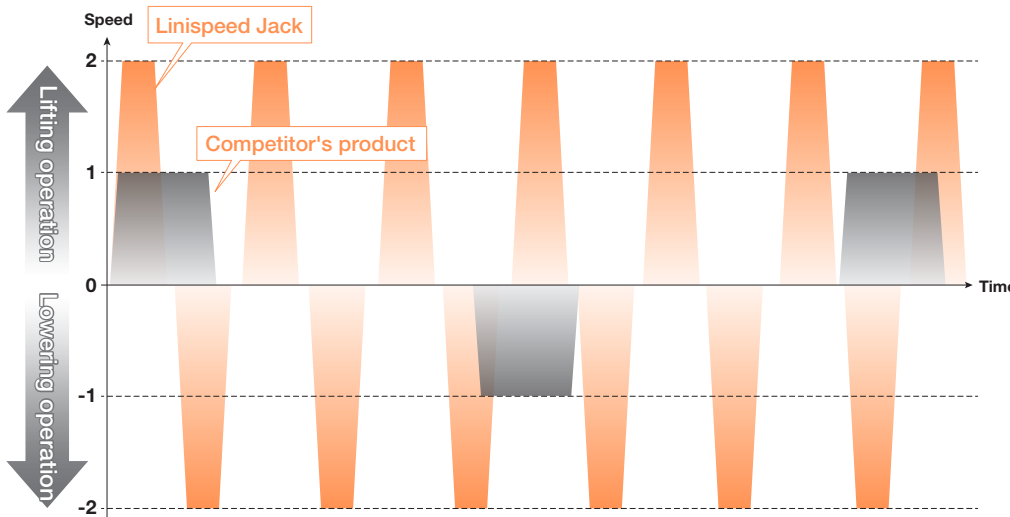
MAX 100%ED

hourly allowable load rate in high-speed and high-frequency operations

Allowable Duty Cycle

Linispeed Jack achieve the maximum of 100% ED for allowable load hourly rate, and provide continuous operation.

The allowable duty cycle varies by ambient temperature, input rotation speed, and the load.



5 times faster takt time than competitor jacks

[Operating conditions: ambient temperature 20 °C, load 1.5 tons]

*In general lifting operations

Linispeed Jack	200mm/sec 80%ED
Competitor Jacks	100mm/sec 30%ED

* For general lifting operation

Expected ball screw travel distance with high-frequency operation

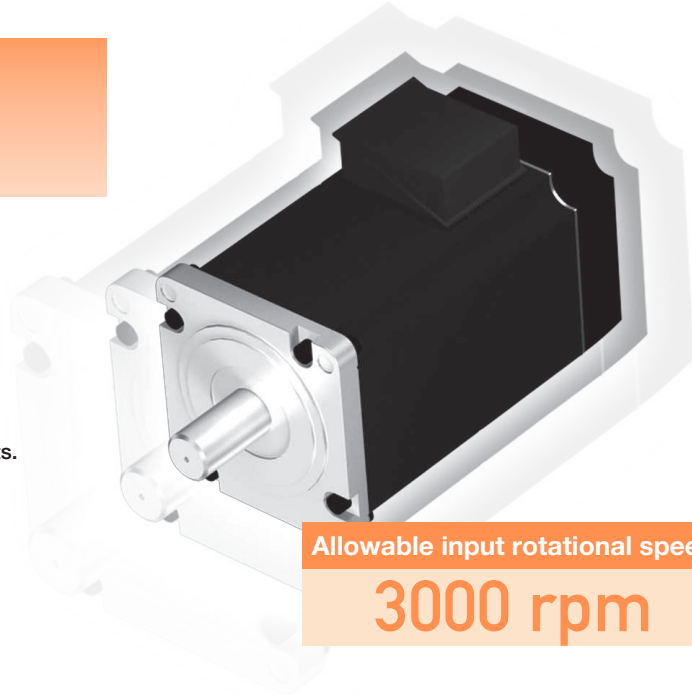
Linispeed Jack expected travel distance is also suitable for high frequency operation, where it had to be larger in size by using larger screw.

Expected ball screw travel distance		
5-ton allowable thrust frame (SJ050H)	Maximum load (at 5-tons)	150 km (approximately 250,000 lifts with a 300 mm stroke)
	At 3-ton load	699 km (approximately 1,170,000 lifts with a 300 mm stroke)

Allowing high-speed operation

Servo motors and couplings can be also made compact

Linispeed Jacks can have their input speed match the rated rotation speed of the servo motor.
Servo motors and couplings can go a size down, so Linispeed Jacks can contribute to reduced drive unit costs.

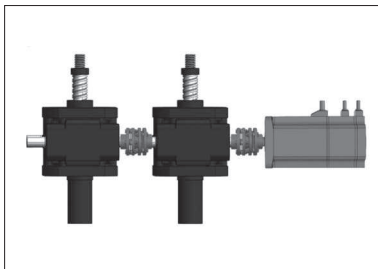


Allowable input rotational speed
3000 rpm

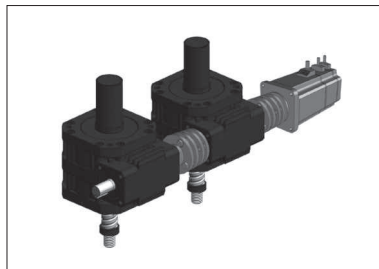
Multiple operation and various arrangements

Various arrangements are available

Double input shafts can mechanically synchronize Linispeed Jack operation at high speed.

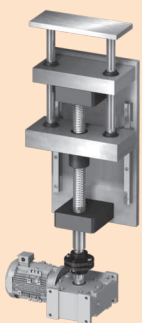


Two jacks in synchronized operation (Lifting)

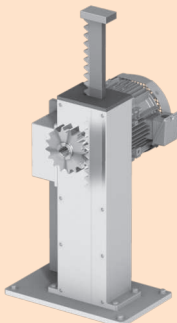


Two jacks in synchronized operation (Suspending)

Example: When using a ball screw or a rack & pinion unit



Ball screw



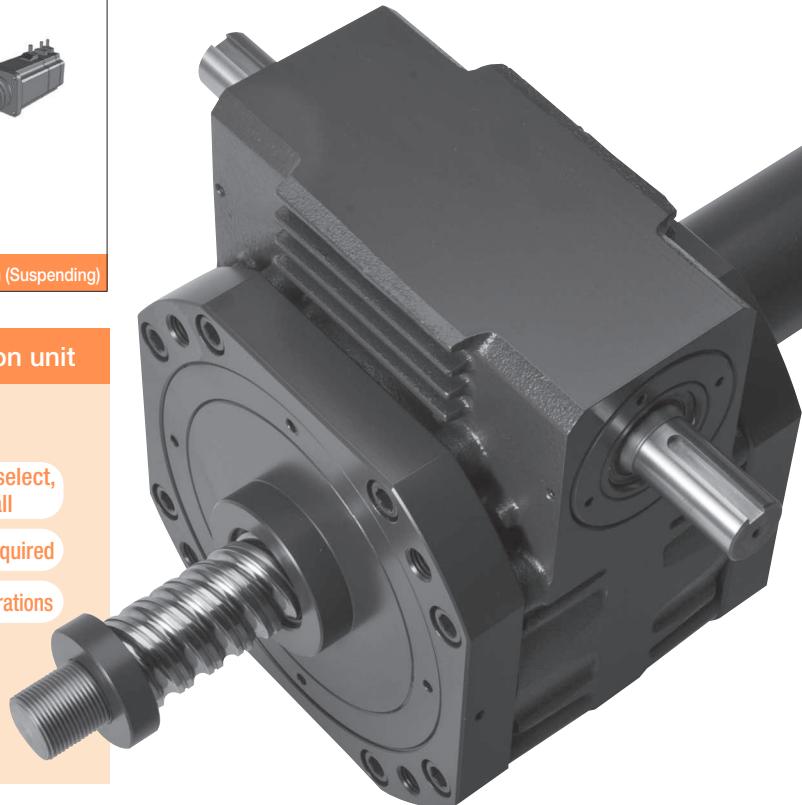
Rack and pinion

Difficult to use

Takes time and effort to select, assemble, and install

Large installation space required

Difficult to synchronize operations



Application

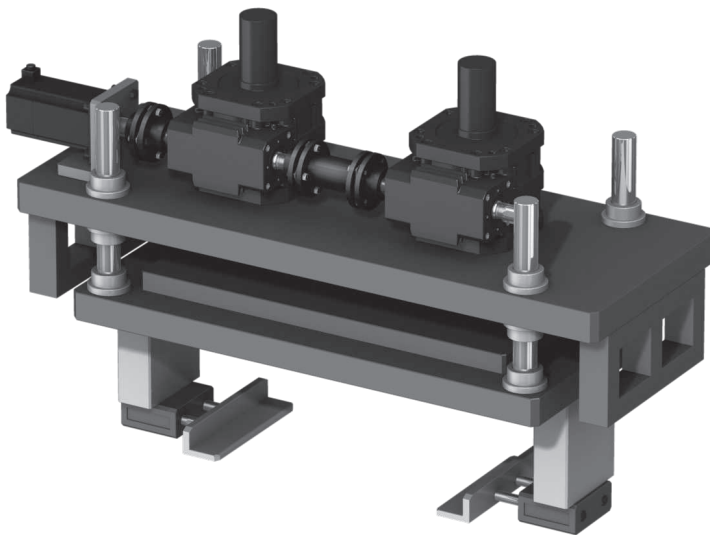
Speed up

Higher in speed with its wide speed range.

Easy to install

The low height profile and compact design allow installation in smaller space.

Simple linear c



Traverser Equipment

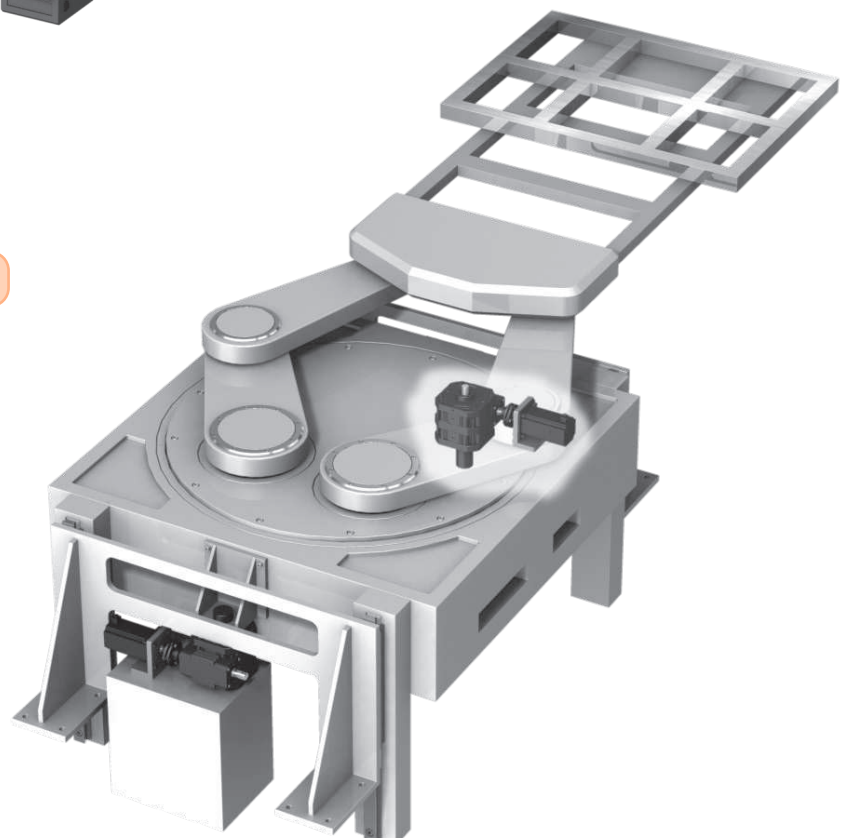
This device is used to stack workpieces. Two jacks are connecting with a coupling and driven by a servomotor.

- The combination of the Linispeed Jack and a servomotor enables extremely precise raising and lowering to any height in a short time.
- As it is electrically driven and compact, it is easy to install on a trolley for lateral movement.

Picking Robots

In order to raise and lower the equipment to match the workpiece ejection position, two jacks are to be operated synchronously with a servomotor.

- It is possible to keep the equipment lower and match the workpiece ejection position.
- Large allowable duty cycle enables high-frequency operation.



For better productivity

Large allowable duty cycle enables it to be used in various times cycles.

Easy to select

Allows maximum thrust at maximum speed, no need to size up in high speed operation.

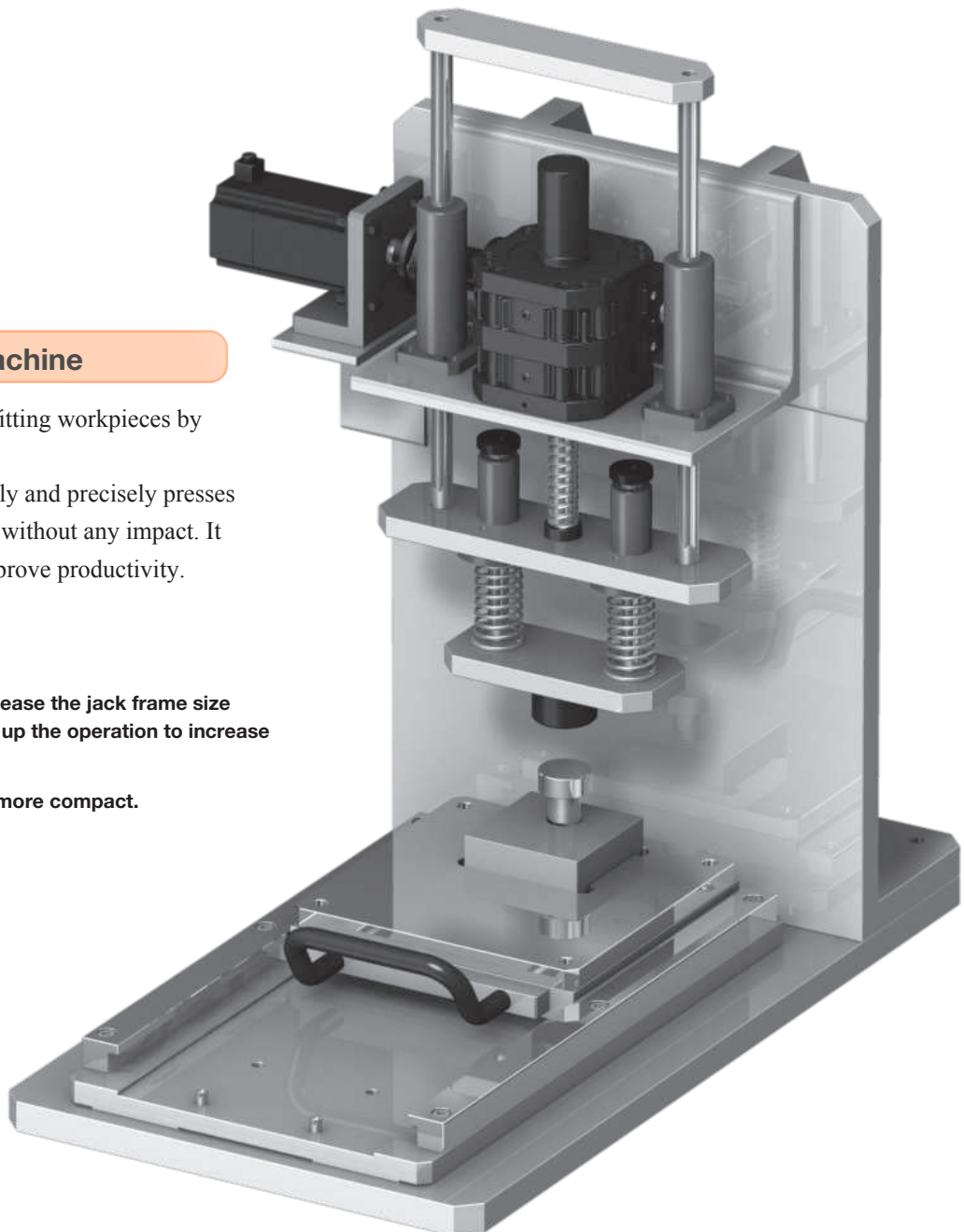
drive operation

Press-Machine

This is a device for press-fitting workpieces by only using a jack.

When press-fitting, it slowly and precisely presses the predetermined amount without any impact. It moves at high speed to improve productivity.

- It is not necessary to increase the jack frame size even if required to speed up the operation to increase productivity.
- Makes the whole device more compact.



Model No. Designation

Model number designation

3-ton type

SJ 030 H - TU T 4 M K2

5-ton type

SJ 050 H - BC L 15 J I K4P

Linispeed
Jack







Allowable thrust

030	30kN
050	50kN

Speed

H Maximum 200mm/s

Mounting type




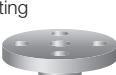
	U Face mount	C Flange/cover side	S Flange/screw side
T Screw facing up	TU 	TC  (see Note 1)	TS  (see Note 2)
B Screw facing down	BU 	BC  (see Note 1)	BS  (see Note 2)

Note 1: Limit screw tensile load to 50% of allowable thrust.

Note 2: Limit screw compressive load to 50% of allowable thrust.


- The pressure vent and drain plug locations may vary depending on the mounting type. Mounting types other than above figure, please contact to Tsubaki.

Output options

Symbol	Option
No symbol	Screw shaft end (standard) 
J	Bellows (made to order) 
I	I type end fitting 
M	Table-type end fitting 

Sensor options

Option	Symbol	
Counter LS (see Note 1)	Y	
Position detection unit (see Note 2)	Internal LS (2 pcs)	K2
	Internal LS (4 pcs)	K4
	With potentiometer	P
	With rotary encoder	R



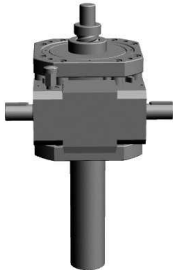




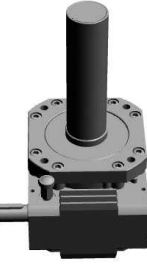
Note 1: When using the Counter LS option, please ensure that the input rotational speed does not exceed 1,800 rpm.

Note 2: Sensor option positions on the jack are shown in page 25. These positions and cable outlet directions are not to be rearranged.

Note 3: For the positional relationship between the jack and sensor options, please refer to page 25. Customers cannot modify the mounting configuration or the cable outlet direction.

Shaft arrangement

Stroke

	T Dual shafts	R Right side only	L Left side only
Screw facing up			
Screw facing down			

Stroke	(mm)
1	100
2	200
3	300
4	400
5	500
6	600
8	800
10	1000
12	1200
15	1500

Strokes other than listed above, please contact Tsubaki.

- For anti-rotation specifications the screw shaft speed has limitation, please contact Tsubaki.
- Bellows is made to order and designed to match for each required speed. Please contact Tsubaki.
- Bellows are designed to protect the screw in a dusty environment. They do not prevent the ingress of water.

Standard specifications

Frame size		SJ030H	SJ050H
Basic capacity	kN	30	50
Outer screw diameter	mm	36	45
Minor screw diameter	mm	30.7	38.8
Screw lead	mm	25	32
Overall efficiency	%	Please refer to the transmission capacity table.	
Starting efficiency	%	65	63
Gear ratio		6	8
Tare drag torque	N·m	6	7
Holding torque	N·m	11.5	16.6
Allowable input shaft torque	N·m	65	140
Screw movement per input shaft rotation	mm	4.17	4
Max. input rpm	r/min	3000	3000
Screw shaft rotational torque for basic capacity	N·m	133	283
Lubrication		Screw: Grease Reducer unit: Oil bath	
Paint color		Munsell N2.5 (semi-gloss)	

Note 1: Self Lock is not provided. Must install on a brake unit.

Note 2: The allowable input shaft torque is only for the jack input shaft, please make sure on the actual input torque in multiple operation.

Note 3: Please contact Tsubaki on anti-rotation spec.

Input shaft conversion inertia moment

Input shaft conversion inertia moment for each stroke (x 10 ⁻⁴ kg·m ²)										
Stroke (mm)	100	200	300	400	500	600	800	1000	1200	1500
SJ030H	8.99	8.99	8.99	9.00	9.00	9.00	9.01	9.02	9.02	9.03
SJ050H	26.0	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1

Standard use environment

Location	A place that is protected from rain and water.	Humidity	85% or less (no condensation)
Ambient atmosphere	General factory level	Impact resistance	1G or less
Operating temperature	-10°C to 90°C		

* The operating temperature includes the jack surface temperature.

Please make sure that all the drive unit is completely stopped, then measure the gear housing surface temperature.

Transmission capacity

Linispeed Jack efficiency, input capacity, and input torque values by input rotation speed.

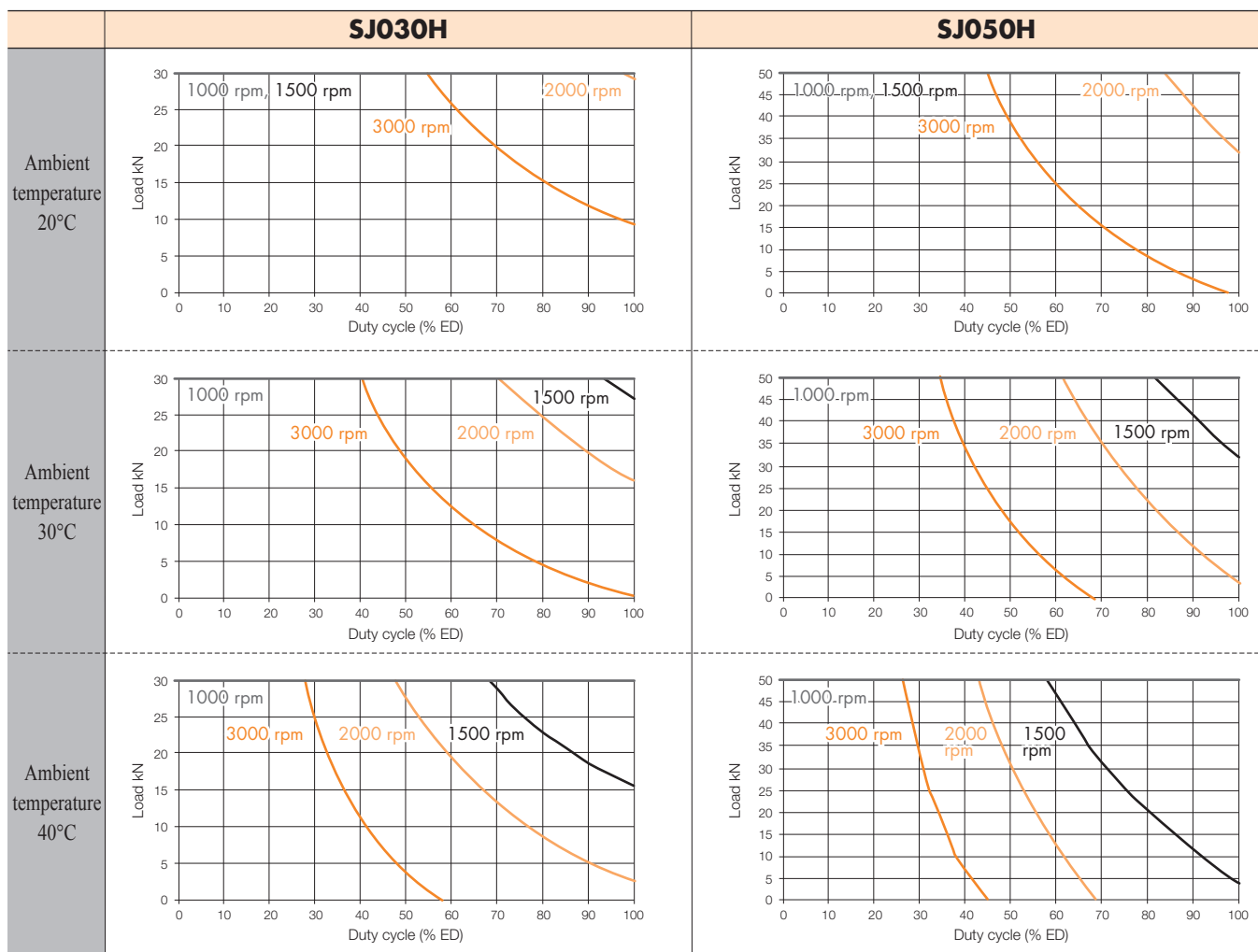
SJ030H				
Input rotation speed (rpm)	Speed (mm/s)	Efficiency (%)	Required input capacity (kW)	Required input torque (N·m) ^{Note 1}
3000	208	87	9.0	28.8
2500	174	87	7.6	29.2
2000	139	87	6.1	29.0
1500	104	87	4.5	28.9
1000	69	85	3.1	29.5
500	35	83	1.6	30.1
100	7	78	0.33	31.7

SJ050H				
Input rotation speed (rpm)	Speed (mm/s)	Efficiency (%)	Required input capacity (kW)	Required input torque (N·m) ^{Note 1}
3000	200	88	14	43.2
2500	167	87	11.5	43.8
2000	133	87	9.1	43.5
1500	100	86	6.8	43.3
1000	67	85	4.6	44.3
500	33	83	2.4	45.3
100	7	77	0.5	48.2

Note 1: Tare drag torque is included.

Allowable duty cycle

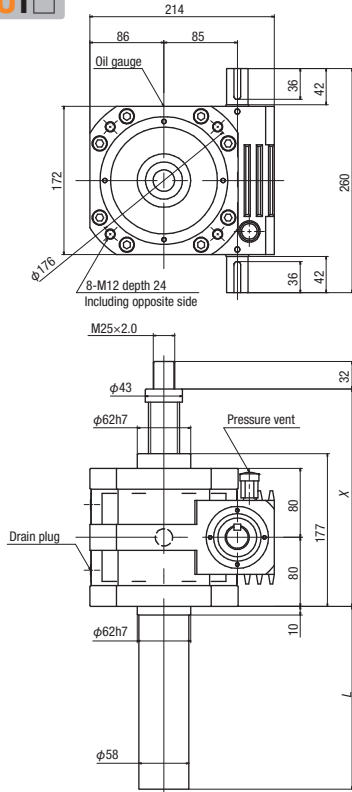
The Linispeed Jack must be used under the surface temperature of gear housing does not exceed 90°C. The table below shows approximate duty cycles (% ED) when the surface temperature of the gear housing is 90°C or lower. (These values are not guaranteed.) Please check the surface temperature of the gear housing when you use.



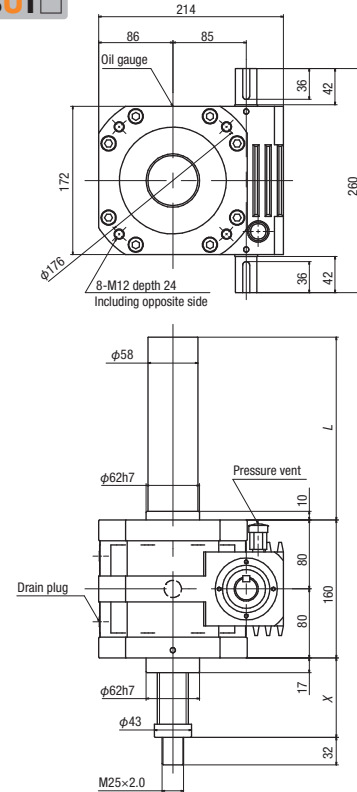
Input rotational speed 3000 rpm 2000 rpm 1500 rpm 1000 rpm

Mounting type: Face mount [U]

Model number **SJ030H-TUT**



Model number **SJ030H-BUT**



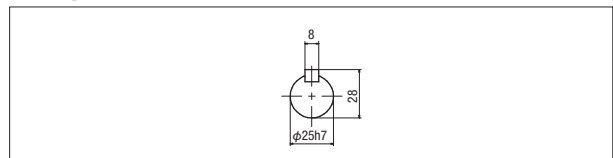
SJ030H-T (Screw facing up)

Stroke	X (mm)		L (mm)	Approximate weight (kg)			
	MIN	MAX		Face mount		Flange mount	
				Input both side	Input one side	Input both side	Input one side
100	202	302	118	30	30	32	32
200	202	402	218	31	31	34	33
300	202	502	338	33	32	35	35
400	202	602	438	34	34	36	36
500	202	702	558	36	35	38	38
600	202	802	658	37	37	39	39
800	202	1002	878	40	39	42	42
1000	202	1202	1098	43	42	45	45
1200	202	1402	1313	45	45	48	47
1500	202	1702	1638	50	49	52	52

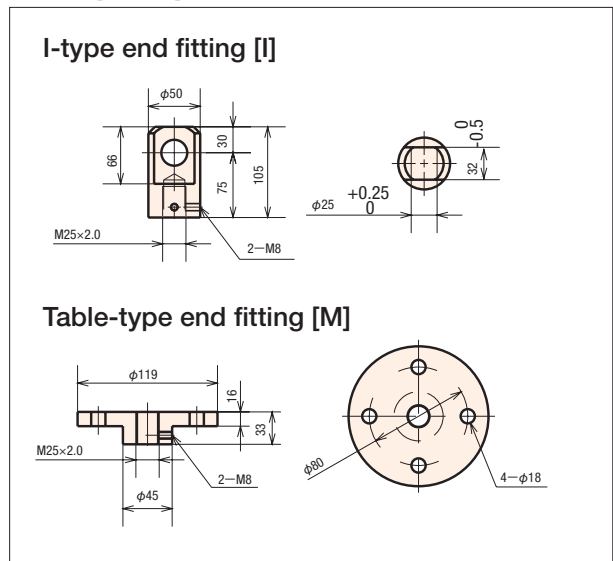
SJ030H-B (Screw facing downward)

Stroke	X (mm)		L (mm)	Approximate weight (kg)			
	MIN	MAX		Face mount		Flange mount	
				Input both side	Input one side	Input both side	Input one side
100	42	142	118	30	30	32	32
200	42	242	218	31	31	34	33
300	42	342	338	33	32	35	35
400	42	442	438	34	34	36	36
500	42	542	558	36	35	38	38
600	42	642	658	37	37	39	39
800	42	842	878	40	39	42	42
1000	42	1042	1098	43	42	45	45
1200	42	1242	1313	45	45	48	47
1500	42	1542	1638	50	49	52	52

Input shaft



Output options

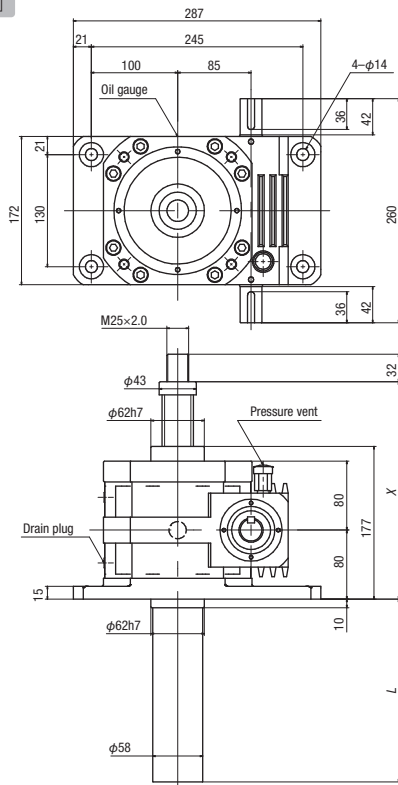


* For dimensions with no tolerances, general tolerances shall apply, and these may be approximately 2 to 5 mm larger than the dimensions shown. For machine design, take margins into consideration.

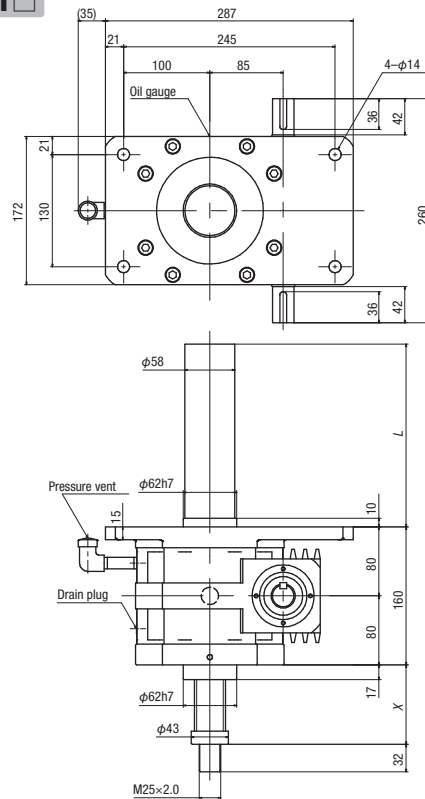
* The mounting face is painted to prevent corrosion.

Mounting type: Flange cover side [C]

Model number **SJ030H-TCT**

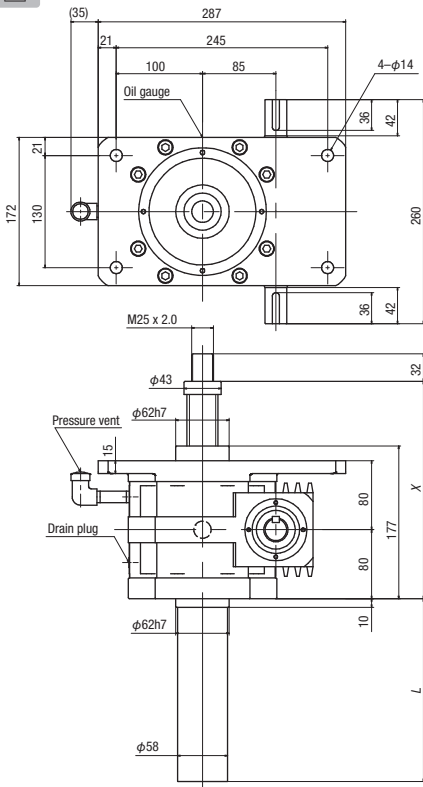


Model number **SJ030H-BCT**

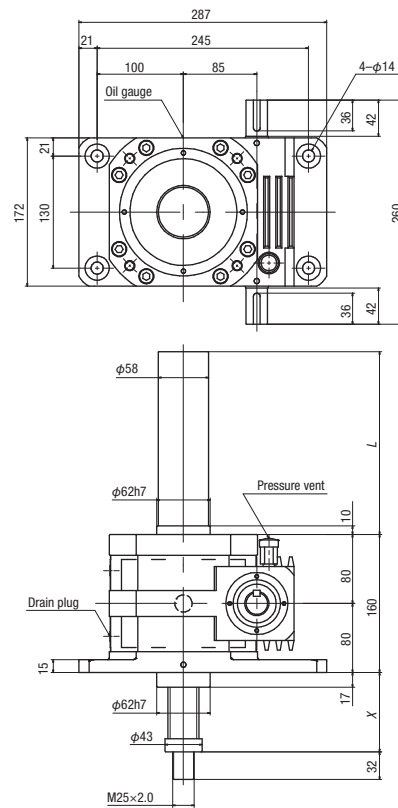


Mounting type: Flange cover side [S]

Model number **SJ030H-TST**

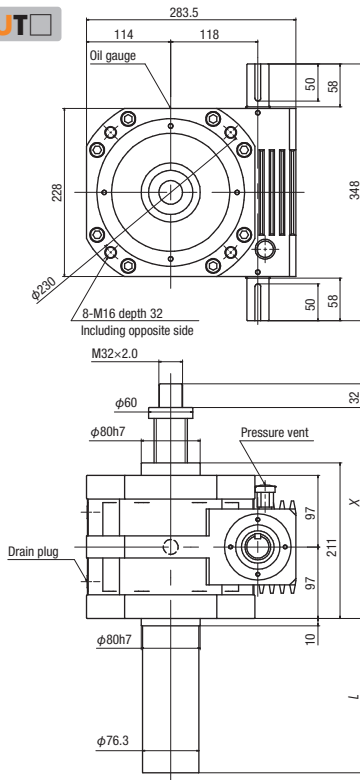


Model number **SJ030H-BST**

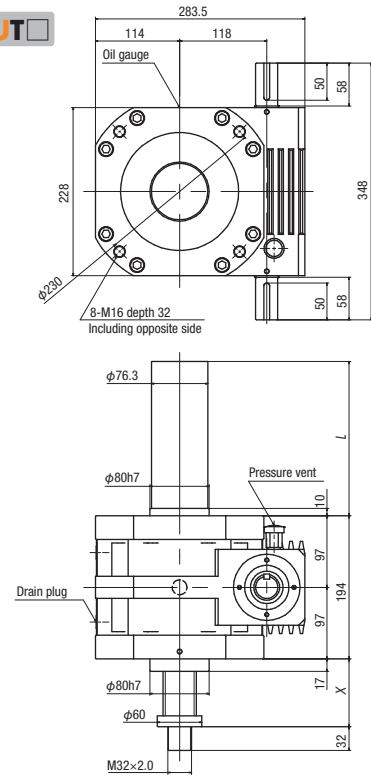


Mounting type: Face mount [U]

Model number **SJ050H-TUT**



Model number **SJ050H-BUT**



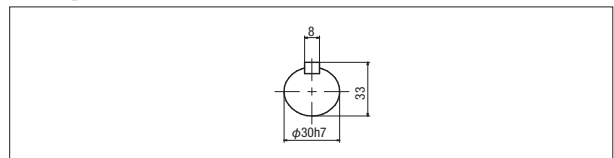
SJ050H-T (Screw facing up)

Stroke	X (mm)		L (mm)	Approximate weight (kg)			
	MIN	MAX		Face mount		Flange mount	
				Input both side	Input one side	Input both side	Input one side
100	236	336	109	63	63	68	68
200	236	436	209	65	65	70	70
300	236	536	324	68	68	73	73
400	236	636	424	70	70	75	75
500	236	736	549	73	73	78	78
600	236	836	649	76	75	81	80
800	236	1036	864	81	80	86	85
1000	236	1236	1074	86	85	90	90
1200	236	1436	1299	91	90	96	95
1500	236	1736	1624	98	98	103	103

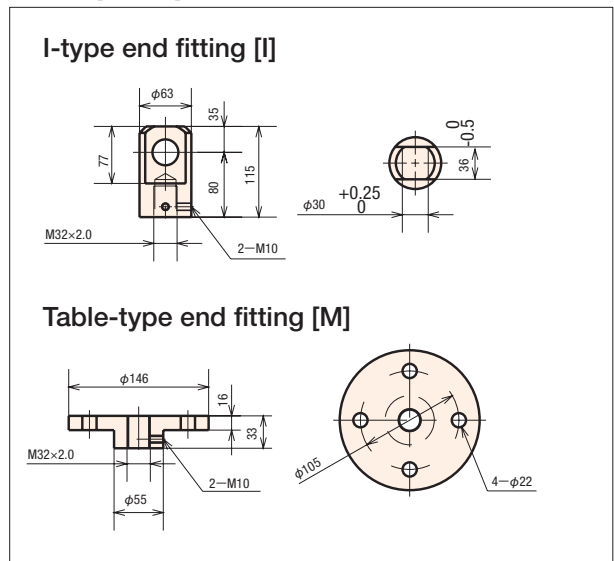
SJ050H-B (Screw facing downward)

Stroke	X (mm)		L (mm)	Approximate weight (kg)			
	MIN	MAX		Face mount		Flange mount	
				Input both side	Input one side	Input both side	Input one side
100	42	142	109	63	63	68	68
200	42	242	209	65	65	70	70
300	42	342	324	68	68	73	73
400	42	442	424	70	70	75	75
500	42	542	549	73	73	78	78
600	42	642	649	76	75	81	80
800	42	842	864	81	80	86	85
1000	42	1042	1074	86	85	90	90
1200	42	1242	1299	91	90	96	95
1500	42	1542	1624	98	98	103	103

Input shaft



Output options

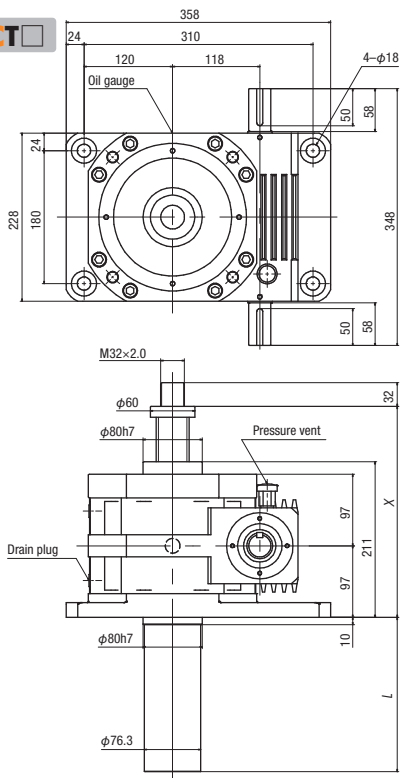


* For dimensions with no tolerances, general tolerances shall apply, and these may be approximately 2 to 5 mm larger than the dimensions shown. For machine design, take margins into consideration.

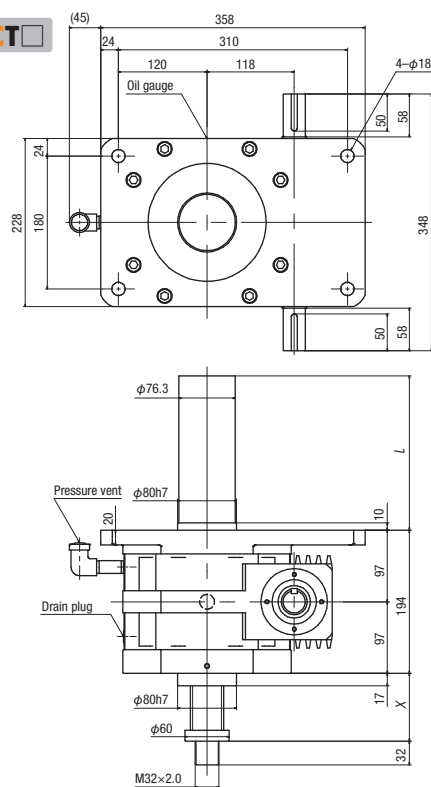
* The mounting face is painted to prevent corrosion.

Mounting type: Flange cover side [C]

Model number **SJ050H-TCT**

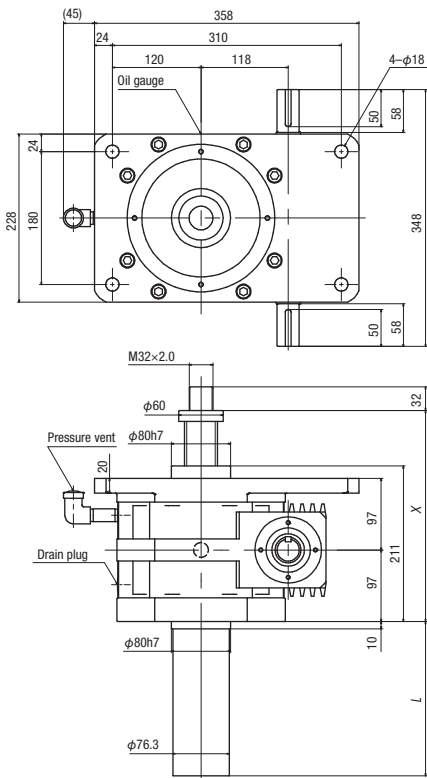


Model number **SJ050H-BCT**

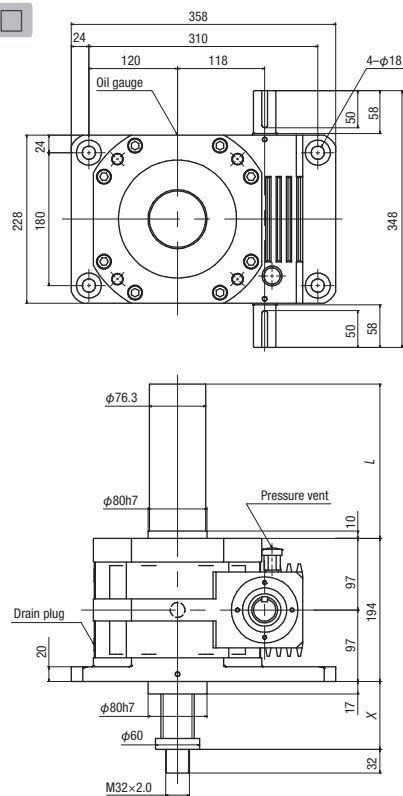


Mounting type: Flange cover side [S]

Model number **SJ050H-TST**

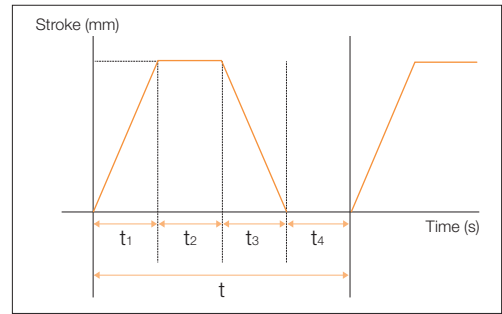


Model number **SJ050H-BST**



Condition of use required for selection

- 1 Machine to be used Table lifter, press-fit machine, etc.
- 2 Layout Synchronization of two jacks (individually driven with a motor or both connected with a coupling and driven with one motor, etc.
- 3 Operation cycle See the time cycle graph to the right.
 - Maximum load (W) Load or workpiece weight (kN)
 - Screw shaft speed (V) Required speed for jack (mm/s)
 - Stroke Actual stroke used (mm)
- 4 Mounting type Face mount, flange type, etc.
- 5 Installation conditions Fixed base, clevis on shaft end, etc.
- 6 Expected life time Service life of the jack (Number of years)



Time cycle

Selecting your Linispeed Jack

1. Adjusted load (Ws)

Calculate the "Adjusted Load" (Ws), by referring to the factor in Table 1 by load conditions.

$$\text{Adjusted Load (Ws) (kN)} = \text{Maximum Load (W) (kN)} \times \text{Factor used (Sf)}$$

Table 1. Operation factor (Sf)

Characteristics of load	Example of machine used	Operation factor
Smooth operation with no impact Small inertia	Valve opening and closing Conveyor switching device	1.0 to 1.3
Operation with light Impact Intermediate inertia	Various transporting equipment Various lifters	1.3 to 1.5
Operation with large impact vibration Heavy inertia	Holding the positioning of object conveyances / rollers by using trolleys	1.5 to 3.0

Note: The above operation factor table is for general reference guidelines. Please make a determination in consideration of operating conditions.

2. Load per jack (W)

Calculate load W per jack, by using the adjusted load Ws obtained above. For synchronize operation, use a multiple factor (Table 2).

$$\text{Load per jack (W) (kN)} = \frac{\text{Adjusted Load (Ws) (kN)}}{\text{No. of jacks used} \times \text{interlock coefficient (fd)}}$$

Table 2. Multiple factor (fd)

No. of units interlocked	2	3	4	5 to 8
Interlock coefficient	0.95	0.9	0.85	0.8

3. Linispeed Jack preliminary selection

Select a model according to the required mounting type and shaft arrangement with enough capacity for the load and with enough stroke.

Note

- (1) Please select a frame size that ensures a sufficient safety factor so that it does not exceed the allowable thrust on both the operational load (static and dynamic) and the impact load.
- (2) Usage that exceeds the specified jack stroke may damage the jack. The Linispeed Jack is equipped with shaft and stopper which is designed only to prevent the screw from falling out during installation.
- (3) Do not press stop under any circumstances. This may cause critical damage to jacks.
- (4) When using a flange mount, there is a load direction that requires allowable thrust to be limited to 50%.

4. Buckling

For a compressive load, verify that it does not exceed the allowable buckling load. In case exceeds, increase the jack frame size and recalculate.

For more details regarding the calculation of the buckling load, please refer to page 183.

5. Expected travel distance

Make sure that the expected travel distance is satisfied. If you want to extend the expected travel distance, increase the jack frame size and recalculate.
For more details please refer to page 185.

6. Input shaft allowable overhang load

When installing a belt on the input shaft, make sure that it does not exceed the allowable overhang load.
In case it exceeds, increase the jack frame size and recalculate.
For more details regarding the calculation of the allowable overhang load, please refer to page 186.

7. Required input rotational speed

Determine the required input rotation speed from the required screw shaft speed.

$N = \frac{V}{\ell} \times R$	<p>N: Input rotational speed rpm V: Screw shaft speed m/min ℓ: Screw lead m R: Gear ratio</p>
-------------------------------	---

For more details, please refer to page 173.
The allowable input rotation speed is 3000 rpm and must not exceed must.

8. Duty cycle

Please check the percentage of operation time for a single cycle (duty cycle).
Confirm that duty cycle (% ED) is within the allowable range.
For more details, please refer to page 174.

$\%ED = \frac{\text{Total operation time per one cycle}}{[\text{Total operation time per one cycle}] + [\text{Idle time}]} \times 100 (\%)$

The formula for calculating the duty cycle (% ED) from the time cycle table is as follows.

$\%ED = \frac{t_1 + t_3}{t_1 + t_2 + t_3 + t_4} \times 100 (\%)$
--

9. Required input torque

Calculate the required input torque. When using a servomotor, please select a model number that satisfies the servomotor's allowable torque.

$T = \frac{W \times \ell}{2 \times \pi \times R \times \eta} + T_0$

<p>T: Required input torque (N-m) W: Lifting load (N) ℓ: Screw lead (m) π: Circular constant (3.14) R: Gear ratio η: Total efficiency or starting efficiency ^(Note) T₀: Tare drag torque (N-m)</p>
--

* For the screw lead, gear ratio, total efficiency, and tare drag torque, please refer to page 173. Please pay attention to the unit used for the screw lead.
 Example: 8 mm should be written as 0.008 m
 Note: Be sure to check the required input torque at the starting efficiency when the equipment is just turned on.

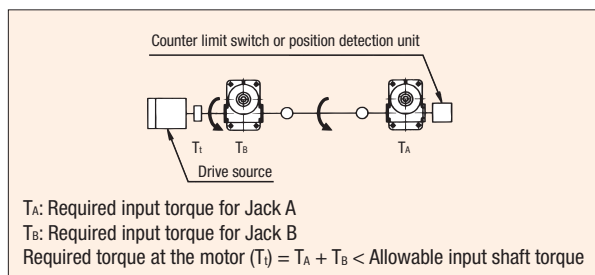
10. Required input capacity

$P = \frac{T \times N}{9550}$	<p>P: Required input capacity (kW) T: Required input torque (N-m) N: Input rotation speed (rpm)</p>
-------------------------------	---

11. Input shaft torsional torque

The number of jacks that can be connected in a single line is limited by the strength of the shaft. Please confirm the allowable input shaft torque.

Example: When jacks are arranged in a straight line as in the figure shown below, the driving source will transmit the input torque required for both jacks to the input shaft. Please make sure that the torque of these two jacks do not exceed the allowable input shaft torque.



For more details regarding allowable input shaft torque, please refer to page 173.

12. Select the options

Select the options that best suit your usage conditions.
 - Output option - Sensor option

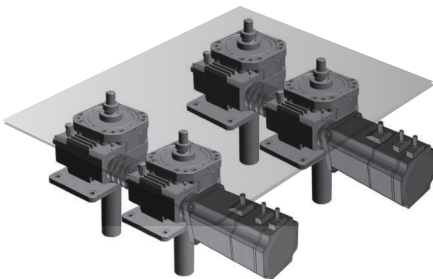
13. Select the Linispeed Jack model

Select the appropriate Linispeed Jack model.

Jack selection example

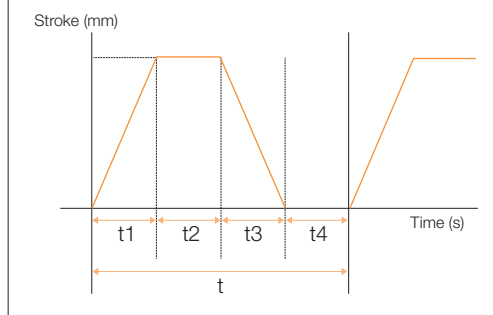
- 1 Machine to be used Four jack in synchronized operation for lifting, operating at room temperature (30°C) under low dust conditions.
- 2 Layout Two jacks are connected w / a coupling and driven by a servomotor with brake, and lift with two of these layouts. (Fig. 1)
- 3 Operation cycle See Fig. 2
 - Maximum load (W) 28kN/4
 - Screw shaft speed (V) 180mm/s (10.8m/min)
 - Stroke 540mm
- 4 Mounting type Flange mount / cover side
- 5 Installation conditions Fixed base - Fixed at shaft end with table-type end fitting
- 6 Expected time life 30 cycles x 2 times / hour x 8 hours / day x 250 days / year x 3 years usage

Figure 1. Layout



Lifting/Lowering using two aligned jacks (four jacks in total)

Figure 2. Time cycle



Time for each cycle	
t ₁	3sec
t ₂	2sec
t ₃	3sec
t ₄	6sec
t	14sec

1. Based on maximum load, the adjusted load W_s (coefficient used $sf = 1.3$) can be calculated as:

$$W_s = 28 \times 1.3 = 36.4\text{kN}$$

2. The load W per jack (multi operational coefficient $fd = 0.85$) is:

$$W = 36.4 / 4 / 0.85 = 10.7\text{kN}$$

3. SJ030H model is tentatively selected by load per jack.

Considering that a 540 mm stroke is used, select 600 mm stroke.

4. As a compressive load is to be applied, the allowable buckling load is calculated according to the formula shown on page 183. Safety factor $sf = 4$.

$$P_{cr} = 20 \times 10^4 (30.7^2 / 775)^2 = 295.8\text{kN}$$

$$sf = 295.8 / 10.7 > 4 \dots \text{OK}$$

5. Calculate the expected traveling distance according to the frequency of use.

$$\text{Expected travel distance} = 0.54 \times 2 \times 30 \times 2 \times 8 \times 250 \times 10^{-3} \times 3 = 388.8 \text{ km}$$

Refer to page 185 on expected life time of the screw shaft and then evaluate the appropriate jack frame size by looking at the intersection between the expected travel distance and the load.

Model SJ030H will satisfy the expected travel distance.

6. It is not necessary to consider the input shaft overhang load as it is directly driven by a servomotor with brake.

7. Determine the required input rotation speed, from the required screw shaft speed.

$$N = 10.8 / 0.025 \times 6 = 2592 \text{ r/min}$$

Please make sure the units used for the screw shaft speed and screw lead. (180 mm/s should be 10.8 m/min, 25 mm should be 0.025 m)

8. Check the duty cycle from the time cycle table as follows:

$$\%ED = (3 + 3) / 14 \times 100 = 43\%ED$$

See page 174 to confirm the allowable duty cycle. From the input rotational speed of 2592 rpm and ambient temperature of 30°C, the allowable duty cycle is 50% ED. 50%ED > 43%ED...OK

9. Calculate the required input shaft torque on the jack.

Required input shaft torque during normal operation:

$$T = 10.7 \times 1000 \times 0.025 / 2 / \pi / 6 / 0.87 + 6 = 14.2\text{N}\cdot\text{m}$$

For the screw lead, gear ratio, total efficiency, and tare drag torque, please refer to page 173.

Please consider the total efficiency on each input rotation speed. Please make sure to the units used for the screw lead. (25 mm should be 0.025 m)

Required input shaft torque during start:

$$T' = 10.7 \times 1000 \times 0.025 / 2 / \pi / 6 / 0.65 + 6 = 16.9\text{N}\cdot\text{m}$$

For more details regarding starting efficiency, please refer to page 173.

10. Calculate the required input shaft torque from the servomotor with brake to drive two jacks.

Required torque on the servomotor:

$$T_m = 14.2 \times 2 = 28.4\text{N}\cdot\text{m}$$

Required starting torque required on the servomotor:

$$T'_m = 16.9 \times 2 = 33.8\text{N}\cdot\text{m}$$

When selecting the servomotor, please consider a model with brake that satisfies 3000 rpm rated rotation speed, 28.4 N·m rated torque, and required starting torque.

(Reference) Required capacity on servomotor

$$P = 28.4 \times 3000 / 9550 \approx 9\text{kW}$$

11. Two jacks are aligned, twice the torque of a single jack is applied to the input shaft of the jack on the driven side. Please make sure that jack input shaft torque does not exceed the allowable input shaft torque shown on page 173.

$$\text{Torque for two jacks} = 16.9 + 16.9 < 65 \text{ N}\cdot\text{m} \dots \text{OK}$$

12. Jack options are as follows:

Shaft end → Table-type end fitting

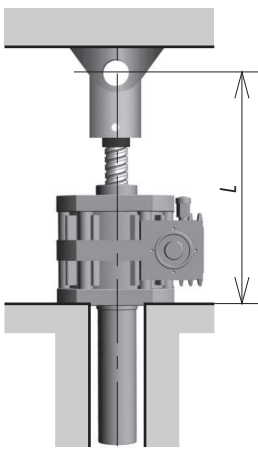
Small amounts of dust → Bellows (special specifications) as necessary

13. Based on the above, Linispeed Jack SJ030H-TCT6M is selected.

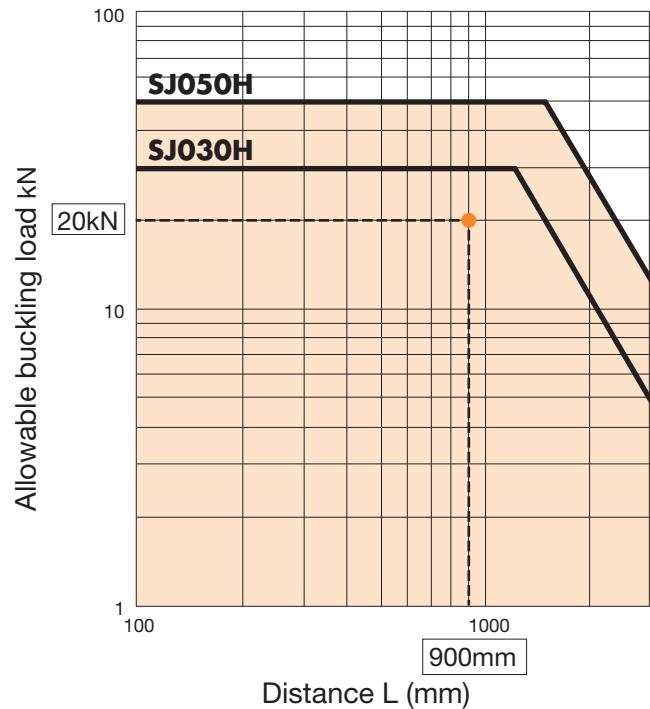
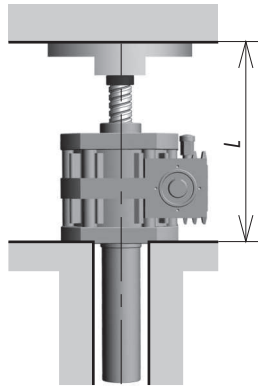
Allowable buckling load table

- When using a compressive load, please use this graph to select an appropriate frame size that suits the buckling load. This buckling load selection graph includes a buckling safety factor of SF = 4.
- (1) For the installation conditions shown below, please select an appropriate distance L. (Please contact Tsubaki other than installation below.)
- (2) Select an appropriate jack frame size by looking at the intersection between the load W per jack (vertical axis) and the distance between the points of action (horizontal axis).
- Ensure that no lateral loads are applied. The following buckling selection graph assumes that there is no lateral load.

Fixed base - Guided shaft end



Fixed base - Fixed shaft end



Note 1: The dotted line in the graph represent an example when the load W is 20 kN and the distance L is 900 mm when using above installation conditions and with an assumed buckling safety factor (sf = 4). In this case, SJ030H model can be selected.

Note 2: If detailed examinations are required, please refer to the calculation formulas on the following next page.

Distance L (Distance from installation surface to load mounting surface)

For more details, please refer to the dimensional drawings on page 175 to 178.

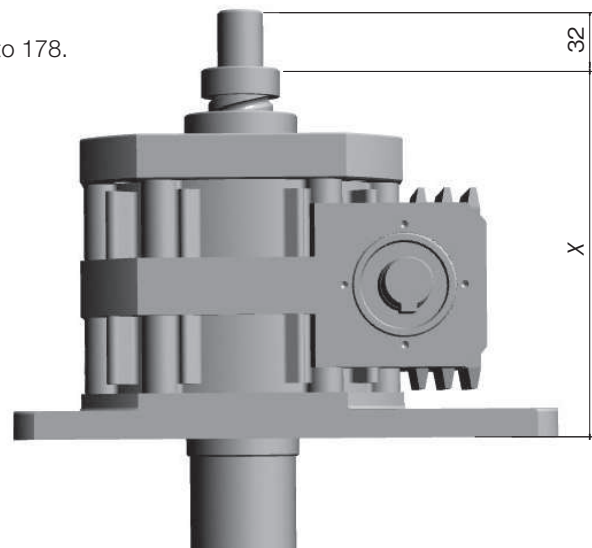
	SJ030H	SJ050H
Table-type end fitting (M)	235mm	269mm
I-type end fitting (I)	277mm	316mm
X dimension (MIN)	202mm	236mm

When using table-type or I-type end fittings, be sure to add the actual length of each end fitting to the actual stroke.

Example: When using an I-type end fitting with the SJ030H that has a stroke of 500 mm.

$$500+277=777\text{mm}$$

Note: If you wish to use your own custom end fitting, please add the X dimension (MIN) and the length of the end fitting itself to the actual stroke. Please note that the X dimension does not include the 32 mm screw length on the end of the screw shaft for attaching the end fitting.



Allowable buckling load calculation formula

The allowable buckling load of the screw shaft can be calculated as follows:

$$P_{CR} = m \times \left(\frac{d^2}{L} \right)^2$$

Make sure that $P_{CR} > W \times Sf$.

P_{CR} : Allowable buckling load (N)

d: Minor screw diameter (mm)

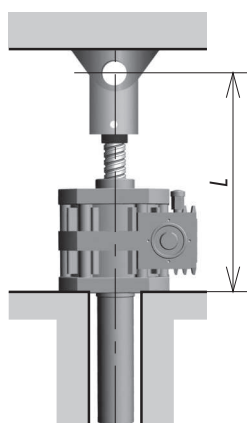
m: Support coefficient (20×10^4)

L: Screw shaft projection distance (mm)

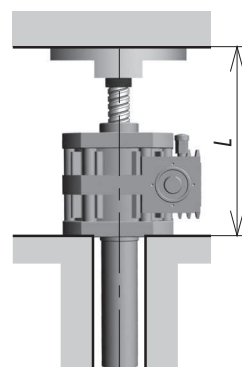
W: Load per jack (N)

Sf: Buckling safety rate (assumed as 4)

Fixed base - Guided shaft end



Fixed base - Fixed shaft end



Allowable buckling load calculation example

The following procedure can be used to calculate P_{CR} when the equipment is in use with SJ030H-TUT8M model (fixed base - fixed shaft end with table-type end fitting) when the load (W) is 24,500 N.

$$P_{CR} = 20 \times 10^4 \times (30.7^2 / 1035)^2 = 165,845 \text{ N}$$

$$W \times Sf = 24,500 \times 4 \text{ (assuming sf = 4)} = 98,000 \text{ N}$$

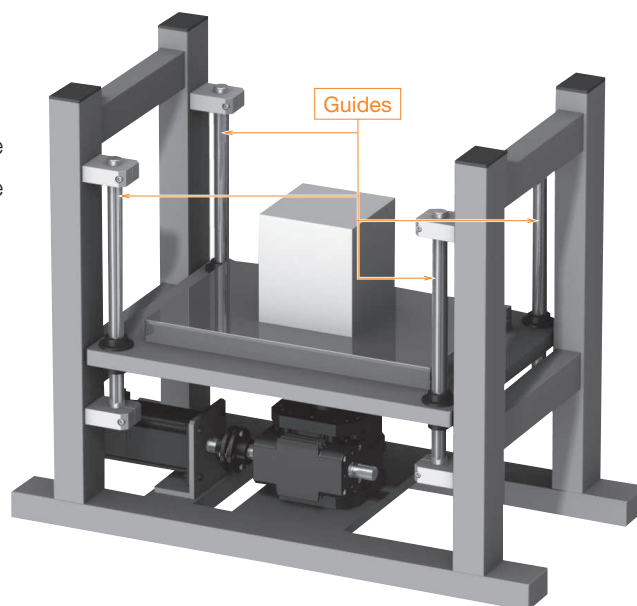
$$P_{CR} > W \times sf$$

$$165,845 > 98,000 \text{ (OK)}$$

* L = 1002 + 33 = 1035 mm
 X dimension at 800mm stroke: 1002mm
 Table-type end fitting: 33 mm
 From the dimensional drawing on page 175.

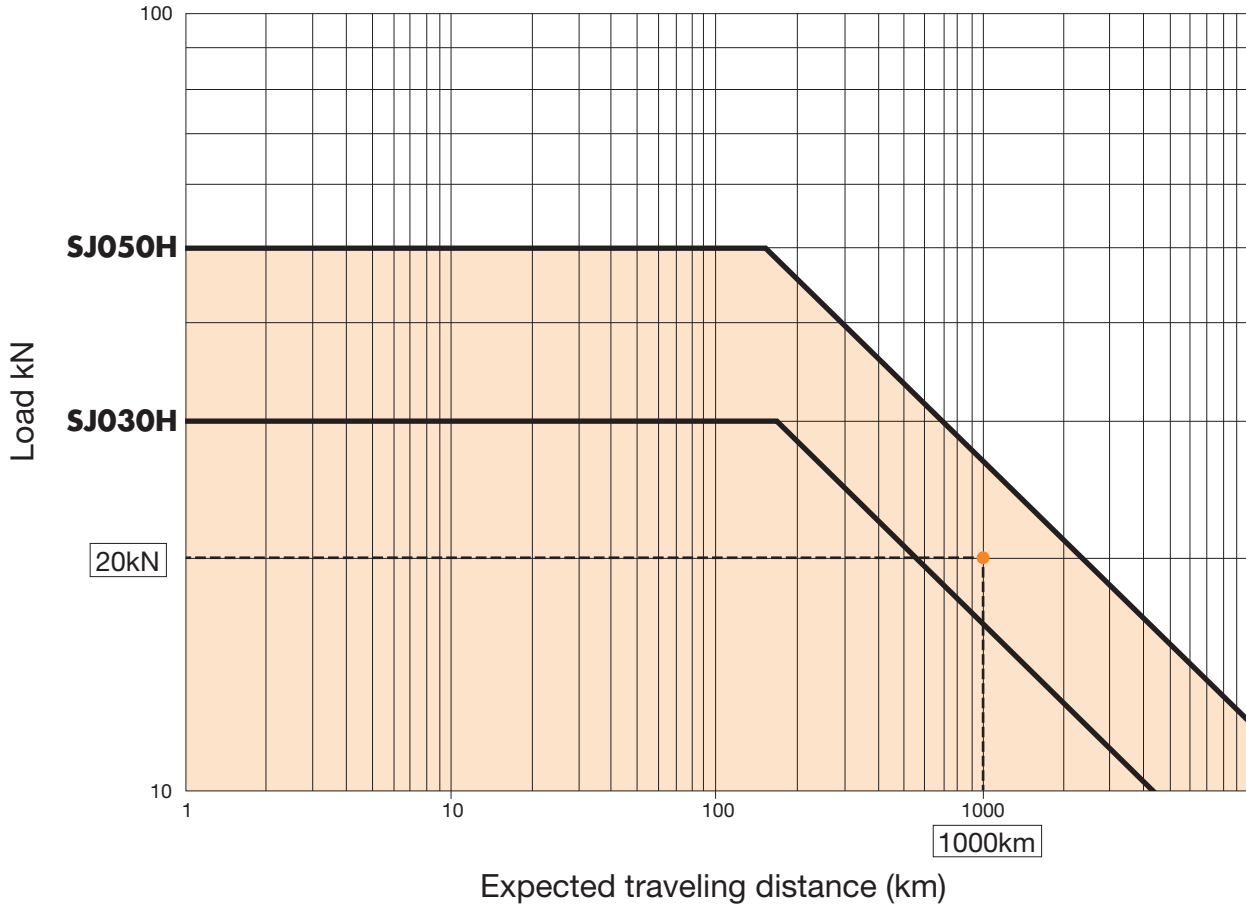
Lateral loads

The Linispeed Jack cannot hold lateral load. If lateral load is to be applied, please install guides as shown in the image to and make sure that lateral load do not directly apply on the jack.



Expected travel distance

Ball screw is determined by the flaking of the rolling surface due to fatigue. Verify ball screw life expectancy using the graph shown. Please note that conditions such as severe impact or failure to conduct regular lubrication and maintenance can largely affect the life of a ball screw.



$$\text{Expected traveling distance (km)} = \text{Actual load stroke (m)} \times \text{Frequency of use (times per day)} \times \text{Days of operation per year} \times 10^{-3} \times \text{Expected number of years}$$

Above graph is based on "L10" life. L10 life indicates the total travel distance at which at least 90% of units reach. When selecting a jack based on the life, please select the frame size using this graph as follows.

When the required expected travel distance is 1000 km and the equivalent load is 20 kN, this graph indicates that it is best to select SJ050H as this frame size covers the intersection point.

If the load varies greatly in the middle of the stroke, an equivalent load can be calculated using the following formula.

$$\text{Equivalent load (kN)} = \frac{\text{Minimum load (kN)} + 2 \times \text{Maximum load (kN)}}{3}$$

Input shaft allowable overhang load

When installing a sprocket, gear, or belt, use the following formula to verify that any overhang load applied to the shaft falls within the allowable OHL.

$$\text{Allowable O. H. L.} \geq \frac{T \times f \times L_f}{R}$$

O.H.L: Overhang load (N)
 T: Input torque (N·m)
 f: Power transmission coefficient
 L_f: Load position coefficient
 R: Sprocket, gear, V-pulley pitch diameter

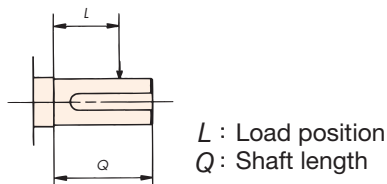


Table 1. Input shaft allowable overhang load

	SJ030H	SJ050H
Allowable O.H.L (N)	1280	1760

Table 2. Power transmission coefficient (f)

Chain	1.00
Gear, toothed belt	1.25
V-belt	1.50
Flat belt	2.50

Table 3. Load position coefficient (L_f)

L/Q	0.5 or less	0.75	1
L _f	1	1.5	2

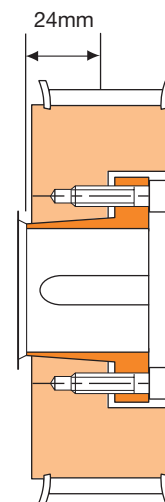
Example of calculating the input shaft allowable overhang load

Conditions

Jack model: SJ030H
 Input torque: 20 N·m (Please refer to page 180 for the calculation method.)
 Input with a timing belt
 Pulley pitch diameter: 71.3 mm
 Load position: 24 mm from the shaft end

Considerations

- Input torque: T = 20 N·m
- As torque is transmitted through the timing belt, the power transmission coefficient is "f = 1.25" from Table 2.
- Jack model: As the load position is 24 mm for the 32 mm shaft of the SJ030H, Q = 32 mm, L = 24 mm, and L/Q = 0.75.
 From the load position, Table 3 shows that the coefficient L_f = 1.5.
- Since the pitch circle diameter is 71.3 mm, the pitch circle radius is 71.3 ÷ 2000 = 0.036 m.



$$\text{O.H.L} = 20 \times 1.25 \times 1.5 / 0.036 = 1042\text{N}$$

Ensure that the overhang load acting on the timing belt is within the allowable overhang load of 1280 N on SJ030H.

Operation

- All loads (static, dynamic or shock) should be within the rated capacity of the jack at sufficient safety levels.
- Operating Temperature Range refers to the surface temperature of the jack during operation. To check, measure the surface temperature of the input shaft unit or travel nut (if used). Be sure all the rotating parts have completely stopped before proceeding to measure.
- Be sure to operate within the allowable input rpm of 1800/min.
- Number of synchronizing jacks which can be connected on the same line is limited by shaft strength. Refer to the allowable input shaft torque on the above table.
- Activating torque for the drive unit should be maintained at 200% above the required torque.
- If operating in freezing temperatures, a change in viscosity may reduce the efficiency of the grease. Set the drive unit so as to accommodate this change.
- Since the screw jack has high efficiency, a brake mechanism that exceeds the holding torque is necessary.
- Please select a jack with enough stroke. Usage that exceeds the specified jack stroke range may lead to jack damage. Linispeed Jack is equipped with a retaining mechanism. This is designed to prevent the screw shaft from falling out during installation.
- Never approach or touch the input or screw shaft during operation. Doing so may cause enquiry.

Maintenance and inspection

- The screw shaft and gear unit are applied with grease or filled with oil upon delivery. Please install the pressure vent to the appropriate position. Standard grease applied to the screw shaft and oil filled in the gear unit are shown in Table 1. Oil and grease are important factors to ensure performance, product life, and efficiency of the jack. Only use the designated grease and oil types.
- The recommended lubrication intervals for the shaft screw are shown in Table 2. For the amount of lubrication to be used, please refer to Table 3. To re-apply grease, expand the screw shaft to full stroke, remove any old grease and directly apply using a grease gun or brush.
- The recommended lubrication intervals for the gear unit are shown in Table 2. However, these intervals may vary depending on operation frequency and usage conditions. Remove the pressure vent attached to the gear unit and pour in oil until it seeps from the plug hole to the oil gauge center position. After changing the oil, firmly tighten the pressure vent. Please refer to Table 4 for the plug sizes. The first replacement should be carried after 1000 hours of operation or after three months, whichever comes earlier. Depending on operating conditions, the second and subsequent replacements should be carried out every 5000 hours of operation or each year, whichever comes earlier. Draining the oil immediately after operation can be performed easily when the temperature is still high, but it can be very dangerous which may lead to the oil spurting out and cause serious burns. Please confirm that the surface temperature of the gear unit is lower than 40°C to 50°C level before draining the oil. When draining and changing the oil, we recommend that you clean the inside of the case using the replacement oil.

Table 1. Specified lubricants

Usage classification	Manufacturer	Lubricant name
Screw	Cosmo Oil Lubricants	Cosmo Molybdenum Grease Special No. 2
Gear unit	Idemitsu Kosan	Daphne Alpha Oil TE150

Note: The product names mentioned above are trademarks or registered trademarks of each manufacturer.

Table 2. Lubrication and oil change intervals

Operation frequency	Lubrication interval	Oil change interval
	Ball screw shaft	Gear unit
1001 or more cycles per day	1 to 3 months	5000 hours or yearly
501 to 1000 cycles per day	3 to 6 months	
500 or less cycles per day	6 months to 1 year	

Table 3. Grease application and oil filling amount

Frame size	Application amount	Initial amount
	Screw shaft (per 100 mm stroke)	Gear unit
SJ030H	10 to 15 g	0.49L
SJ050H	20 to 30 g	1.02L

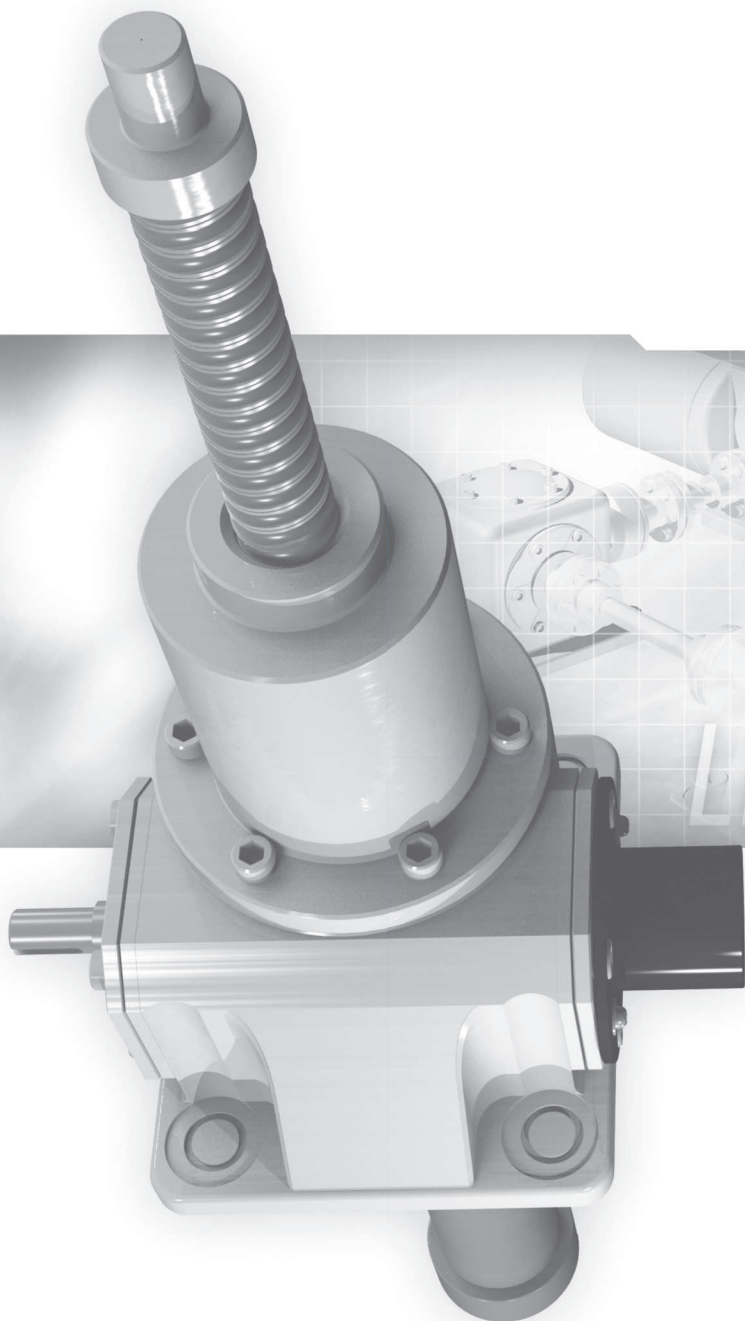
Table 4. Plug size

SJ030H	1 / 4"
SJ050H	3 / 8"

Note: The above values differ from the product lives of screw and reducer unit.

- When using jack(s), regularly inspect the condition of the screw face and backlash. If metal particles due to excessive abrasion of the screw face are discovered, the mechanism has reached the end of the product life. In addition, if backlash of the gear system (play between the input shaft and the worm wheel) exceeds an input shaft rotation angle of 30 degrees, it is necessary to replace the entire gear system. Continued usage after any of these issues are identified may lead to unstable rotation of the screw and input shafts, or may even cause the screw shaft to suddenly drop down.

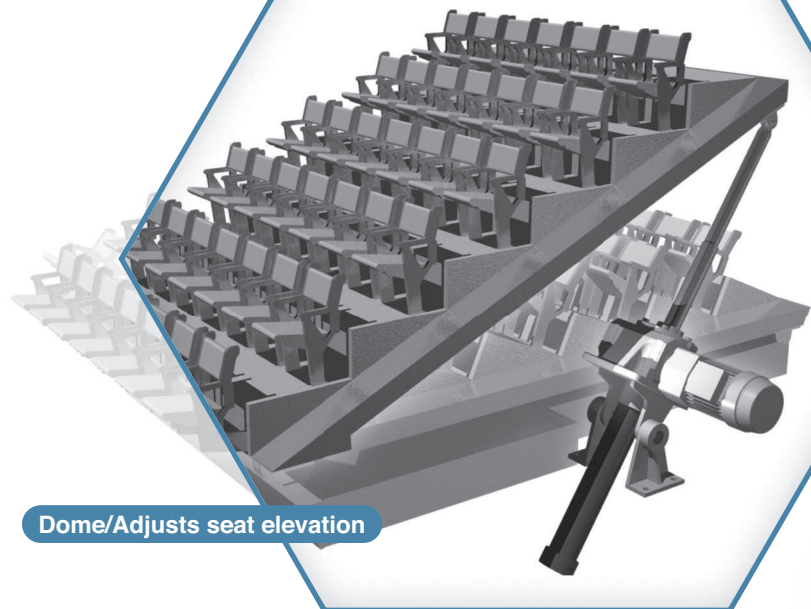
⚠ Continued usage after any of these replacement periods have been exceeded may lead to unstable rotation of the screw and input shafts, or may even cause sudden drop down of the screw shaft.



Linipower Jack

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Linipower Jack

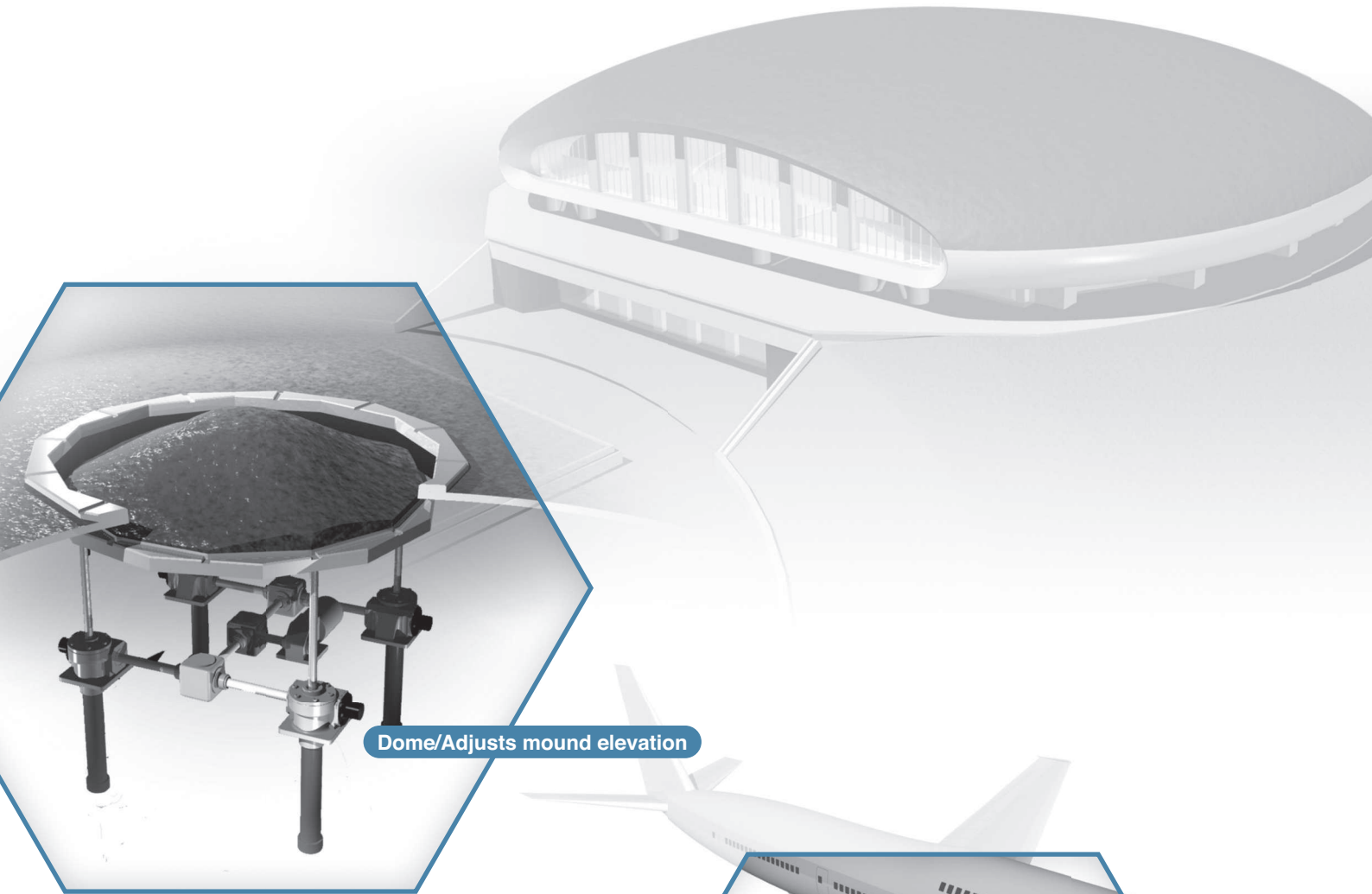


APPLICATION SOLUTION

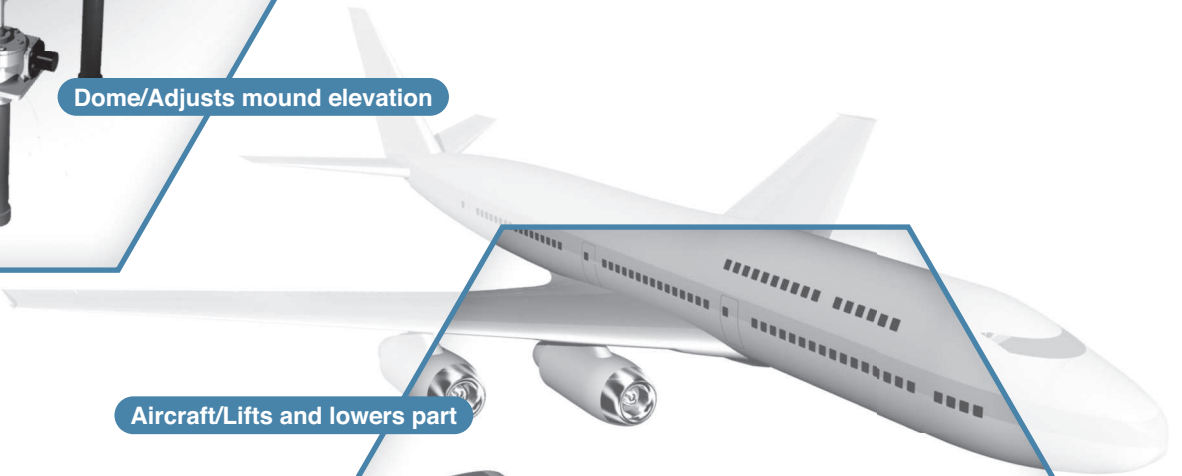
TSUBAKI Linipower Jack is our latest jack realized through a combination of technology cultivated over years of experience as a top manufacturer of power cylinders and product manufacturing in consideration of thorough quality controls and environmental consciousness.

Linipower Jacks play an active role across various fields including iron and steel, stage setting, medical equipment, and liquid crystal /PDP devices.

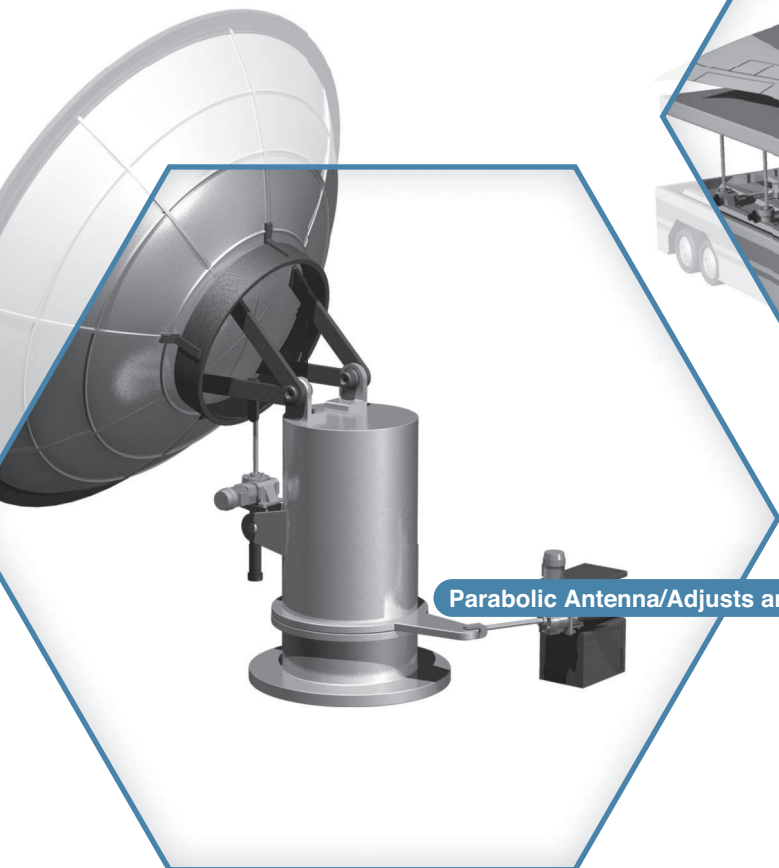
In addition, specifications and options are offered for selection according to the variety of application and intended purpose.



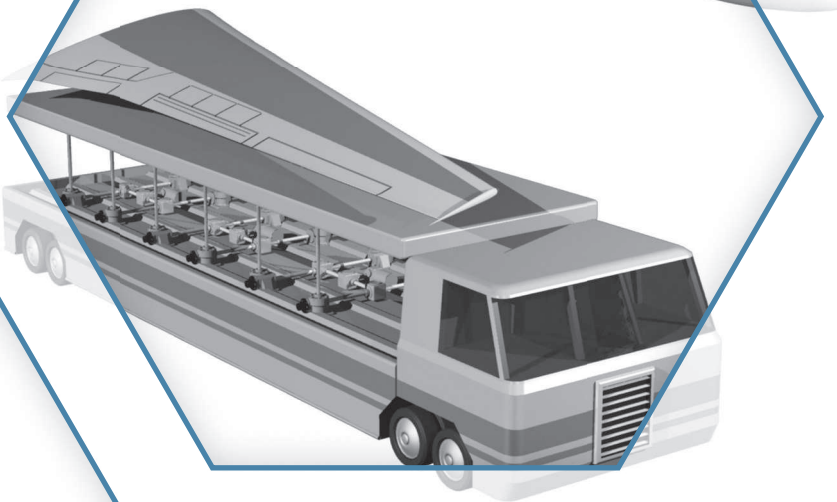
Dome/Adjusts mound elevation



Aircraft/Lifts and lowers part

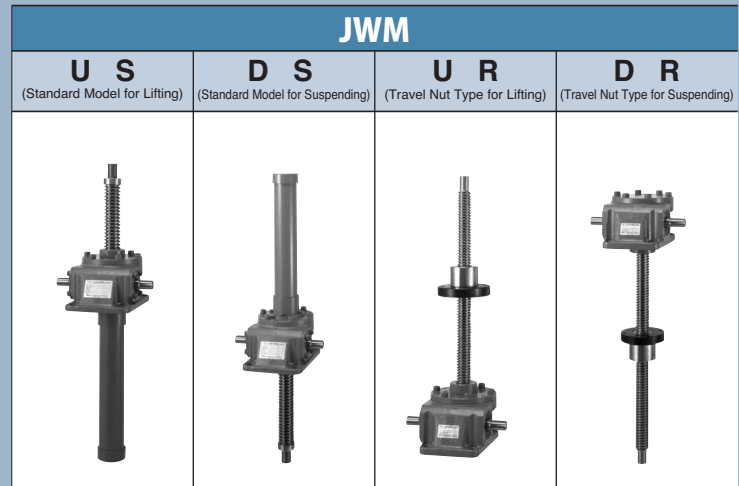


Parabolic Antenna/Adjusts antenna angles



Linipower Jack

Linipower Jack Basic specifications list



		JWM							
		U S (Standard Model for Lifting)		D S (Standard Model for Suspending)		U R (Travel Nut Type for Lifting)		D R (Travel Nut Type for Suspending)	
Standard	Frame Size	002 to 200	300 to 1000	002 to 200	300 to 1000	002 to 200			
	1 Basic Capacity kN {tf}	1.96 to 196 {0.2} to {20}	294 to 980 {30} to {100}	1.96 to 196 {0.2} to {20}	294 to 980 {30} to {100}	1.96 to 196 {0.2} to {20}			
	Screw Outer Diameter mm	12 to 65	85 to 150	12 to 65	85 to 150	12 to 65			
	Gear Ratio	H/L Speed							
	Stroke	See Table Below							
	Lubrication	Shaft: Grease Reducer Unit: Grease Bath							
	Color	Tsubaki Olive Grey (Munsell 5GY6/0.5)							
	Environment	Indoor							
	*2 Anti-rotation	○	△	○	△	×	×		
Output	Bellows	○	○	○	○	△	△		
	Rod Type End Fitting	○	○	○	○	×	×		
	I Type End Fitting	○	○	○	○	×	×		
	Table Type End Fitting	○	○	○	○	×	×		
Sensor	LS Counter	○	○	○	○	○	○		
	Internal LS x2	○	○	○	○	○	○		
	Internal LS x4	○	○	○	○	○	○		
	Potentiometer	○	○	○	○	○	○		
	Rotary Encoder	○	○	○	○	○	○		
Input	3 Phase Motor	△	△	△	△	△	△		
	Gearmotor	○	△	○	△	○	○		
	Hand Wheel	○	△	○	△	○	○		
Accessories	Clevis Fitting Adapter	○	△	△	△	△	△		
	Trunnion Fitting Adapter	○	△	△	△	△	△		









*1 Basic capacity means a maximum load which the jack can support (retain).

*2 Rotating force is generated on the screw shaft of the jack. Select anti-rotation specification if the screw shaft is free or there is no guide, etc., on the equipment side.

Frame Size		002	005	010	025	050	100	150	200	300	500	750	1000
Basic Capacity	kN	1.96	4.90	9.80	24.5	49.0	98.0	47	196	294	490	735	980
	{tf}	{0.2}	{0.5}	{1}	{2.5}	{5}	{10}	{15}	{20}	{30}	{50}	{75}	{100}
Stroke	100	○	○	○	○	○	○	○	○	△	△	△	△
	200	○	○	○	○	○	○	○	○	△	△	△	△
	300	○	○	○	○	○	○	○	○	△	△	△	△
	400	○	○	○	○	○	○	○	○	△	△	△	△
	500	△	○	○	○	○	○	○	○	△	△	△	△
	600	△	○	○	○	○	○	○	○	△	△	△	△
	800	—	○	○	○	○	○	○	○	△	△	△	△
	1000	—	△	○	○	○	○	○	○	△	△	△	△
	1200	—	—	△	○	○	○	○	○	△	△	△	△
	1500	—	—	—	△	○	○	○	○	△	△	△	△
2000	—	—	—	—	△	△	△	△	○	△	△	△	

Traveling nut specification is also available for JW300 and above.

○: Standard △: Produced by order —: Produced depending on the conditions of use. Consult with us. ×: Not producible

JWB				JWH					
U S	D S	U R	D R	U S	D S	U R	D R		
(Standard Model for Lifting)	(Standard Model for Suspending)	(Travel Nut Type for Lifting)	(Travel Nut Type for Suspending)	(Standard Model for Lifting)	(Standard Model for Suspending)	(Travel Nut Type for Lifting)	(Travel Nut Type for Suspending)		
									
005 to 200	300 to 1000	005 to 200	300 to 1000	010 to 200	010 to 200	010 to 200	010 to 200		
4.90 to 196	294 to 980	4.90 to 196	294 to 980	9.80 to 196	9.80 to 196	9.80 to 196	9.80 to 196		
{0.5} to {20}	{30} to {100}	{0.5} to {20}	{30} to {100}	{1} to {20}	{1} to {20}	{1} to {20}	{1} to {20}		
16 to 63	85 to 140	16 to 63	85 to 140	20 to 63	20 to 63	20 to 63	20 to 63		
H/L Speed				H Speed					
See Table Below				See Table Below					
Shaft: Grease Reducer Unit: Grease Bath				Shaft: Grease Reducer Unit: Grease Bath					
Tsubaki Olive Grey (Munsell 5GY6/0.5)				Tsubaki Olive Grey (Munsell 5GY6/0.5)					
Indoor				Indoor					
○	△	○	△	×	×	△	△	×	×
○	○	○	○	△	△	○	○	△	△
○	○	○	○	×	×	○	○	×	×
○	○	○	○	×	×	○	○	×	×
○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○
○	△	○	△	○	○	△	△	△	△
○	△	○	△	○	○	△	△	△	△
△	△	△	△	△	△	△	△	△	△
○	△	△	△	△	△	○	△	△	△
○	△	△	△	△	△	○	△	△	△

005	010	025	050	100	150	200	300	500	750	1000	010	025	050	100	150	200
4.90	9.80	24.5	49.0	98.0	147	196	294	490	735	980	9.80	24.5	49.0	98.0	147	196
{0.5}	{1}	{2.5}	{5}	{10}	{15}	{20}	{30}	{50}	{75}	{100}	{1}	{2.5}	{5}	{10}	{15}	{20}
○	○	○	○	○	○	○	△	△	△	△	○	○	○	○	○	○
○	○	○	○	○	○	○	△	△	△	△	○	○	○	○	○	○
○	○	○	○	○	○	○	△	△	△	△	○	○	○	○	○	○
○	○	○	○	○	○	○	△	△	△	△	○	○	○	○	○	○
○	○	○	○	○	○	○	△	△	△	△	○	○	○	○	○	○
○	○	○	○	○	○	○	△	△	△	△	○	○	○	○	○	○
△	○	○	○	○	○	○	△	△	△	△	○	○	○	○	○	○
-	△	○	○	○	○	○	△	△	△	△	△	○	○	○	○	○
-	-	△	○	○	○	○	△	△	△	△	-	△	○	○	○	○
-	-	-	△	△	△	○	△	△	△	△	-	-	△	△	△	○

Linipower Jack

Model Features

JWM [Machine Screw Type]

Low Speed, Low Frequency

JWM (Machine Screw Type) is a standard model, suitable for low speed, low frequency operations. Major components include trapezoidal screw and high precision worm gear.

1. Economical

Simple, compact and affordable.

2. Low Speed, Low Frequency

The unique sliding motion of trapezoidal screw provides smooth and consistent low speed, suitable for low frequency operations.

3. Load

Machine screw has a self-lock feature based on calculation, and can maintain loads.

* Self-lock may not be effective where vibration or shock is present. In this case, install a brake unit.



JWB [Ball Screw Type]

High Speed, High Frequency

JWB (Ball Screw Type) is a highly efficient jack for high speed, high frequency operations. Major components include accurate ball screw and high precision worm gear.

1. High Efficiency

JWB's ball screw generates high efficiency and its compact drive unit produces high power.

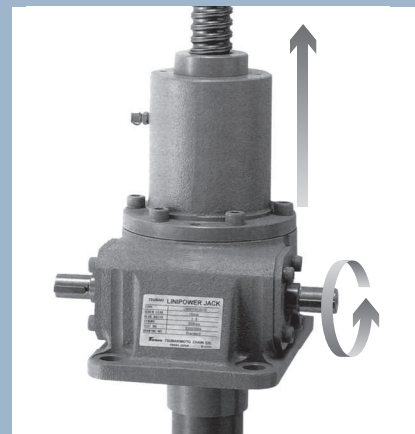
2. High Speed

Compared to the JWM, its high efficiency allows easier high speed drive.

3. Extended Life

Long and predictable ball screw life.

*Self-lock is not provided. Must install a brake unit.



JWH [High Lead Ball Screw Type]

Super High Speed, High Frequency

Depending on the high lead ball screw used, the screw shaft speed can exceed that of a JWB by up to 4 times at the same input shaft rpm. Major components include high lead ball screw and high precision worm gear.

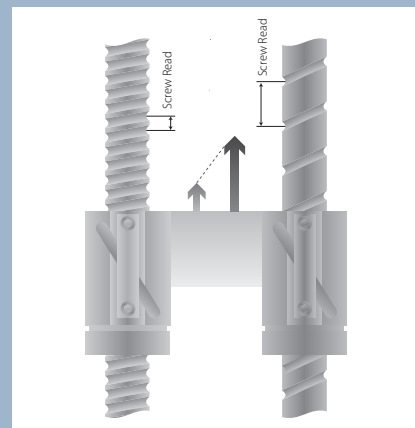
1. Super High Speed

Effective high lead screw allows maximum screw shaft speed of 7.5m/min.

2. Quiet Operation

JWH (High Lead Ball Screw Type) requires less input rpm at its drive and reducer units to run at the same speed of JWB (Ball Screw Type), resulting in considerably quiet operation.

*Self-lock is not provided. Must install a brake unit.



*Linipower Jack**Selecting Your Linipower Jack ·
Technical Notes***Selecting Your Linipower Jack**

Selecting Process _____ P195•196

Example _____ P197•198

Technical Notes

Screw Shaft Speed and Allowable Load _____ P199 to 203

Allowable Buckling Load _____ P204 to 206

Allowable Side Load _____ P207

Expected Travel Distance and Wear Life _____ P208

Technical Data _____ P209

(Allowable OHL and Allowable Screw Shaft rpm)

Selecting Your Linipower Jack

Selecting Process

- 1) **Equipment** Table or theatre lifter, conveyer line selector etc.
- 2) **Layout** Patterns of multiple jack systems (4, 6 or more units), driving, coupling etc.
- 3) **Maximum Load (W)** Load or work weight N {kgf}.
- 4) **Screw Shaft Speed (V)** Required speed for jack, m/min.
- 5) **Stroke** Actual stroke used, mm.
- 6) **Screw Types** Machine Screw Type (JWM), Ball Screw Type (JWB), High Lead Ball Screw Type (JWH).
- 7) **Installation Configuration** Basic specifications (lift or suspend, with or without rotation prevention).
Travel nut type (lift or suspend).
- 8) **Installation Conditions** Fixed base, shaft end, clevis etc. For compression loads, consider buckling.
- 9) **Expecting Life time** Years jack will withstand wear (for JWB, JWH only).

STEP1 Selecting Your Linipower Jack

1. Adjusted Load Ws

Calculate the "Adjusted Load" Ws, by determining the correct safety coefficient rate (Table 1) for specific load conditions.

$$\text{Adjusted Load } W_s = \text{Maximum Load } W \times \text{Coefficient } S_f$$

N {kgf} N {kgf}

Table 1. Coefficient S_f

Load Conditions	Example Purposes	Coefficient Range
Smooth movement with no shock Light load	Opening and closing a valve Adjusting a conveyor	1.0 to 1.3
Light shock Medium load	Use with various kinds of transporting equipment and lifters	1.3 to 1.5
Severe shock and/or vibration Heavy load	Use with large transporting carriages Holding the position of a press roller	1.5 to 3.0

Note) The above table is for general reference only. Consider particular operating conditions under which you operate before selecting a coefficient.

2. Load per jack

Calculate load W per jack, by using the adjusted load Ws obtained above.

For a synchronous drive, use a synchronous drive coefficient (Table 2).

$$\text{Load / jack } W = \frac{\text{Adjusted Load } W_s \text{ N\{kgf\}}}{\text{No. of jacks} \times \text{synchro. drive coefficient } f_d}$$

N {kgf}

Table 2. Synchronous Drive Coefficient f_d

No. of units	2	3	4	5 to 8
Coefficient	0.95	0.9	0.85	0.8

3. Jack Selection

Follow these steps to make a preliminary jack selection.

Points of preliminary jack selection

- ① Select (temporary) worm speed ratio by adjusting the screw shaft rpm. If difficult to select, inspect by H speed.
- ② Consider traveling space when selecting stroke.
- ③ Select options based on your needs.

4. Verifying Buckling and Screw Shaft rpm

① Allowable Buckling Load

For a compressive load, verify that it does not exceed the allowable buckling load (See page 204 to 206). If it does, increase jack size and recalculate.

② Allowable Screw Shaft rpm

If using a travel nut, verify that it does not exceed the allowable shaft rpm (See page 209). If it does, increase jack size and recalculate.

5. Confirming Required Input rpm

Determine the required input rpm, using the required screw shaft speed.

$$N = \frac{V}{\ell} \times R$$

N : Input rpm r/min
V : Screw Shaft Speed m/min
ℓ : Screw Lead m
R : Gear Ratio

6. Verifying Required Input Torque

Calculate required input torque.

$$T = \frac{W \times \ell}{2 \times \pi \times R \times \eta} + T_o$$

T : Required Input Torque N · m {kgf·m}
W : Lifting Load N {kgf}
ℓ : Screw Lead m
π : Circular Constant 3.14
R : Gear Ratio
η : Overall Efficiency
T_o : Tare Drag Torque N · m {kgf·m}

* For screw lead, gear ratio, overall efficiency and tare drag torque, see pages 191, 217 and 241. Take caution in selecting screw units. (8mm→0.008m)

7. Verifying Input Capacity

$$\text{SI Unit } P = \frac{T \times N}{9550}$$

$$\text{Gravitational Unit } P = \frac{T \times N}{974}$$

T : Required Input Torque N · m {kgf·m}
P : Required Input Load kW
N : Input rpm r/min

8. Allowable Overhang Load

If attaching a sprocket, gear, or belt to the input shaft, verify that the total weight is within the allowable overhang load. (See page 209) If not, increase jack size and recalculate.

9. Verifying Wear Life (JWB/JWH only)

Check if wear life is sufficient. (See page 208)
 When increasing travel distance, increase jack size and recalculate.
 * Life cannot be calculated for JWM (Machine Screw Type).

10. Selecting Your Options

- Select options that best suit your needs.
1. Output Option
 2. Installation Option
 3. Sensor Option
 4. Input Option
 5. Accessory Option

11. Jack Number

Determine the actual Linipower Jack number that meets the above conditions.

STEP2 Parts Options

Motor

Determine the required drive unit capacity for synchronous drive Pt value.

1. Add the torque required for each jack $T_{1\text{ to }4}$ on the drive unit side to determine the overall Torque T_t .

<Required Torque per Jack>

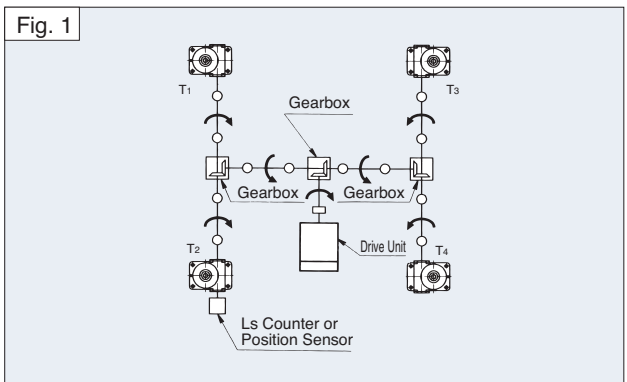
$$T_{1\text{ to }4} = \frac{T}{(\text{Gearbox efficiency})^{\text{No. of gear box}}}$$

<Required Torque for the Drive Unit>

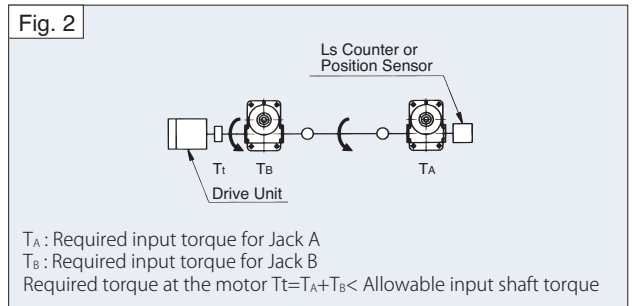
$$T_t = T_1 + T_2 + T_3 + T_4$$

$T_{1\text{ to }4}$: Required torque for each jack on the drive unit side $N \cdot m \{kgf \cdot m\}$
 T : Required input torque per jack $N \cdot m \{kgf \cdot m\}$
 Gear box efficiency: Assume 0.9
 T_t : Required torque for the drive-unit $N \cdot m \{kgf \cdot m\}$

For a four unit system (Fig. 1), $T_{1\text{ to }4} = \frac{T}{0.9^2}$



2. Be certain that the required input torque calculated is within the allowable input shaft torque.
 (e.g.) If jacks are arranged in a linear structure as shown in Fig. 2, the drive unit input shaft consumes the total input torque required for both jacks. This doubled torque should not exceed the allowable input torque.



3. Next, determine the required drive unit capacity P_t with input rpm N and overall Torque T_t determined in 1.

SI Unit	$P_t = \frac{T_t \times N}{9550}$	P_t : Total required torque at the drive unit kW
Gravitational Unit	$P_t = \frac{T_t \times N}{974}$	T_t : Total required torque at the drive unit $N \cdot m \{kgf \cdot m\}$
		N : Input rpm for the jack r/min

Example

Jack Selection Example 1

Example : Four jack synchronous drive for lifting with 3-phase 220v/60Hz motor (see layout below), operating at room temperature under low dust conditions.

Guide installed on the equipment to prevent side load.

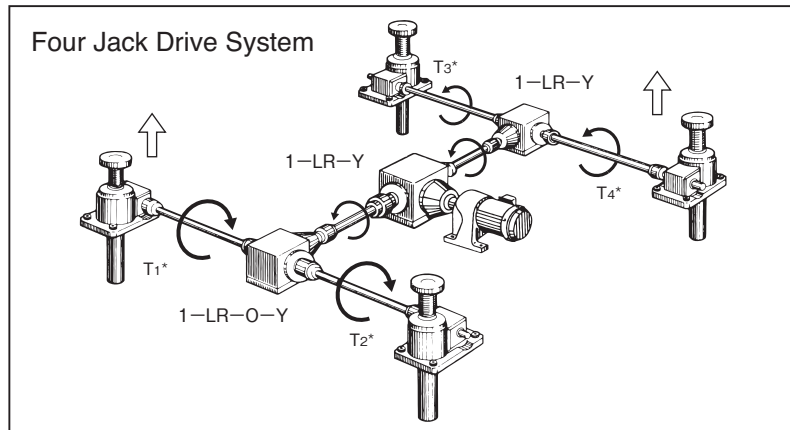
Fixed base-Guided shaft end/Fixed shaft end.

Operation cycle : (2 times/hour) X (8 hours/day) X (300 days/year) X (3 years usage)

① Maximum load : 88.2 kN {9 tf} / 4 Units

② Required speed : 10 mm/s (600 mm/min)

③ Operating stroke : 260 mm



⌚ Jacks lift as rotational input is applied in the direction of each arrow.

* See the previous page for T_1 to T_4

SI Unit

1. Adjusted load W_s is (coefficient $S_f=1.3$)

$$W_s = 88200 \times 1.3 = 114660 \text{ N}$$

2. Load W per jack is

$$W = \frac{114660}{4 \times 0.85} = 33724 \text{ N}$$

3. Considering speed, efficiency and drive unit, JWB050USH is preliminarily selected.

4. For 260mm operating stroke, use 300 mm stroke for the jack.

Considering its possible dust generation and shaft end stability (see layout above), the appropriate jack would be JWB050USH3JM.

5. Since this load is compressive, calculate the operated buckling load based on the formula used on pages 180 to 182. (Assume safety level $S_f=4$.) See page 182 for details on calculations.

$$P_{CR} = 20 \times 10^4 \times \left(\frac{31.3^2}{637} \right)^2$$

*Refer to dimensions on page 225.

$$= 473073 \text{ N}$$

$$S_f = \frac{473073}{33724} > 4 \dots \text{OK}$$

6. This is not a travel nut type so there is no need to confirm allowable screw shaft rpm. (Inspect the allowable screw shaft rpm if using a travel nut.)

{ Gravitational Unit }

1. Adjusted load W_s is (coefficient $S_f=1.3$)

$$W_s = 9000 \times 1.3 = 11700 \text{ kgf}$$

2. Load W per jack is

$$W = \frac{11700}{4 \times 0.85} = 3442 \text{ kgf}$$

3. Considering speed, efficiency and drive unit, JWB050USH is preliminarily selected.

4. For 260mm operating stroke, use 300 mm stroke for the jack. Considering its possible dust generation and shaft end stability (see layout above), the appropriate jack would be JWB050USH3JM.

5. Since this load is compressive, calculate the operated buckling load based on the formula used on pages 180 to 182. (Assume safety level $S_f=4$.) See page 182 for details on calculations.

$$P_{CR} = 20 \times 10^3 \times \left(\frac{31.3^2}{637} \right)^2$$

*Refer to dimensions on page 225.

$$= 47307 \text{ kgf}$$

$$S_f = \frac{47307}{3442} > 4 \dots \text{OK}$$

6. This is not a travel nut type so there is no need to confirm allowable screw shaft rpm. (Inspect the allowable screw shaft rpm if using a travel nut.)

SI Unit

7. Required Input Capacity

$$\textcircled{1}N = \frac{0.60}{0.010} \times 6 = 360 \text{ r/min}$$

$$\textcircled{2}T = \frac{33724 \times 0.010}{2 \times 3.14 \times 6 \times 0.64} + 1.37 = 15.4 \text{ N} \cdot \text{m}$$

$$\text{From } \textcircled{1}\textcircled{2} \quad P = \frac{15.4 \times 360}{9550} = 0.58 \text{ kW}$$

Rated input capacity for JWB050USH3 is 0.58 kW < 2.2 kW.
(If not suitable, increase the frame number or reduce the screw shaft rpm and recalculate.)

8. Overhang load does not apply so inspection is not required. Inspect as appropriate.

9. Verifying Wear Life for JWB

Calculate the expected travel distance from usage frequency. (See page 184)

Expected driving distance = $0.26 \times 2 \times 8 \times 300 \times 10^{-3} \times 3 = 3.74 \text{ km}$

We then find that the suitable jack number is JWB050.

.....OK

10. Jack Options

Possible dust \longrightarrow Use with bellow

Shaft end \longrightarrow Table shaft end

Finally, we conclude by selecting **JWB050USH3JM**.

{ Gravitational Unit }

7. Required Input Capacity

$$\textcircled{1}N = \frac{0.60}{0.010} \times 6 = 360 \text{ r/min}$$

$$\textcircled{2}T = \frac{3442 \times 0.010}{2 \times 3.14 \times 6 \times 0.64} + 0.14 = 1.57 \text{ kgf} \cdot \text{m}$$

$$\text{From } \textcircled{1}\textcircled{2} \quad P = \frac{1.57 \times 360}{974} = 0.58 \text{ kW}$$

Rated input capacity for JWB050USH3 is 0.58 kW < 2.2 kW.
(If not suitable, increase the frame number or reduce the screw shaft rpm and recalculate.)

8. Overhang load does not apply so inspection is not required. Inspect as appropriate.

9. Verifying Wear Life for JWB

Calculate the expected travel distance from usage frequency. (See page 184)

Expected driving distance = $0.26 \times 2 \times 8 \times 300 \times 10^{-3} \times 3 = 3.74 \text{ km}$

We then find that the suitable jack number is JWB050.

.....OK

10. Jack Options

Possible dust \longrightarrow Use with bellow

Shaft end \longrightarrow Table shaft end

Finally, we conclude by selecting **JWB050USH3JM**.

Selecting Parts (Parts Options)

A. Selecting a Drive Unit

1. Calculate the required torque T_1 (2.3.4) for each jack on the drive unit side.

$$\text{SI Unit} \quad T_1 = \frac{15.4}{0.9^2} = 19.0 \text{ N} \cdot \text{m}$$

$$\left\{ \begin{array}{l} \text{Gravitational} \\ \text{Unit} \end{array} \right. T_1 = \frac{1.57}{0.9^2} = 1.94 \text{ kgf} \cdot \text{m}$$

Since 4 jacks follow the same route

$$\text{SI Unit} \quad T_t = T_1 \times 4 = 76.0 \text{ N} \cdot \text{m}$$

$$\left\{ \begin{array}{l} \text{Gravitational Unit} \\ \text{Unit} \end{array} \right. T_t = T_1 \times 4 = 7.76 \text{ kgf} \cdot \text{m}$$

2. Inspecting the Rated Input Torque

In this case, inspection is not necessary because 2 or more jacks are not arranged in a linear structure.

3. Required Capacity for the Drive Unit P_t

$$\text{SI Unit} \quad P_t = \frac{76.0 \times 360}{9550} = 2.87 \text{ kW}$$

$$\left\{ \begin{array}{l} \text{Gravitational} \\ \text{Unit} \end{array} \right. P_t = \frac{7.76 \times 360}{974} = 2.87 \text{ kW}$$

from the input rpm 360r/min we find

$$\frac{1800}{360} = 5$$

Based on this data we select GMTR370-50L5B, Tsubakimoto Chain 3.7kW gearmotor with a brake unit.

B.1. Select a gear box based on the required input torque of $15.4 \text{ N} \cdot \text{m}$ (1.57kgf · m), and input rpm of 360r/min.

1.1. Gear box on each side of the jack must tolerate the combined torque of 2 jacks. Thus we selected gear box ED4M.

$$\frac{15.4 \times 2}{0.9} = 34.3 \text{ N} \cdot \text{m} \left\{ \frac{1.57 \times 2}{0.9} = 3.49 \text{ kgf} \cdot \text{m} \right\}$$

(Caution: Make sure the direction of the gear box shaft rotation is correct.)

1-2. Gear box by the gearmotor requires torque for 4 jacks

$$\frac{15.4 \times 4}{0.9^2} = 76.1 \text{ N} \cdot \text{m} \left\{ \frac{1.57 \times 4}{0.9^2} = 7.76 \text{ kgf} \cdot \text{m} \right\}$$

From this, we find that the gear box ED6M is most suitable.

Gear box by the jack Left \longrightarrow ED4M 1-LR-O-Y

Right \longrightarrow ED4M 1-LR-Y

Gear box by the gearmotor \longrightarrow ED6M 1-LR-Y

(For details see Tsubakimoto chain Miter Gear Box Catalog).

B.2. Select couplings based on your requirements.

The following is an example process for selecting the right couplings.

2-1. Select couplings used between each jack and their adjacent gear box based on the required input torque per jack, $15.4 \text{ N} \cdot \text{m}$ (1.57kgf · m), input shaft diameter ($\phi 20$ for JWB050USH), and the gear box shaft diameter ($\phi 19$ for ED4M).

Required number is $2 \times 2 = 4$.

2-2. Select couplings used between the gear boxes based on the required torque for the nearest pair of jacks,

$$\frac{15.4 \times 2}{0.9} = 34.3 \text{ N} \cdot \text{m} \left\{ \frac{1.57 \times 2}{0.9} = 3.49 \text{ kgf} \cdot \text{m} \right\}$$

and the diameter of each gear box shaft: one by the jack ($\phi 19$ for ED4M), and the other by the gearmotor ($\phi 25$ ED6M). Required number is $2 \times 2 = 4$.

2-3. Select couplings used between each gear box and the gearmotor based on the total required torque for the four jacks,

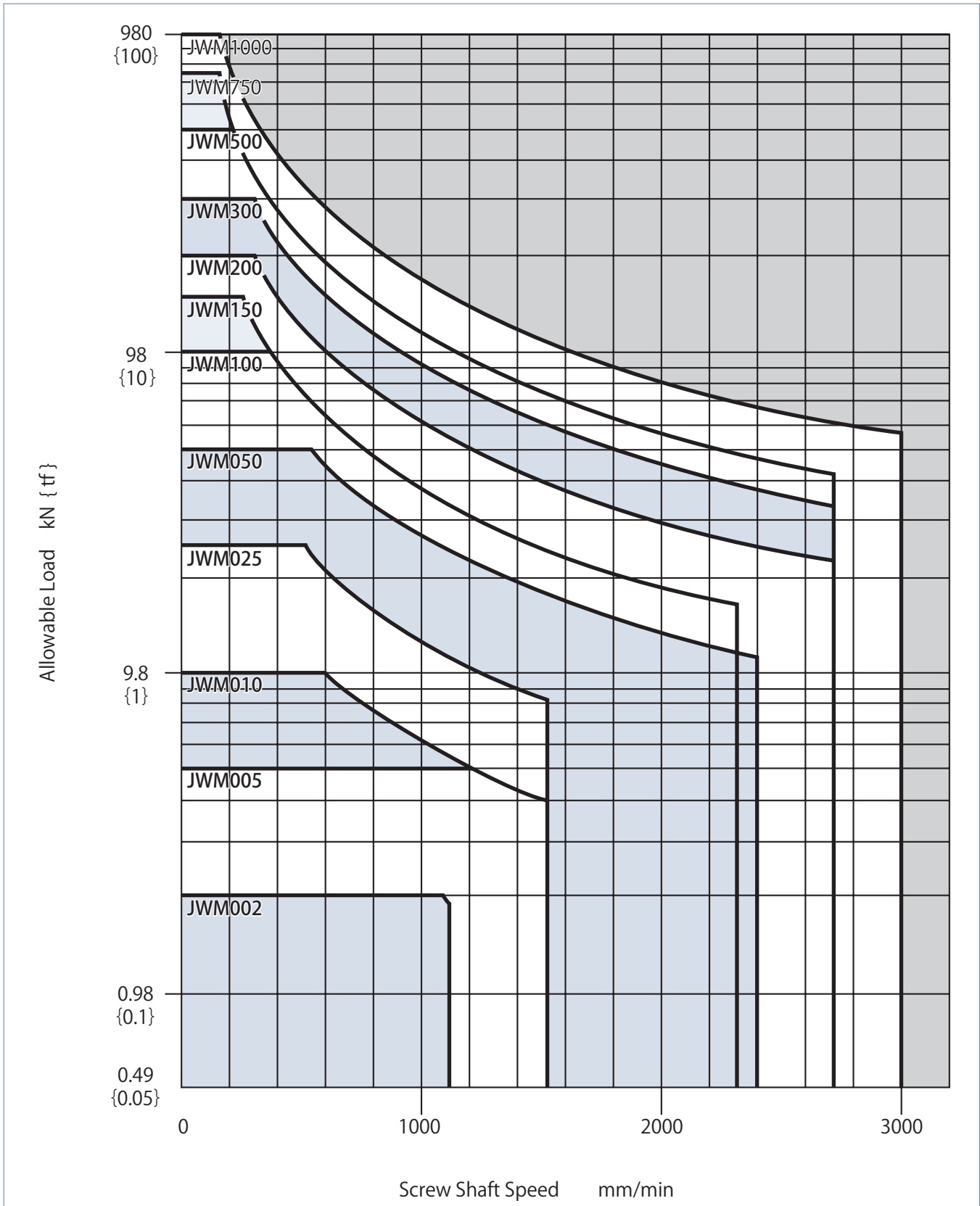
$$\frac{15.4 \times 4}{0.9^2} = 76.1 \text{ N} \cdot \text{m} \left\{ \frac{1.57 \times 4}{0.9^2} = 7.76 \text{ kgf} \cdot \text{m} \right\}$$

and the diameters of the gear box ($\phi 25$ for ED6M) and the gearmotor output shafts.

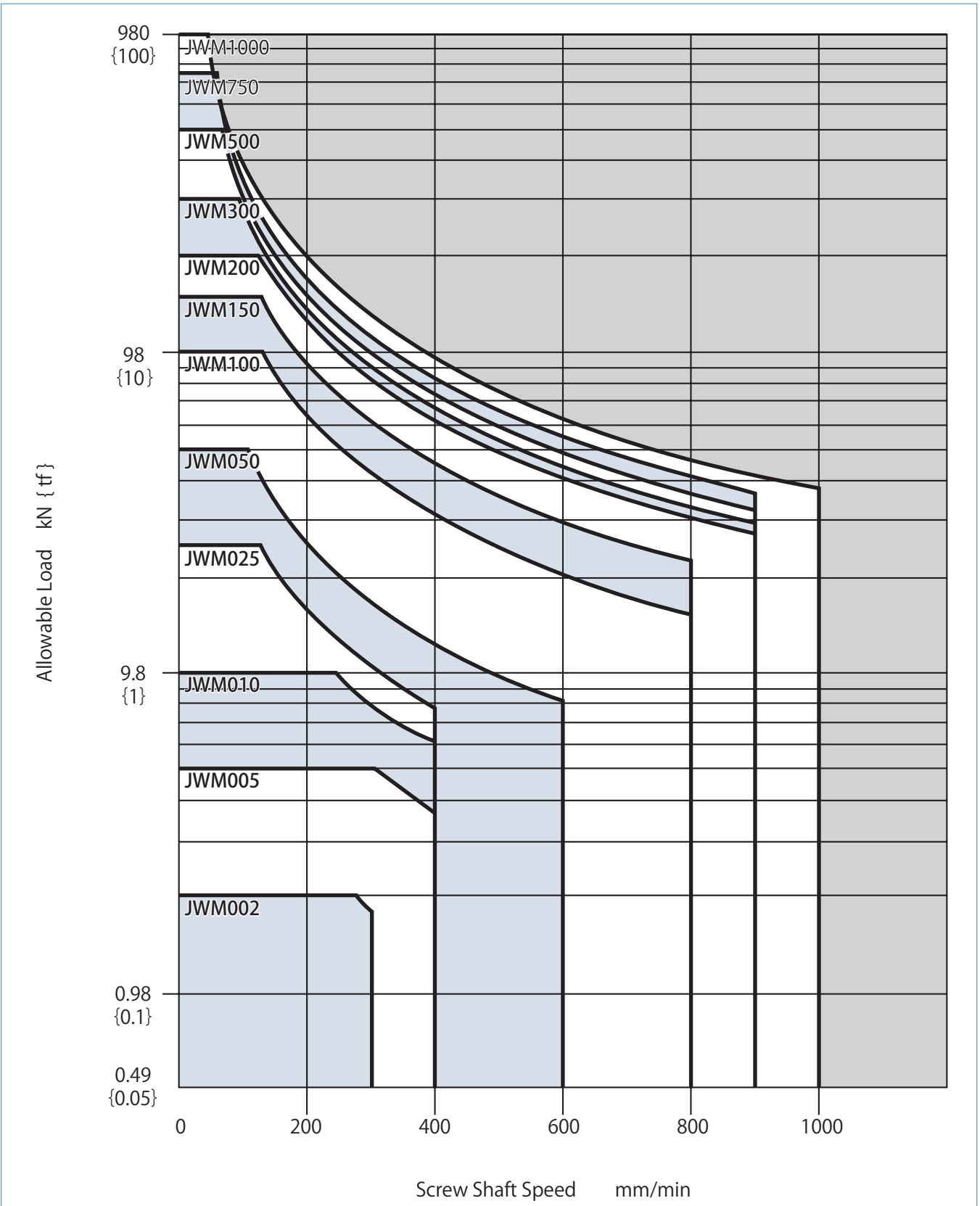
Screw Shaft Speed (Lifting) and Allowable Load for JWM (Machine Screw Type)

This graph illustrates the relationship between screw shaft speed and allowable load for each frame number. Use this graph to select the correct frame number for specific requirements.

■ H Speed



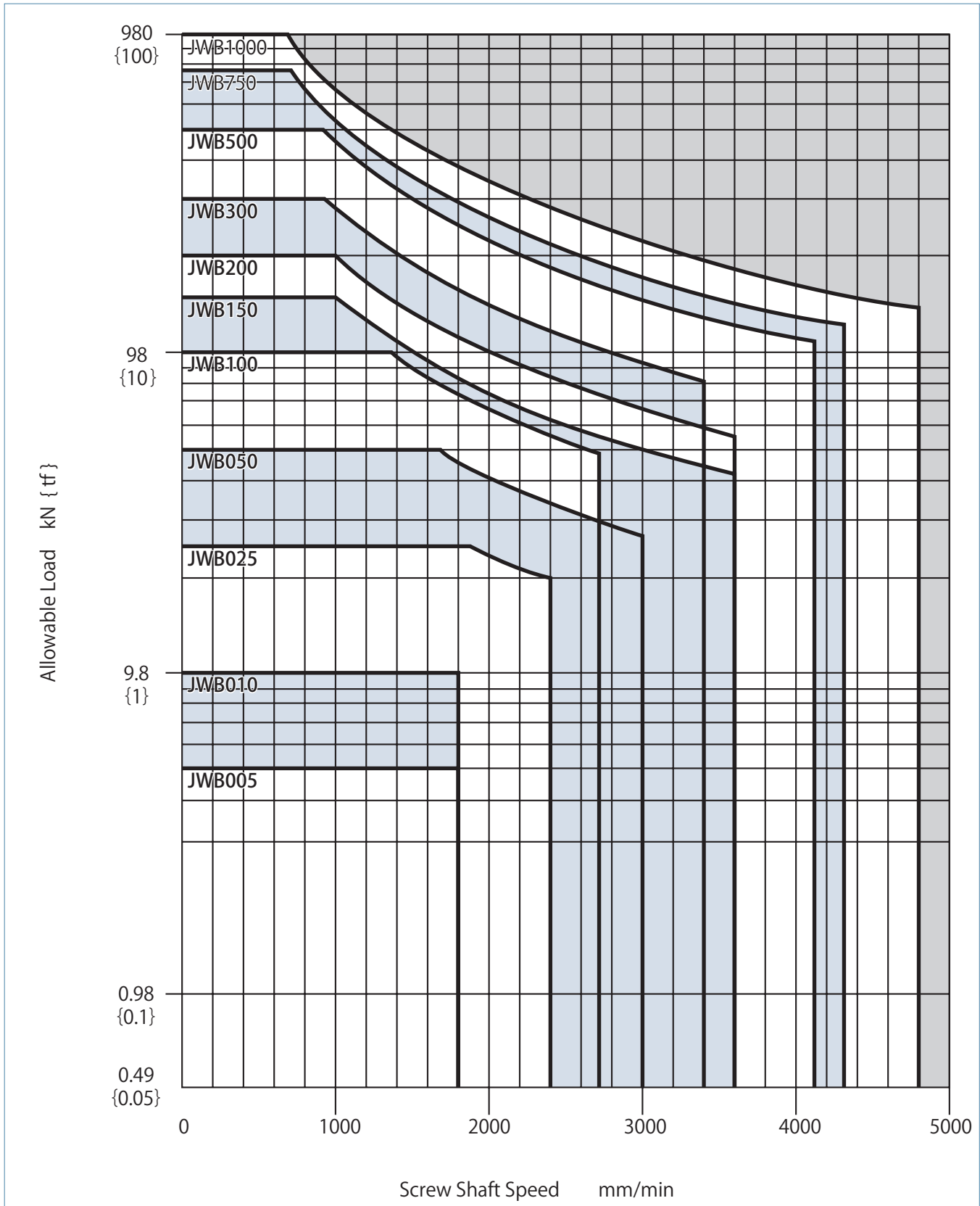
■ L Speed



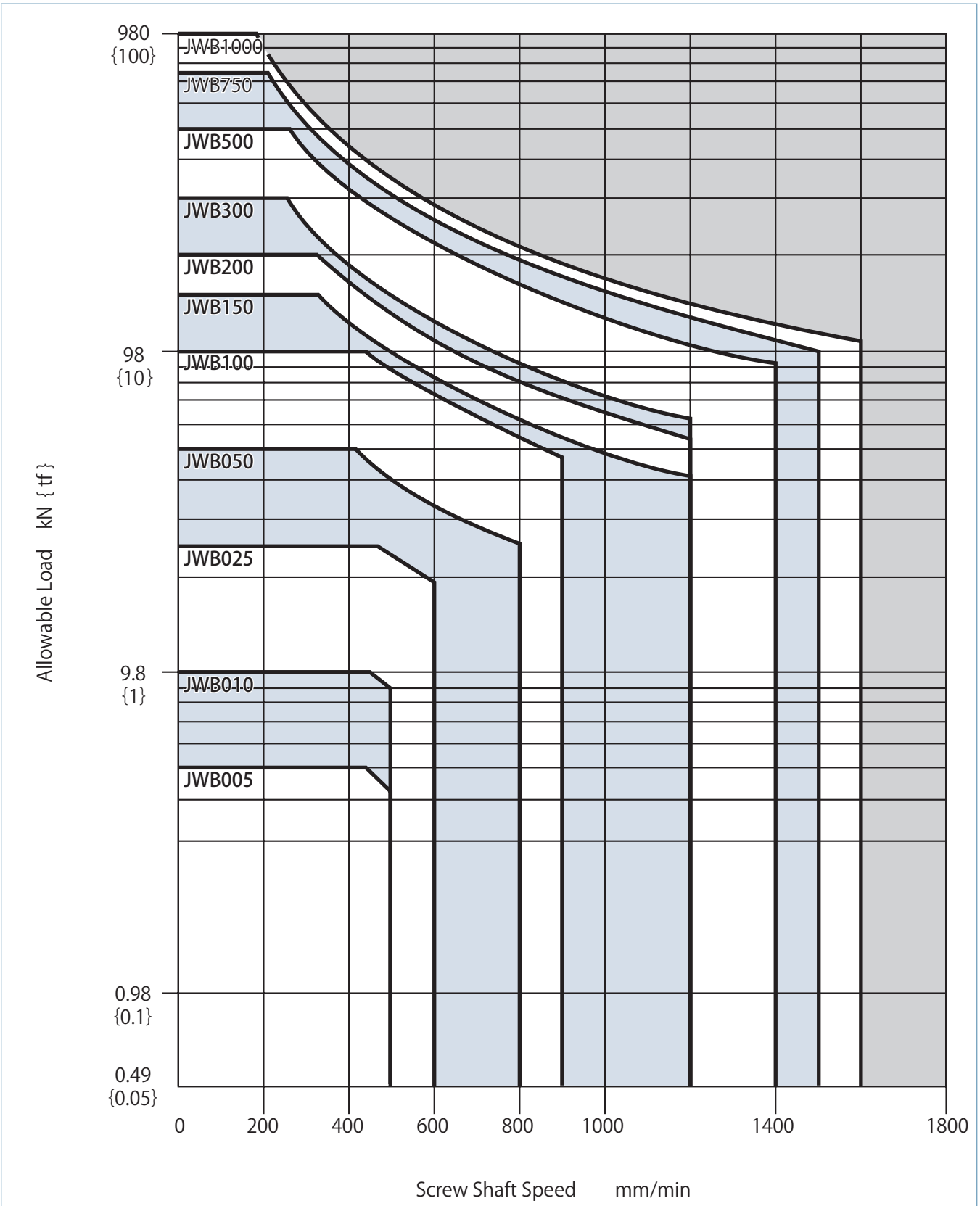
Screw Shaft Speed (Lifting) and Allowable Load for JWB (Ball Screw Type)

This graph illustrates the relationship between screw shaft speed and allowable load for each frame number. Use this graph to select the correct frame number for specific requirements.

■ H Speed



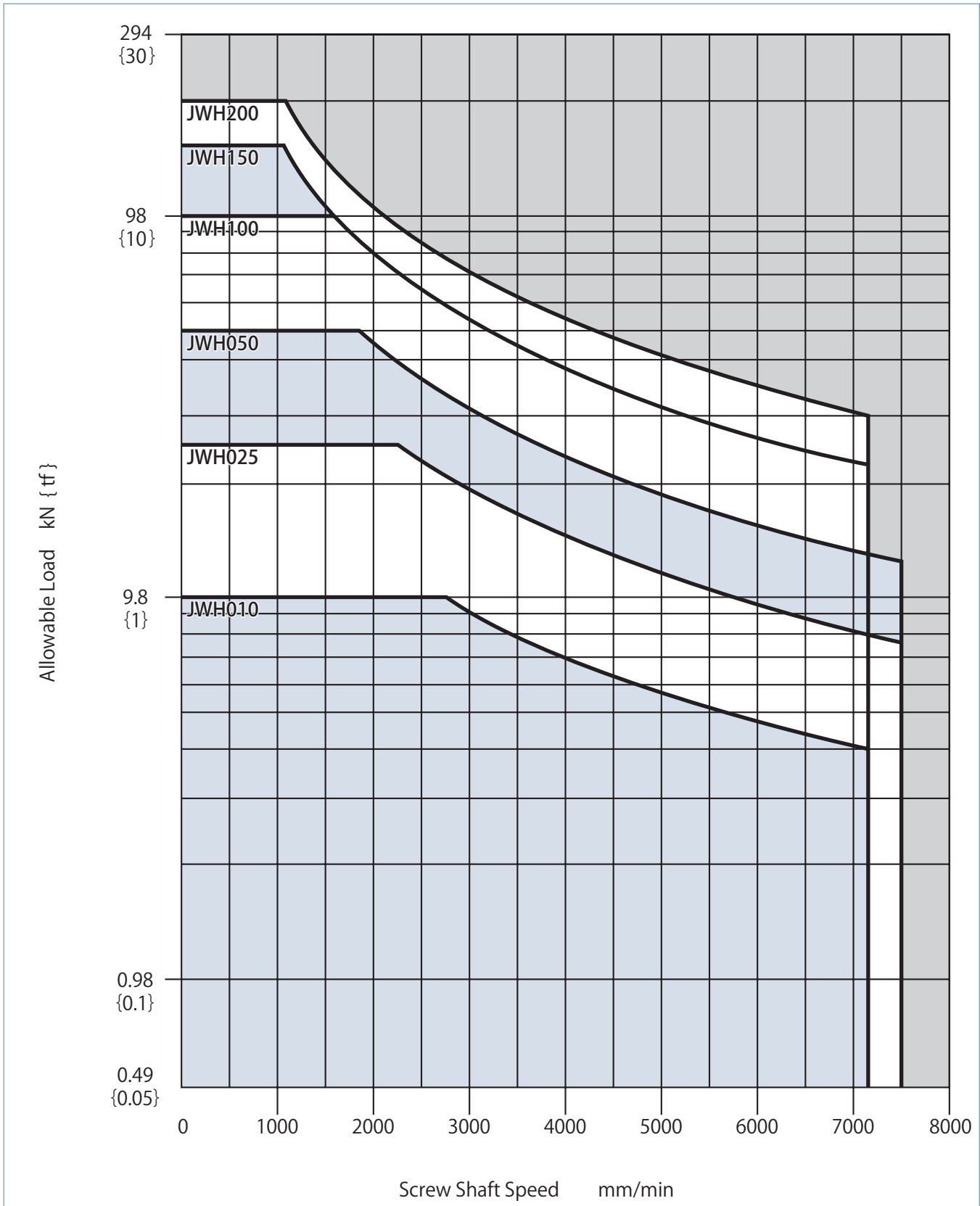
■ L Speed



Screw Shaft Speed (Lifting) and Allowable Load for JWH (High Lead Ball Screw Type)

This graph illustrates the relationship between screw shaft speed and allowable load for each frame number. Use this graph to select the correct frame number for specific requirements.

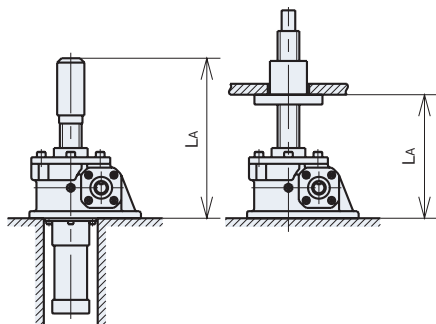
■ H Speed



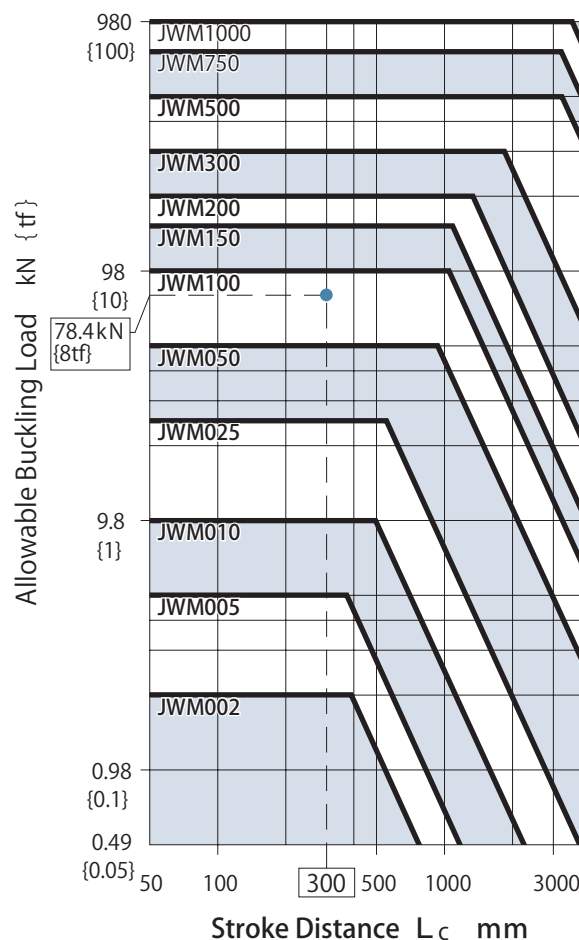
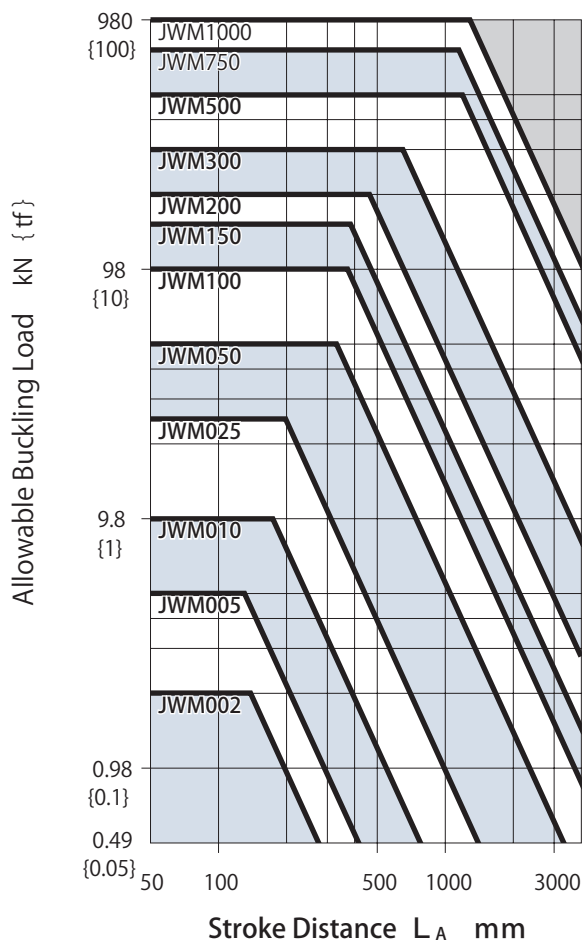
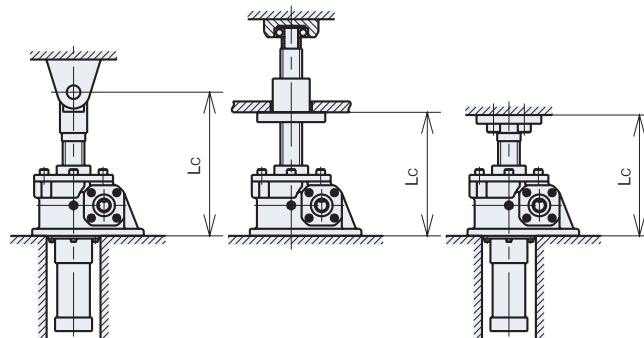
Allowable Buckling Load for JWM (Machine Screw Type)

- Use this graph to select the correct frame number based on a specific buckling load, for compression loads. The graph for Allowable Buckling Load assumes a load safety rate of $S_f = 4$.
 - ① From the installation conditions shown in A and C below, determine the correct distance for L_A and L_C .
 - ② The graphs allow you to select the correct frame number based on a specific load W (vertical axis) and stroke distance L_A (horizontal axis).
- Make sure side load does not apply. The graph below assumes no side load.
- If the shaft is loaded in tension buckling can be avoided, and hence be highly economical.

A Fixed base - Shaft end free



C Fixed base - Guided shaft end/Fixed shaft end



Notes)1. The dotted line on the graph represents an example based on $W78.4\text{kN}\{8\text{tf}\}$ load (buckling safety rate of $S_f = 4$) and installation condition C with a distance of 300mm. From this graph, JWM100 is selected as the suitable frame number for these conditions.

Allowable Buckling Load for JWB (Ball Screw Type)

● Use this graph to select the correct frame number based on a specific buckling load, for compression loads.

The graph for Allowable Buckling Load assumes a buckling load safety rate of $S_f = 4$.

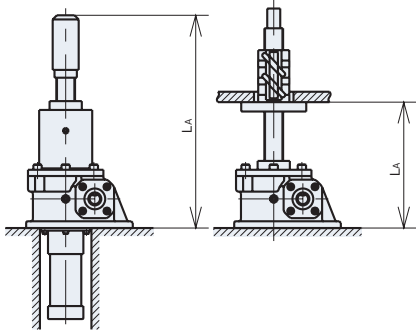
① From the installation conditions shown in A and C below, determine the correct distance for L_A and L_C .

② The graphs allow you to select the correct frame number based on a specific load W (vertical axis) and stroke distance L_A (horizontal axis).

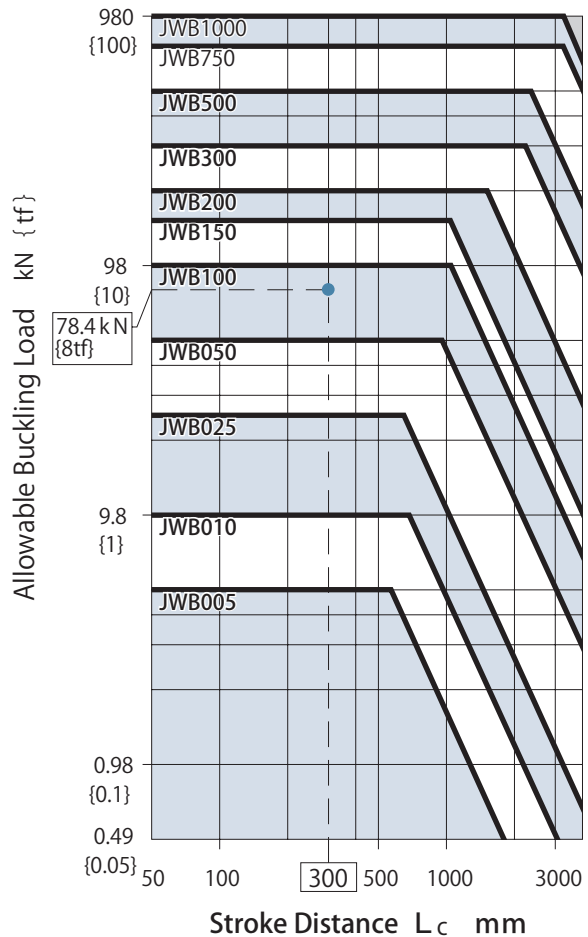
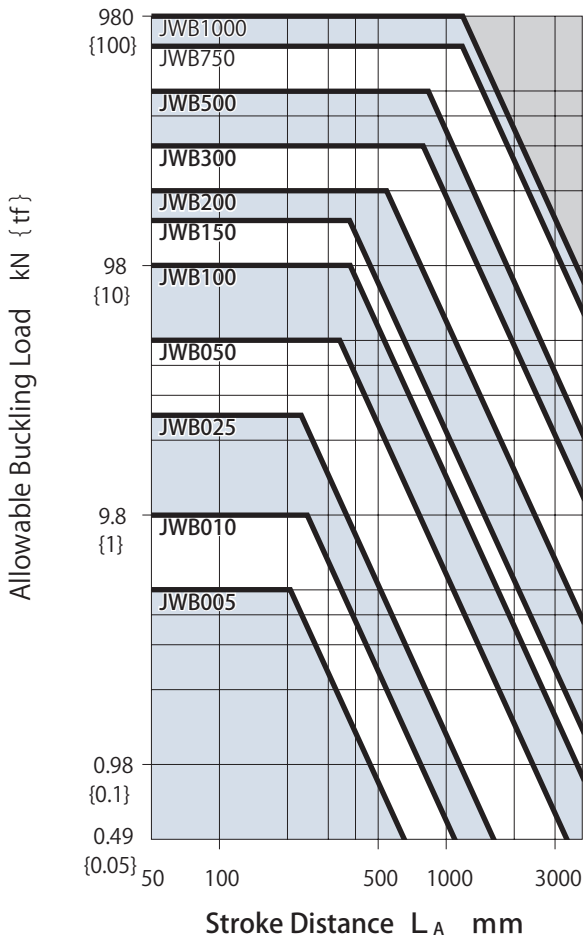
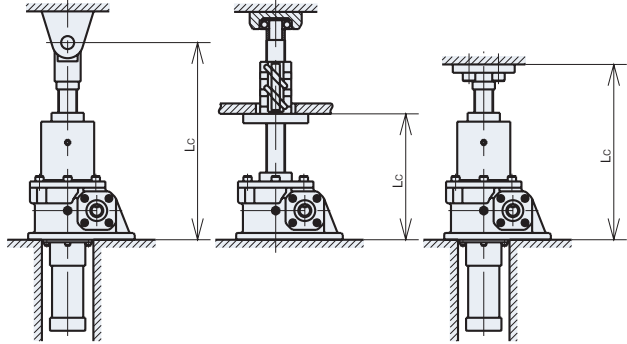
● Make sure side load does not apply. The graph below assumes no side load.

● If the shaft is loaded in tension buckling can be avoided, and hence be highly economical.

A Fixed base - Shaft end free



C Fixed base - Guided shaft end/Fixed shaft end



Notes)1. The dotted line on the graph represents an example based on $W=78.4\text{kN}$ {8tf} load (buckling safety rate of $S_f = 4$) and installation condition C with a distance of 300mm. From this graph, JWB100 is selected as the suitable frame number for these conditions.

Allowable Buckling Load for JWH (High Lead Ball Screw Type)

● Use this graph to select the correct frame number based on a specific buckling load for compression loads.

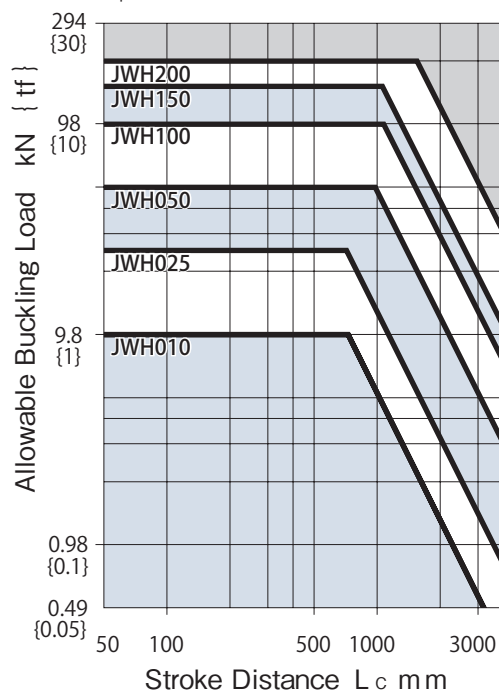
The graph for Allowable Buckling Load assumes a buckling load safety rate of $S_f = 4$.

① From the installation condition shown in C below, determine the correct distance for L_c .

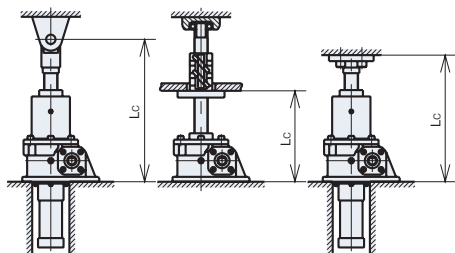
② The graph allows you to select the correct frame number based on a specific load W (vertical axis) and stroke distance L_c (horizontal axis).

● Make sure side load does not apply. The graph below assumes no side load.

● If the shaft is loaded in tension buckling can be avoided, and hence be highly economical.



C Fixed base - Guided shaft end/Fixed shaft end



Note) If a detailed study is required, check by the following formula.

Formula used to calculate Allowable Buckling Load

Formula used to calculate allowable buckling load.

$$P_{CR} = m \times \left(\frac{d^2}{L} \right)^2$$

Make sure $P_{CR} > W \times S_f$

P_{CR} : Allowable buckling load N { kgf }

d : Screw shaft root diameter mm (Refer to pages 215 to 216 for JWM, pages 241 to 242 for JWB and pages 265 to 266 for JWH)

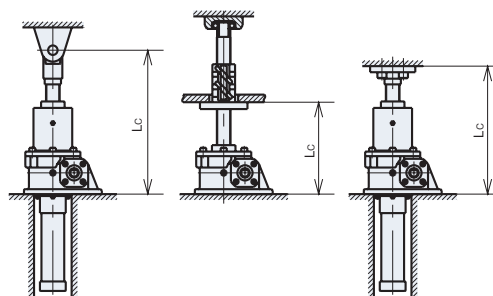
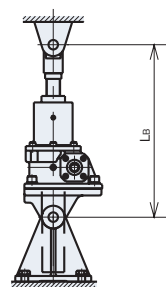
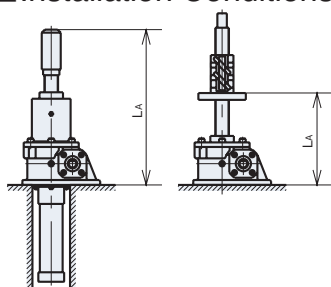
m : Support coefficient
(Select installation condition from the figures below)

L : Screw shaft projection distance mm
(maximum dimension in the dimensions table of each frame No.:
If an end fitting is required, see the dimension of the end fitting.)

W : Load per jack N { kgf }

S_f : Buckling safety rate (Assume 4)

■ Installation Conditions



A Fixed base - Shaft end free

	m
SI Unit	2.5×10^4
Gravitational Unit	2.5×10^3

B Base and shaft end with clevis

	m
SI Unit	10×10^4
Gravitational Unit	10×10^3

C Fixed base - Guided shaft end/Fixed shaft end

	m
SI Unit	20×10^4
Gravitational Unit	20×10^3

SI Unit

We calculate the P_{CR} of JWM100USH5JI, based on 49000N load and installation condition C (Fixed base and guided shaft end/Fixed shaft end.)

$$P_{CR} = 20 \times 10^4 \times \left(\frac{38.4^2}{791} \right)^2$$

= 695027 N

$W \times S_f = 49000 \times 4$ (assuming $S_f = 4$)

= 196000 N

$P_{CR} > W \times S_f$ * $L = 711 + 80$ (I-type end fitting) = 791

695027 > 196000...OK from the dimensions table on page 227.

{ Gravitational Unit }

We calculate the P_{CR} of JWM100USH5JI, based on 5000kgf load and installation condition C (Fixed base and guided shaft end/Fixed shaft end.)

$$P_{CR} = 20 \times 10^3 \times \left(\frac{38.4^2}{791} \right)^2$$

= 69502 kgf

$W \times S_f = 5000 \times 4$ (assuming $S_f = 4$)

= 20000 kgf

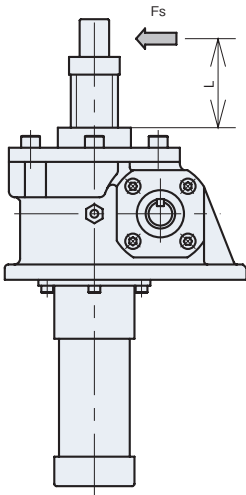
$P_{CR} > W \times S_f$ * $L = 711 + 80$ (I-type end fitting) = 791

69502 > 20000...OK from the dimensions table on page 227.

Allowable Side Load for JWM (Machine Screw Type)

Guides are typically used for Machine Screw Types as shown in the diagram below. However, if the shaft projection distance (L) beyond the housing surface is relatively short, a certain amount of side load is acceptable.

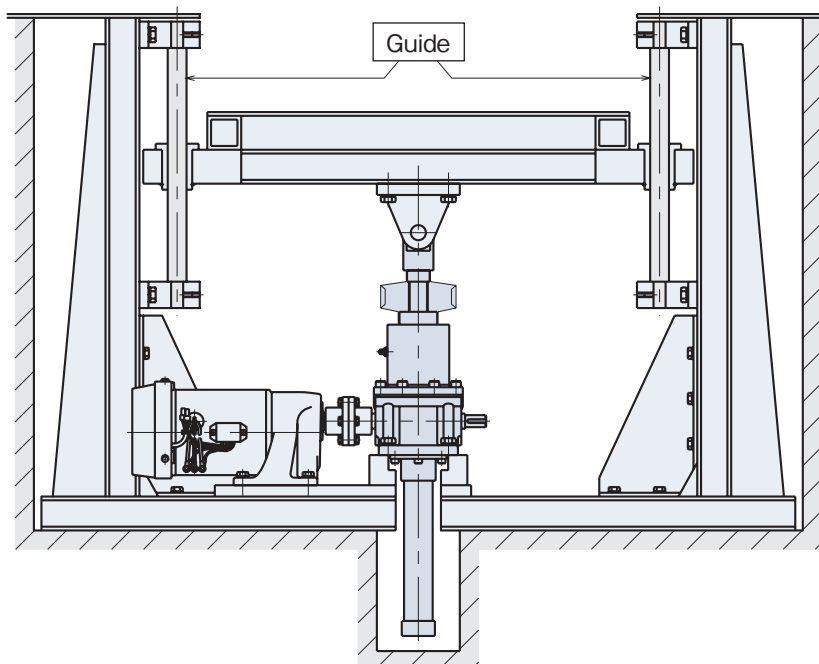
Note) L represents the distance of screw shaft projection that affects side load. It does not refer to stroke distance.



Frame Number Screw Shaft Projection Distance L, mm	Allowable Side Load											N { kgf }
	002	005	010	025	050	100	150	200	300	500	750	
100	83	128	318	570	2,500	4,010	4,610	8,210	21,700	85,300	73,500	159,700
	{9}	{13}	{32}	{59}	{255}	{409}	{470}	{838}	{2,210}	{8,700}	{7,500}	{16,300}
200	42	64	159	290	1,250	2,010	2,300	4,110	10,800	50,400	56,700	79,900
	{4}	{7}	{16}	{29}	{128}	{205}	{235}	{419}	{1,110}	{5,150}	{5,780}	{8,150}
300	28	43	106	190	830	1,340	1,540	2,740	7,200	33,600	37,800	53,200
	{3}	{4}	{11}	{20}	{85}	{136}	{157}	{279}	{740}	{3,430}	{3,860}	{5,430}
400	21	32	79	140	620	1,000	1,150	2,050	5,400	25,200	28,300	39,900
	{2}	{3}	{8}	{15}	{64}	{102}	{118}	{210}	{550}	{2,570}	{2,890}	{4,080}
500	—	27	64	110	500	800	920	1,640	4,300	20,200	22,700	31,900
	—	{3}	{6}	{12}	{51}	{82}	{94}	{168}	{440}	{2,060}	{2,310}	{3,260}
600	—	25	53	100	420	670	770	1,370	3,600	16,800	18,900	26,600
	—	{3}	{5}	{10}	{43}	{68}	{78}	{140}	{370}	{1,720}	{1,930}	{2,720}
700	—	23	51	90	360	570	660	1,170	3,100	14,400	16,200	22,800
	—	{2}	{5}	{9}	{36}	{58}	{67}	{120}	{320}	{1,470}	{1,650}	{2,330}
800	—	21	48	90	310	500	580	1,030	2,700	12,600	14,200	20,000
	—	{2}	{5}	{9}	{32}	{51}	{59}	{105}	{280}	{1,290}	{1,450}	{2,040}
900	—	—	45	90	280	450	510	910	2,400	11,200	12,600	17,700
	—	—	{5}	{9}	{28}	{45}	{52}	{93}	{250}	{1,140}	{1,290}	{1,810}
1000	—	—	42	90	250	400	460	820	2,200	10,100	11,300	16,000
	—	—	{4}	{9}	{26}	{41}	{47}	{84}	{220}	{1,030}	{1,160}	{1,630}

Allowable Side Load for JWB and JWH (Ball Screw and High Lead Ball Screw Types)

If side load applies, make consideration so that it does not directly apply the jack by installing a guide as shown below.



Expected Travel Distance for JWB and JWH (Ball Screw and High Lead Ball Screw Types)

Ball screw life is determined by the flaking of the rolling surface due to fatigue.

Verify ball screw life expectancy using the graphs shown. However, note that conditions such as severe shock and failure to conduct regular maintenance can largely affect the life of a ball screw.

$$\text{Expected travel distance (km)} = \text{Actual load stroke (m)} \times \text{Usage frequency (times/day)} \times \text{No. of operating days/yr.} \times 10^{-3} \times \text{Expected no. of years}$$

The graph on the right is based on life expectancy of B10. B10 represents distance traveled by 90% of the entire unit.

If selecting a jack based on life, use the following graph and determine the frame number first.

Each graph shows the equivalent P_m or 39.2kN {4tf} for the required expected travel distance, 5km. The coordinates of horizontal and vertical axes suggest suitable frame numbers. In this case, jacks JWB050, JWH050 or above are recommended.

If the load largely fluctuates in the middle of a stroke, use the following formula to calculate equivalent load.

$$P_M = \frac{P_{MIN} + 2 \times P_{MAX}}{3}$$

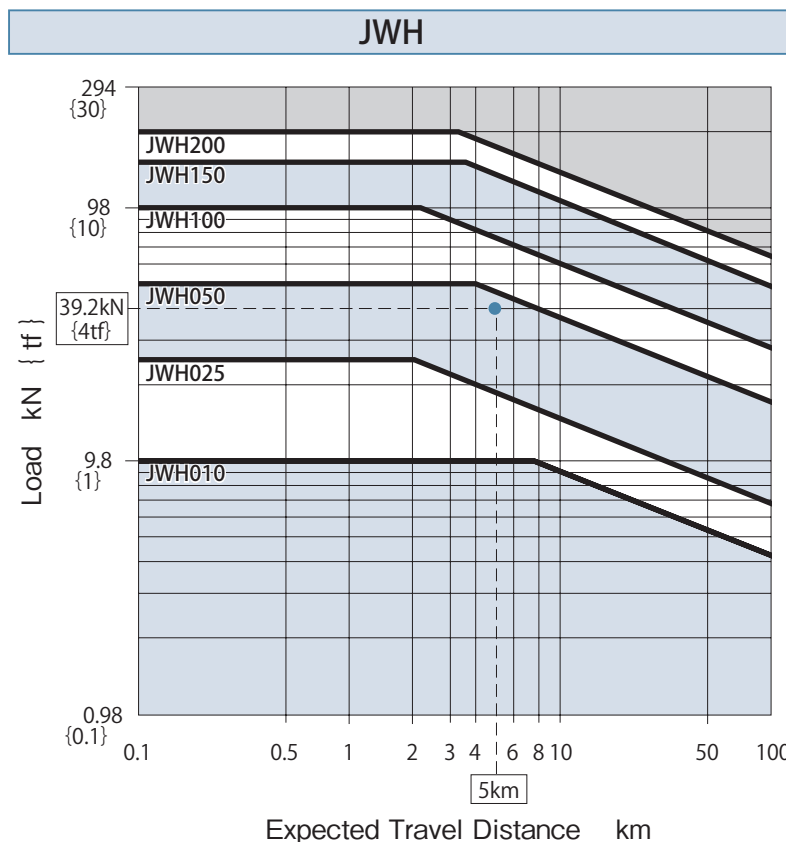
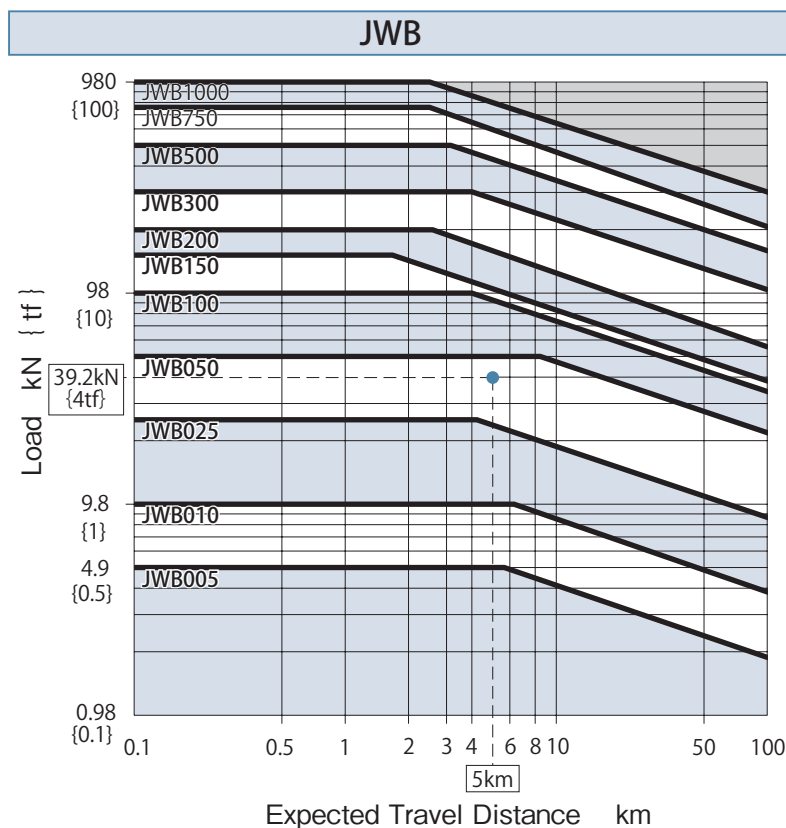
P_M : Equivalent load kN { kgf }

P_{MIN} : Minimum load kN { kgf }

P_{MAX} : Maximum load kN { kgf }

<JWM (Machine Screw Type) Expected Travel Distance>
Machine screw life cannot be determined by the formula used to calculate a ball screw wear life. Use the information below as a reference.

JWM050 and below---5km (Average expected life)
JWM100 and above---1km (Average expected life)



1. Allowable Overhang Load

When installing a sprocket, gear, or belt, use the following formula to verify that any overhang load applied to the shaft falls within the allowable OHL (Table 1).

$$\text{Allowable O. H. L.} \geq \frac{T \times f \times L_f}{R}$$

O.H.L. : Overhang load N {kgf}
 T : Input torque N · m {kgf · m}
 f : Coefficient - power transmission element
 L_f : Coefficient-Load position
 R : Sprocket, Gear, V pulley or Pitch diameter m

Table 2. Coefficient- Power Transmission Element (f)

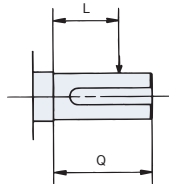
Chain	1.00
Gear	1.25
V Belt	1.50
Flat Belt	2.50

Table 3. Coefficient (L_f) - Load Position

L/Q	Below 0.5	0.75	1
L _f	1	1.5	2

Table 1. Allowable O.H.L.

Frame No.		002	005	010	025	050	100	150	200	300	500	750	1000
JWM (Machine Screw Type) H Speed	N	99	200	380	710	1500	2270	3160	4320	6110	10100	13900	18000
	{ kgf }	{10}	{21}	{39}	{73}	{153}	{232}	{323}	{441}	{624}	{1030}	{1420}	{1840}
JWM (Machine Screw Type) L Speed	N	63	120	220	420	820	1430	1950	2800	4400	6650	9390	13200
	{ kgf }	{6}	{13}	{23}	{44}	{85}	{146}	{200}	{286}	{449}	{678}	{958}	{1350}
JWB (Ball Screw Type) H Speed	N	—	130	220	480	870	1290	2030	2490	3450	5240	7200	9790
	{ kgf }	—	{14}	{23}	{50}	{89}	{132}	{208}	{255}	{352}	{535}	{735}	{998}
JWB (Ball Screw Type) L Speed	N	—	82	140	290	500	840	1300	1610	2400	3560	4940	6970
	{ kgf }	—	{8}	{15}	{31}	{52}	{86}	{133}	{165}	{245}	{363}	{504}	{711}
JWH (High Lead Ball Screw Type) H Speed	N	—	—	530	980	1510	2390	3130	3840	—	—	—	—
	{ kgf }	—	—	{54}	{100}	{154}	{244}	{320}	{392}	—	—	—	—



Q : Shaft Length
 L : Loaded Position

2. Screw Shaft rpm

When using a travel nut with screw shaft rotation, make sure the screw shaft rpm is within the rated value determined by the following formula. In cases where it exceeds the allowable rate, increase the frame number and recalculate.

(Verify the allowable screw shaft rpm if the input rpm is 900 r/min or over with H speed standard stroke, or if the stroke used exceeds the standard value.)

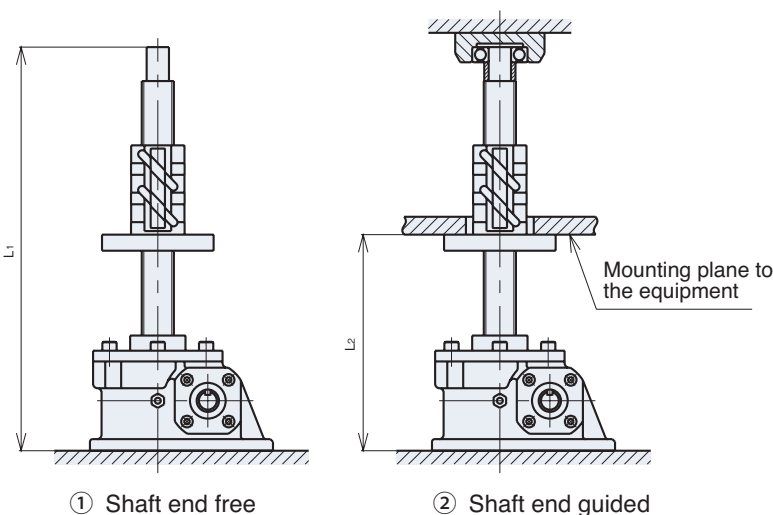
$$NC = \frac{96 \times n \times d \times 10^6}{L^2}$$

NC : Allowable screw shaft rpm r/min
 d : Screw shaft root diameter mm
 (See pages 215 to 216 for JWM, pages 241 to 242 for JWB and pages 265 to 266 for JWH.)
 n : Shaft end support coefficient
 ① Shaft end free: n=0.36
 ② Fixed shaft end: n=1.56
 L : Support space distance mm (See graph for each frame no.)

$$NS = \frac{N}{R}$$

NS : Screw shaft rpm r/min
 N : Input rpm r/min
 R : Worm speed ratio

MAKE SURE NC > NS



(Calculation Example)

Assume JWM200URH20D with input rpm of 1200r/min with fixed shaft end.

Screw shaft rpm N_s is:

$$NS = \frac{1200}{8} = 150r/min$$

* See dimensions on page 208

$$NC = \frac{96 \times 1.56 \times 51.3 \times 10^6}{2237^2}$$

$$= 1535r/min$$

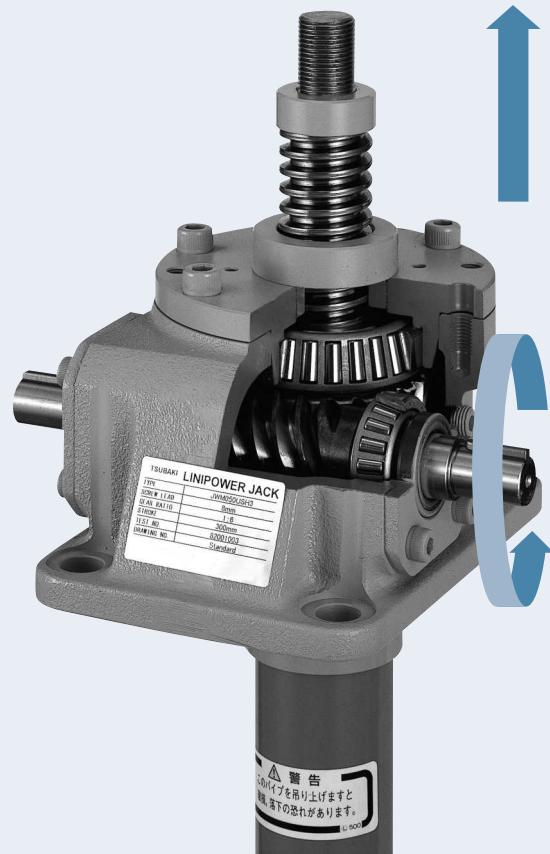
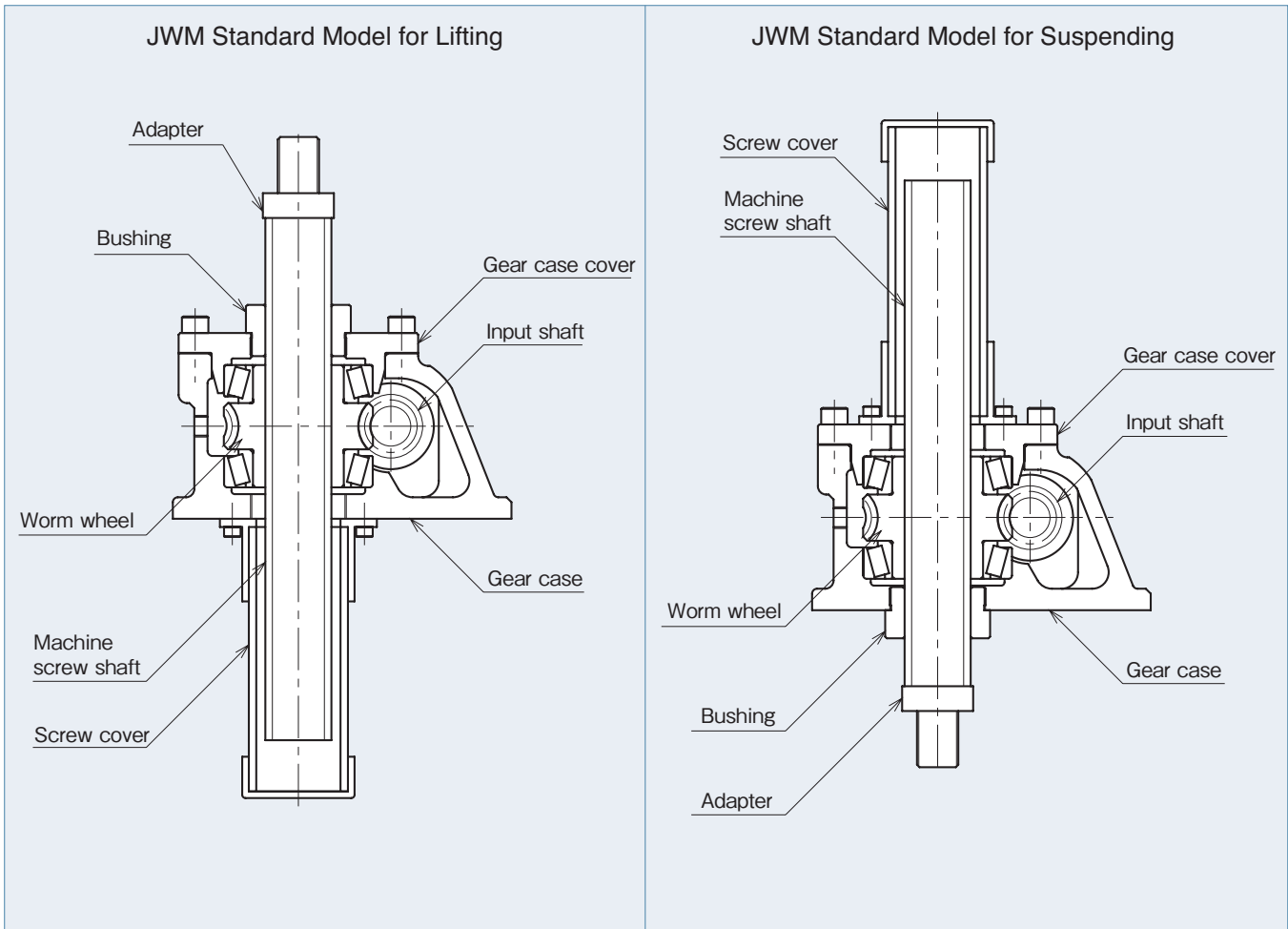
$$NC = 1535r/min > NS = 150r/min \dots OK$$

Linipower Jack

JWM (Machine Screw Type)



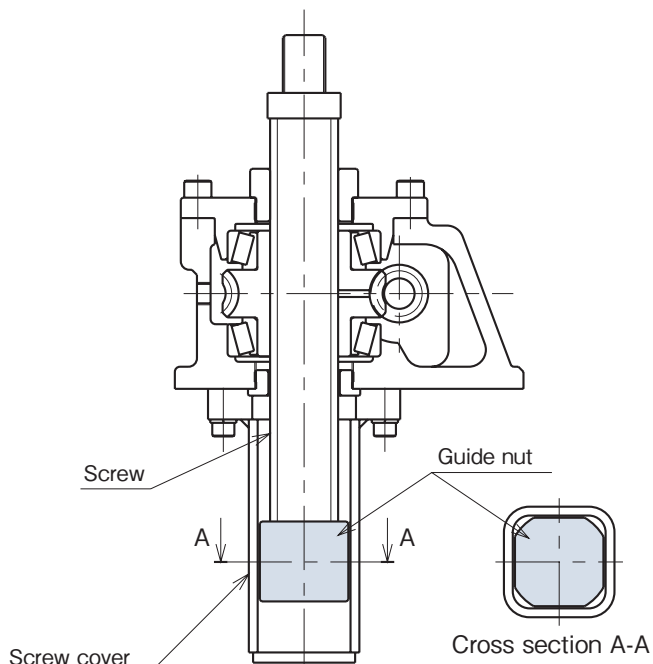
Drawings	P211•212
JWM Reference Number System	P213•214
Reference Table for Standard Use	P215•216
Dimensions	P217 to 234
Precautions	P235



JWM (Machine Screw Type) Anti-rotation Type

JWM002 to 050

〈Anti-rotation Type with Guide Nut〉

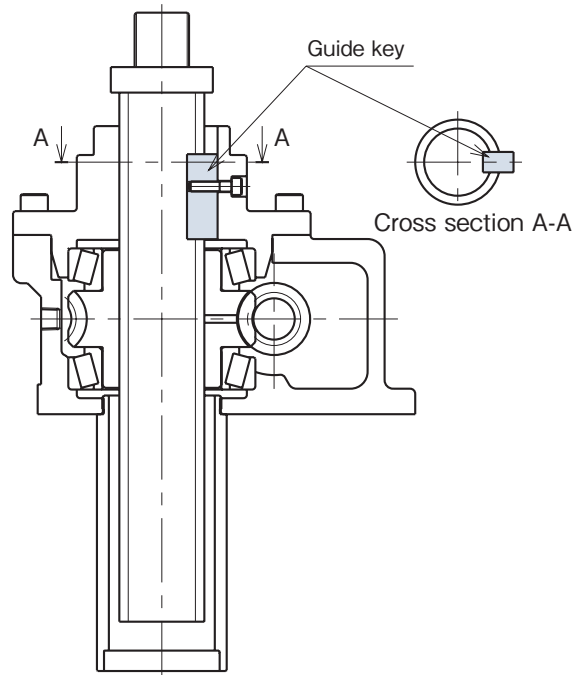


“square” pipe

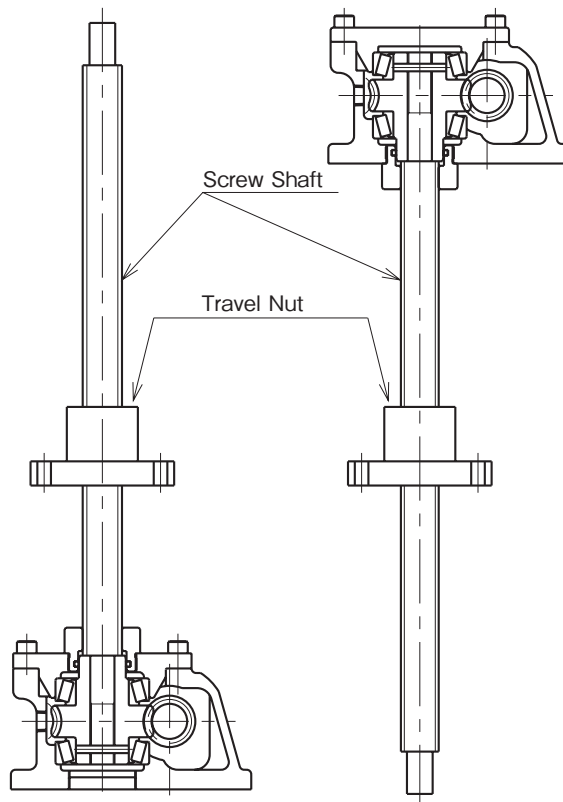
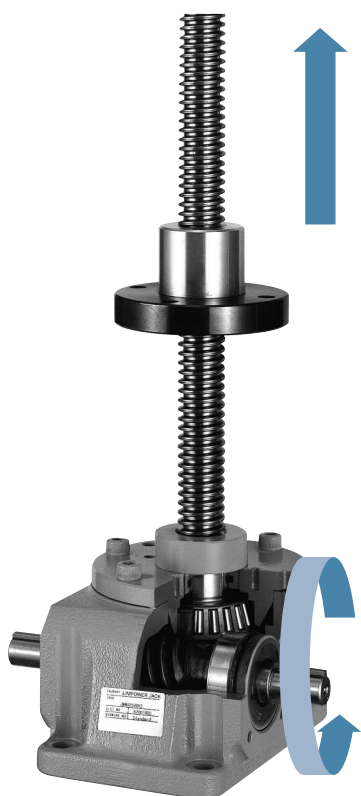
Note) The 10° space in each corner between the guide and the pipe allows smooth rotation.

JWM100・150・200

〈Anti-rotation Type with Guide Key〉



JWM (Machine Screw Type) Travel Nut Type



JWM (Machine Screw Type)



Linipower Jack

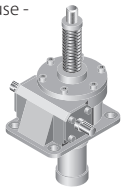
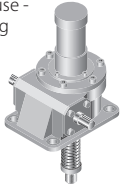
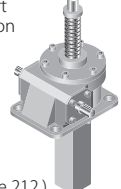
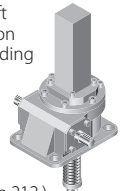
Jack Type
M : Machine screw

Basic Capacity

Frame Size	kN	{tf}
002	1.96	{0.2}
005	4.90	{0.5}
010	9.80	{1}
025	24.5	{2.5}
050	49.0	{5}
100	98.0	{10}
150	147	{15}
200	196	{20}
300	294	{30}
500	490	{50}
750	735	{75}
1000	980	{100}

*Please fill in detail information in 311.

Installation Type

US	Standard use - lifting 
DS	Standard use - suspending 
UM	Screw shaft anti-rotation for lifting  (See page 212.)
DM	Screw shaft anti-rotation for suspending  (See page 212.)

Stroke mm

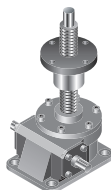
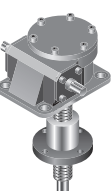
1	100
3	300
6	600
10	1000

*Please fill in detail information in 311.

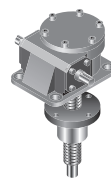
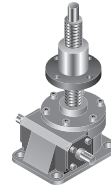
Gear Ratio

Symbol Frame No.	H	L
002	5	20
005	5	20
010	5	20
025	6	24
050	6	24
100	8	24
150	8	24
200	8	24
300	10 ² / ₃	32
500	10 ² / ₃	32
750	10 ² / ₃	32
1000	12	36

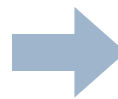
Flange Installation

UR	Travel nut - lifting 
DR	Travel nut - suspending 

*Be sure to use the flange installation method U or D with travel nuts.

U	
D	

*Please fill in detail information in 311.



Examples)

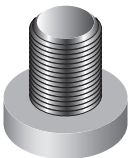



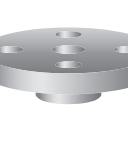
JWM100UMH3

- Machine Screw Type • 98.0kN {10tf} • Rotation prevention (for lifting) • Gear ratio H (1/8) • Stroke 300mm

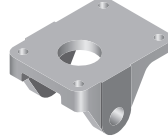
JWM050USH10JMK4PG2

- Machine Screw Type • 49.0kN {5tf} • Standard use (for lifting) • Gear ratio H (1/6) • Stroke 1000mm
- Bellows / Table Type End Fitting • 4 Internal LS • Potentiometer
- 3 Phase motor with brake and gear reducer ratio of 1/10

Output Option



No symbol	Screw Shaft End (standard) 
J	Bellows 
B	Rod Type End Fitting 
I	I Type End Fitting 
M	Table Type End Fitting 

Installation Option

C	Clevis Mounting Adapter  (See page 291)
---	---

Note) For standard lifting only.

Sensor Option

Y	LS Counter   (See page 285)
K2	Position Sensor K2...2 Internal LS K4...4 Internal LS P...Potentiometer R...Rotary Encoder
K4	
P	
R	

(See page 287)

*Please fill in the form on page 311.

Input Option

E	3 phase motor with brake E...200V 50Hz 200/220V 60Hz EV...400 50Hz 400/440V 60Hz
EV	
G1	3 phase gearmotor with brake G1...Gear ratio 1/5 200V 50Hz 200/220V 60Hz G2...Reducer ratio 1/10 200V 50Hz 200/220V 60Hz
G2	

(See page 279)

(See page 275)

Accessories

Hand Wheel  (See page 292)
Control Options Stroke Meter and PCB  Meter Relay and PCB  (See page 288 to 289)
Others Trunnion Mounting Adapter  * Use as a set with clevis mounting adapter. (See page 291)

Note) When travel nuts are used, B, I and M are not available.

Note) Travel nut type with bellows is made-to-order.

*Please fill in the form on page 311.

Reference Table for Standard Use JWM (Machine Screw Type)

Frame Size		JWM002	JWM005	JWM010	JWM025	JWM050
Basic Capacity	kN	1.96	4.90	9.80	24.5	49.0
	{tf}	{0.2}	{0.5}	{1}	{2.5}	{5}
Outer Screw Diameter	mm	12	16	20	26	40
Minor Screw Diameter	mm	8.8	10.8	14.8	19.7	30.5
Screw Lead	mm	3	4	4	5	8
Gear Ratio	H Speed	5	5	5	6	6
	L Speed	20	20	20	24	24
Overall Efficiency	%					
	H Speed	26	26	21	21	22
Max. Allowable Input Capacity	kW					
	L Speed	15	15	12	12	14
Tare Drag Torque	N · m	0.11	0.11	0.29	0.62	1.4
	{kgf · m}	{0.011}	{0.011}	{0.03}	{0.063}	{0.14}
Allowable Input Torque *Note 1	N · m	9.8	9.8	19.6	49.0	153.9
	{kgf · m}	{1}	{1}	{2}	{5}	{15.7}
Required Input Torque *Note 2 for Basic Capacity	N · m					
	{kgf · m}					
H Speed		0.83	2.5	6.2	16.1	48.7
	{0.08}	{0.26}	{0.64}	{1.6}	{5.0}	
L Speed		0.42	1.1	2.9	7.4	20.0
	{0.04}	{0.12}	{0.30}	{0.75}	{2.0}	
Screw Movement/ per Revolution of Input Shaft	mm					
	H Speed	0.6	0.8	0.8	0.83	1.33
L Speed		0.15	0.2	0.2	0.21	0.33
Max. Input rpm	r/min					
	H Speed	1800	1800	1800	1800	1800
L Speed		1800	1800	1800	1800	1800
Max. Input rpm for Basic Capacity	r/min					
	H Speed	1800	1500	750	600	400
L Speed		1800	1500	1200	600	300
Screw Shaft Rotational Torque for Basic Capacity	N · m	2.6	8.6	20.1	65.1	201.5
	{kgf · m}	{0.26}	{0.87}	{2.1}	{6.6}	{20.5}
Screw Cover Material *Note 3		Hard Vinyl Chloride				
Lubrication		Shaft: Grease Reducer Unit: Grease Bath				
Color		Tsubaki Olive Grey (Munsell 5GY6/0.5)				
Environment	Operating Temperature Range		-15 to 80°C (Precautions #2)			
	Relative Humidity		85% or less (no dew condensation)			
	Operating ambient atmosphere		Indoor Environment (Indoor room where rain and water cannot enter. Dust volume should be normal.)			
Duty Cycle *Note 4		Within 20% ED				

Note 1) The allowable torque is for jack input shaft only. (Reconfirm if synchronous drive.)

Note 2) Includes tare drag torque.

Note 3) Rotation prevention types for frames 002 to 050 are steel square pipes.

Note 4) Standard percentage duty cycle is 30 minutes. Thus, driving time is based on 30 minute intervals.

Precautions

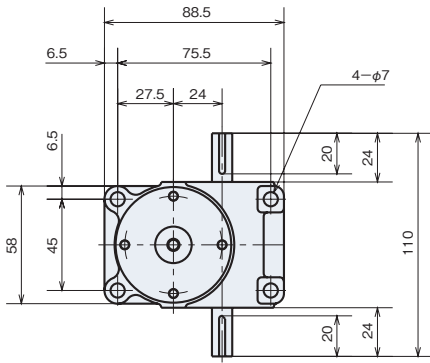
1. All loads (static, dynamic or shock) should be within the rated capacity of the jack at sufficient safety levels.
2. Operating Temperature Range refers to the surface temperature of the jack during operation. To check, measure the surface temperature of the input shaft unit or travel nut (if used). Be sure all the rotating parts have completely stopped before proceeding to measure.
3. Be sure to operate within the allowable input rpm of 1800/min.
4. Number of synchronizing jacks which can be connected on the same line is limited by shaft strength. Refer to the allowable input shaft torque on the above table.
5. Activating torque for the drive unit should be maintained at 200% above the required torque.
6. If operating in freezing temperatures, a change in viscosity may reduce the efficiency of the grease. Set the drive unit so as to accommodate this change.

JWM100	JWM150	JWM200	JWM300	JWM500	JWM750	JWM1000
98.0	147	196	294	490	735	980
{10}	{15}	{20}	{30}	{50}	{75}	{100}
50	55	65	85	120	130	150
38.4	43.4	51.3	67	102	112	127
10	10	12	16	16	16	20
8	8	8	10 2/3	10 2/3	10 2/3	12
24	24	24	32	32	32	36
22	20	20	19	15	13	13
15	14	13	11	10	8	8
2.8	3.1	5.0	8.4	13.4	14.4	21.4
1.4	2.2	3.2	4.6	5.7	7.2	9.4
2.0	2.6	3.9	9.8	19.6	29.4	39.2
{0.2}	{0.27}	{0.4}	{1}	{2}	{3}	{4}
292	292.0	292.0	735.0	1372.0	1764.0	2450.0
{29.8}	{29.8}	{29.8}	{75}	{140}	{180}	{250}
90.7	149	238.1	400.1	856.0	1380.5	2040.9
{9.2}	{15.2}	{24.3}	{40.8}	{87.3}	{140.7}	{208.0}
45.3	72.3	124.0	244.0	453.3	761.3	1278.3
{4.6}	{7.4}	{12.6}	{24.9}	{46.2}	{77.6}	{130.3}
1.25	1.25	1.50	1.50	1.50	1.50	1.67
0.42	0.42	0.50	0.50	0.50	0.50	0.56
1800	1800	1800	1800	1800	1800	1800
1800	1800	1800	1800	1800	1800	1800
300	200	200	200	150	100	100
300	290	250	180	120	90	70
503.6	813.2	1287.7	2531.9	5551.3	8921.8	13878.3
{51.3}	{82.9}	{131.3}	{258.1}	{565.9}	{909.5}	{1414.7}
Steel Pipe						
Screw: Grease Reducer Unit: Grease Bath						
Tsubaki Olive Grey (Munsell 5GY6/0.5)						
- 15 to 80°C (Precautions #2)						
85% or less (no dew condensation)						
Indoor Environment (Indoor room where rain and water cannot enter. Dust volume should be normal.)						
Within 20% ED						

7. Although JWM (Machine Screw Type) comes with a self-locking device, it may not be effective with vibration or shock. Use a brake under such conditions.
- ⚠8. Be certain that the jack rating exceeds the maximum stroke. Over travel can cause the lift shaft to disengage from the worm wheel. JWM (Machine screw type) is not equipped with a fall stop, therefore, if the stroke range is exceeded, the screw shaft falls.

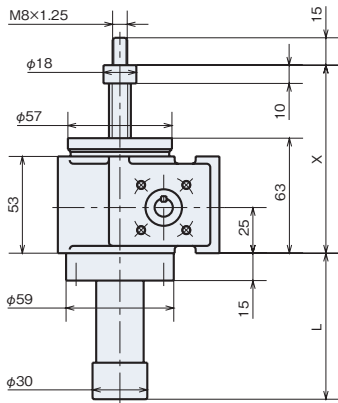
- ⚠9. Do not use mechanical stops under any circumstances. This will cause major internal damage.
10. Input shaft key is provided with each unit. (The input shaft key complies with JIS B 1301-1996 (normal grade).)

JWM002 Dimensions - Standard Model

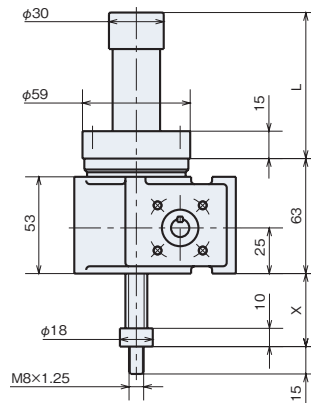


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	73	173	127	227	184	20	120	65	165	184	2.3
200	73	273	127	327	284	20	220	65	265	284	2.4
300	73	373	167	467	424	20	320	105	405	424	2.6
400	73	473	167	567	524	20	420	105	505	524	2.7

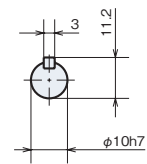
Lift (JWM002US)



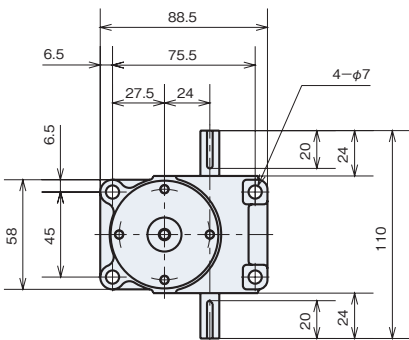
Suspend (JWM002DS)



● Input Shaft

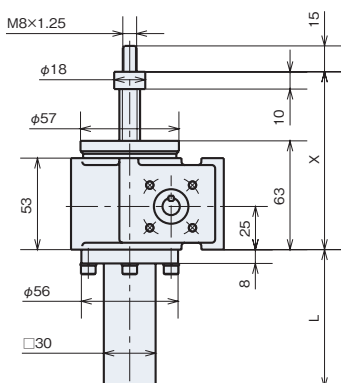


JWM002 Dimensions - Rotation Prevention Type

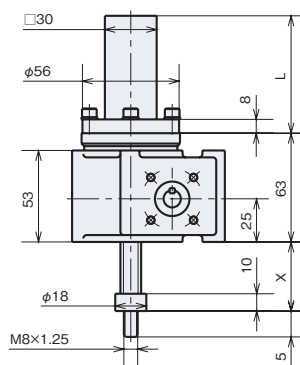


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	73	173	127	227	202	20	120	65	165	202	3.0
200	73	273	127	327	302	20	220	65	265	302	3.4
300	73	373	167	467	442	20	320	105	405	442	3.9
400	73	473	167	567	542	20	420	105	505	542	4.3

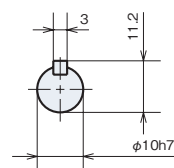
Lift (JWM002UM)



Suspend (JWM002DM)

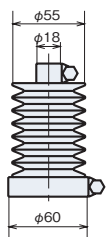


● Input Shaft

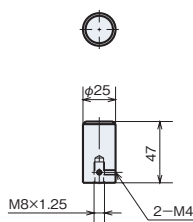


Output Options

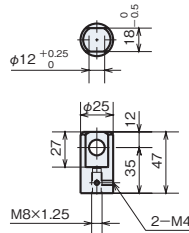
■ Bellows (- J)



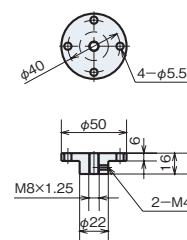
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)

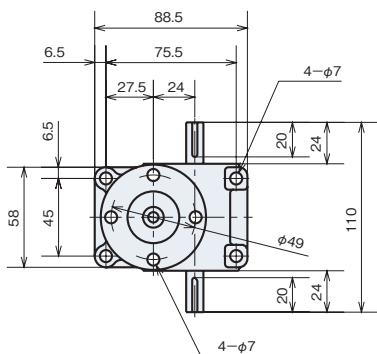


■ Table Type End Fitting (- M)



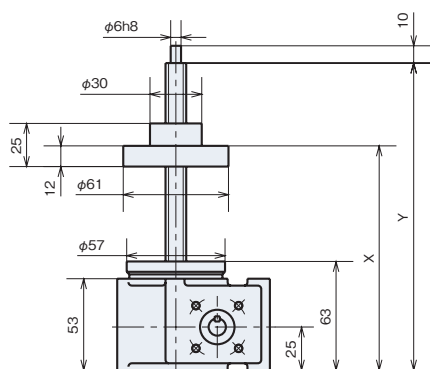
Note) For detailed measurements on units with bellows, see page 294.

JWM002 Dimensions - Travel Nut Type

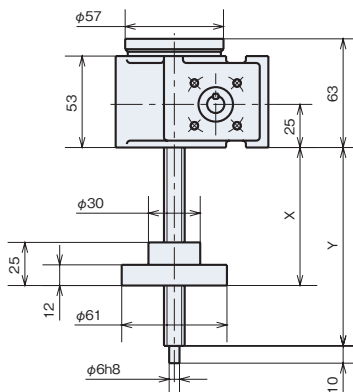


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	84	184	207	35	135	145	2.6
200	84	284	307	35	235	245	2.6
300	84	384	407	35	335	345	2.7
400	84	484	507	35	435	445	2.8

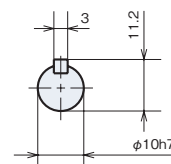
Lift (JWM002UR)



Suspend (JWM002DR)



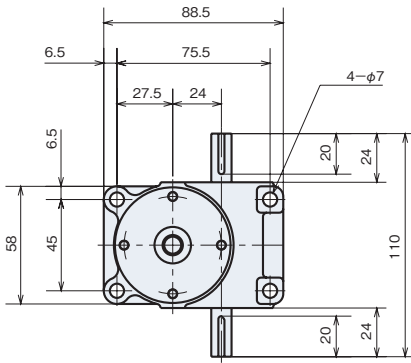
● Input Shaft



Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

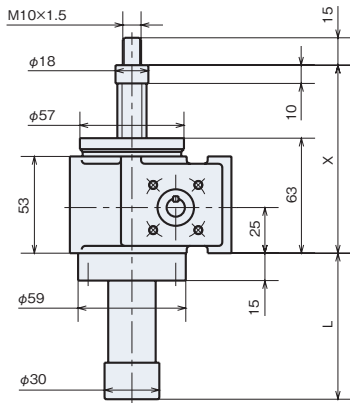
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWM005 Dimensions - Standard Model

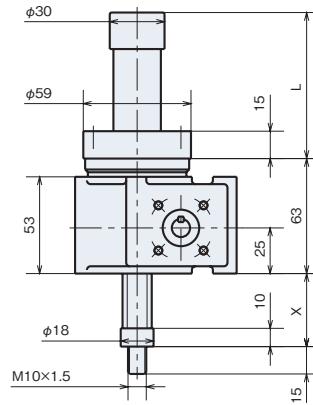


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	73	173	127	227	188	20	120	65	165	188	2.5
200	73	273	127	327	288	20	220	65	265	288	2.6
300	73	373	167	467	428	20	320	105	405	428	2.8
400	73	473	167	567	528	20	420	105	505	528	3.0
500	73	573	202	702	663	20	520	140	640	663	3.2
600	73	673	202	802	763	20	620	140	740	763	3.3
800	73	873	237	1037	998	20	820	175	975	998	3.7

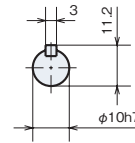
Lift (JWM005US)



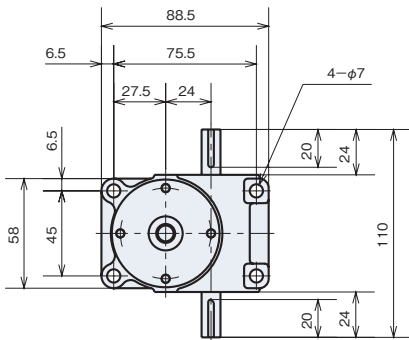
Suspend (JWM005DS)



● Input Shaft

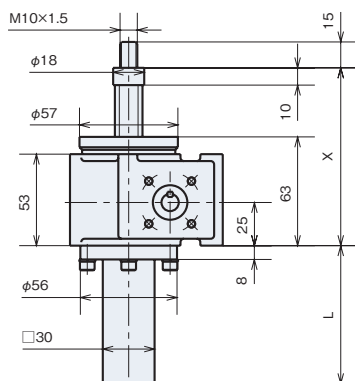


JWM005 Dimensions - Rotation Prevention Type

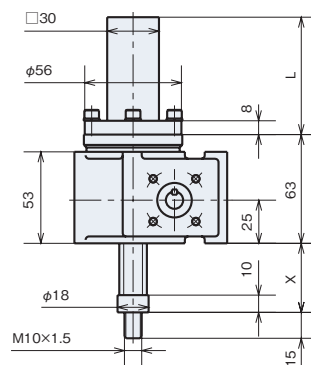


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	73	173	127	227	202	20	120	65	165	202	3.1
200	73	273	127	327	302	20	220	65	265	302	3.5
300	73	373	167	467	442	20	320	105	405	442	4.1
400	73	473	167	567	542	20	420	105	505	542	4.6
500	73	573	202	702	677	20	520	140	640	677	5.1
600	73	673	202	802	777	20	620	140	740	777	5.5
800	73	873	237	1037	1012	20	820	175	975	1012	6.5

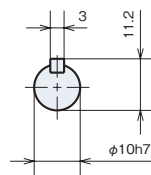
Lift (JWM005UM)



Suspend (JWM005DM)

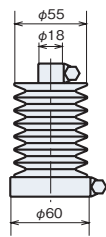


● Input Shaft

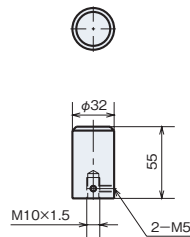


Output Options

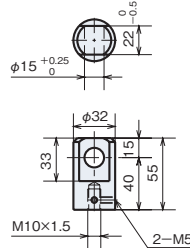
■ Bellows (- J)



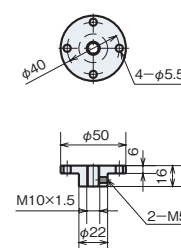
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)

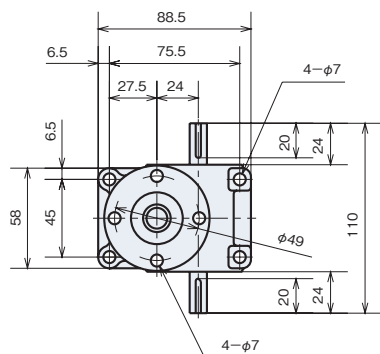


■ Table Type End Fitting (- M)



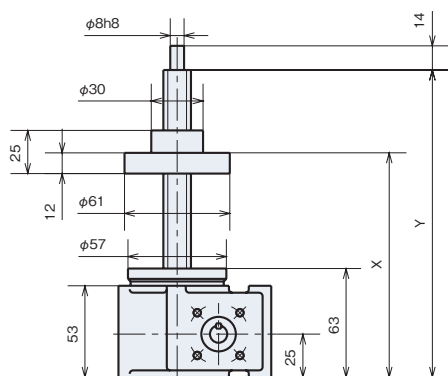
Note) For detailed measurements on units with bellows, see page 294.

JWM005 Dimensions - Travel Nut Type

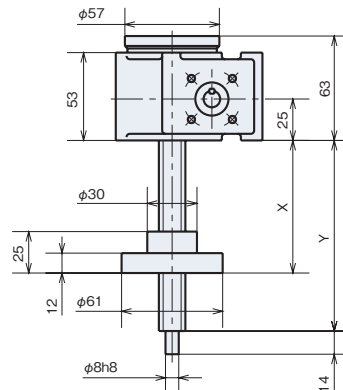


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	84	184	207	35	135	145	2.6
200	84	284	307	35	235	245	2.8
300	84	384	407	35	335	345	2.9
400	84	484	507	35	435	445	3.0
500	84	584	607	35	535	545	3.1
600	84	684	707	35	635	645	3.2
800	84	884	907	35	835	845	3.5

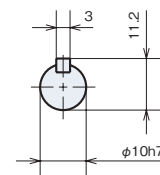
Lift (JWM005UR)



Suspend (JWM005DR)



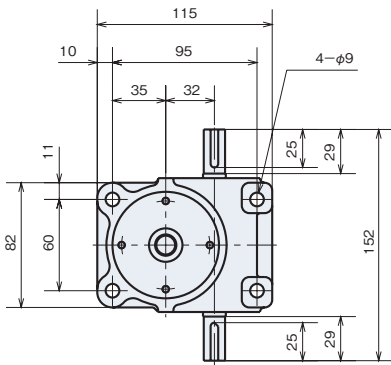
● Input Shaft



Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

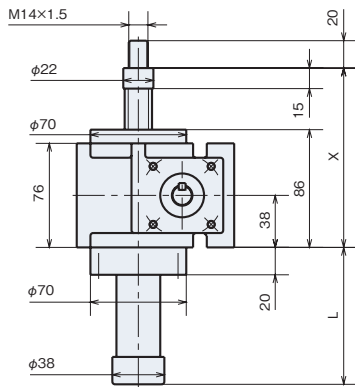
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWM010 Dimensions - Standard Model

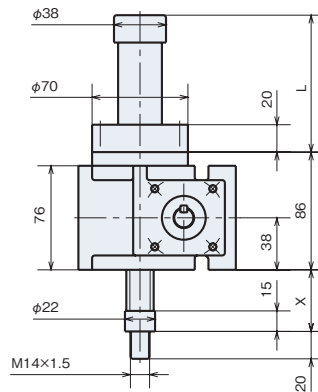


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	101	201	161	261	194	25	125	75	175	194	5.5
200	101	301	161	361	294	25	225	75	275	294	5.7
300	101	401	201	501	434	25	325	115	415	434	6.1
400	101	501	201	601	534	25	425	115	515	534	6.3
500	101	601	236	736	669	25	525	150	650	669	6.6
600	101	701	236	836	769	25	625	150	750	769	6.9
800	101	901	271	1071	1004	25	825	185	985	1004	7.5
1000	101	1101	301	1301	1234	25	1025	215	1215	1234	8.0

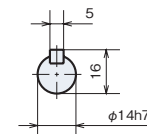
Lift (JWM010US)



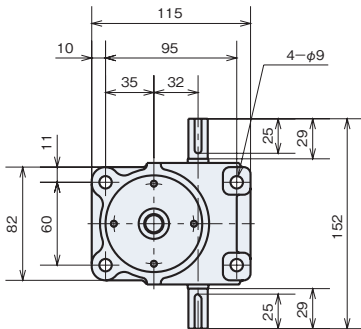
Suspend (JWM010DS)



● Input Shaft

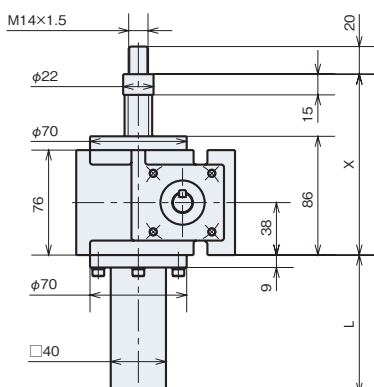


JWM010 Dimensions - Rotation Prevention Type

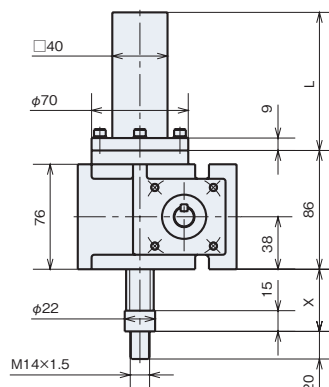


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	101	201	161	261	213	25	125	75	175	213	6.6
200	101	301	161	361	313	25	225	75	275	313	7.2
300	101	401	201	501	453	25	325	115	415	453	8.1
400	101	501	201	601	553	25	425	115	515	553	8.8
500	101	601	236	736	688	25	525	150	650	688	9.6
600	101	701	236	836	788	25	625	150	750	788	11
800	101	901	271	1071	1023	25	825	185	985	1023	12
1000	101	1101	301	1301	1253	25	1025	215	1215	1253	14

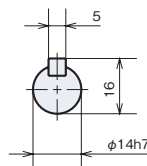
Lift (JWM010UM)



Suspend (JWM010DM)

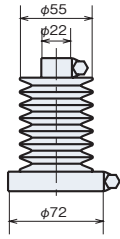


● Input Shaft

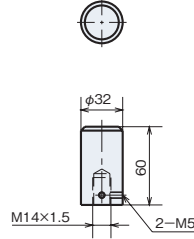


Output Options

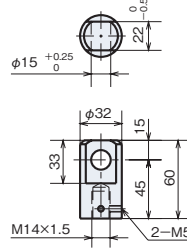
■ Bellows (- J)



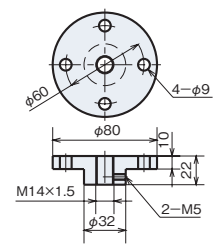
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)

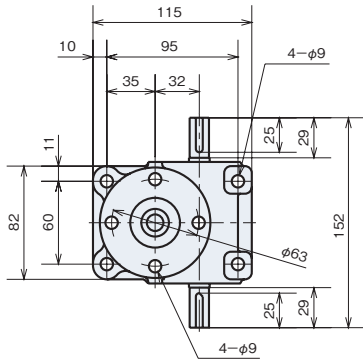


■ Table Type End Fitting (- M)



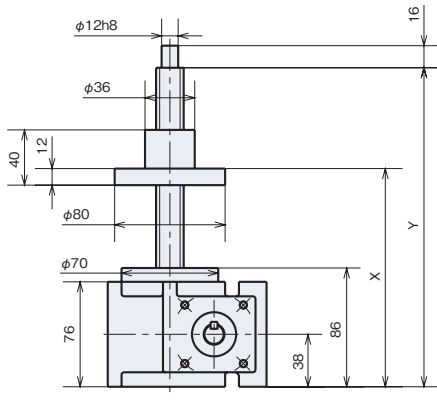
Note) For detailed measurements on units with bellows, see page 294.

JWM010 Dimensions - Travel Nut Type

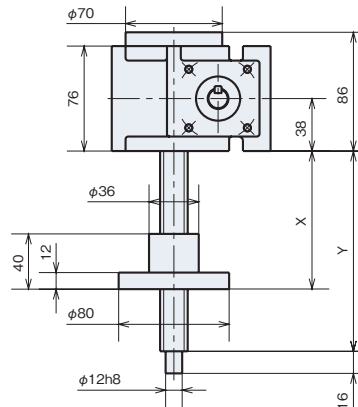


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	108	208	246	50	150	160	5.9
200	108	308	346	50	250	260	6.1
300	108	408	446	50	350	360	6.2
400	108	508	546	50	450	460	6.4
500	108	608	646	50	550	560	6.6
600	108	708	746	50	650	660	6.8
800	108	908	946	50	850	860	7.2
1000	108	1108	1146	50	1050	1060	7.6

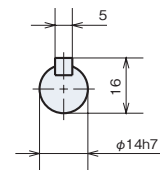
Lift (JWM010UR)



Suspend (JWM010DR)

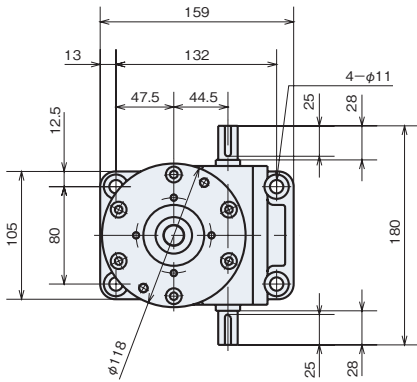


● Input Shaft



Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

JWM025 Dimensions - Standard Model

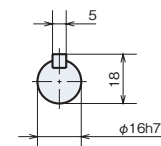
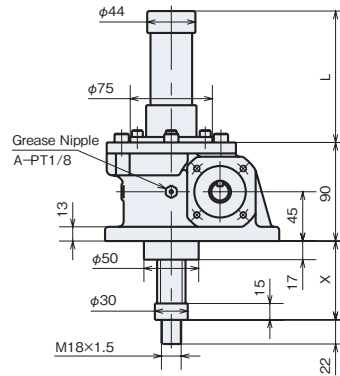
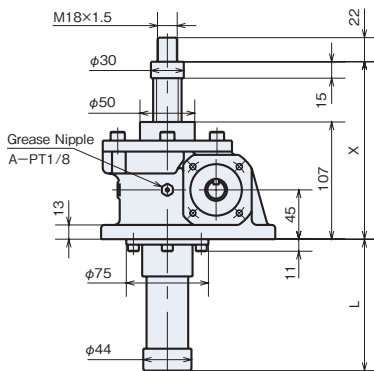


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	132	232	147	247	149	42	142	57	157	149	7.7
200	132	332	147	347	249	42	242	57	257	249	8.1
300	132	432	167	467	369	42	342	77	377	369	8.5
400	132	532	167	567	469	42	442	77	477	469	8.9
500	132	632	187	687	589	42	542	97	597	589	9.4
600	132	732	187	787	689	42	642	97	697	689	9.8
800	132	932	207	1007	909	42	842	117	917	909	11
1000	132	1132	227	1227	1129	42	1042	137	1137	1129	12
1200	132	1332	242	1442	1344	42	1242	152	1352	1344	13

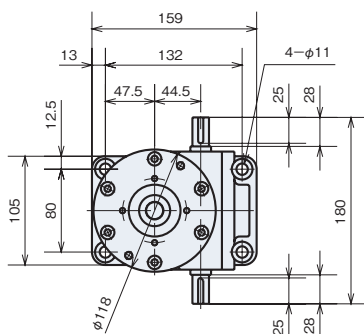
Lift (JWM025US)

Suspend (JWM025DS)

● Input Shaft



JWM025 Dimensions - Rotation Prevention Type

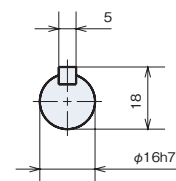
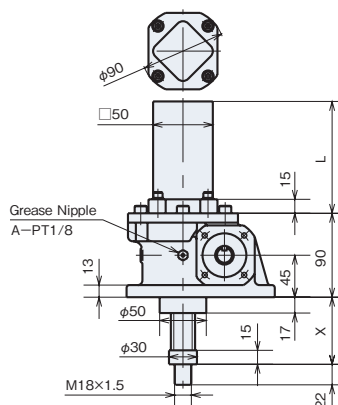
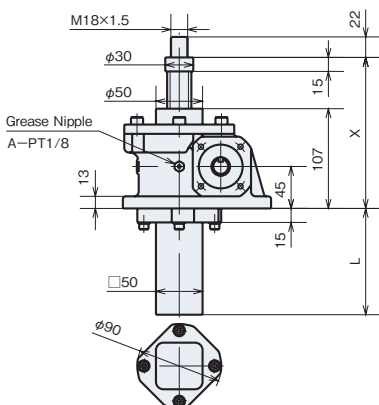


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	132	232	147	247	181	42	142	57	157	181	10
200	132	332	147	347	281	42	242	57	257	281	12
300	132	432	167	467	401	42	342	77	377	401	13
400	132	532	167	567	501	42	442	77	477	501	14
500	132	632	187	687	621	42	542	97	597	621	15
600	132	732	187	787	721	42	642	97	697	721	17
800	132	932	207	1007	941	42	842	117	917	941	19
1000	132	1132	227	1227	1161	42	1042	137	1137	1161	21
1200	132	1332	242	1442	1376	42	1242	152	1352	1376	24

Lift (JWM025UM)

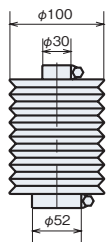
Suspend (JWM025DM)

● Input Shaft

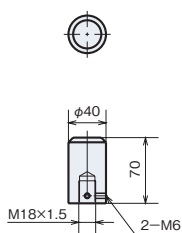


Output Options

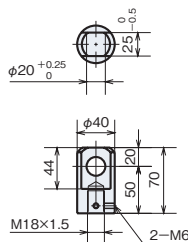
■ Bellows (- J)



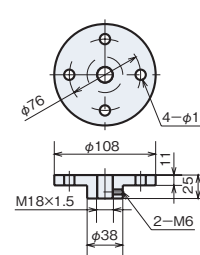
■ Rod Type End Fitting (- B)



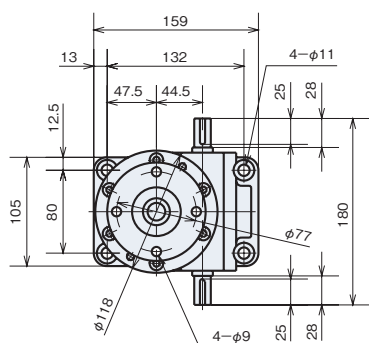
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

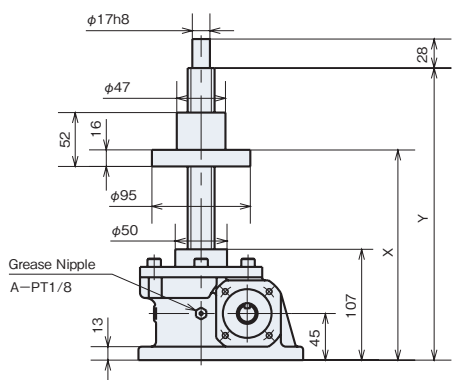


JWM025 Dimensions - Travel Nut Type

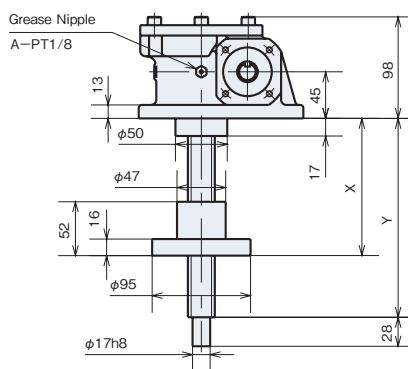


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	133	233	279	79	179	189	9.2
200	133	333	379	79	279	289	9.5
300	133	433	479	79	379	389	9.9
400	133	533	579	79	479	489	11
500	133	633	679	79	579	589	11
600	133	733	779	79	679	689	11
800	133	933	979	79	879	889	12
1000	133	1133	1179	79	1079	1089	13
1200	133	1333	1379	79	1279	1289	13

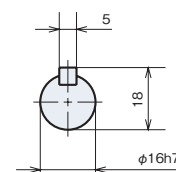
Lift (JWM025UR)



Suspend (JWM025DR)



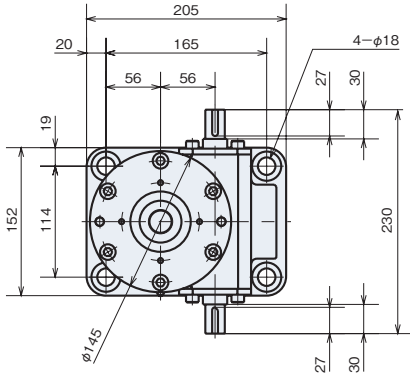
● Input Shaft



Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWM050 Dimensions - Standard Model

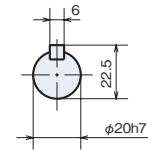
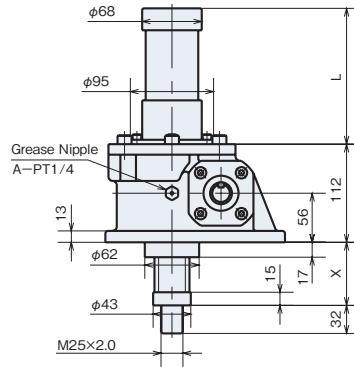
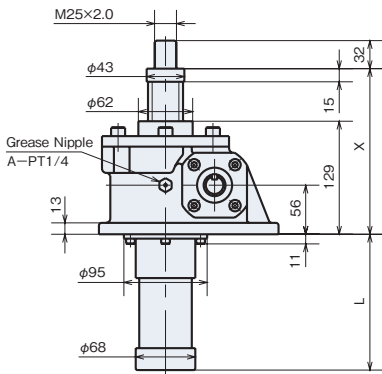


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	154	254	169	269	147	42	142	57	157	147	18
200	154	354	169	369	247	42	242	57	257	247	19
300	154	454	189	489	367	42	342	77	377	367	20
400	154	554	189	589	467	42	442	77	477	467	21
500	154	654	209	709	587	42	542	97	597	587	22
600	154	754	209	809	687	42	642	97	697	687	23
800	154	954	229	1029	907	42	842	117	917	907	25
1000	154	1154	249	1249	1127	42	1042	137	1137	1127	27
1200	154	1354	264	1464	1342	42	1242	152	1352	1342	29
1500	154	1654	289	1789	1667	42	1542	177	1677	1667	32

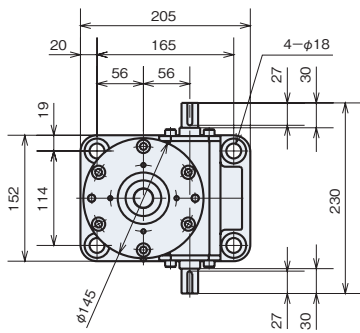
Lift (JWM050US)

Suspend (JWM050DS)

● Input Shaft



JWM050 Dimensions - Rotation Prevention Type

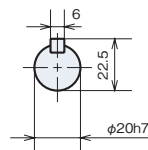
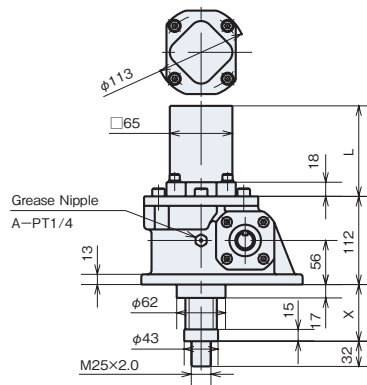
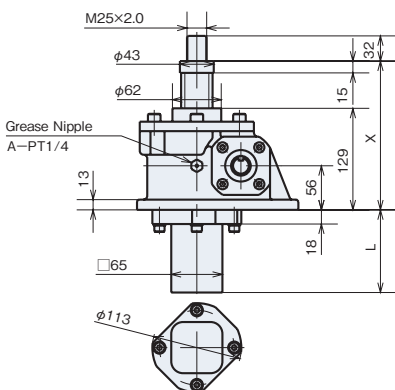


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	154	254	169	269	196	42	142	57	157	196	22
200	154	354	169	369	296	42	242	57	257	296	24
300	154	454	189	489	416	42	342	77	377	416	26
400	154	554	189	589	516	42	442	77	477	516	28
500	154	654	209	709	636	42	542	97	597	636	30
600	154	754	209	809	736	42	642	97	697	736	32
800	154	954	229	1029	956	42	842	117	917	956	36
1000	154	1154	249	1249	1176	42	1042	137	1137	1176	40
1200	154	1354	264	1464	1391	42	1242	152	1352	1391	44
1500	154	1654	289	1789	1716	42	1542	177	1677	1716	50

Lift (JWM050UM)

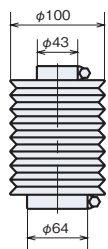
Suspend (JWM050DM)

● Input Shaft

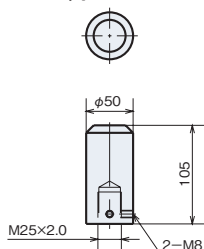


Output Options

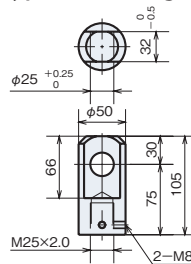
■ Bellows (- J)



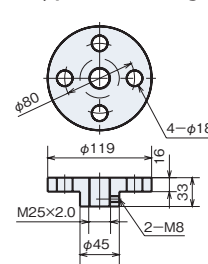
■ Rod Type End Fitting (- B)



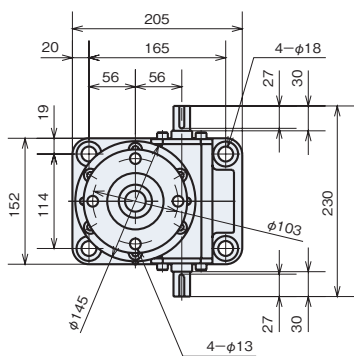
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

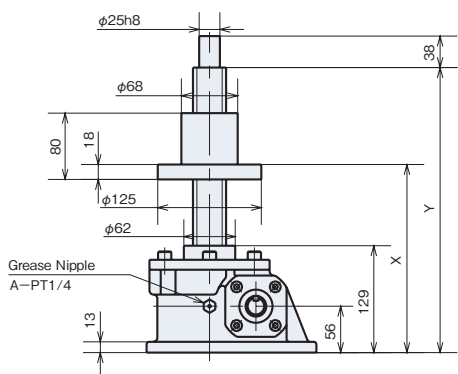


JWM050 Dimensions - Travel Nut Type

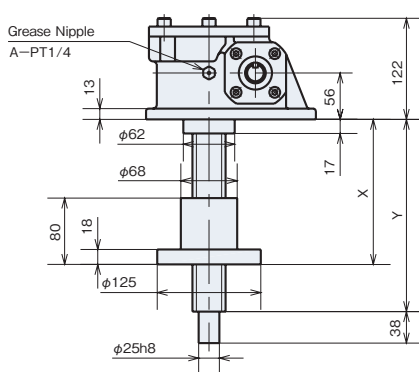


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	157	257	330	107	207	218	22
200	157	357	430	107	307	318	22
300	157	457	530	107	407	418	23
400	157	557	630	107	507	518	24
500	157	657	730	107	607	618	25
600	157	757	830	107	707	718	26
800	157	957	1030	107	907	918	27
1000	157	1157	1230	107	1107	1118	29
1200	157	1357	1430	107	1307	1318	30
1500	157	1657	1730	107	1607	1618	33

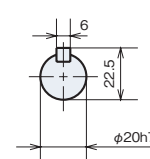
Lift (JWM050UR)



Suspend (JWM050DR)



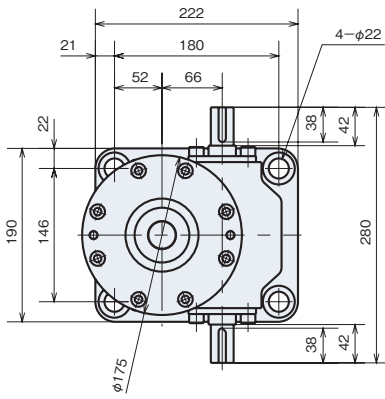
● Input Shaft



Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWM100 Dimensions - Standard Model

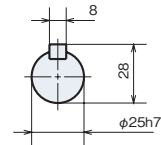
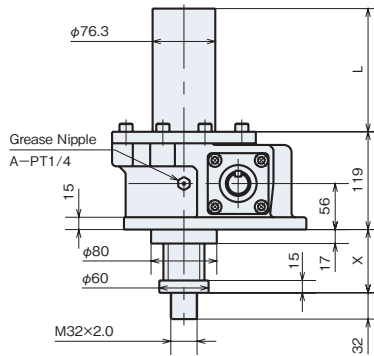
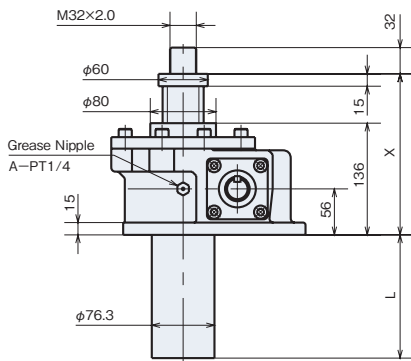


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	161	261	171	271	151	42	142	52	152	151	27
200	161	361	171	371	252	42	242	52	252	252	29
300	161	461	186	486	366	42	342	67	367	366	32
400	161	561	186	586	466	42	442	67	467	466	34
500	161	661	211	711	591	42	542	92	592	591	37
600	161	761	211	811	691	42	642	92	692	691	40
800	161	961	226	1026	906	42	842	107	907	906	45
1000	161	1161	236	1236	1116	42	1042	117	1117	1116	50
1200	161	1361	261	1461	1341	42	1242	142	1342	1341	56
1500	161	1661	286	1786	1666	42	1542	167	1667	1666	63

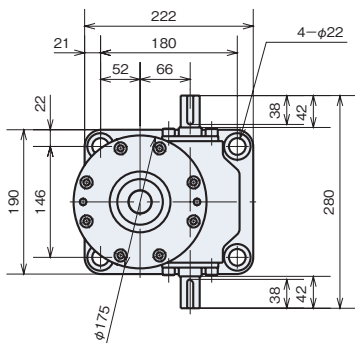
Lift (JWM100US)

Suspend (JWM100DS)

● Input Shaft



JWM100 Dimensions - Rotation Prevention Type

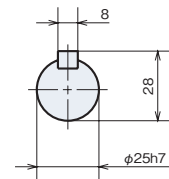
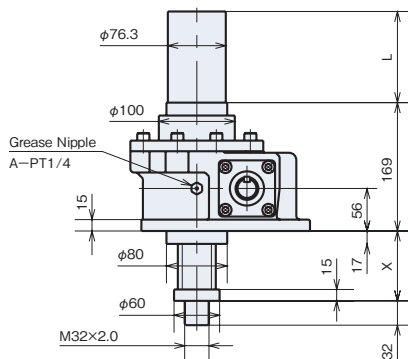
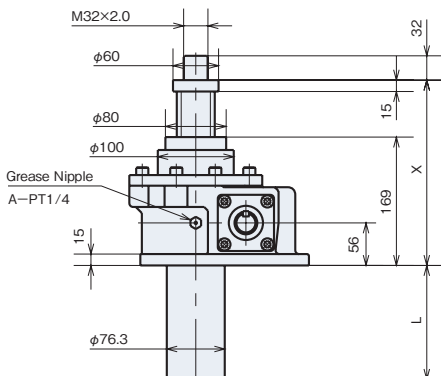


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	194	294	204	304	151	42	142	52	152	151	30
200	194	394	204	404	252	42	242	52	252	252	32
300	194	494	219	519	366	42	342	67	367	366	35
400	194	594	219	619	466	42	442	67	467	466	37
500	194	694	244	744	591	42	542	92	592	591	40
600	194	794	244	844	691	42	642	92	692	691	43
800	194	994	259	1059	906	42	842	107	907	906	48
1000	194	1194	269	1269	1116	42	1042	117	1117	1116	53
1200	194	1394	294	1494	1341	42	1242	142	1342	1341	58
1500	194	1694	319	1819	1666	42	1542	167	1667	1666	66

Lift (JWM100UM)

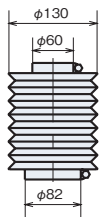
Suspend (JWM100DM)

● Input Shaft

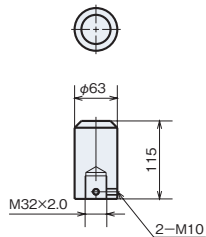


Output Options

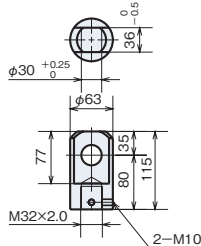
■ Bellows (- J)



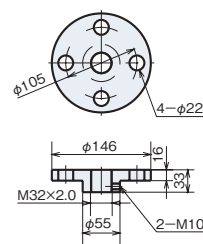
■ Rod Type End Fitting (- B)



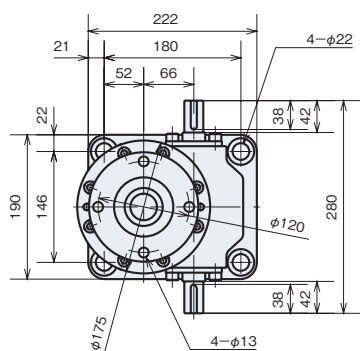
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

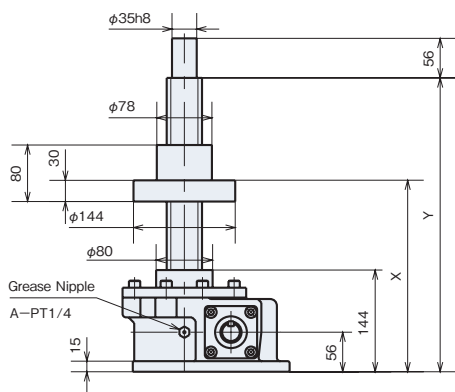


JWM100 Dimensions - Travel Nut Type

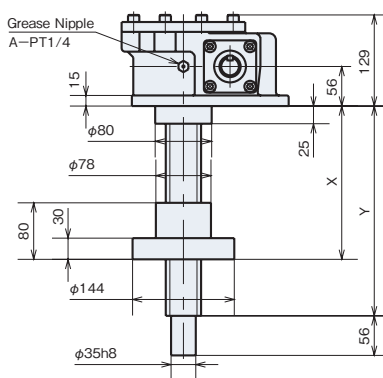


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	184	284	344	115	215	225	32
200	184	384	444	115	315	325	33
300	184	484	544	115	415	425	34
400	184	584	644	115	515	525	36
500	184	684	744	115	615	625	37
600	184	784	844	115	715	725	38
800	184	984	1044	115	915	925	41
1000	184	1184	1244	115	1115	1125	43
1200	184	1384	1444	115	1315	1325	45
1500	184	1684	1744	115	1615	1625	49

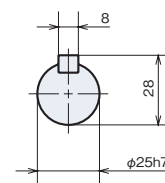
Lift (JWM100UR)



Suspend (JWM100DR)



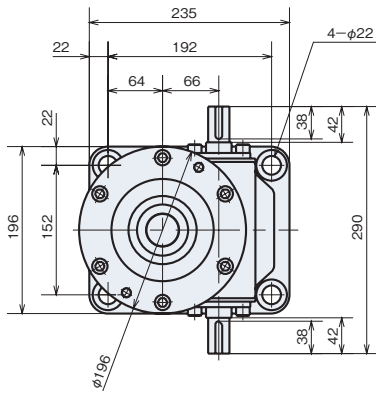
● Input Shaft



Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWM150 Dimensions - Standard Model

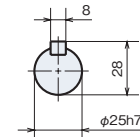
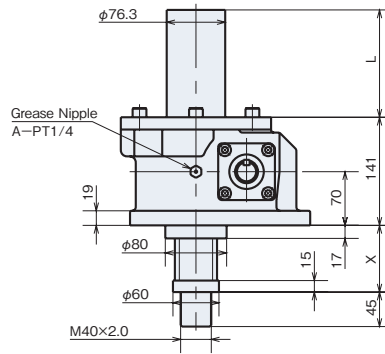
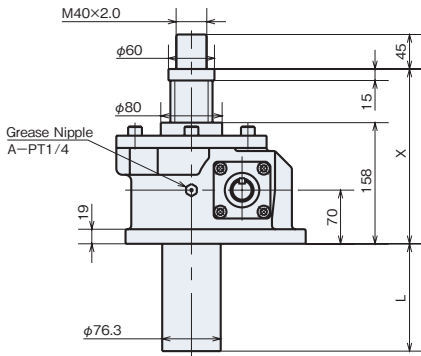


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	183	283	193	293	151	42	142	52	152	151	33
200	183	383	193	393	252	42	242	52	252	252	35
300	183	483	208	508	366	42	342	67	367	366	38
400	183	583	208	608	466	42	442	67	467	466	41
500	183	683	233	733	591	42	542	92	592	591	45
600	183	783	233	833	691	42	642	92	692	691	47
800	183	983	248	1048	906	42	842	107	907	906	53
1000	183	1183	258	1258	1116	42	1042	117	1117	1116	59
1200	183	1383	283	1483	1341	42	1242	142	1342	1341	65
1500	183	1683	308	1808	1666	42	1542	167	1667	1666	74

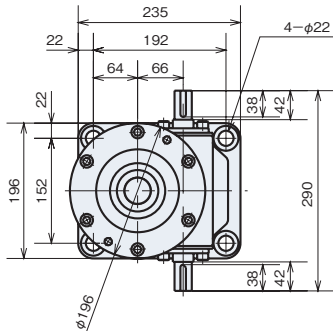
Lift (JWM150US)

Suspend (JWM150DS)

● Input Shaft



JWM150 Dimensions - Rotation Prevention Type

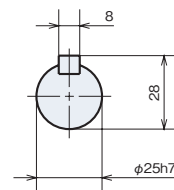
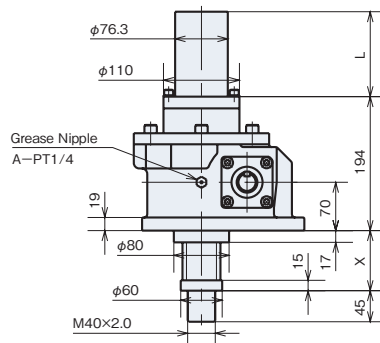
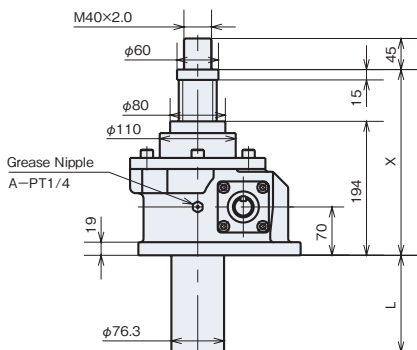


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	219	319	229	329	151	42	142	52	152	151	37
200	219	419	229	429	252	42	242	52	252	252	40
300	219	519	244	544	366	42	342	67	367	366	43
400	219	619	244	644	466	42	442	67	467	466	46
500	219	719	269	769	591	42	542	92	592	591	49
600	219	819	269	869	691	42	642	92	692	691	52
800	219	1019	284	1084	906	42	842	107	907	906	58
1000	219	1219	294	1294	1116	42	1042	117	1117	1116	64
1200	219	1419	319	1519	1341	42	1242	142	1342	1341	69
1500	219	1719	344	1844	1666	42	1542	167	1667	1666	78

Lift (JWM150UM)

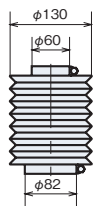
Suspend (JWM150DM)

● Input Shaft

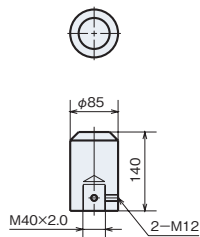


Output Options

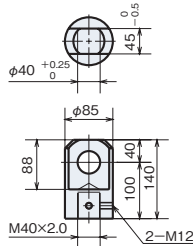
■ Bellows (- J)



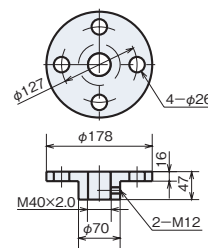
■ Rod Type End Fitting (- B)



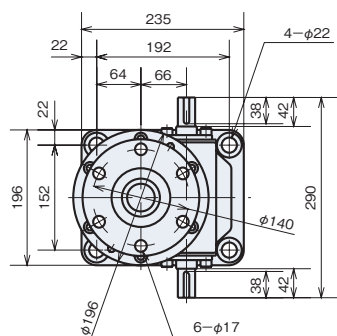
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

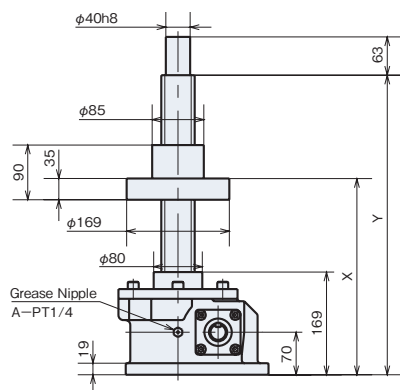


JWM150 Dimensions - Travel Nut Type

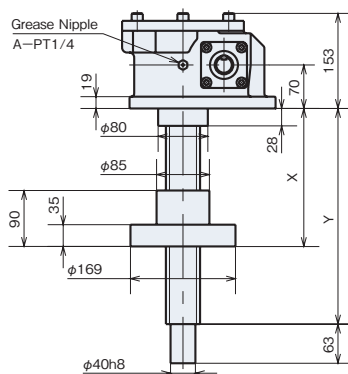


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	214	314	379	128	228	239	40
200	214	414	479	128	328	339	42
300	214	514	579	128	428	439	43
400	214	614	679	128	528	539	45
500	214	714	779	128	628	639	46
600	214	814	879	128	728	739	48
800	214	1014	1079	128	928	939	51
1000	214	1214	1279	128	1128	1139	54
1200	214	1414	1479	128	1328	1339	57
1500	214	1714	1779	128	1628	1639	61

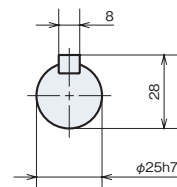
Lift (JWM150UR)



Suspend (JWM150DR)



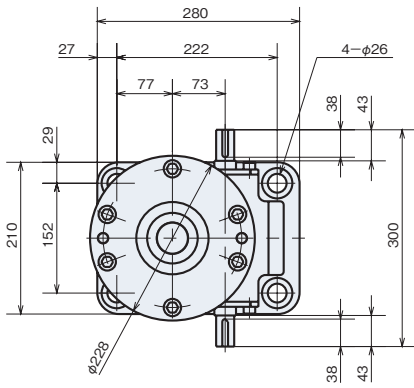
● Input Shaft



Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWM200 Dimensions - Standard Model

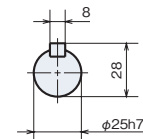
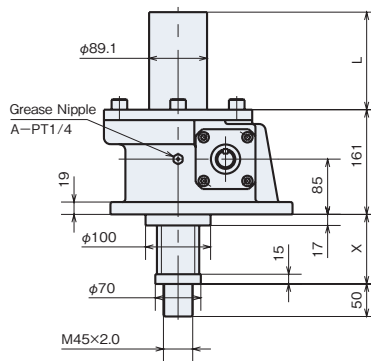
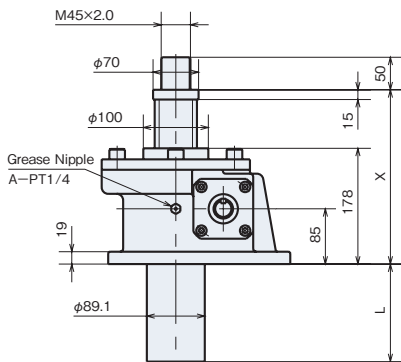


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	203	303	213	313	136	42	142	52	152	136	42
200	203	403	213	413	236	42	242	52	252	236	45
300	203	503	228	528	351	42	342	67	367	351	49
400	203	603	228	628	451	42	442	67	467	451	53
500	203	703	253	753	576	42	542	92	592	576	57
600	203	803	253	853	676	42	642	92	692	676	60
800	203	1003	268	1068	891	42	842	107	907	891	67
1000	203	1203	278	1278	1101	42	1042	117	1117	1101	74
1200	203	1403	303	1503	1326	42	1242	142	1342	1326	81
1500	203	1703	328	1828	1651	42	1542	167	1667	1651	92
2000	203	2203	373	2373	2196	42	2042	212	2212	2196	109

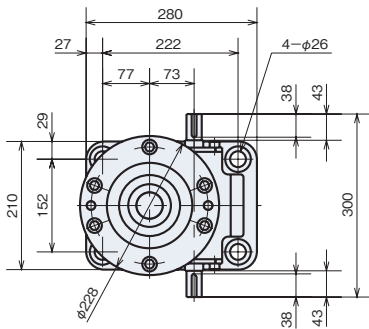
Lift (JWM200US)

Suspend (JWM200DS)

● Input Shaft



JWM200 Dimensions - Rotation Prevention Type

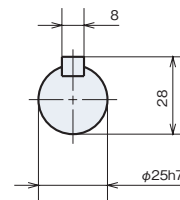
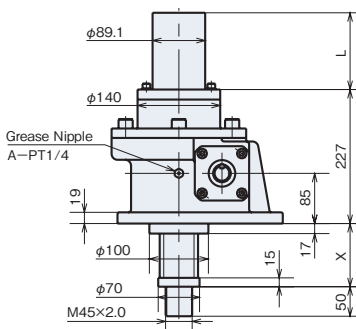
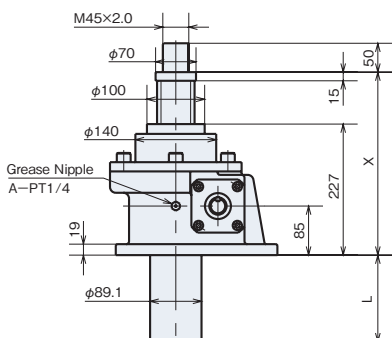


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	252	352	262	362	136	42	142	52	152	136	51
200	252	452	262	462	236	42	242	52	252	236	55
300	252	552	277	577	351	42	342	67	367	351	58
400	252	652	277	677	451	42	442	67	467	451	62
500	252	752	302	802	576	42	542	92	592	576	66
600	252	852	302	902	676	42	642	92	692	676	69
800	252	1052	317	1117	891	42	842	107	907	891	76
1000	252	1252	327	1327	1101	42	1042	117	1117	1101	83
1200	252	1452	352	1552	1326	42	1242	142	1342	1326	90
1500	252	1752	377	1877	1651	42	1542	167	1667	1651	100
2000	252	2252	422	2422	2196	42	2042	212	2212	2196	118

Lift (JWM200UM)

Suspend (JWM200DM)

● Input Shaft

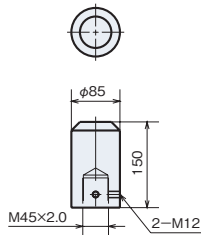


Output Options

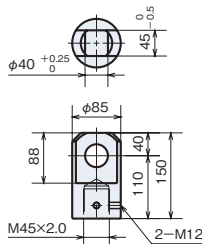
■ Bellows (- J)



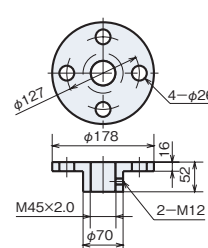
■ Rod Type End Fitting (- B)



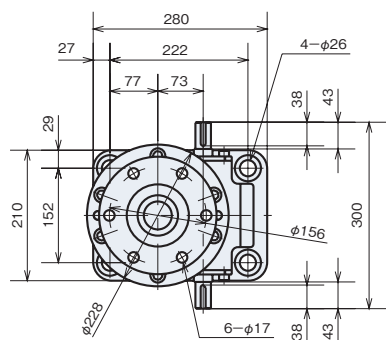
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

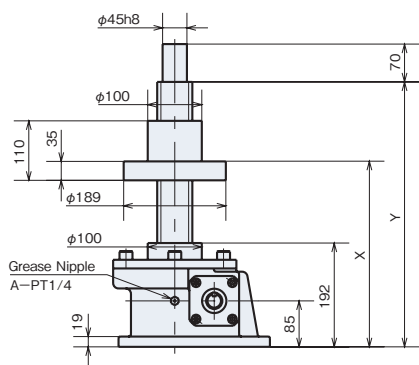


JWM200 Dimensions - Travel Nut Type

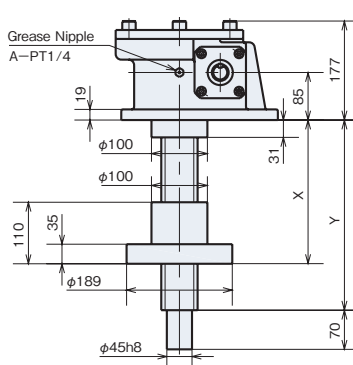


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	237	337	422	151	251	261	56
200	237	437	522	151	351	361	58
300	237	537	622	151	451	461	60
400	237	637	722	151	551	561	62
500	237	737	822	151	651	661	64
600	237	837	922	151	751	761	66
800	237	1037	1122	151	951	961	71
1000	237	1237	1322	151	1151	1161	75
1200	237	1437	1522	151	1351	1361	79
1500	237	1737	1822	151	1651	1661	85
2000	237	2237	2322	151	2151	2161	96

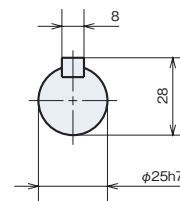
Lift (JWM200UR)



Suspend (JWM200DR)



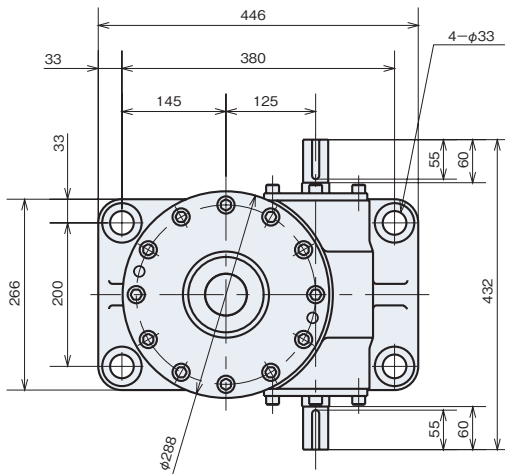
● Input Shaft



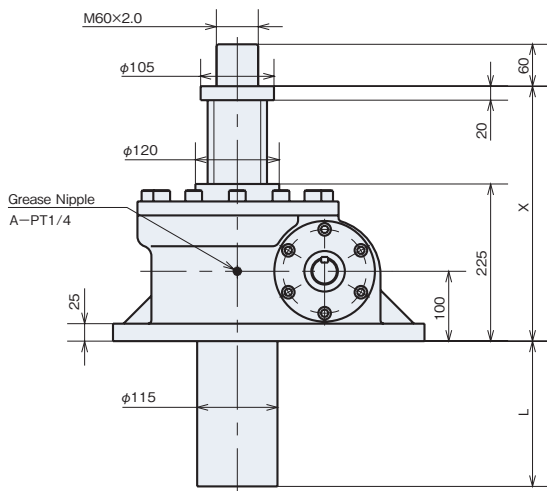
Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWM300 Dimensions - Standard Model

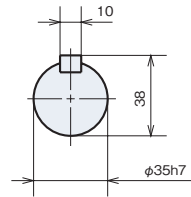


Lift (JWM300US)

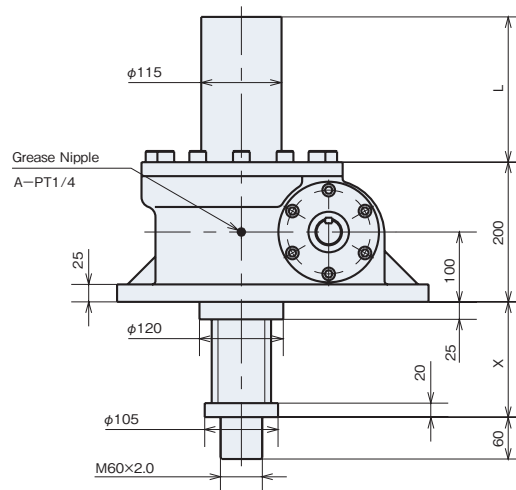


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	255	355	265	365	135	55	155	65	165	135	118
200	255	455	265	465	235	55	255	65	265	235	123
300	255	555	280	580	350	55	355	80	380	350	128
400	255	655	280	680	450	55	455	80	480	450	134
500	255	755	295	795	565	55	555	95	595	565	139
600	255	855	295	895	665	55	655	95	695	665	145
800	255	1055	310	1110	880	55	855	110	910	880	155
1000	255	1255	330	1330	1100	55	1055	130	1130	1100	167
1200	255	1455	340	1540	1310	55	1255	140	1340	1310	177
1500	255	1755	365	1865	1635	55	1555	165	1665	1635	194
2000	255	2255	400	2400	2170	55	2055	200	2200	2170	221

Input Shaft

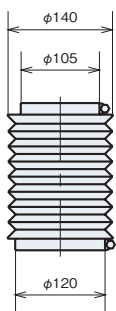


Suspend (JWM300DS)

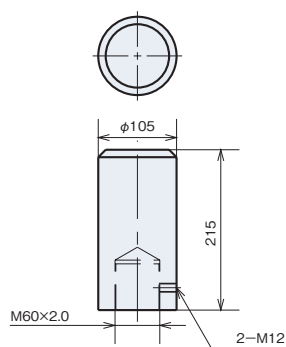


Output Options

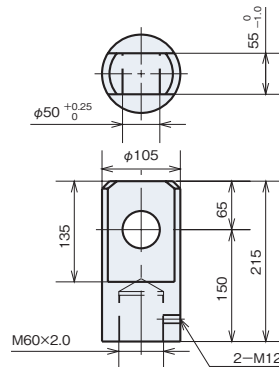
■ Bellows (- J)



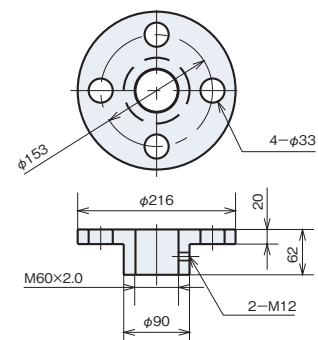
■ Rod Type End Fitting (- B)



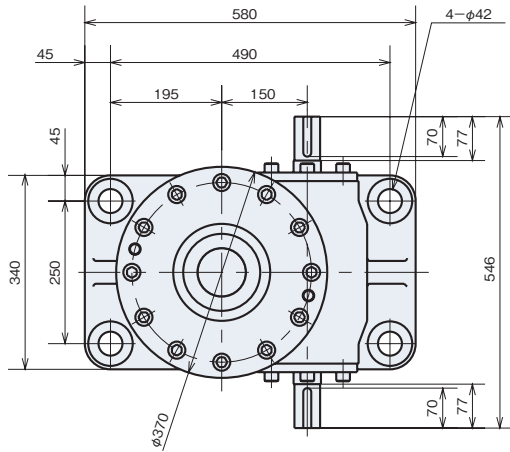
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

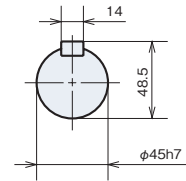


JWM500 Dimensions - Standard Model

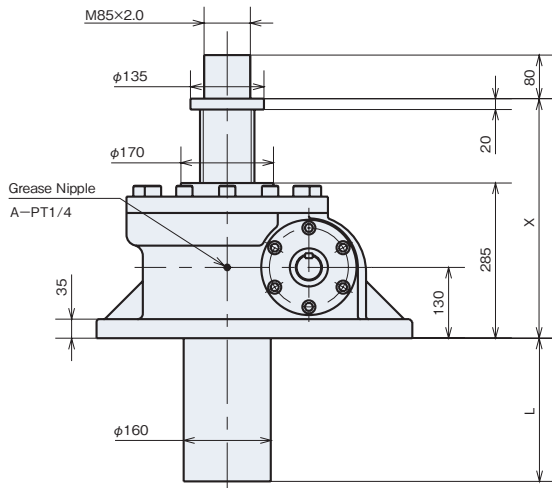


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	315	415	320	420	137	55	155	60	160	137	248
200	315	515	320	520	237	55	255	60	260	237	260
300	315	615	340	640	357	55	355	80	380	357	273
400	315	715	340	740	457	55	455	80	480	457	284
500	315	815	350	850	567	55	555	90	590	567	297
600	315	915	350	950	667	55	655	90	690	667	308
800	315	1115	365	1165	882	55	855	105	905	882	332
1000	315	1315	380	1380	1097	55	1055	120	1120	1097	357
1200	315	1515	390	1590	1307	55	1255	130	1330	1307	380
1500	315	1815	410	1910	1627	55	1555	150	1650	1627	417
2000	315	2315	445	2445	2162	55	2055	185	2185	2162	477

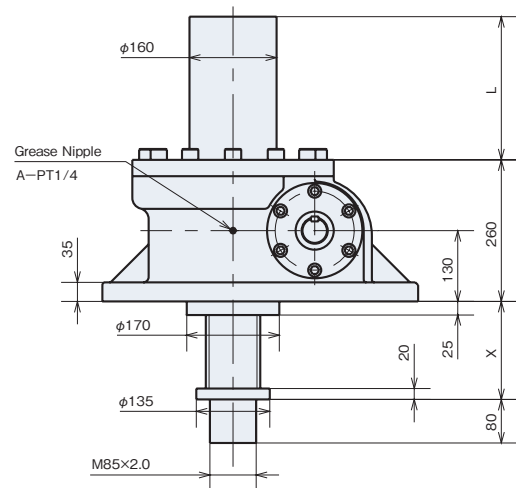
● Input Shaft



Lift (JWM500US)

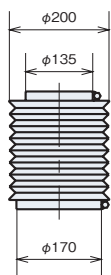


Suspend (JWM500DS)

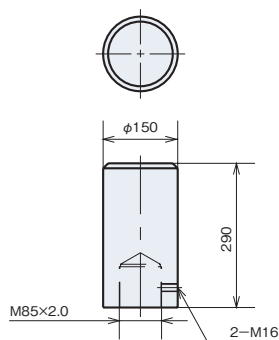


Output Options

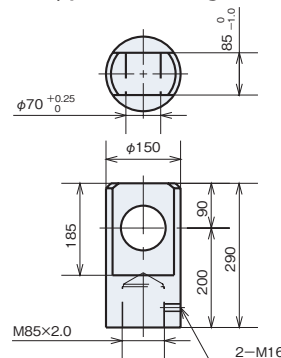
■ Bellows (- J)



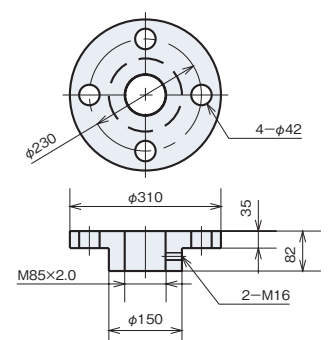
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)



* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.



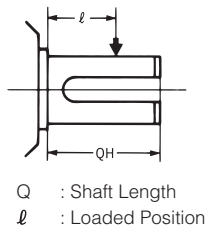
Warning

■ Cautions for selecting

- Duty cycle of JWM (Machine screw type) is within 20% ED. Duty cycle is a ratio of operating time per 30 min on the basis of 30 min interval.
- Although JWM (Machine screw type) comes with a self-locking device based on calculation, it may not be effective due to vibration or shock. Separately a brake mechanism is required under such conditions.
- Activating torque for the drive unit should be maintained at 200% above the required torque.
- Allowable input rotation speed of linear power jack is 1800 r/min, however, when inputting a speed exceeding the maximum input rotation speed at the basic capacity, check the screw shaft speed (elevation speed) and allowable load related graphs on page 199.
- Select a stroke for the jack with an extra margin with respect to the used stroke.
- Rotating force is generated on the screw shaft (travel nut in the case of travel nut type) with thrust, therefore, rotation prevention is required. Screw rotation torque at the basic capacity is described in the standard specification list. When operating with the end unconnected, and pulling the rope with a sheave installed, use the rotation prevention type. However, the rotation prevention type cannot be manufactured for the travel nut type, therefore, provide a rotation prevention mechanism on the device.
- When installing a sprocket, gear, or belt to the input or output shaft, confirm that any overhang load applied to the shaft decreases to the allowable OHL or less.

$$\text{Allowable O. H. L.} \geq \frac{T \times f \times L_f}{R}$$

O.H.L. : Overhang load N {kgf}
 T : Input torque N · m {kgf · m}
 f : Coefficient - power transmission element
 L_f : Coefficient - Load operating position
 R : Sprocket, Gear, V pulley or Pitch diameter m



Q : Shaft Length
 l : Loaded Position

● Coefficient – Power Transmission Element (f)

Sprocket	1.00
Gear	1.25
V-belt	1.50
Flat belt	2.50

● Coefficient (L_f) – Load Position

l / QH	0.25	0.38	0.5	0.75	1
L _f	0.8	0.9	1	1.5	2

● Allowable O.H.L

Frame No.		002	005	010	025	050	100	150	200	300	500	750	1000
JWM (Machine Screw Type)	N	99	200	380	710	1500	2270	3160	4320	6110	10100	13900	18000
H Speed	{ kgf }	{10}	{21}	{39}	{73}	{153}	{232}	{323}	{441}	{624}	{1030}	{1420}	{1840}
JWM (Machine Screw Type)	N	63	120	220	420	820	1430	1950	2800	4400	6650	9390	13200
L Speed	{ kgf }	{6}	{13}	{23}	{44}	{85}	{146}	{200}	{286}	{449}	{678}	{958}	{1350}

■ Precautions for installation

- Jacks that range under the basic capacity of 49.0 kN {5tf} or less are provided with screw covers made of hard vinyl chloride pipe. Never suspend or carry a jack by use of the screw cover, which is dangerous.
- JWM (Machine screw type) is not equipped with a fall stop, therefore, if the stroke range is exceeded, the screw shaft falls.
- Take jack coasting amount into consideration to set the stroke adjusting limit switch.

■ Precautions for use

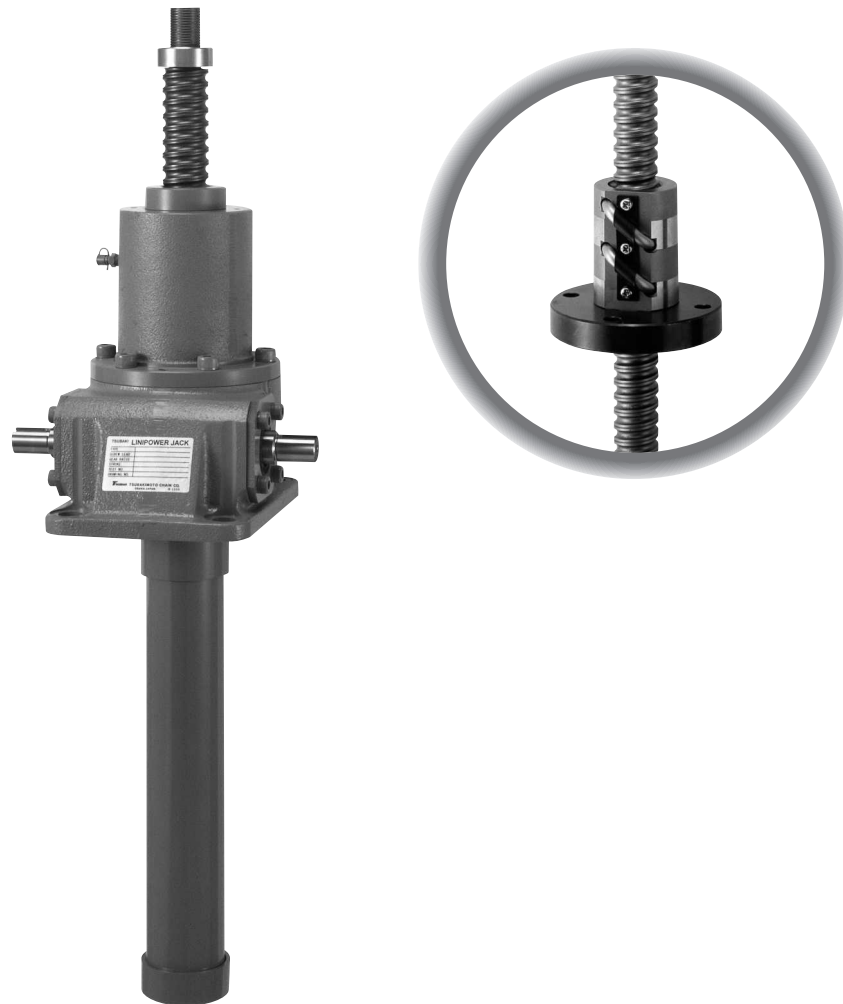
- Do not use mechanical stops under any circumstances.
- Operating Environment for jack is as follows.

Operating place	Indoor room which cannot be splashed with rain or water.
Ambient atmosphere	Dust volume comparable to general factories.
Operating temperature range	– 15 to 80°C (Refer to section 3 in general precautions.)
Relative humidity	85% or less (no dew condensation)

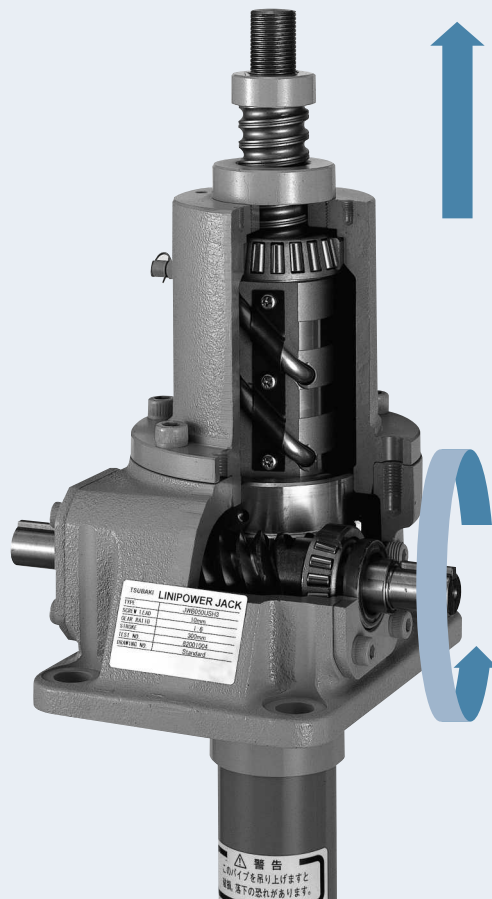
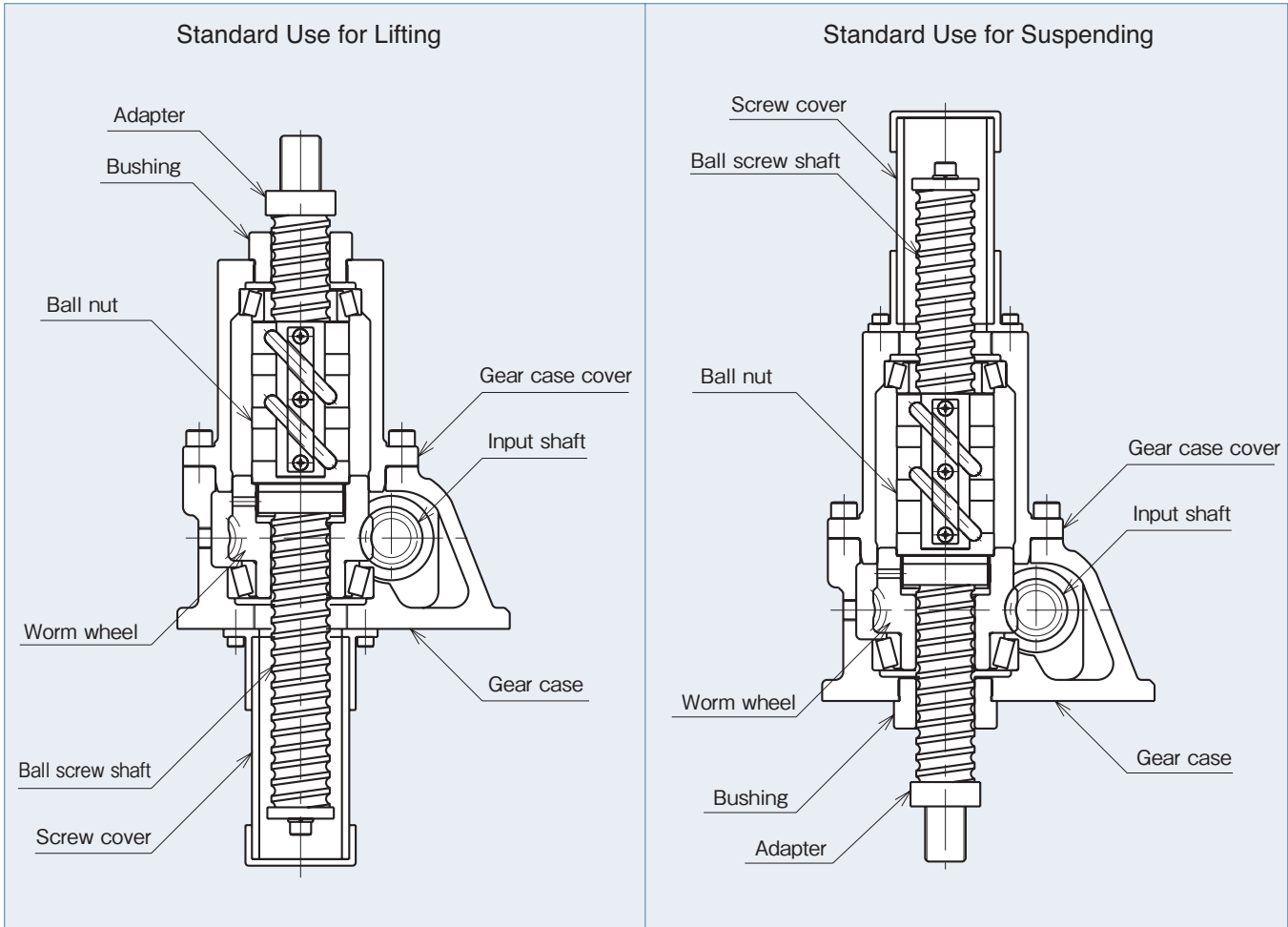
- Operating part and reducer unit are factory greased. Therefore, use jack as delivered.
- For lubrication grease, lubrication cycle and lubrication amount to the screw shaft and reducer unit, refer to page 299.
- Inspect regularly for general backlash and screw unit condition. Jack life and replacement timing are determined by the following:
 Backlash in the direction of screw shaft and nut reaches 1/4 of the screw pitch.
 Replace gear when its input shaft exceeds 30 rpm with backlash (rattle between input shaft and worm wheel) at H speed, or exceeds 60 rpm at L speed.
 In either case, if it is used at the replacement timing, this may cause rotation failure of screw shaft and input shaft, and further sudden drop of travel nut.

Linipower Jack

JWB (Ball Screw Type)



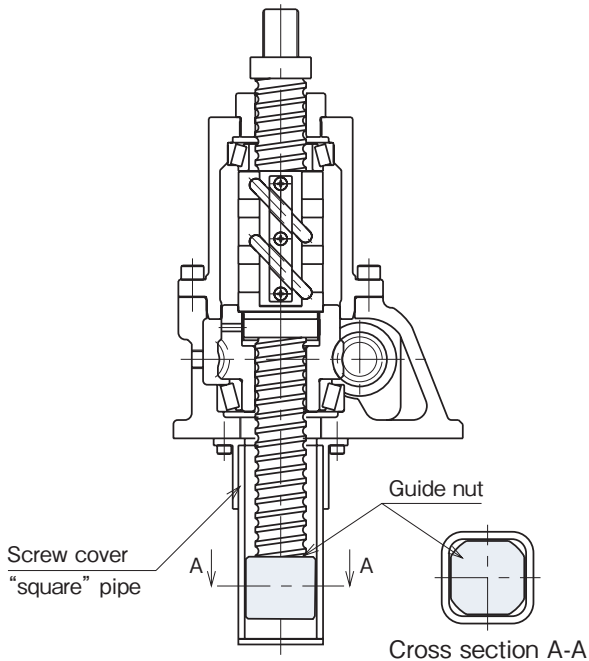
Drawings	P237•238
JWB Reference Number System	P239•240
Reference Table for Standard Use	P241•242
Dimensions	P243 to 258
Precautions	P259



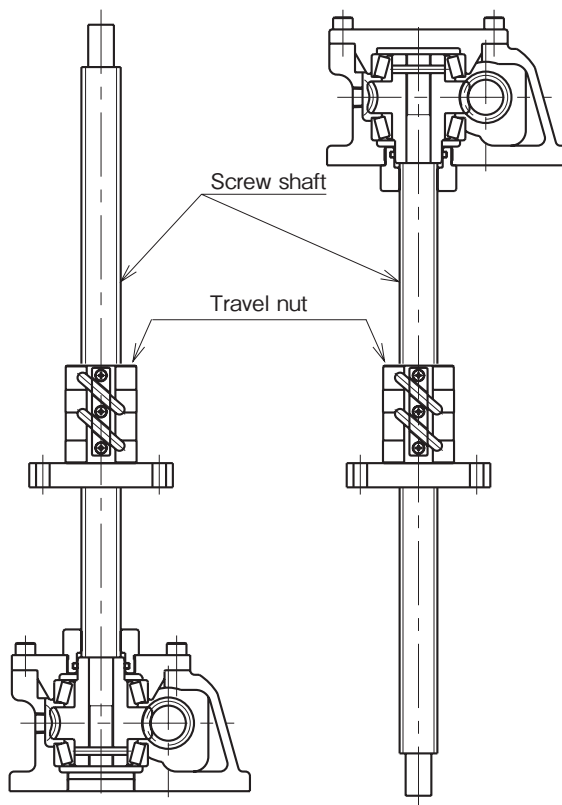
JWB (Ball Screw Type) Anti-rotation Type

JWB005 to 200

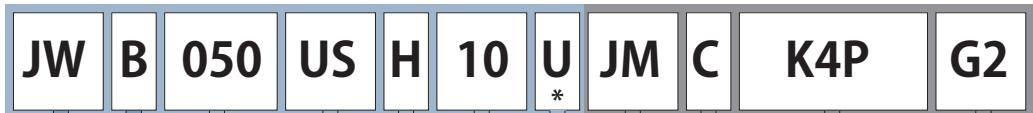
〈Anti-rotation Type with Guide Nut〉



JWB (Ball Screw Type) Travel Nut Type



JWB (Ball Screw Type)



Linipower Jack

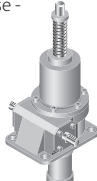
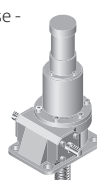
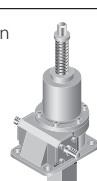

Jack Type
B: Ball screw

Basic Capacity

Frame Size	kN	{tf}
005	4.90	{0.5}
010	9.80	{1}
025	24.5	{2.5}
050	49.0	{5}
100	98.0	{10}
150	147	{15}
200	196	{20}
300	294	{30}
500	490	{50}
750	735	{75}
1000	980	{100}

*Please fill in detail information in 311.

Installation Type

US	Standard use - lifting 
DS	Standard use - suspending 
UM	Anti-rotation lifting  (See page 238)
DM	Anti-rotation suspending  (See page 238)

Stroke mm


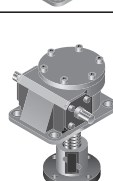
1	100
3	300
6	600
10	1000

*Please fill in detail information in 311.

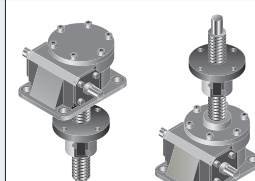
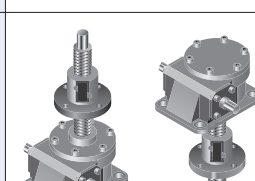
Gear Ratio

Symbol Frame No.	H	L
005	5	20
010	5	20
025	6	24
050	6	24
100	8	24
150	8	24
200	8	24
300	10 ² / ₃	32
500	10 ² / ₃	32
750	10 ² / ₃	32
1000	12	36

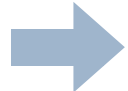
Flange Installation

UR	Travel nut - lifting 
DR	Travel nut - suspending 

*Be sure to use the flange installation method U or D with travel nuts.

U	
D	

*Please fill in detail information in 311.



Examples)

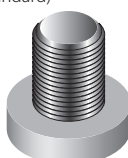

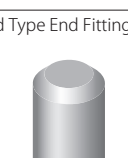
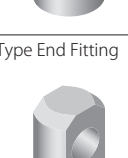

JWB100UMH3

- Machine Screw Type • 98.0kN {10tf} • Rotation prevention (for lifting) • Gear ratio H (1/8) • Stroke 300mm

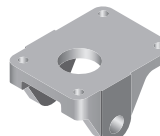
JWB050USH10JMK4PG2

- Machine Screw Type • 49.0kN {5tf} • Standard use (for lifting) • Gear ratio H (1/6) • Stroke 1000mm
- Bellows • Table Type End Fitting • 4 Internal LS • Potentiometer
- 3 Phase motor with brake and gear; reducer ratio of 1/10

Output Option



No symbol	Screw Shaft End (standard) 
J	Bellows 
B	Rod Type End Fitting 
I	I Type End Fitting 
M	Table Type End Fitting 

Installation Option

C	Clevis Mounting Adapter  (See page 291)
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Note) For standard lifting only.

Sensor Option



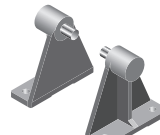
Y	LS Counter  (See page 285)
K2 K4 P R	Position Sensor K2...2 Internal LS K4...4 Internal LS P...Potentiometer R...Rotary Encoder  (See page 287)

*Please fill in the form on page 312.

Input Option

E EV	3 phase motor with brake E...200V 50Hz 200/220V 60Hz EV...400 50Hz 400/440V 60Hz  (See page 279)
G1 G2	3 phase gearmotor with brake G1...Gear ratio 1/5 200V 50Hz 200/220V 60Hz G2...Reducer ratio 1/10 200V 50Hz 200/220V 60Hz  (See page 275)

Accessories

Control Options
Stroke Meter and PCB 
Meter Relay and PCB  (See page 288 to 289)
Others
Trunnion Mounting Adapter  * Use as a set with clevis mounting adapter. (See page 291)

Note) When travel nuts are used, B, I and M are not available.

Note) Travel nut type with bellows is made-to-order.

*Please fill in the form on page 311.

Reference Table for Standard Use JWB (Ball Screw Type)

Frame Size		JWB005	JWB010	JWB025	JWB050	JWB100
Basic Capacity	kN	4.90	9.80	24.5	49.0	98.0
	{tf}	{0.5}	{1}	{2.5}	{5}	{10}
Outer Screw Diameter	mm	16	20	25	36	45
Minor Screw Diameter	mm	13.5	17.5	21.4	31.3	39.1
Screw Lead	mm	5	5	8	10	12
Gear Ratio	H Speed	5	5	6	6	8
	L Speed	20	20	24	24	24
Overall Efficiency	%					
	H Speed	63	61	62	64	63
Max. Allowable Input Capacity	kW					
	H Speed	0.25	0.54	1.3	2.2	3.6
Tare Drag Torque	N·m	0.11	0.29	0.62	1.37	1.96
	{kg·m}	{0.011}	{0.03}	{0.063}	{0.14}	{0.2}
Holding Torque	N·m					
	H Speed	0.69	1.27	4.31	10.78	19.6
	{kgf·m}	{0.07}	{0.13}	{0.44}	{1.1}	{2.0}
	L Speed	0.14	0.26	0.91	2.4	5.8
Allowable Input Torque *Note 1	N·m	9.8	19.6	49.0	153.9	292.0
	{kg·m}	{1}	{2}	{5}	{15.7}	{29.8}
Required Input Torque *Note 2 for Basic Capacity	N·m					
	H Speed	1.3	2.8	9.0	21.5	39.1
	{kgf·m}	{0.14}	{0.29}	{0.92}	{2.2}	{4.0}
	L Speed	0.62	1.4	4.3	9.6	20.4
Screw Movement/ per Revolution of Input Shaft	mm					
	H Speed	1	1	1.33	1.67	1.5
Max. Input rpm	r/min					
	L Speed	0.25	0.25	0.33	0.42	0.50
Max. Input rpm for Basic Capacity	r/min					
	H Speed	1800	1800	1800	1800	1800
	L Speed	1800	1800	1800	1800	1800
	H Speed	1800	1800	1400	1000	890
Screw Shaft Rotational Torque for Basic Capacity	N·m	4.3	8.7	34.7	86.7	208.2
	{kgf·m}	{0.44}	{0.88}	{3.5}	{8.8}	{21.2}
Screw Cover Material *Note 3		Hard Vinyl Chloride				Steel Pipe
Lubrication		Shaft: Grease Reducer Unit: Grease Bath				
Color		Tsubaki Olive Grey (Munsell 5GY6/0.5)				
Environment	Operating Temperature Range	- 15 to 80°C (Precautions #2)				
	Relative Humidity	85% or less (no dew condensation)				
	Operating ambient atmosphere	Indoor Environment (Indoor room where rain and water cannot enter. Dust volume should be normal.)				
Duty Cycle *Note 4		Within 30% ED				

Note 1) The allowable torque is for jack input shaft only. (Reconfirm if synchronous drive.)

Note 2) Includes tare drag torque.

Note 3) Rotation prevention types for frames 005 to 050 are steel square pipes.

Note 4) Standard percentage duty cycle is 30 minutes. Thus, driving time is based on 30minute intervals.

Precautions

- All loads (static, dynamic or shock) should be within the rated capacity of the jack at sufficient safety levels.
- Operating Temperature Range refers to the surface temperature of the jack during operation. To check, measure the surface temperature of the input shaft unit or travel nut (if used). Be sure all the rotating parts have completely stopped before proceeding to measure.
- Be sure to operate within the allowable input rpm of 1800/min.
- Number of synchronizing jacks which can be connected on the same line is limited by shaft strength. Refer to the allowable input shaft torque on the above table.
- Activating torque for the drive unit should be maintained at 200% above the required torque.
- If operating in freezing temperatures, a change in viscosity may reduce the efficiency of the grease. Set the drive unit so as to accommodate this change.

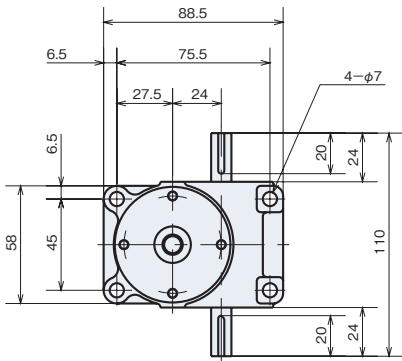
JWB150	JWB200	JWB300	JWB500	JWB750	JWB1000
147	196	294	490	735	980
{15}	{20}	{30}	{50}	{75}	{100}
50	63	85	100	125	140
43.1	55.7	74.8	87	112	122
16	16	20	24	25	32
8	8	10 2/3	10 2/3	10 2/3	12
24	24	32	32	32	36
63	62	56	60	57	54
43	41	34	38	36	32
4.0	5.5	8.9	13.3	16.1	21.2
2.1	2.8	4.1	6.5	8.2	10.2
2.65	3.92	9.81	19.6	29.4	39.2
{0.27}	{0.4}	{1}	{2}	{3}	{4}
39.2	51.0	68.6	140.1	210.7	362.6
{4.0}	{5.2}	{7.0}	{14.3}	{21.5}	{37}
11.8	15.0	19.5	41.2	59.8	99.0
{1.2}	{1.53}	{1.99}	{4.2}	{6.1}	{10.1}
292.0	292.0	735.0	1372.0	1764.0	2450.0
{29.8}	{29.8}	{75}	{140}	{180}	{250}
77.0	104.5	169.6	317.5	511.2	810.2
{7.8}	{10.7}	{17.3}	{32.4}	{52.1}	{82.6}
39.6	54.2	98.5	177.9	290.8	486.9
{4.0}	{5.5}	{10.0}	{18.1}	{29.6}	{49.6}
2	2	1.88	2.25	2.34	2.67
0.67	0.67	0.63	0.75	0.78	0.89
1800	1800	1800	1800	1800	1800
1800	1800	1800	1800	1800	1800
500	500	500	400	300	250
500	500	400	350	270	200
416.3	555.1	1040.9	2081.7	3252.7	5551.3
{42.4}	{56.6}	{106.1}	{212.2}	{331.6}	{565.9}
Steel Pipe					
Screw: Grease Reducer Unit: Grease Bath					
Tsubaki Olive Grey (Munsell 5GY6/0.5)					
- 15 to 80°C (Precautions #2)					
85% or less (no dew condensation)					
Indoor Environment (Indoor room where rain and water cannot enter. Dust volume should be normal.)					
Within 30% ED					

7. Since JWB (Ball Screw Type) is highly efficient, sufficient brake that over powers the "holding torque" is required to sustain its shaft.
- ⚠8. Be certain that the jack rating exceeds the maximum stroke. Over travel can cause the lift shaft to disengage from the ball nut. JWB (Ball Screw Type) is supported by a stopper (shaft end). However, this is merely for the purpose of securing the screw shaft during installation. While installing, take caution so that the screw shaft does not rotate by its own weight and

become disengaged. If rotation cannot be avoided, use a model with rotation prevention. (Contact Tsubakimoto chain for details.)

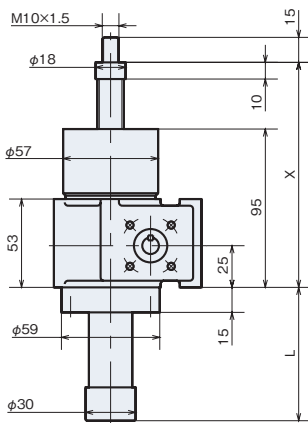
- ⚠9. Do not use mechanical stops under any circumstances. This will cause major internal damage.
10. Input shaft key is provided with each unit. (The input shaft key complies with JIS B 1301-1996 (normal grade).)

JWB005 Dimensions - Standard Model

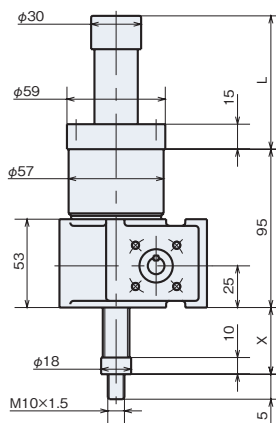


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	115	215	160	260	188	20	120	65	165	188	3.0
200	115	315	160	360	288	20	220	65	265	288	3.2
300	115	415	200	500	428	20	320	105	405	428	3.4
400	115	515	200	600	528	20	420	105	505	528	3.6
500	115	615	235	735	663	20	520	140	640	663	3.8
600	115	715	235	835	763	20	620	140	740	763	4.0
800	115	915	270	1070	998	20	820	175	975	998	4.3

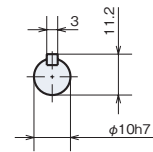
Lift (JWB005US)



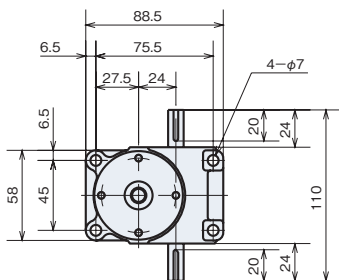
Suspend (JWB005DS)



● Input Shaft

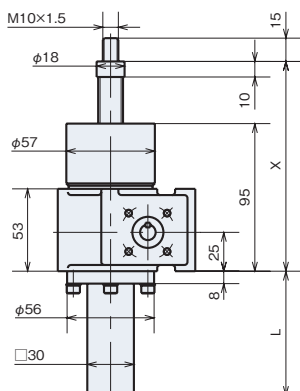


JWB005 Dimensions - Rotation Prevention Type

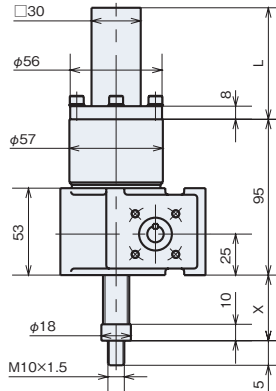


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	115	215	160	260	202	20	120	65	165	202	3.5
200	115	315	160	360	302	20	220	65	265	302	3.9
300	115	415	200	500	442	20	320	105	405	442	4.5
400	115	515	200	600	542	20	420	105	505	542	5.0
500	115	615	235	735	677	20	520	140	640	677	5.5
600	115	715	235	835	777	20	620	140	740	777	6.0
800	115	915	270	1070	1012	20	820	175	975	1012	7.0

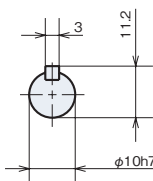
Lift (JWB005UM)



Suspend (JWB005DM)

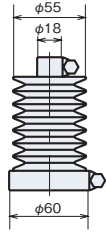


● Input Shaft

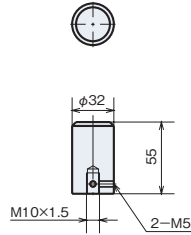


Output Options

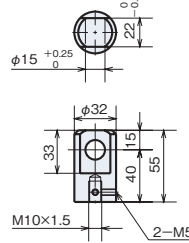
■ Bellows (- J)



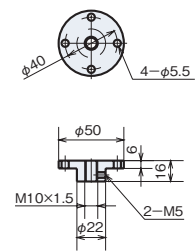
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)

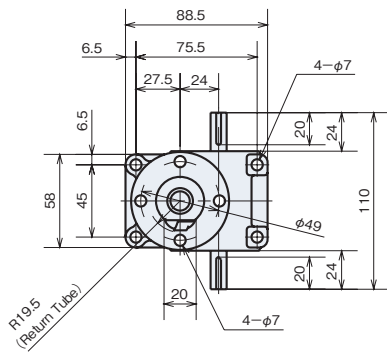


■ Table Type End Fitting (- M)



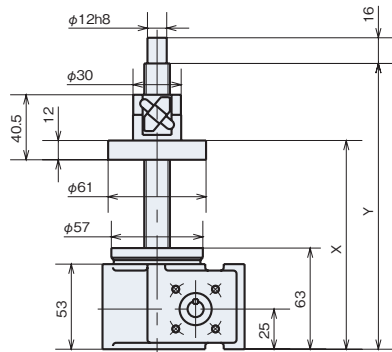
Note) For detailed measurements on units with bellows, see page 294.

JWB005 Dimensions - Travel Nut Type

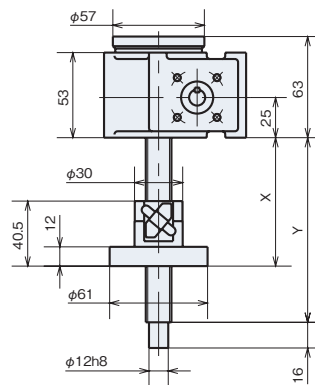


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	84	184	224	51	151	162	2.7
200	84	284	324	51	251	262	2.8
300	84	384	424	51	351	362	2.9
400	84	484	524	51	451	462	3.1
500	84	584	624	51	551	562	3.2
600	84	684	724	51	651	662	3.3
800	84	884	924	51	851	862	3.6

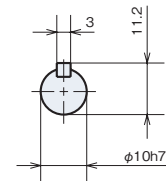
Lift (JWB005UR)



Suspend (JWB005DR)



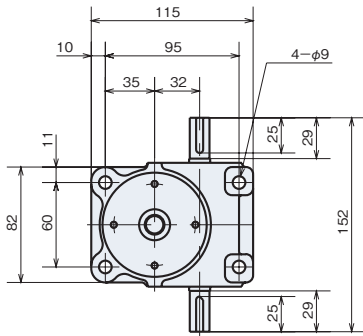
● **Input Shaft**



Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

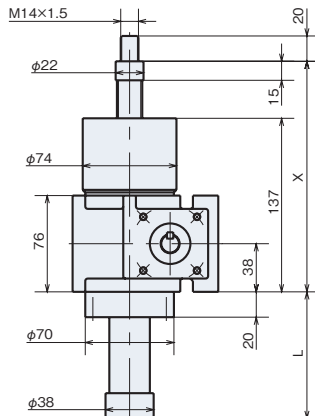
Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 312.

JWB010 Dimensions - Standard Model

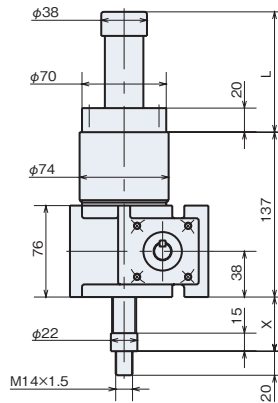


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	162	262	212	312	194	25	125	75	175	194	6.7
200	162	362	212	412	294	25	225	75	275	294	7.0
300	162	462	252	552	434	25	325	115	415	434	7.4
400	162	562	252	652	534	25	425	115	515	534	7.6
500	162	662	287	787	669	25	525	150	650	669	8.0
600	162	762	287	887	769	25	625	150	750	769	8.2
800	162	962	322	1122	1004	25	825	185	985	1004	8.9
1000	162	1162	352	1352	1234	25	1025	215	1215	1234	9.5

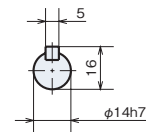
Lift (JWB010US)



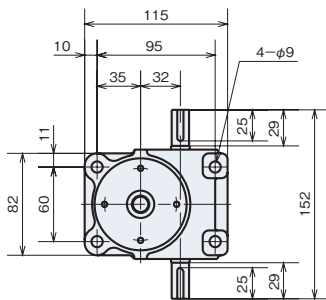
Suspend (JWB010DS)



● Input Shaft

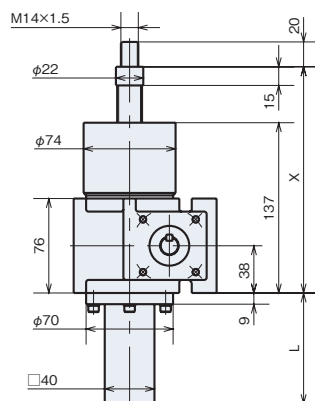


JWB010 Dimensions - Rotation Prevention Type

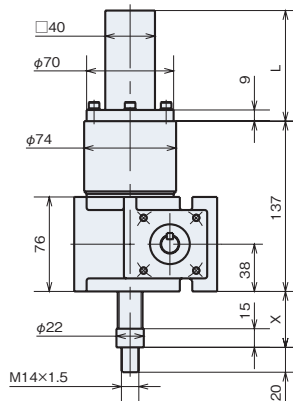


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	162	262	212	312	213	25	125	75	175	213	7.5
200	162	362	212	412	313	25	225	75	275	313	8.2
300	162	462	252	552	453	25	325	115	415	453	9.1
400	162	562	252	652	553	25	425	115	515	553	9.8
500	162	662	287	787	688	25	525	150	650	688	11
600	162	762	287	887	788	25	625	150	750	788	12
800	162	962	322	1122	1023	25	825	185	985	1023	13
1000	162	1162	352	1352	1253	25	1025	215	1215	1253	15

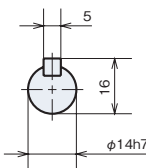
Lift (JWB010UM)



Suspend (JWB010DM)

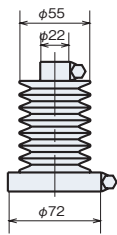


● Input Shaft

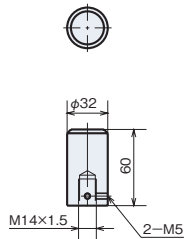


Output Options

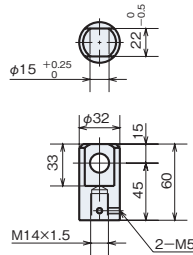
■ Bellows (- J)



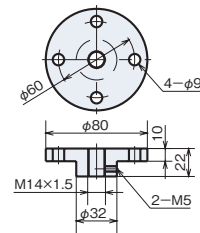
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)

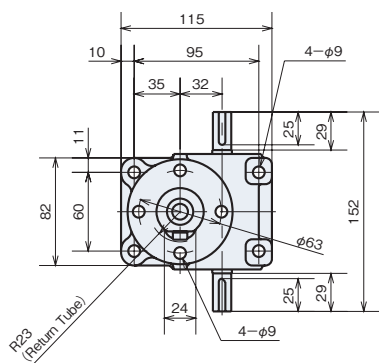


■ Table Type End Fitting (- M)



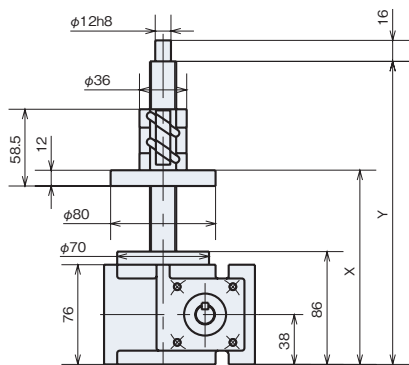
Note) For detailed measurements on units with bellows, see page 294.

JWB010 Dimensions - Travel Nut Type

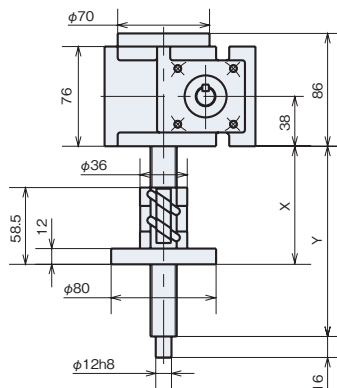


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	108	208	265	69	169	179	5.9
200	108	308	365	69	269	279	6.1
300	108	408	465	69	369	379	6.4
400	108	508	565	69	469	479	6.6
500	108	608	665	69	569	579	6.8
600	108	708	765	69	669	679	7.0
800	108	908	965	69	869	879	7.4
1000	108	1108	1165	69	1069	1079	7.9

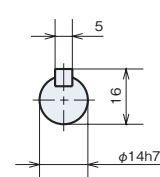
Lift (JWB010UR)



Suspend (JWB010DR)



● Input Shaft

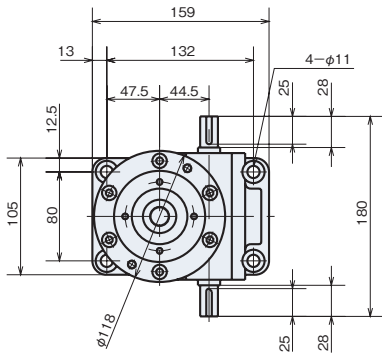


Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 312.

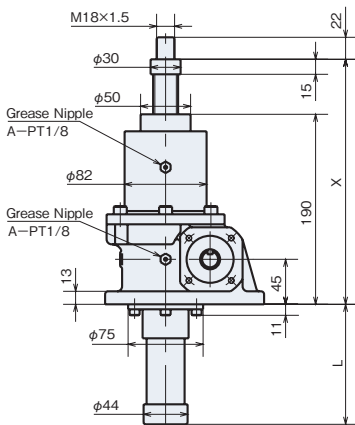
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWB025 Dimensions - Standard Model

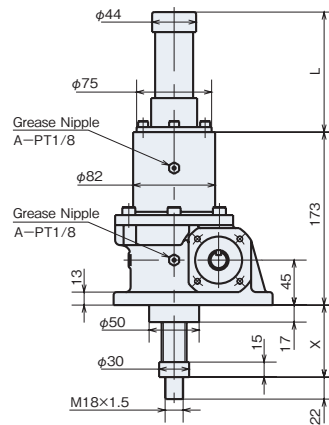


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	215	315	230	330	149	42	142	57	157	149	11
200	215	415	230	430	249	42	242	57	257	249	11
300	215	515	250	550	369	42	342	77	377	369	11
400	215	615	250	650	469	42	442	77	477	469	12
500	215	715	270	770	589	42	542	97	597	589	12
600	215	815	270	870	689	42	642	97	697	689	13
800	215	1015	290	1090	909	42	842	117	917	909	14
1000	215	1215	310	1310	1129	42	1042	137	1137	1129	14
1200	215	1415	325	1525	1344	42	1242	152	1352	1344	15

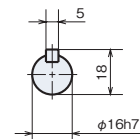
Lift (JWB025US)



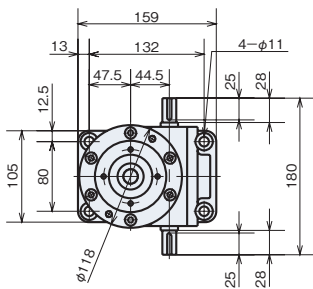
Suspend (JWB025DS)



● Input Shaft

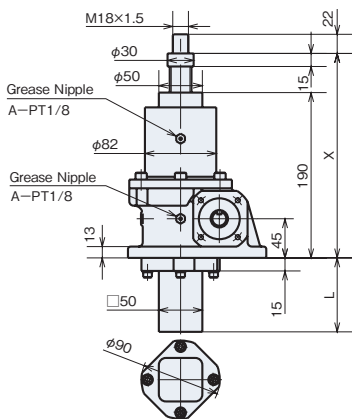


JWB025 Dimensions - Rotation Prevention Type

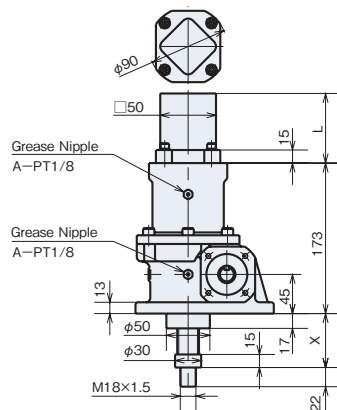


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	215	315	230	330	181	42	142	57	157	181	12
200	215	415	230	430	281	42	242	57	257	281	13
300	215	515	250	550	401	42	342	77	377	401	15
400	215	615	250	650	501	42	442	77	477	501	16
500	215	715	270	770	621	42	542	97	597	621	17
600	215	815	270	870	721	42	642	97	697	721	18
800	215	1015	290	1090	941	42	842	117	917	941	21
1000	215	1215	310	1310	1161	42	1042	137	1137	1161	23
1200	215	1415	325	1525	1376	42	1242	152	1352	1376	26

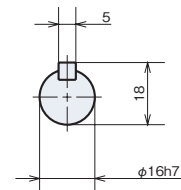
Lift (JWB025UM)



Suspend (JWB025DM)

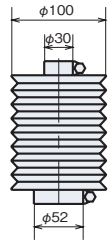


● Input Shaft

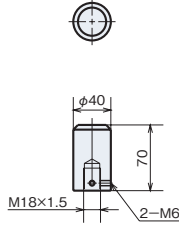


Output Options

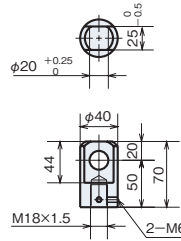
■ Bellows (- J)



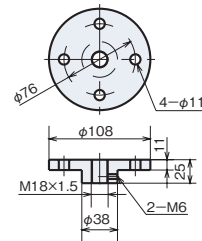
■ Rod Type End Fitting (- B)



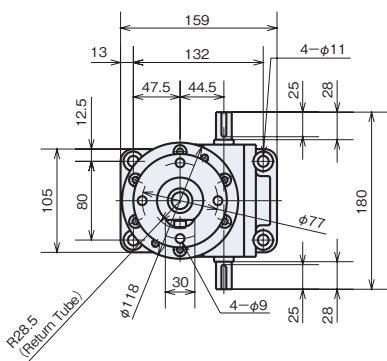
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

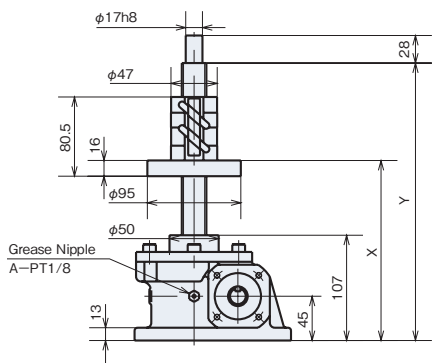


JWB025 Dimensions - Travel Nut Type

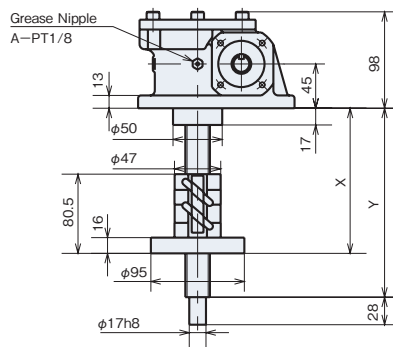


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	133	233	309	108	208	219	9.2
200	133	333	409	108	308	319	9.5
300	133	433	509	108	408	419	9.8
400	133	533	609	108	508	519	11
500	133	633	709	108	608	619	11
600	133	733	809	108	708	719	11
800	133	933	1009	108	908	919	12
1000	133	1133	1209	108	1108	1119	13
1200	133	1333	1409	108	1308	1319	13

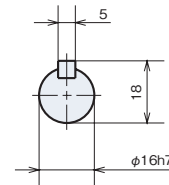
Lift (JWB025UR)



Suspend (JWB025DR)



Input Shaft

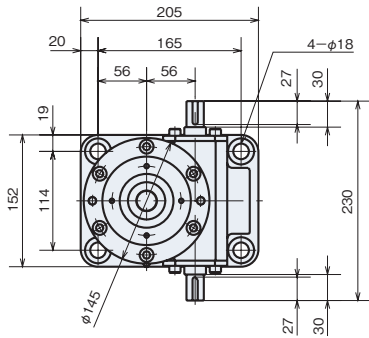


Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 312.

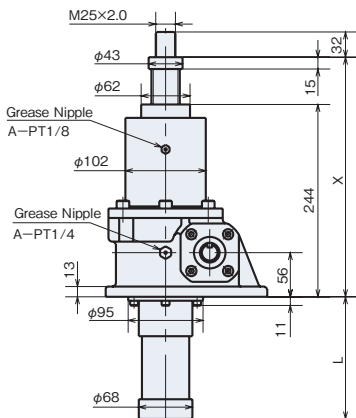
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWB050 Dimensions - Standard Model

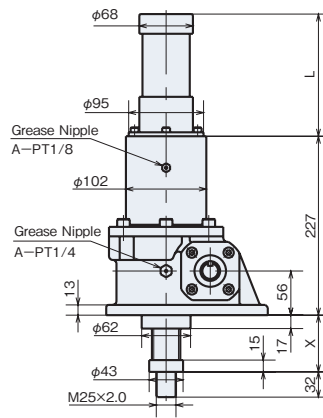


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	269	369	284	384	147	42	142	57	157	147	23
200	269	469	284	484	247	42	242	57	257	247	23
300	269	569	304	604	367	42	342	77	377	367	24
400	269	669	304	704	467	42	442	77	477	467	25
500	269	769	324	824	587	42	542	97	597	587	26
600	269	869	324	924	687	42	642	97	697	687	27
800	269	1069	344	1144	907	42	842	117	917	907	29
1000	269	1269	364	1364	1127	42	1042	137	1137	1127	30
1200	269	1469	379	1579	1342	42	1242	152	1352	1342	32
1500	269	1769	404	1904	1667	42	1542	177	1677	1667	35

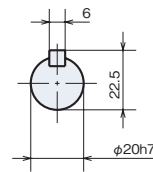
Lift (JWB050US)



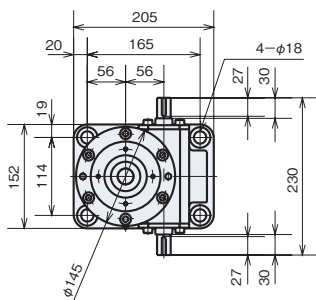
Suspend (JWB050DS)



● Input Shaft

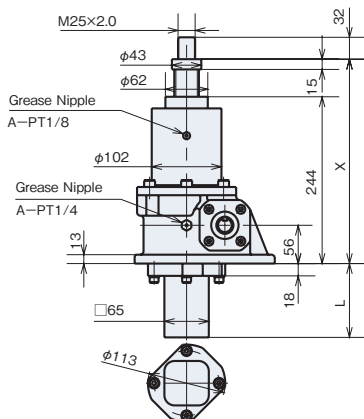


JWB050 Dimensions - Rotation Prevention Type

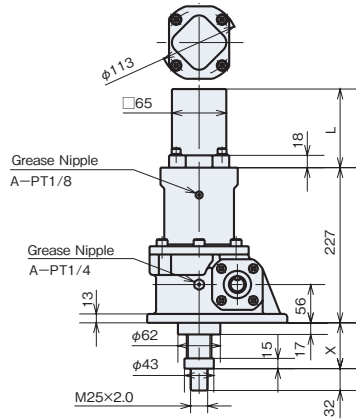


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	269	369	284	384	196	42	142	57	157	196	25
200	269	469	284	484	296	42	242	57	257	296	27
300	269	569	304	604	416	42	342	77	377	416	29
400	269	669	304	704	516	42	442	77	477	516	31
500	269	769	324	824	636	42	542	97	597	636	33
600	269	869	324	924	736	42	642	97	697	736	35
800	269	1069	344	1144	956	42	842	117	917	956	39
1000	269	1269	364	1364	1176	42	1042	137	1137	1176	43
1200	269	1469	379	1579	1391	42	1242	152	1352	1391	47
1500	269	1769	404	1904	1716	42	1542	177	1677	1716	52

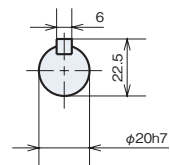
Lift (JWB050UM)



Suspend (JWB050DM)



● Input Shaft

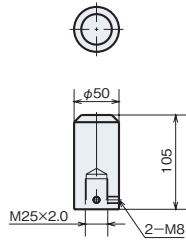


Output Options

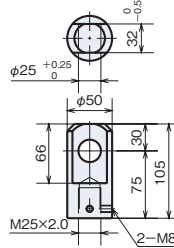
■ Bellows (- J)



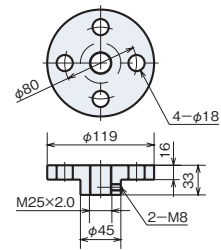
■ Rod Type End Fitting (- B)



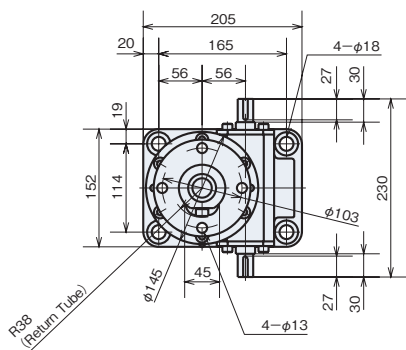
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

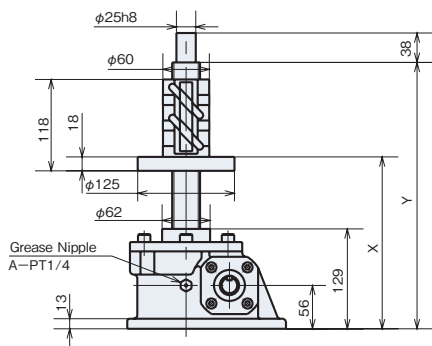


JWB050 Dimensions - Travel Nut Type

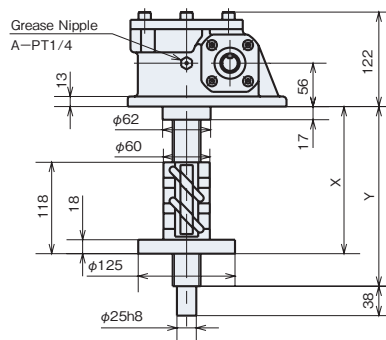


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	157	257	369	145	245	257	21
200	157	357	469	145	345	357	22
300	157	457	569	145	445	457	22
400	157	557	669	145	545	557	23
500	157	657	769	145	645	657	24
600	157	757	869	145	745	757	24
800	157	957	1069	145	945	957	26
1000	157	1157	1269	145	1145	1157	27
1200	157	1357	1469	145	1345	1357	29
1500	157	1657	1769	145	1645	1657	31

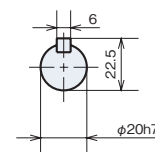
Lift (JWB050UR)



Suspend (JWB050DR)



● **Input Shaft**

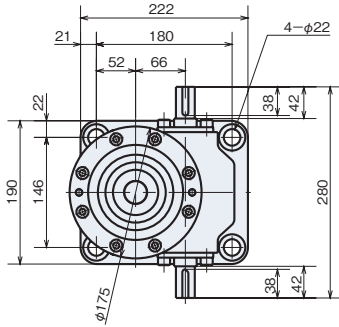


Note) Ball nut return tube and travel flange openings may vary from this drawing.
Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

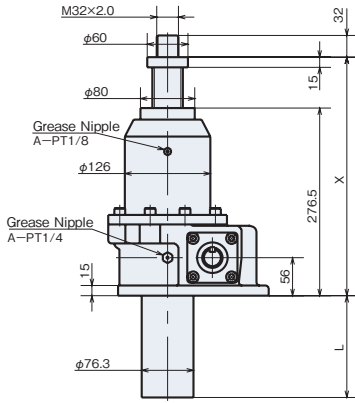
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWB100 Dimensions - Standard Model

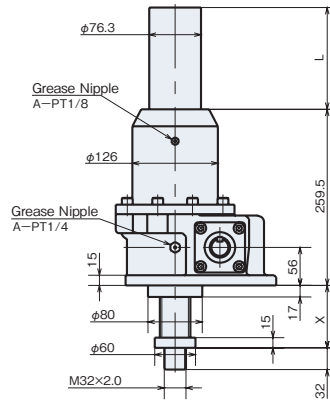


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	302	402	312	412	151	42	142	52	152	151	36
200	302	502	312	512	252	42	242	52	252	252	38
300	302	602	327	627	366	42	342	67	367	366	41
400	302	702	327	727	466	42	442	67	467	466	43
500	302	802	352	852	591	42	542	92	592	591	46
600	302	902	352	952	691	42	642	92	692	691	48
800	302	1102	367	1167	906	42	842	107	907	906	53
1000	302	1302	377	1377	1116	42	1042	117	1117	1116	58
1200	302	1502	402	1602	1341	42	1242	142	1342	1341	63
1500	302	1802	427	1927	1666	42	1542	167	1667	1666	71

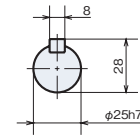
Lift (JWB100US)



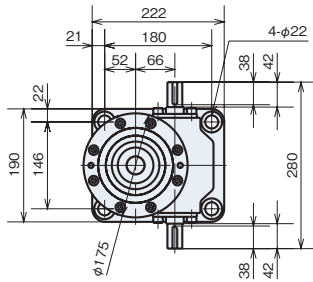
Suspend (JWB100DS)



● Input Shaft

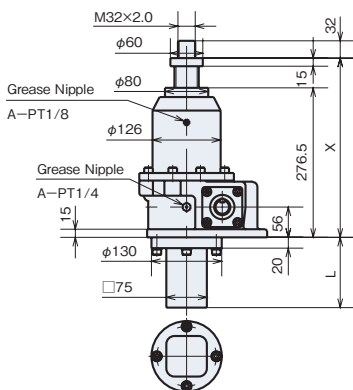


JWB100 Dimensions - Rotation Prevention Type

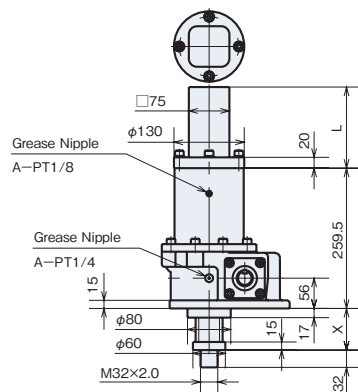


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	302	402	312	412	192	42	142	52	152	192	39
200	302	502	312	512	292	42	242	52	252	292	42
300	302	602	327	627	407	42	342	67	367	407	45
400	302	702	327	727	507	42	442	67	467	507	48
500	302	802	352	852	632	42	542	92	592	632	52
600	302	902	352	952	732	42	642	92	692	732	55
800	302	1102	367	1167	947	42	842	107	907	947	61
1000	302	1302	377	1377	1157	42	1042	117	1117	1157	67
1200	302	1502	402	1602	1382	42	1242	142	1342	1382	74
1500	302	1802	427	1927	1707	42	1542	167	1667	1707	84

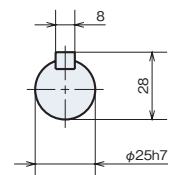
Lift (JWB100UM)



Suspend (JWB100DM)

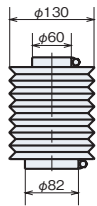


● Input Shaft

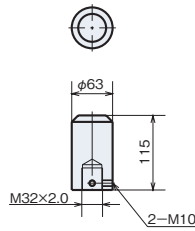


Output Options

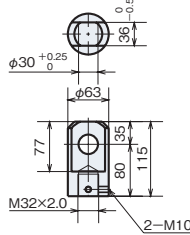
■ Bellows (- J)



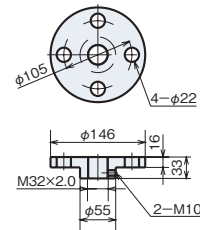
■ Rod Type End Fitting (- B)



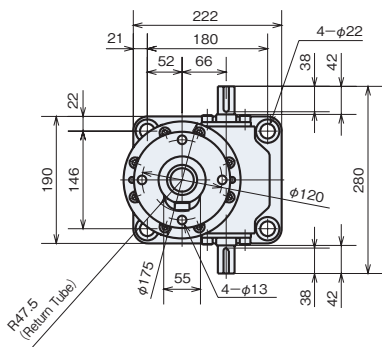
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

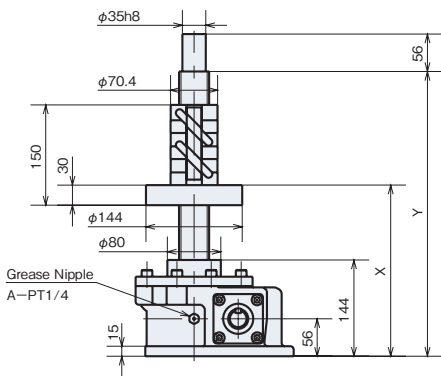


JWB100 Dimensions - Travel Nut Type

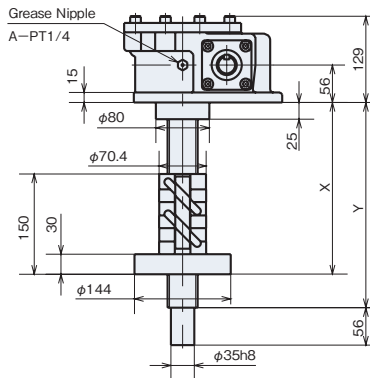


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	184	284	414	185	285	295	31
200	184	384	514	185	385	395	32
300	184	484	614	185	485	495	33
400	184	584	714	185	585	595	34
500	184	684	814	185	685	695	35
600	184	784	914	185	785	795	36
800	184	984	1114	185	985	995	39
1000	184	1184	1314	185	1185	1195	41
1200	184	1384	1514	185	1385	1395	43
1500	184	1684	1814	185	1685	1695	46

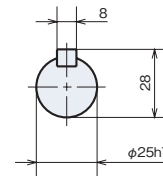
Lift (JWB100UR)



Suspend (JWB100DR)



● Input Shaft

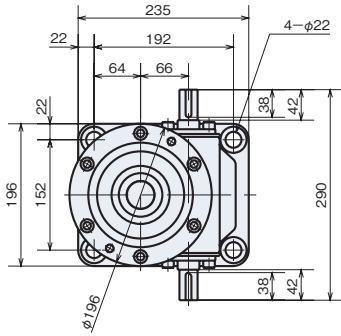


Note) Ball nut return tube and travel flange openings may vary from this drawing.
Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

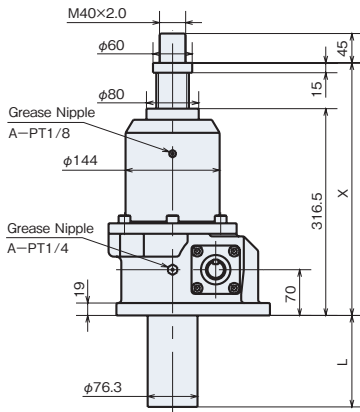
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWB150 Dimensions - Standard Model

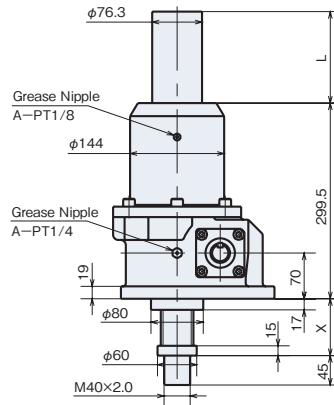


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	342	442	352	452	151	42	142	52	152	151	46
200	342	542	352	552	252	42	242	52	252	252	48
300	342	642	367	667	366	42	342	67	367	366	51
400	342	742	367	767	466	42	442	67	467	466	54
500	342	842	392	892	591	42	542	92	592	591	57
600	342	942	392	992	691	42	642	92	692	691	60
800	342	1142	407	1207	906	42	842	107	907	906	65
1000	342	1342	417	1417	1116	42	1042	117	1117	1116	70
1200	342	1542	442	1642	1341	42	1242	142	1342	1341	76
1500	342	1842	467	1967	1666	42	1542	167	1667	1666	84

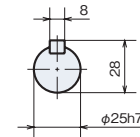
Lift (JWB150US)



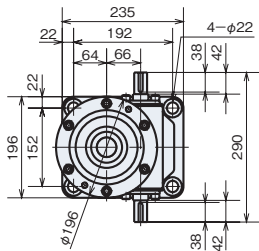
Suspend (JWB150DS)



● Input Shaft

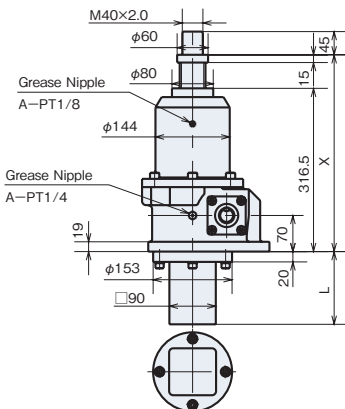


JWB150 Dimensions - Rotation Prevention Type

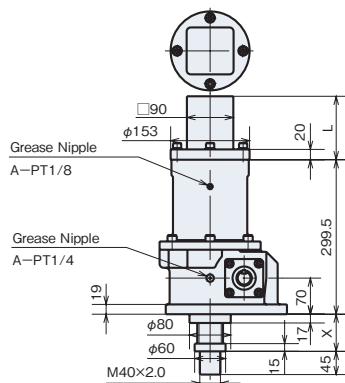


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	342	442	352	452	221	42	142	52	152	221	52
200	342	542	352	552	321	42	242	52	252	321	55
300	342	642	367	667	436	42	342	67	367	436	59
400	342	742	367	767	536	42	442	67	467	536	62
500	342	842	392	892	661	42	542	92	592	661	66
600	342	942	392	992	761	42	642	92	692	761	69
800	342	1142	407	1207	976	42	842	107	907	976	75
1000	342	1342	417	1417	1186	42	1042	117	1117	1186	82
1200	342	1542	442	1642	1411	42	1242	142	1342	1411	89
1500	342	1842	467	1967	1736	42	1542	167	1667	1736	99

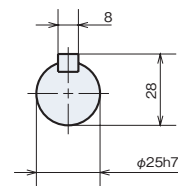
Lift (JWB150UM)



Suspend (JWB150DM)



● Input Shaft

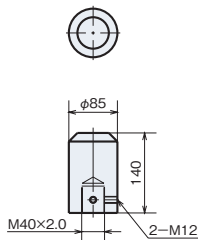


Output Options

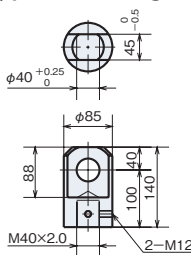
■ Bellows (- J)



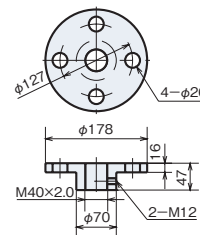
■ Rod Type End Fitting (- B)



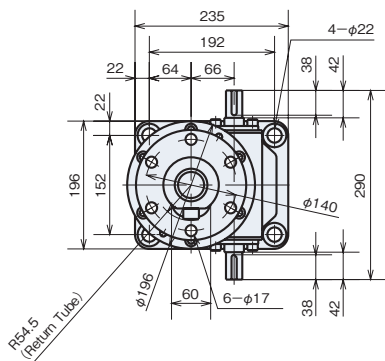
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

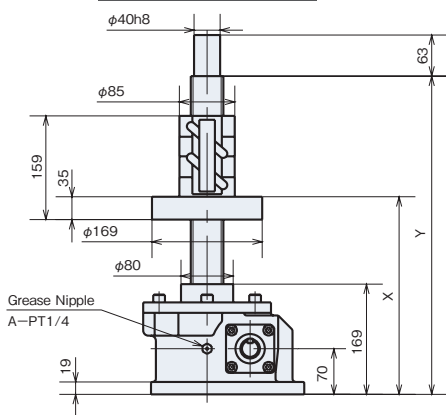


JWB150 Dimensions - Travel Nut Type

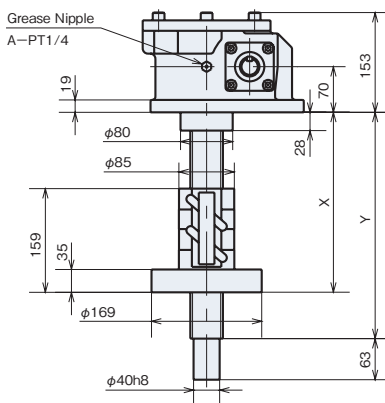


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	214	314	448	197	297	308	41
200	214	414	548	197	397	408	42
300	214	514	648	197	497	508	43
400	214	614	748	197	597	608	45
500	214	714	848	197	697	708	46
600	214	814	948	197	797	808	47
800	214	1014	1148	197	997	1008	50
1000	214	1214	1348	197	1197	1208	53
1200	214	1414	1548	197	1397	1408	55
1500	214	1714	1848	197	1697	1708	59

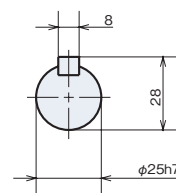
Lift (JWB150UR)



Suspend (JWB150DR)



● Input Shaft

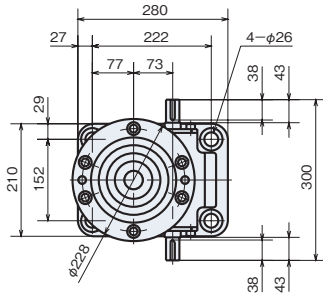


Note) Ball nut return tube and travel flange openings may vary from this drawing.
Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

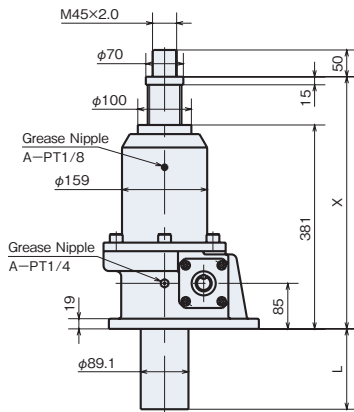
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWB200 Dimensions - Standard Model

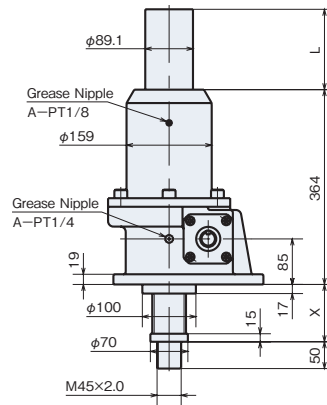


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	406	506	416	516	136	42	142	52	152	136	65
200	406	606	416	616	236	42	242	52	252	236	68
300	406	706	431	731	351	42	342	67	367	351	72
400	406	806	431	831	451	42	442	67	467	451	76
500	406	906	456	956	576	42	542	92	592	576	80
600	406	1006	456	1056	676	42	642	92	692	676	83
800	406	1206	471	1271	891	42	842	107	907	891	90
1000	406	1406	481	1481	1101	42	1042	117	1117	1101	97
1200	406	1606	506	1706	1326	42	1242	142	1342	1326	105
1500	406	1906	531	2031	1651	42	1542	167	1667	1651	115
2000	406	2406	576	2576	2196	42	2042	212	2212	2196	133

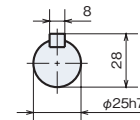
Lift (JWB200US)



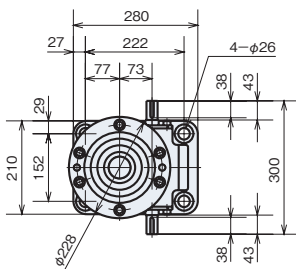
Suspend (JWB200DS)



● Input Shaft

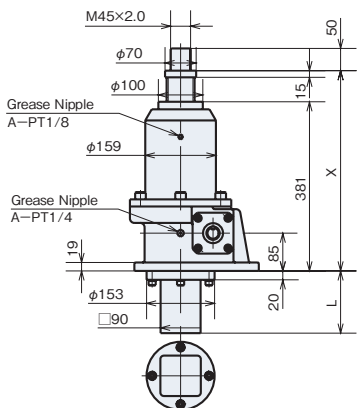


JWB200 Dimensions - Rotation Prevention Type

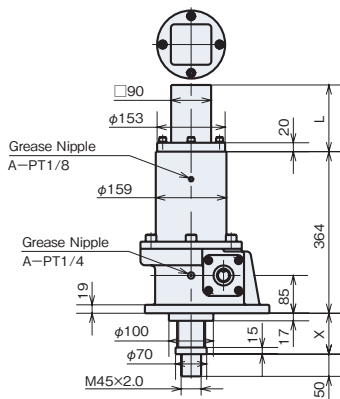


Stroke	UM Rotation Prevention Type for Lifting					DM Rotation Prevention Type for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	406	506	416	516	230	42	142	52	152	230	72
200	406	606	416	616	330	42	242	52	252	330	76
300	406	706	431	731	445	42	342	67	367	445	80
400	406	806	431	831	545	42	442	67	467	545	84
500	406	906	456	956	670	42	542	92	592	670	89
600	406	1006	456	1056	770	42	642	92	692	770	93
800	406	1206	471	1271	985	42	842	107	907	985	102
1000	406	1406	481	1481	1195	42	1042	117	1117	1195	110
1200	406	1606	506	1706	1420	42	1242	142	1342	1420	119
1500	406	1906	531	2031	1745	42	1542	167	1667	1745	131
2000	406	2406	576	2576	2290	42	2042	212	2212	2290	153

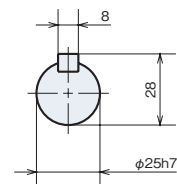
Lift (JWB200UM)



Suspend (JWB200DM)



● Input Shaft

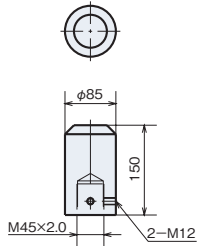


Output Options

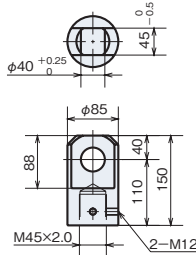
■ Bellows (- J)



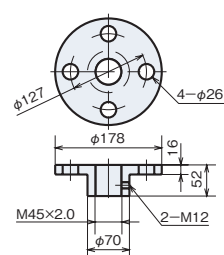
■ Rod Type End Fitting (- B)



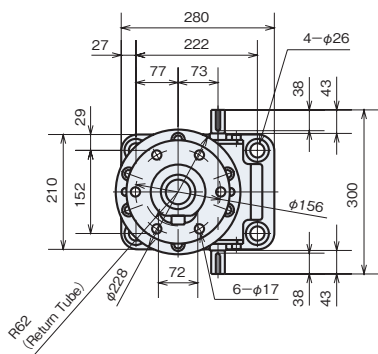
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

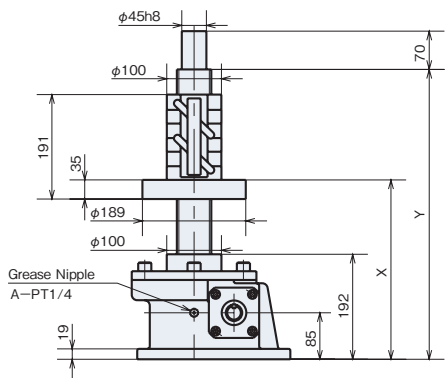


JWB200 Dimensions - Travel Nut Type

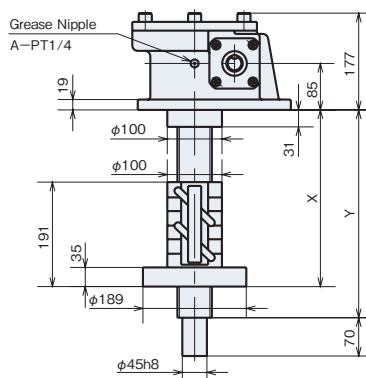


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	237	337	503	232	332	342	56
200	237	437	603	232	432	442	58
300	237	537	703	232	532	542	60
400	237	637	803	232	632	642	62
500	237	737	903	232	732	742	65
600	237	837	1003	232	832	842	67
800	237	1037	1203	232	1032	1042	71
1000	237	1237	1403	232	1232	1242	76
1200	237	1437	1603	232	1432	1442	80
1500	237	1737	1903	232	1732	1742	86
2000	237	2237	2403	232	2232	2242	97

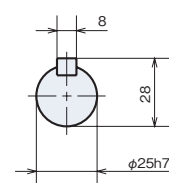
Lift (JWB200UR)



Suspend (JWB200DR)



● Input Shaft

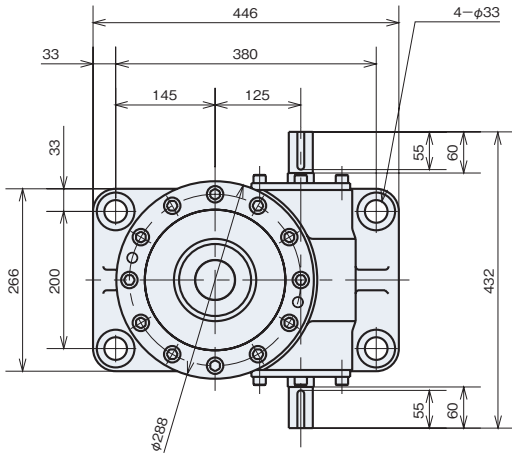


Note) Ball nut return tube and travel flange openings may vary from this drawing.
Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M).
For types with bellows, refer to page 312.

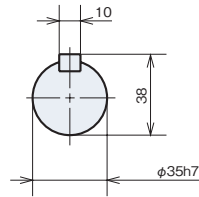
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWB300 Dimensions - Standard Model

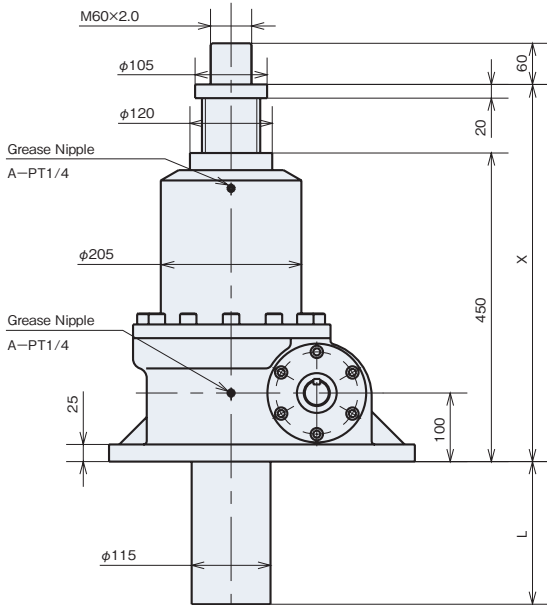


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	480	580	490	590	135	55	155	65	165	135	153
200	480	680	490	690	235	55	255	65	265	235	159
300	480	780	505	805	350	55	355	80	380	350	166
400	480	880	505	905	450	55	455	80	480	450	172
500	480	980	520	1020	565	55	555	95	595	565	178
600	480	1080	520	1120	665	55	655	95	695	665	184
800	480	1280	535	1335	880	55	855	110	910	880	197
1000	480	1480	555	1555	1100	55	1050	130	1130	1100	210
1200	480	1680	565	1765	1310	55	1255	140	1340	1310	223
1500	480	1980	590	2090	1635	55	1555	165	1665	1635	242
2000	480	2480	625	2625	2170	55	2055	200	2200	2170	274

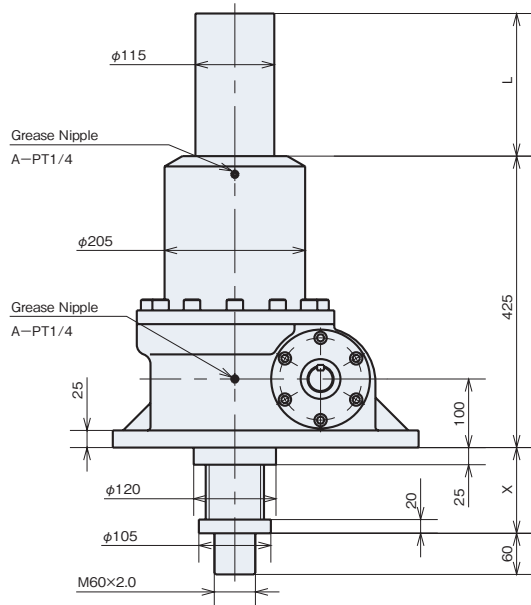
Input Shaft



Lift (JWB300US)

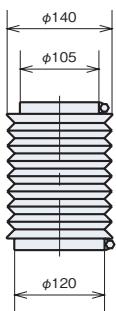


Suspend (JWB300DS)

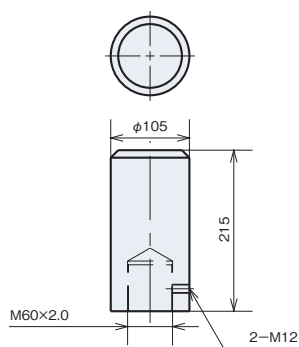


Output Options

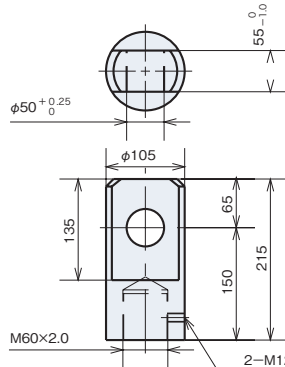
■ Bellows (- J)



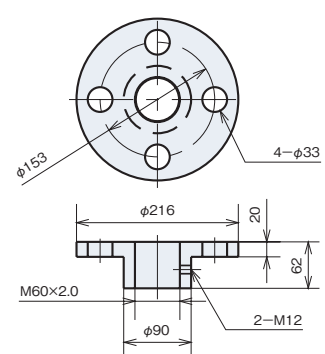
■ Rod Type End Fitting (- B)



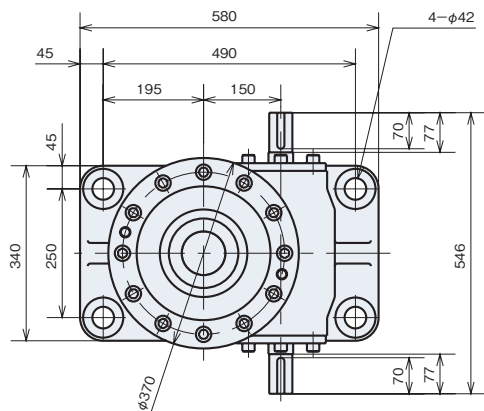
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

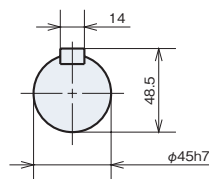


JWB500 Dimensions - Standard Model

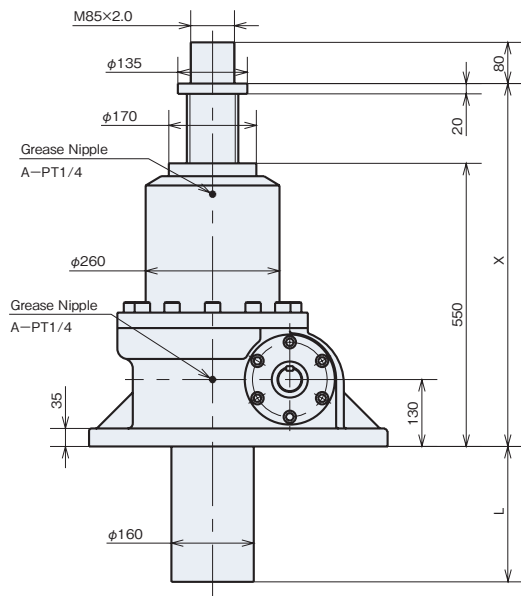


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	580	680	585	685	137	55	155	60	160	137	310
200	580	780	585	785	237	55	255	60	260	237	320
300	580	880	605	905	357	55	355	80	380	357	330
400	580	980	605	1005	457	55	455	80	480	457	340
500	580	1080	615	1115	567	55	555	90	590	567	350
600	580	1180	615	1215	667	55	655	90	690	667	359
800	580	1380	630	1430	882	55	855	105	905	882	378
1000	580	1580	645	1645	1097	55	1055	120	1120	1097	398
1200	580	1780	655	1855	1307	55	1255	130	1330	1307	417
1500	580	2080	675	2175	1627	55	1555	150	1650	1627	446
2000	580	2580	710	2710	2162	55	2055	185	2185	2162	495

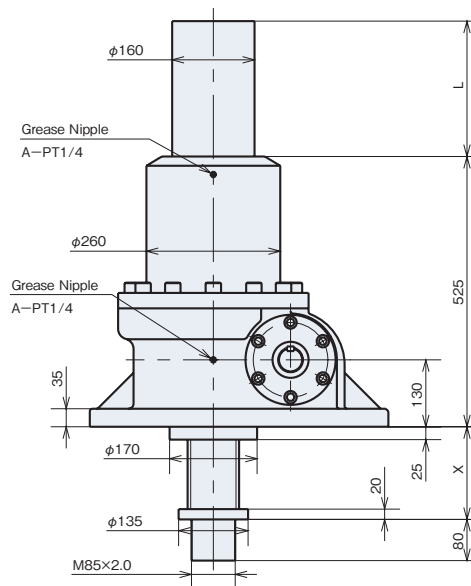
Input Shaft



Lift (JWB500US)

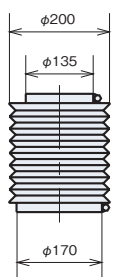


Suspend (JWB500DS)

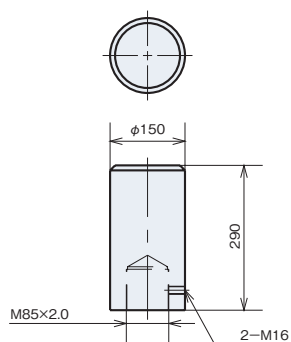


Output Options

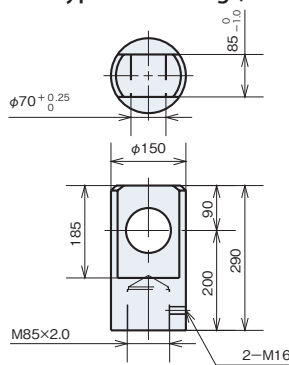
■ Bellows (- J)



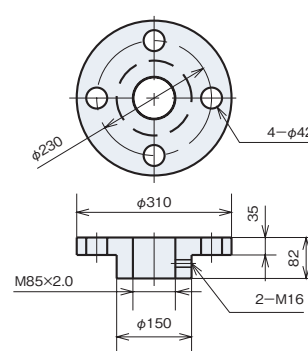
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)



* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.



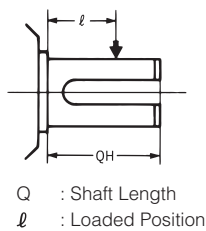
Warning

■ Cautions for selecting

- Duty cycle of JWB (Ball Screw Type) is within 30% ED. Duty cycle is a ratio of operating time per 30 min on the basis of 30 min interval.
- JWB (Ball Screw Type) does not have a self-locking device, therefore, a brake mechanism is required.
- Activating torque for the drive unit should be maintained at 200% above the required torque.
- Allowable input rotation speed of linear power jack is 1800 r/min, however, when inputting a speed exceeding the maximum input rotation speed at the basic capacity, check the screw shaft speed (elevation speed) and allowable load related graphs on page 201.
- Select a stroke for the jack with an extra margin with respect to the used stroke.
- Rotating force is generated on the screw shaft (travel nut in the case of travel nut type) with thrust, therefore, rotation prevention is required. Screw rotation torque at the basic capacity is described in the standard specification list. When operating with the end unconnected, and pulling the rope with a sheave installed, use the rotation prevention type. However, the rotation prevention type cannot be manufactured for the travel nut type, therefore, provide a rotation prevention mechanism on the device.
- When installing a sprocket, gear, or belt to the input or output shaft, confirm that any overhang load applied to the shaft decreases to the allowable OHL or less.

$$\text{Allowable O. H. L.} \geq \frac{T \times f \times L_f}{R}$$

O.H.L. : Overhang load N {kgf}
 T : Input torque N · m {kgf · m}
 f : Coefficient - power transmission element
 L_f : Coefficient - Load operating position
 R : Sprocket, Gear, V pulley or Pitch diameter m



● Coefficient – Power Transmission Element (f)

Sprocket	1.00
Gear	1.25
V-belt	1.50
Flat belt	2.50

● Coefficient (L_f) – Load Position

l / QH	0.25	0.38	0.5	0.75	1
L _f	0.8	0.9	1	1.5	2

● Allowable O.H.L

Frame No.		002	005	010	025	050	100	150	200	300	500	750	1000
JWB (Ball Screw Type)	N	—	130	220	480	870	1290	2030	2490	3450	5240	7200	9790
H Speed	{ kgf }	—	{14}	{23}	{50}	{89}	{132}	{208}	{255}	{352}	{535}	{735}	{998}
JWB (Ball Screw Type)	N	—	82	140	290	500	840	1300	1610	2400	3560	4940	6970
L Speed	{ kgf }	—	{8}	{15}	{31}	{52}	{86}	{133}	{165}	{245}	{363}	{504}	{711}

■ Precautions for installation

- Some screw covers of jacks are made of hard vinyl chloride pipe. Do not lift jack and transport with this pipe, which may result in dropping.
- JWB (Ball Screw Type) rotates by self weight of the screw shaft or travel nut, therefore, retract its stroke to the minimum and provide a rotation prevention for installation.
- Take jack coasting amount into consideration to set the stroke adjusting limit switch.

■ Precautions for use

- Do not perform manual operation from the input shaft with load applied. The input shaft is rotated by the load, which is dangerous.
- When JWB (Ball Screw Type) is used in the vertical direction, the jack may be reversed by the load because of its excellent efficiency. Never perform manual operation.
- Do not use mechanical stops under any circumstances.
- Operating Environment for jack is as follows.

Operating place	Indoor room which cannot be splashed with rain or water.
Ambient atmosphere	Dust volume comparable to general factories.
Operating temperature range	− 15 to 80°C (Refer to section 3 in general precautions.)
Relative humidity	85% or less (no dew condensation)

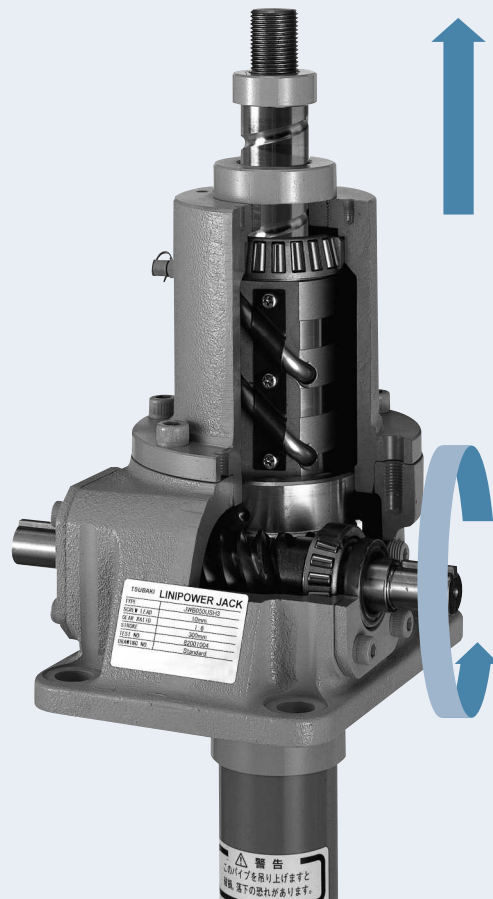
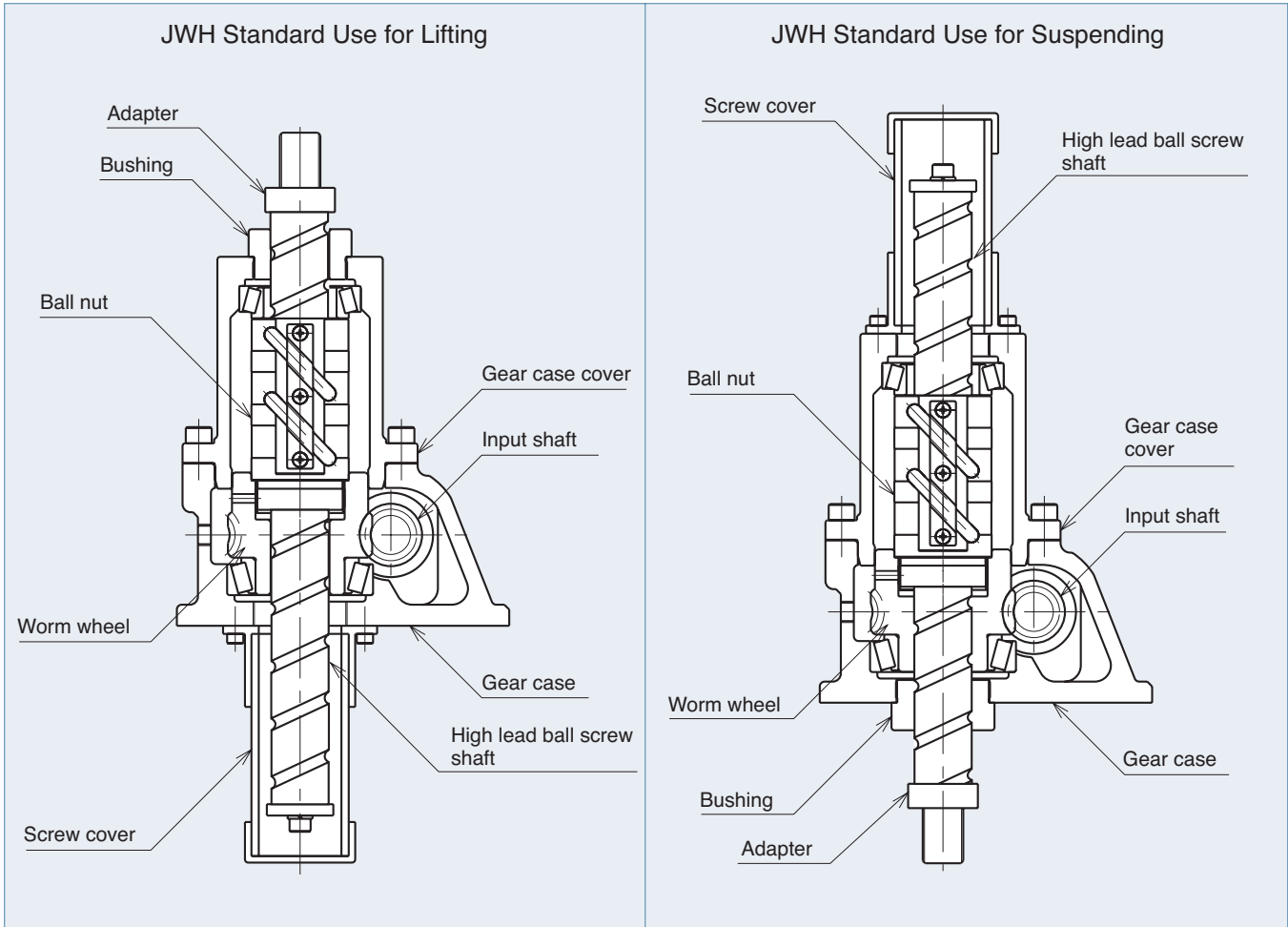
- Operating part and reducer unit are factory greased. Therefore, use jack as delivered.
- For lubrication grease, lubrication cycle and lubrication amount to the screw shaft and reducer unit, refer to page 299.
- Inspect regularly for general backlash and screw unit condition. Jack life and replacement timing are determined by the following:
 Metal particles due to wear on the screw surface are visible.
 Replace gear when its input shaft exceeds 30 rpm with backlash (rattle between input shaft and worm wheel) at H speed, or exceeds 60 rpm at L speed.
 In either case, if it is used at the replacement timing, this may cause rotation failure of screw shaft and input shaft, and further sudden drop of travel nut.

Linipower Jack

JWH (High Lead Ball Screw Type)



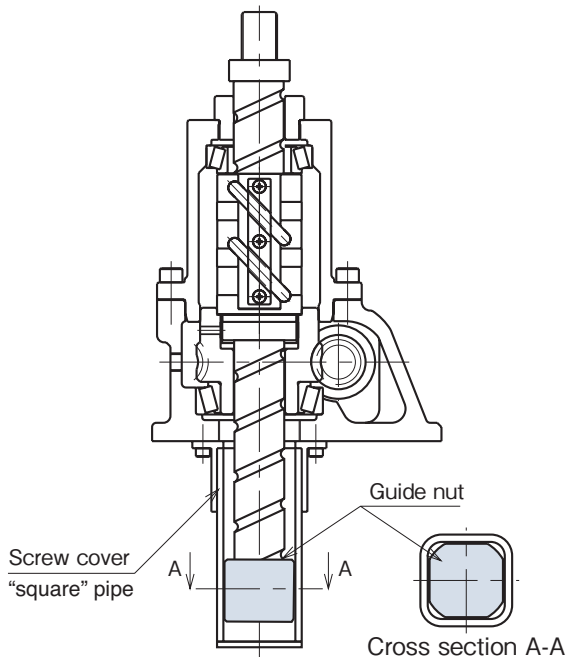
Drawings	_____	P261•262
JWH Reference Number System	_____	P263•264
Reference Table for Standard Use	_____	P265•266
Dimensions	_____	P267 to 272
Precautions	_____	P273



JWH (High Lead Ball Screw Type) Rotation Prevention Type

JWH010 to 200

〈With anti-rotation and Guide Nut〉

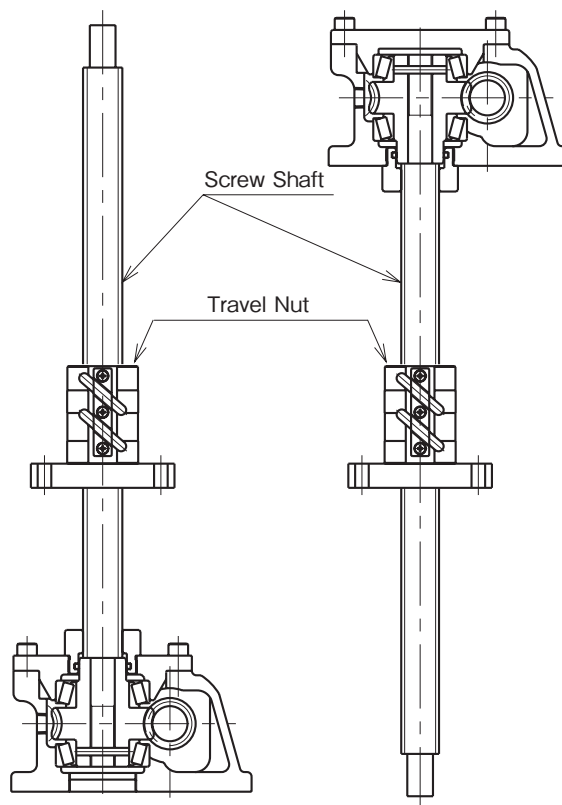


Note) The 10°space in each corner between the guide and the pipe allows smooth rotation.

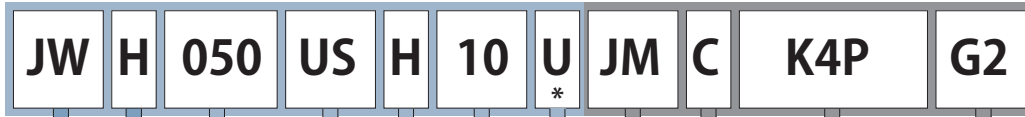
Caution

Each High Lead Ball Screw Jack with anti-rotation is made-to-order based.
 Inform TSUBAKI of operating conditions such as a load per one jack and screw shaft speed of the jack.
 We will take the conditions into account.

JWH (High Lead Ball Screw Type) Travel Nut Type



JWH (High Lead Ball Screw Type)



Linipower Jack

Jack Type

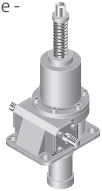
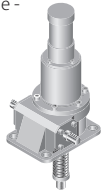
H : High Lead Ball Screw

Basic Capacity

Frame Size	kN	{tf}
010	9.80	{1}
025	24.5	{2.5}
050	49.0	{5}
100	98.0	{10}
150	147	{15}
200	196	{20}

*Please fill in detail information in 311.

Installation Type

US	Standard use - lifting	
DS	Standard use - suspending	

* Anti-rotation type for JWH is made to order please fill in detail in 311.

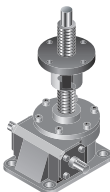
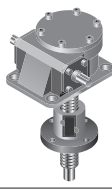
Stroke mm

1	100
3	300
6	600
10	1000

*Please fill in detail information in 311.

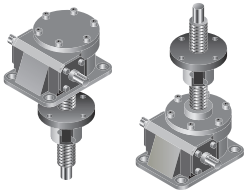
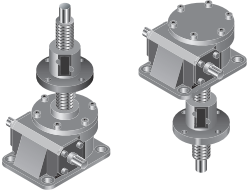
Gear Ratio

symbol Frame No.	H
010	5
025	6
050	6
100	8
150	8
200	8

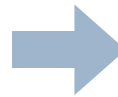
UR	Travel nut - lifting	
DR	Travel nut - suspending	

* Be sure to use the flange installation method U or D with travel nuts.

Flange Installation

U	
D	

*Please fill in detail information in 311.



Examples)

JWH100UMH3

- High Lead Ball Screw Type • 98.0kN {10tf} • Standard use (for lifting) • Gear ratio H (1/8) • Stroke 300mm

JWH050USH10JMK4P

- High Lead Ball Screw Type • 49.0kN {5tf} • Standard use (for lifting) • Gear ratio H (1/6) • Stroke 1000mm
- Bellows / Table Type End Fitting • 4 Internal LS / Potentiometer

Output Option

No symbol	Screw shaft end (standard)	
	Bellows	
	Rod Type End Fitting	
	I Type End Fitting	
	Table Type End Fitting	

Installation Option

C	Clevis Mounting Adapter	
	(See page 291)	

Note) For standard lifting only.

Sensor Option

Y	LS Counter	
	(See page 285)	
K2 K4 P R	Position Sensor	
	K2...2 Internal LS	
	K4...4 Internal LS	
	P...Potentiometer	
	R...Rotary Encoder	
		(See page 287)

*Please fill in the form on page 312.

Input Option

E EV	3 phase motor with brake	
	E...200V 50Hz 200/220V 60Hz EV...400 50Hz 400/440V 60Hz	
G1 G2	3 phase gearmotor with brake	
	G1...Gear ratio 1/5 200V 50Hz 200/220V 60Hz G2...Reducer ratio 1/10 200V 50Hz 200/220V 60Hz	
		(Page 275)

Accessories

Control Options	
Stroke Meter and PCB	
Meter Relay and PCB	
(Page 288 to 289)	
Others	
Trunnion Mounting Adapter	
*Use as a set with clevis mounting adapter.	
(See page 291)	

Note) When travel nuts are used, B, I and M are not available.

Note) Bellows is of special specification, therefore contact Tsubakimoto chain.

Note) Travel nut type with bellows is made-to-order.

*Please fill in the form on page 311.

Reference Table for Standard Use JWH (High Lead Ball Screw Type)

Frame No.		JWH010	JWH025	JWH050
Basic Capacity	kN	9.80	24.5	49.0
	{tf}	{1}	{2.5}	{5}
Outer Screw Diameter	mm	20	25	36
Minor Screw Diameter	mm	17.5	21.9	31.1
Screw Lead	mm	20	25	25
Gear Ratio		5	6	6
Overall Efficiency	%	63	65	68
Max. Allowable Input Capacity	kW	0.75	1.5	2.3
Tare Drag Torque	N•m	0.29	0.62	1.37
	{kgf•m}	{0.03}	{0.063}	{0.14}
Holding Torque	N•m	5.22	13.6	27.5
	{kgf•m}	{0.53}	{1.4}	{2.8}
Allowable Input Torque	*Note 1 N•m	19.6	49.0	153.9
	{kgf•m}	{2}	{5}	{15.7}
Required Input Torque for Basic Capacity	N•m	10.2	25.6	49.2
	*Note 2 {kgf•m}	{1.0}	{2.6}	{5.0}
Screw Movement/ Per Revolution of Input Shaft	mm	4	4.17	4.17
Max. Input R.P.M.	r/min	1800	1800	1800
Max. Input R.P.M. for Basic Capacity	r/min	700	550	450
Screw Shaft Rotational Torque for Basic Capacity	N•m	33.2	103.8	207.6
	{kgf•m}	{3.4}	{10.6}	{21.2}
Screw Cover Material	Hard Vinyl Chloride			
Lubrication	Shaft: Grease Reducer Unit: Grease Bath			
Color	Tsubaki Olive Grey (Munsell 5GY6/0.5)			
Environment	Operating Temperature Range	- 15 to 80°C (Precautions #2)		
	Relative Humidity	85% or less (no dew condensation)		
	Operating ambient atmosphere	Indoor Environment (Indoor room where rain and water cannot enter. Dust volume should be normal.)		
Duty Cycle	*Note 3	Within 30% ED		

Note 1) The allowable torque is for jack input shaft only. (Reconfirm if synchronous drive.)

Note 2) Includes tare drag torque.

Note 3) Standard percentage duty cycle is 30 minutes. Thus, driving time is based on 30 minute intervals.

Precautions

- All loads (static, dynamic or shock) should be within the rated capacity of the jack at sufficient safety levels.
- Operating Temperature Range refers to the surface temperature of the jack during operation. To check, measure the surface temperature of the input shaft unit or travel nut (if used). Be sure all the rotating parts have completely stopped before proceeding to measure.
- Allowable input rpm is 1800r/min. Be sure to operate within this allowable capacity.
- Number of synchronizing jacks which can be connected on

- the same line is limited by shaft strength. Refer to the allowable input shaft torque on the above table.
- Activating torque for the drive unit should be maintained at 200% above the required torque.
- If operating in freezing temperatures, a change in viscosity may reduce the efficiency of the grease. Set the drive unit so as to accommodate this change.
- Since JWH (High Lead Ball Screw Type) is extremely efficient, sufficient brake that over powers the "holding torque" is required to sustain its shaft.

JWH100	JWH150	JWH200
98.0 {10}	147 {15}	196 {20}
45	50	63
38.9	42.7	55.7
32	32	32
8	8	8
65	65	64
4.1	4.1	5.6
1.96 {0.2}	2.65 {0.27}	3.92 {0.4}
52.8 {5.4}	79.2 {8.1}	105.6 {10.8}
292.0 {29.8}	292.0 {29.8}	292.0 {29.8}
98.0 {10.0}	146.8 {15.0}	199.1 {20.3}
4	4	4
1800	1800	1800
400	270	270
531.5 {54.2}	797.3 {81.3}	1063.0 {108.4}
Steel Pipe		
Screw: Grease Reducer Unit: Grease Bath		
Tsubaki Olive Grey (Munsell 5GY6/0.5)		
- 15 to 80°C (Precautions #2)		
85% or less (no dew condensation)		
Indoor Environment (Indoor room where rain and water cannot enter. Dust volume should be normal.)		
Within 30% ED		

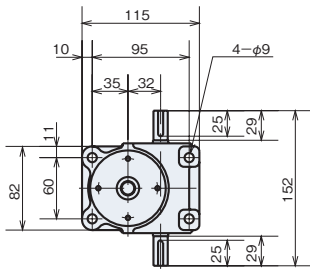
⚠8. Be certain that the jack rating exceeds the maximum stroke. Over travel can cause the lift shaft to disengage from the ball nut.

JWH (High Lead Ball Screw Type) is supported by a stopper (shaft end). However, this is merely for the purpose of securing the screw shaft during installation. While installing, take caution so that the screw shaft does not rotate by its own weight and become disengaged. If rotation cannot be avoided, use a model with rotation prevention. (Contact Tsubakimoto chain for details.)

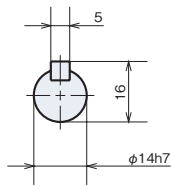
⚠9. Do not use mechanical stops under any circumstances. This will cause major internal damage.

10. Input shaft key is provided with each unit. (The input shaft key complies with JIS B 1301-1996 (normal grade).)

JWH010 Dimensions - Standard Model

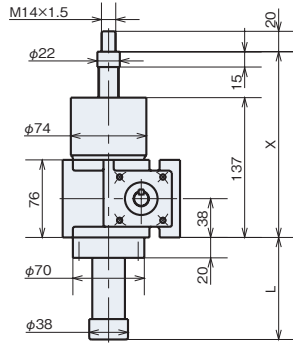


● Input Shaft

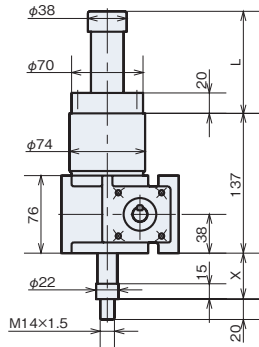


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX			
100	162	262	212	312	194	25	125	75	175	194	6.7
200	162	362	212	412	294	25	225	75	275	294	7.0
300	162	462	252	552	434	25	325	115	415	434	7.4
400	162	562	252	652	534	25	425	115	515	534	7.6
500	162	662	287	787	669	25	525	150	650	669	8.0
600	162	762	287	887	769	25	625	150	750	769	8.2
800	162	962	322	1122	1004	25	825	185	985	1004	8.9
1000	162	1162	352	1352	1234	25	1025	215	1215	1234	9.5

Lift (JWH010US)

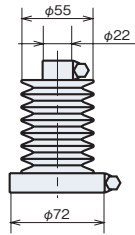


Suspend (JWH010DS)

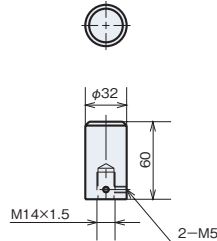


Output Option

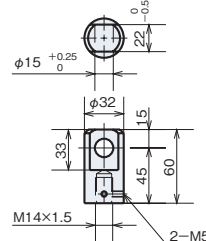
■ Bellows (- J)



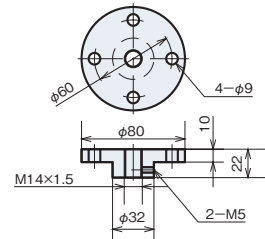
■ Rod Type End Fitting (- B)



■ I Type End Fitting (- I)

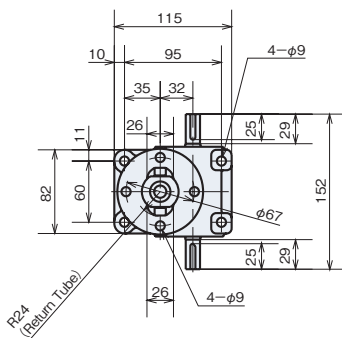


■ Table Type End Fitting (- M)

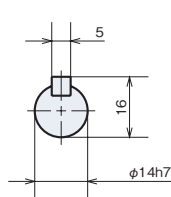


Note) For detailed measurements on units with bellows, see page 294.

JWH010 Dimensions - Travel Nut Type

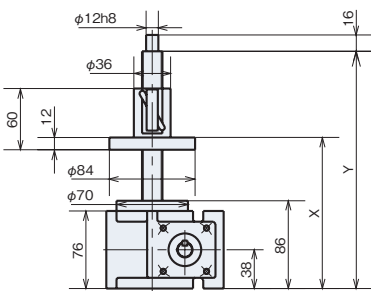


● Input Shaft

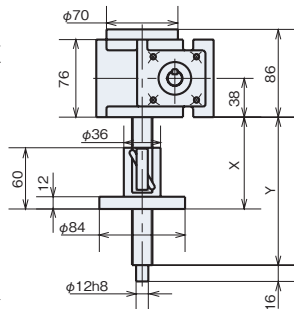


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	108	208	265	69	169	179	5.9
200	108	308	365	69	269	279	6.1
300	108	408	465	69	369	379	6.4
400	108	508	565	69	469	479	6.6
500	108	608	665	69	569	579	6.8
600	108	708	765	69	669	679	7.0
800	108	908	965	69	869	879	7.4
1000	108	1108	1165	69	1069	1079	7.9

Lift (JWH010UR)



Suspend (JWH010DR)

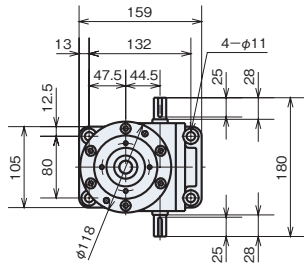


Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

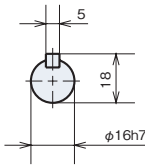
Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 312.

* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWH025 Dimensions - Standard Model



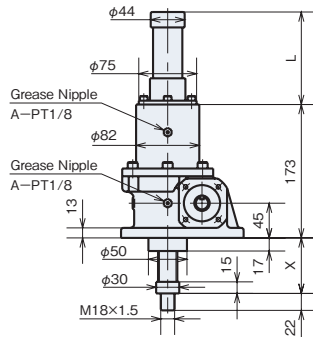
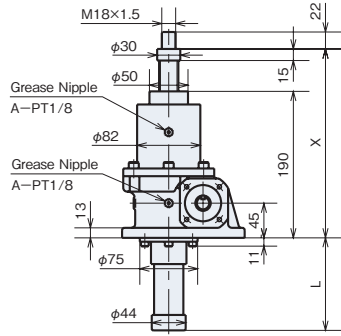
● Input Shaft



Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	215	315	230	330	149	42	142	57	157	149	11
200	215	415	230	430	249	42	242	57	257	249	11
300	215	515	250	550	369	42	342	77	377	369	11
400	215	615	250	650	469	42	442	77	477	469	12
500	215	715	270	770	589	42	542	97	597	589	12
600	215	815	270	870	689	42	642	97	697	689	13
800	215	1015	290	1090	909	42	842	117	917	909	14
1000	215	1215	310	1310	1129	42	1042	137	1137	1129	14
1200	215	1415	325	1525	1344	42	1242	152	1352	1344	15

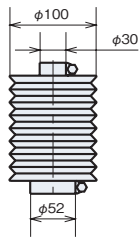
Lift (JWH025US)

Suspend (JWH025DS)

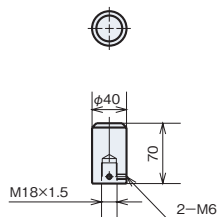


Output Option

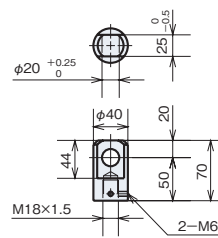
■ Bellows (- J)



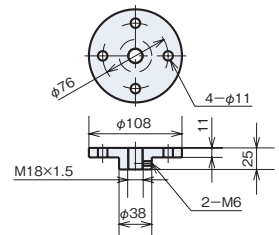
■ Rod Type End Fitting (- B)



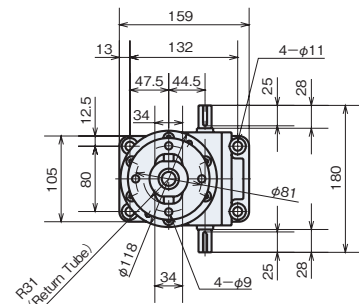
■ I Type End Fitting (- I)



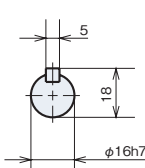
■ Table Type End Fitting (- M)



JWH025 Dimensions - Travel Nut Type



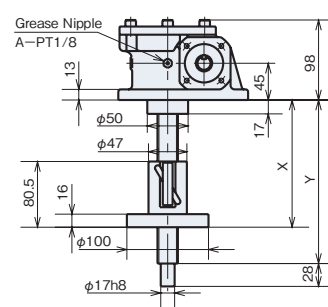
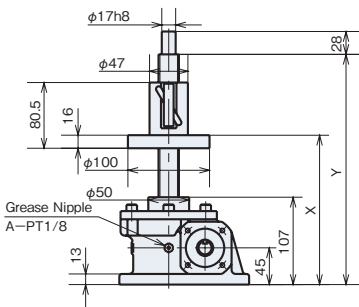
● Input Shaft



Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	133	233	309	108	208	219	9.2
200	133	333	409	108	308	319	9.5
300	133	433	509	108	408	419	9.8
400	133	533	609	108	508	519	11
500	133	633	709	108	608	619	11
600	133	733	809	108	708	719	11
800	133	933	1009	108	908	919	12
1000	133	1133	1209	108	1108	1119	13
1200	133	1333	1409	108	1308	1319	13

Lift (JWH025UR)

Suspend (JWH025DR)

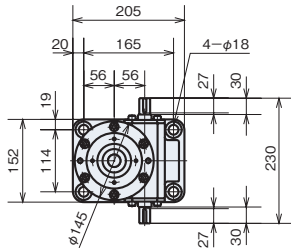


Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 312.

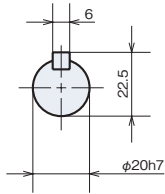
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWH050 Dimensions - Standard Model



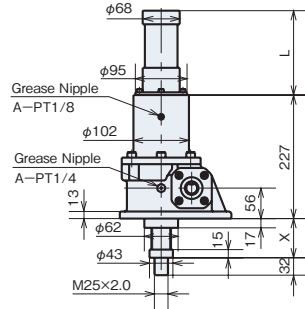
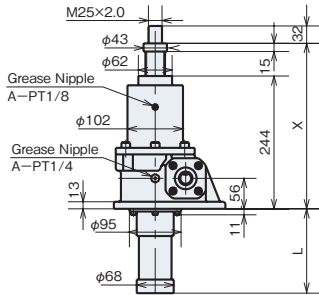
Lift (JWH050US)

● Input Shaft



Suspend (JWH050DS)

Stroke	US Standard Model for Lifting				DS Standard Model for Suspending				Weight kg		
	X		X		L	X		L			
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows				
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX				
100	269	369	284	384	147	42	142	57	157	147	23
200	269	469	284	484	247	42	242	57	257	247	23
300	269	569	304	604	367	42	342	77	377	367	24
400	269	669	304	704	467	42	442	77	477	467	25
500	269	769	324	824	587	42	542	97	597	587	26
600	269	869	324	924	687	42	642	97	697	687	27
800	269	1069	344	1144	907	42	842	117	917	907	29
1000	269	1269	364	1364	1127	42	1042	137	1137	1127	30
1200	269	1469	379	1579	1342	42	1242	152	1352	1342	32
1500	269	1769	404	1904	1667	42	1542	177	1677	1667	35

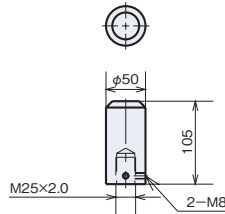


Output Option

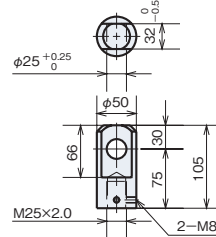
■ Bellows (- J)



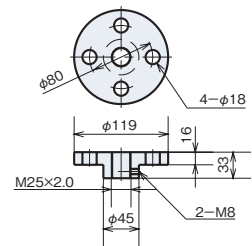
■ Rod Type End Fitting (- B)



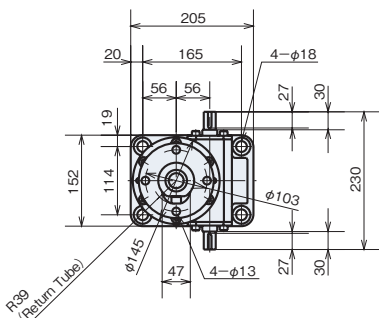
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

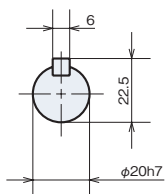


JWH050 Dimensions - Travel Nut Type



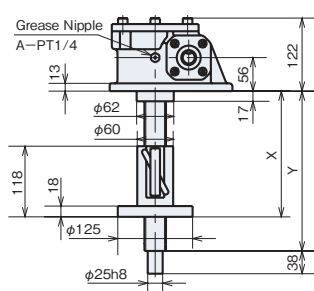
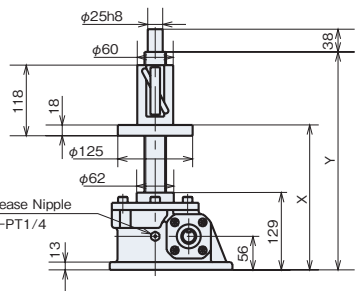
Lift (JWH050UR)

● Input Shaft



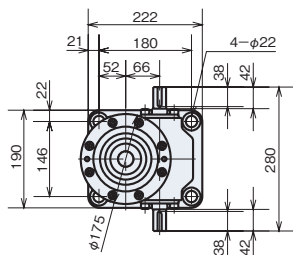
Suspend (JWH050DR)

Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	157	257	369	145	245	257	21
200	157	357	469	145	345	357	22
300	157	457	569	145	445	457	22
400	157	557	669	145	545	557	23
500	157	657	769	145	645	657	24
600	157	757	869	145	745	757	24
800	157	957	1069	145	945	957	26
1000	157	1157	1269	145	1145	1157	27
1200	157	1357	1469	145	1345	1357	29
1500	157	1657	1769	145	1645	1657	31



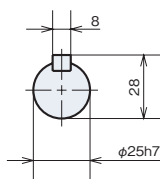
Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

JWH100 Dimensions - Standard Model



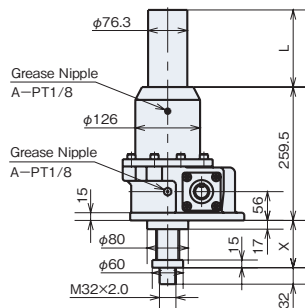
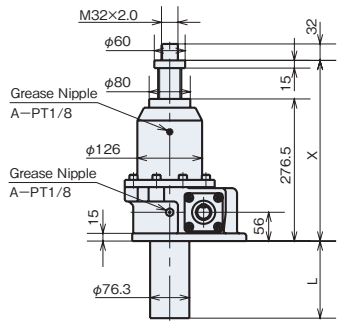
Lift (JWH100US)

Input Shaft



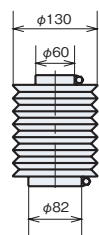
Suspend (JWH100DS)

Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
100	302	402	312	412	151	42	142	52	152	151	36
200	302	502	312	512	252	42	242	52	252	252	38
300	302	602	327	627	366	42	342	67	367	366	41
400	302	702	327	727	466	42	442	67	467	466	43
500	302	802	352	852	591	42	542	92	592	591	46
600	302	902	352	952	691	42	642	92	692	691	48
800	302	1102	367	1167	906	42	842	107	907	906	53
1000	302	1302	377	1377	1116	42	1042	117	1117	1116	58
1200	302	1502	402	1602	1341	42	1242	142	1342	1341	63
1500	302	1802	427	1927	1666	42	1542	167	1667	1666	71

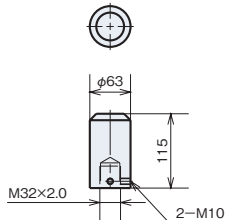


Output Option

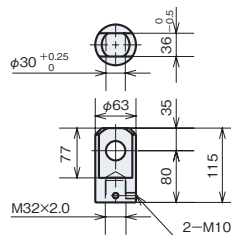
■ Bellows (- J)



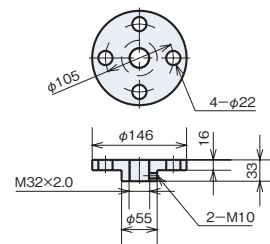
■ Rod Type End Fitting (- B)



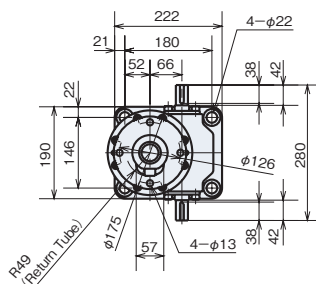
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

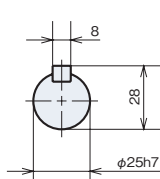


JWH100 Dimensions - Travel Nut Type



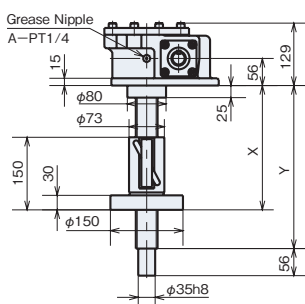
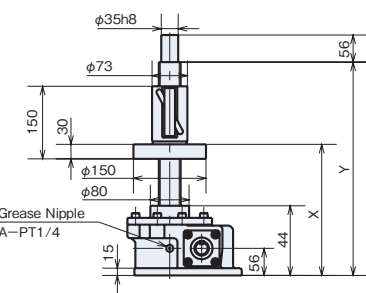
Lift (JWH100UR)

Input Shaft



Suspend (JWH100DR)

Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	184	284	414	185	285	295	31
200	184	384	514	185	385	395	32
300	184	484	614	185	485	495	33
400	184	584	714	185	585	595	34
500	184	684	814	185	685	695	35
600	184	784	914	185	785	795	36
800	184	984	1114	185	985	995	39
1000	184	1184	1314	185	1185	1195	41
1200	184	1384	1514	185	1385	1395	43
1500	184	1684	1814	185	1685	1695	46

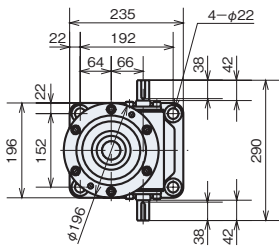


Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 312.

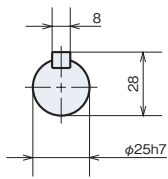
* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.

JWH150 Dimensions - Standard Model



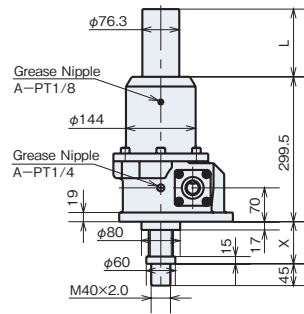
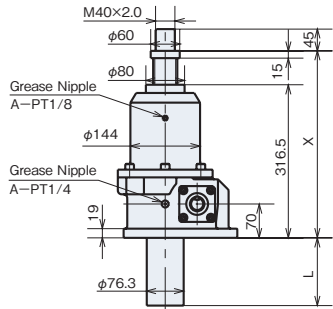
Lift (JWH150US)

Input Shaft



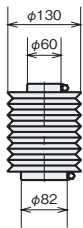
Suspend (JWH150DS)

Stroke	US Standard Model for Lifting				DS Standard Model for Suspending				Weight kg		
	X		X		L	X		L			
	Without Bellows	With Bellows	Without Bellows	With Bellows							
100	342	442	352	452	151	42	142	52	152	151	46
200	342	542	352	552	252	42	242	52	252	252	48
300	342	642	367	667	366	42	342	67	367	366	51
400	342	742	367	767	466	42	442	67	467	466	54
500	342	842	392	892	591	42	542	92	592	591	57
600	342	942	392	992	691	42	642	92	692	691	60
800	342	1142	407	1207	906	42	842	107	907	906	65
1000	342	1342	417	1417	1116	42	1042	117	1117	1116	70
1200	342	1542	442	1642	1341	42	1242	142	1342	1341	76
1500	342	1842	467	1967	1666	42	1542	167	1667	1666	84

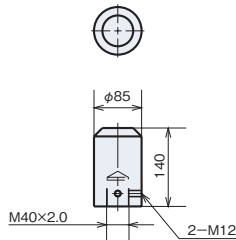


Output Option

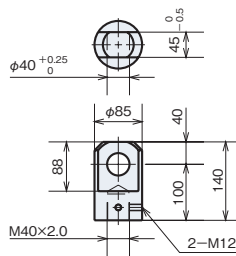
■ Bellows (- J)



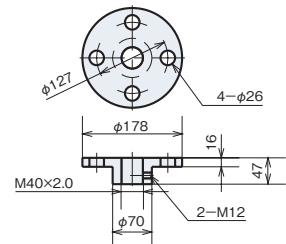
■ Rod Type End Fitting (- B)



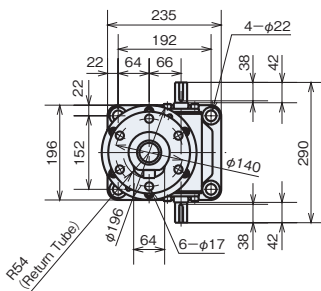
■ I Type End Fitting (- I)



■ Table Type End Fitting (- M)

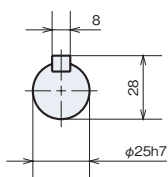


JWH150 Dimensions - Travel Nut Type



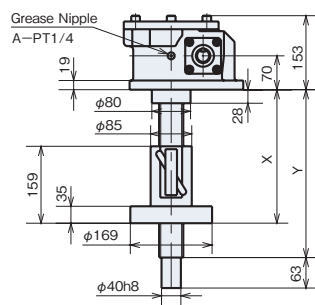
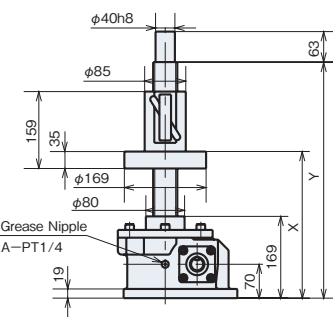
Lift (JWH150UR)

Input Shaft



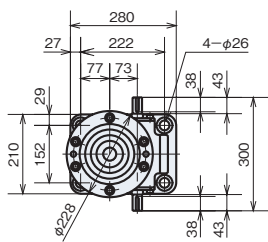
Suspend (JWH150DR)

Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	214	314	448	197	297	308	41
200	214	414	548	197	397	408	42
300	214	514	648	197	497	508	43
400	214	614	748	197	597	608	45
500	214	714	848	197	697	708	46
600	214	814	948	197	797	808	47
800	214	1014	1148	197	997	1008	50
1000	214	1214	1348	197	1197	1208	53
1200	214	1414	1548	197	1397	1408	55
1500	214	1714	1848	197	1697	1708	59

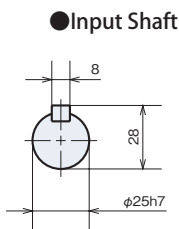


Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

JWH200 Dimensions - Standard Model

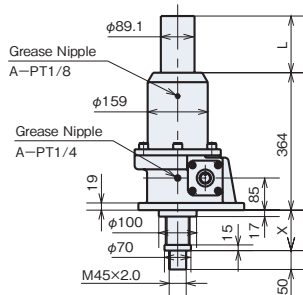
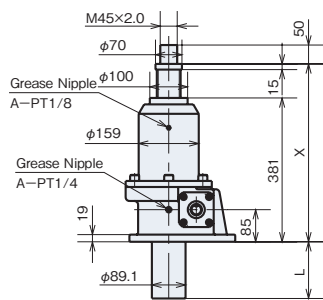


Lift (JWH200US)



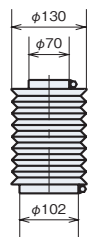
Suspend (JWH200DS)

Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X		X		L	X		X		L	
	Without Bellows	With Bellows	Without Bellows	With Bellows		Without Bellows	With Bellows	Without Bellows	With Bellows		
100	406	506	416	516	136	42	142	52	152	136	65
200	406	606	416	616	236	42	242	52	252	236	68
300	406	706	431	731	351	42	342	67	367	351	72
400	406	806	431	831	451	42	442	67	467	451	76
500	406	906	456	956	576	42	542	92	592	576	80
600	406	1006	456	1056	676	42	642	92	692	676	83
800	406	1206	471	1271	891	42	842	107	907	891	90
1000	406	1406	481	1481	1101	42	1042	117	1117	1101	97
1200	406	1606	506	1706	1326	42	1242	142	1342	1326	105
1500	406	1906	531	2031	1651	42	1542	167	1667	1651	115
2000	406	2406	576	2576	2196	42	2042	212	2212	2196	133

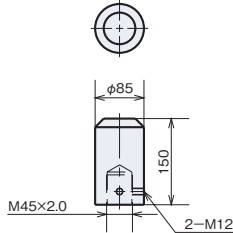


Output Option

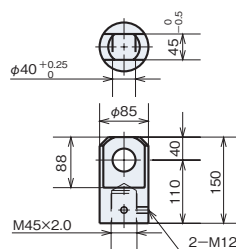
■ Bellows (- J)



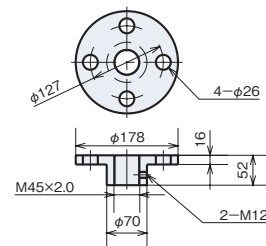
■ Rod Type End Fitting (- B)



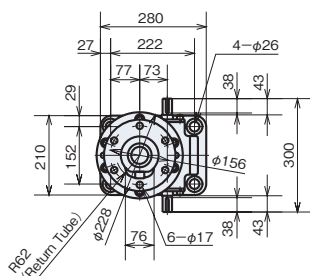
■ I Type End Fitting (- I)



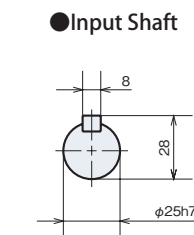
■ Table Type End Fitting (- M)



JWH200 Dimensions - Travel Nut Type

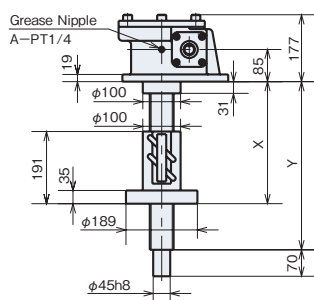
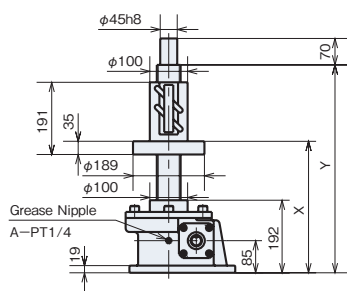


Lift (JWH200UR)



Suspend (JWH200DR)

Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	237	337	503	232	332	342	56
200	237	437	603	232	432	442	58
300	237	537	703	232	532	542	60
400	237	637	803	232	632	642	62
500	237	737	903	232	732	742	65
600	237	837	1003	232	832	842	67
800	237	1037	1203	232	1032	1042	71
1000	237	1237	1403	232	1232	1242	76
1200	237	1437	1603	232	1432	1442	80
1500	237	1737	1903	232	1732	1742	86
2000	237	2237	2403	232	2232	2242	97



Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 312.

* For dimensions with no tolerances, general tolerances shall apply, and they may be approximately 2 - 5mm larger than the dimensions shown. For machine design, take margins into consideration.



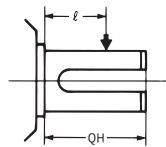
Warning

■ Cautions for selecting

- Duty cycle of JWH (High Lead Screw Type) is within 30% ED. Duty cycle is a ratio of operating time per 30 min on the basis of 30 min interval.
- JWH (High Lead Screw Type) does not have a self-locking device, therefore, a brake mechanism is required.
- Activating torque for the drive unit should be maintained at 200% above the required torque.
- Allowable input rotation speed of linipower jack is 1800 r/min, however, when inputting a speed exceeding the maximum input rotation speed at the basic capacity, check the screw shaft speed (elevation speed) and allowable load related graphs on page 203.
- Select a stroke for the jack with an extra margin with respect to the used stroke.
JWH (High Lead Screw Type) is equipped with a fall stop, however, if the stroke range is exceeded, the screw shaft falls out.
- Rotating force is generated on the screw shaft (travel nut in the case of travel nut type) with thrust, therefore, rotation prevention is required. Screw rotation torque at the basic capacity is described in the standard specification list. When operating with the end unconnected, and pulling the rope with a sheave installed, use the rotation prevention type.
Rotation prevention type of JWH (High Lead Screw Type) is of special specification, therefore, contact Tsubakimoto chain. However, the rotation prevention type cannot be manufactured for the travel nut type, therefore, provide a rotation prevention mechanism on the device.
- Bellows is of special specification, therefore, contact Tsubakimoto Chain.
- When installing a sprocket, gear, or belt to the input or output shaft, confirm that any overhang load applied to the shaft decreases to the allowable OHL or less.

$$\text{Allowable O. H. L.} \geq \frac{T \times f \times L_f}{R}$$

O.H.L. : Overhang load N (kgf)
 T : Input torque N · m (kgf · m)
 f : Coefficient - power transmission element
 L_f : Coefficient - Load operating position
 R : Sprocket, Gear, V pulley or Pitch diameter m



Q : Shaft Length
 l : Loaded Position

● Coefficient – Power Transmission Element (f)

Sprocket	1.00
Gear	1.25
V-belt	1.50
Flat belt	2.50

● Coefficient (L_f) – Load Position

l /QH	0.25	0.38	0.5	0.75	1
L _f	0.8	0.9	1	1.5	2

● Allowable O.H.L.

Frame No.		002	005	010	025	050	100	150	200	300	500	750	1000
JWH (High Lead Screw Type)	N	—	—	530	980	1510	2390	3130	3840	—	—	—	—
H Speed	{ kgf }	—	—	{54}	{100}	{154}	{244}	{320}	{392}	—	—	—	—

■ Precautions for installation

- Some screw covers of jacks are made of hard vinyl chloride pipe. Do not lift jack and transport with this pipe, which may result in dropping.
- JWH (High Lead Screw Type) rotates by self weight of the screw shaft or travel nut, therefore, retract its stroke to the minimum and provide a rotation prevention for installation.
- Take jack coasting amount into consideration to set the stroke adjusting limit switch.

■ Precautions for use

- Do not perform manual operation from the input shaft with load applied. The input shaft is rotated by the load, which is dangerous.
- When JWH (High Lead Screw Type) is used in the vertical direction, the jack may be reversed by the load because of its excellent efficiency. Never perform manual operation.
- Do not use mechanical stops under any circumstances.
- Operating Environment for jack is as follows.

Operating place	Indoor room which cannot be splashed with rain or water.
Ambient atmosphere	Dust volume comparable to general factories.
Operating temperature range	−15 to 80°C (Refer to section 3 in general precautions.)
Relative humidity	85% or less (no dew condensation)

- Operating part and reducer unit are factory greased. Therefore, use jack as delivered.
- For lubrication grease, lubrication cycle and lubrication amount to the screw shaft and reducer unit, refer to page 299.
- Inspect regularly for general backlash and screw unit condition. Jack life and replacement timing are determined by the following:
 Metal particles due to wear on the screw surface are visible.
 Replace gear when its input shaft exceeds 30 rpm with backlash (rattle between input shaft and worm wheel) at H speed, or exceeds 60 rpm at L speed.
 In either case, if it is used at the replacement timing, this may cause rotation failure of screw shaft and input shaft, and further sudden drop of travel nut.

Options

Technical Notes

JWM

JWB

JWH

Options

Installation Precautions

Product Information

Inquiry Form

Jacks with Motors

Gearmotor	_____	P275 to 278
Motor	_____	P279 to 281
Hypoid Motor	_____	P282
Servo Motor	_____	P282

Control Option

Jack Control System	_____	P283•284
LS Counter	_____	P285•286
Position Sensors	_____	P287 to 290
Internal LS	_____	P288
Potentiometer	_____	P288•289
(Stroke Display Meter, Printed Circuit Board, Meter Relay)		
Rotary Encoder	_____	P290

Others

Clevis and Trunnion Mounting Adapters	_____	P291
Hand Wheel, Columns	_____	P292
Safety Caps	_____	P293
Bellows	_____	P294

With Gearmotor JWM (Machine Screw Type)



Model Size	Motor Capacity	Gear Ratio	Jack Gear Ratio H			
			50Hz (1500r/min)		60Hz (1800r/min)	
			Shaft Speed mm/min (mm/s)	Thrust kN {kgf}	Shaft Speed mm/min (mm/s)	Thrust kN {kgf}
JWM005	25W	1/5	216 (3.6)	1.27 {130}	258 (4.3)	1.08 {110}
		1/10	108 (1.8)	2.55 {260}	126 (2.1)	2.16 {220}
JWM010	40W	1/5	210 (3.5)	1.76 {180}	258 (4.3)	1.47 {150}
		1/10	108 (1.8)	3.63 {370}	126 (2.1)	2.84 {290}
JWM025	0.1kW	1/5	252 (4.2)	4.41 {450}	300 (5.0)	3.63 {370}
		1/10	126 (2.1)	8.92 {910}	150 (2.5)	7.55 {770}
		1/15	84 (1.4)	13.6 {1390}	102 (1.7)	11.3 {1150}
		1/20	60 (1.0)	18.6 {1900}	78 (1.3)	15.0 {1530}
	0.2kW	1/25	48 (0.8)	23.2 {2370}	60 (1.0)	18.6 {1900}
		1/5	252 (4.2)	8.92 {910}	300 (5.0)	7.45 {760}
		1/10	126 (2.1)	18.6 {1900}	150 (2.5)	15.0 {1530}
		1/15	84 (1.4)	24.5 {2500}	102 (1.7)	23.2 {2370}
JWM050	0.2kW	1/5	402 (6.7)	5.88 {600}	480 (8.0)	4.80 {490}
		1/10	198 (3.3)	11.8 {1200}	240 (4.0)	9.80 {1000}
		1/15	132 (2.2)	18.2 {1860}	162 (2.7)	15.2 {1550}
		1/20	102 (1.7)	23.3 {2380}	120 (2.0)	20.3 {2070}
	0.4kW	1/25	78 (1.3)	29.4 {3000}	96 (1.6)	24.3 {2480}
		1/5	402 (6.7)	12.4 {1270}	480 (8.0)	10.3 {1050}
		1/10	198 (3.3)	25.4 {2590}	240 (4.0)	21.3 {2170}
		1/15	132 (2.2)	37.5 {3830}	162 (2.7)	31.5 {3210}
1/20	102 (1.7)	49.0 {5000}	120 (2.0)	41.7 {4250}		
JWM100	0.4kW	1/5	378 (6.3)	13.2 {1350}	450 (7.5)	11.0 {1120}
		1/10	186 (3.1)	27.0 {2760}	228 (3.8)	22.7 {2320}
		1/15	126 (2.1)	40.1 {4090}	150 (2.5)	33.5 {3420}
		1/20	96 (1.6)	53.0 {5410}	114 (1.9)	44.4 {4530}
		1/25	78 (1.3)	67.1 {6850}	90 (1.5)	55.3 {5640}
	0.75kW	1/30	60 (1.0)	80.2 {8180}	78 (1.3)	67.1 {6850}
		1/5	378 (6.3)	24.9 {2540}	450 (7.5)	20.8 {2120}
		1/10	186 (3.1)	49.8 {5080}	228 (3.8)	42.2 {4310}
		1/15	126 (2.1)	74.8 {7630}	150 (2.5)	62.8 {6410}
		1/20	96 (1.6)	98.0 {10000}	114 (1.9)	83.4 {8510}
JWM150	0.4kW	1/5	378 (6.3)	12.1 {1230}	450 (7.5)	10.0 {1020}
		1/10	186 (3.1)	24.6 {2510}	228 (3.8)	20.7 {2110}
		1/15	126 (2.1)	36.5 {3720}	150 (2.5)	30.5 {3110}
		1/20	96 (1.6)	48.2 {4920}	114 (1.9)	40.4 {4120}
		1/25	78 (1.3)	61.1 {6230}	90 (1.5)	50.2 {5120}
	0.75kW	1/30	60 (1.0)	69.9 {7130}	78 (1.3)	61.1 {6230}
		1/5	378 (6.3)	22.6 {2310}	450 (7.5)	18.9 {1930}
		1/10	186 (3.1)	45.3 {4620}	228 (3.8)	38.4 {3920}
		1/15	126 (2.1)	67.9 {6930}	150 (2.5)	57.1 {5830}
		1/20	96 (1.6)	91.5 {9340}	114 (1.9)	75.9 {7740}
1/25	78 (1.3)	114 {11660}	90 (1.5)	94.6 {9650}		
JWM200	0.75kW	1/5	450 (7.5)	18.9 {1930}	540 (9.0)	15.7 {1600}
		1/10	228 (3.8)	37.7 {3850}	270 (4.5)	31.9 {3260}
		1/15	150 (2.5)	56.6 {5780}	180 (3.0)	47.5 {4850}
		1/20	114 (1.9)	76.3 {7790}	138 (2.3)	63.2 {6450}
		1/25	90 (1.5)	95.2 {9710}	108 (1.8)	78.8 {8040}
	1.5kW	1/5	450 (7.5)	37.9 {3870}	540 (9.0)	31.5 {3220}
		1/10	228 (3.8)	76.3 {7790}	270 (4.5)	63.2 {6450}
		1/15	150 (2.5)	114 {11640}	180 (3.0)	95.1 {9710}
		1/20	114 (1.9)	151 {15490}	138 (2.3)	126 {12900}
		1/25	90 (1.5)	189 {19350}	108 (1.8)	158 {16160}

□ : Standard

■ : Option

▨ : Made-to-Order

* Other shaft speeds and thrusts also available.

* Values in striped cells ▨ indicate thrust rates that exceed allowable capacities. Be sure to adjust thrust to below these rates.

* These thrust rates do not take allowable buckling rates into account. Consider as necessary.

With Gearmotor JWB (Ball Screw Type)



Model Size	Motor Capacity	Gear Ratio	Jack Gear Ratio H			
			50Hz (1500r/min)		60Hz (1800r/min)	
			Shaft Speed mm/min (mm/s)	Thrust kN (kgf)	Shaft Speed mm/min (mm/s)	Thrust kN (kgf)
JWB005	25W	1/5	270 (4.5)	2.55 {260}	318 (5.3)	2.16 {220}
		1/10	138 (2.3)	4.90 {500}	162 (2.7)	4.21 {430}
JWB010	40W	1/5	264 (4.4)	4.12 {420}	318 (5.3)	3.43 {350}
		1/10	132 (2.2)	8.62 {880}	162 (2.7)	6.66 {680}
JWB025	0.1kW	1/5	402 (6.7)	8.23 {840}	480 (8.0)	6.86 {700}
		1/10	198 (3.3)	16.6 {1690}	240 (4.0)	14.0 {1430}
	0.2kW	1/5	402 (6.7)	16.6 {1690}	480 (8.0)	13.7 {1400}
JWB050	0.2kW	1/5	498 (8.3)	13.6 {1390}	600 (10)	11.3 {1150}
		1/10	252 (4.2)	28.3 {2890}	300 (5.0)	22.8 {2330}
	0.4kW	1/5	498 (8.3)	29.1 {2967}	600 (10)	24.1 {2461}
JWB100	0.4kW	1/5	450 (7.5)	31.8 {3240}	540 (9.0)	26.4 {2690}
		1/10	228 (3.8)	64.6 {6590}	270 (4.5)	54.2 {5530}
	0.75kW	1/5	450 (7.5)	59.5 {6070}	540 (9.0)	49.6 {5060}
JWB150	0.4kW	1/5	600 (10)	23.8 {2430}	720 (12)	19.7 {2010}
		1/10	300 (5.0)	48.4 {4940}	360 (6.0)	40.7 {4150}
		1/15	198 (3.3)	71.7 {7320}	240 (4.0)	60.1 {6130}
	0.75kW	1/20	150 (2.5)	95.0 {9690}	180 (3.0)	79.5 {8110}
		1/5	600 (10)	44.6 {4550}	720 (12)	37.2 {3800}
		1/10	300 (5.0)	89.2 {9100}	360 (6.0)	75.6 {7710}
JWB200	0.75kW	1/15	198 (3.3)	134 {13650}	240 (4.0)	112 {11470}
		1/5	600 (10)	44.0 {4490}	720 (12)	36.6 {3730}
		1/10	300 (5.0)	87.7 {8950}	360 (6.0)	74.4 {7590}
	1.5kW	1/15	198 (3.3)	132 {13440}	240 (4.0)	111 {11290}
		1/20	150 (2.5)	177 {18110}	180 (3.0)	147 {14990}
		1/5	600 (10)	88.1 {8990}	720 (12)	73.4 {7490}
		1/10	300 (5.0)	177 {18110}	360 (6.0)	147 {14990}

With Gearmotor JWH (High Lead Ball Screw Type)



Model Size	Motor Capacity	Gear Ratio	Jack Gear Ratio H			
			50Hz (1500r/min)		60Hz (1800r/min)	
			Shaft Speed mm/min (mm/s)	Thrust kN (kgf)	Shaft Speed mm/min (mm/s)	Thrust kN (kgf)
JWH010	40W	1/5	1200 (20)	0.98 {100}	1440 (24)	0.88 {90}
		1/10	600 (10)	2.16 {220}	720 (12)	1.67 {170}
JWH025	0.1kW	1/5	1260 (21)	2.74 {280}	1500 (25)	2.25 {230}
		1/10	600 (10)	5.49 {560}	780 (13)	4.70 {480}
JWH025	0.2kW	1/5	1260 (21)	5.49 {560}	1500 (25)	4.61 {470}
		1/10	600 (10)	11.5 {1170}	780 (13)	9.31 {950}
JWH050	0.2kW	1/5	1260 (21)	5.78 {590}	1500 (25)	4.80 {490}
		1/10	600 (10)	12.1 {1230}	780 (13)	9.70 {990}
JWH050	0.4kW	1/5	1260 (21)	12.3 {1260}	1500 (25)	10.2 {1040}
		1/10	600 (10)	25.1 {2560}	780 (13)	21.1 {2150}
JWH100	0.4kW	1/5	1200 (20)	12.3 {1250}	1440 (24)	10.2 {1040}
		1/10	600 (10)	25.0 {2550}	720 (12)	21.0 {2140}
JWH100	0.75kW	1/5	1200 (20)	22.9 {2340}	1440 (24)	19.2 {1960}
		1/10	600 (10)	46.0 {4690}	720 (12)	39.0 {3980}
JWH150	0.4kW	1/5	1200 (20)	12.3 {1250}	1440 (24)	10.2 {1040}
		1/10	600 (10)	25.0 {2550}	720 (12)	21.0 {2140}
JWH150	0.75kW	1/5	1200 (20)	22.9 {2340}	1440 (24)	19.2 {1960}
		1/10	600 (10)	46.0 {4690}	720 (12)	39.0 {3980}
JWH200	0.75kW	1/5	1200 (20)	22.6 {2310}	1440 (24)	18.9 {1930}
		1/10	600 (10)	45.3 {4620}	720 (12)	38.4 {3920}

Standard

Option

Made-to-Order

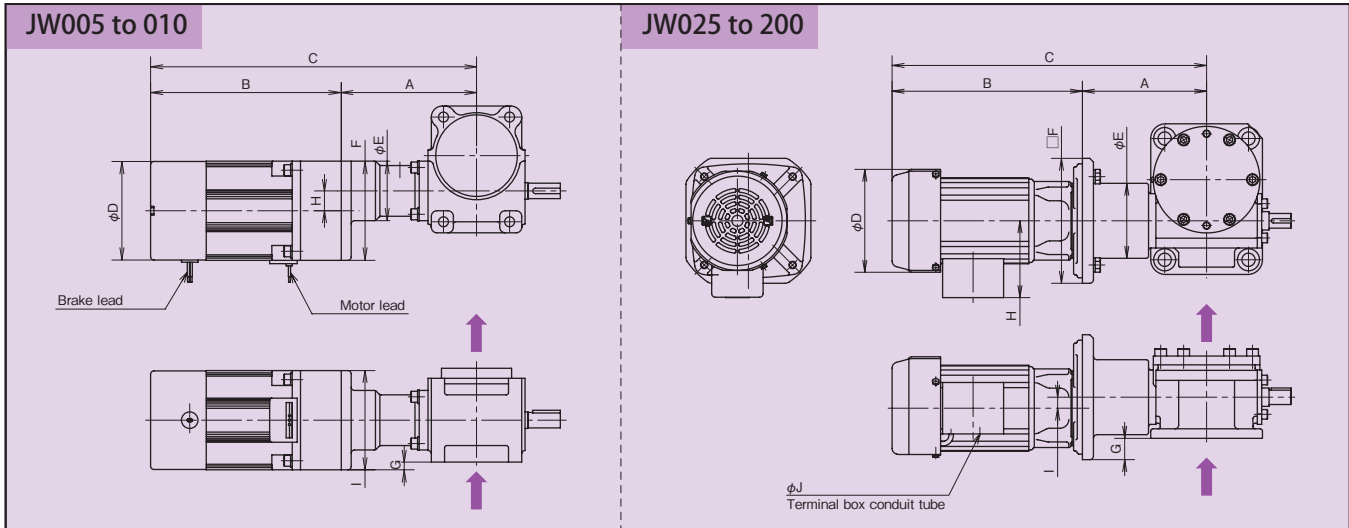
* Other shaft speeds and thrusts also available.

* Values in striped cells indicate thrust rates that exceed allowable capacities. Be sure to adjust thrust to below these rates.

* These thrust rates do not take allowable buckling rates into account. Consider as necessary.

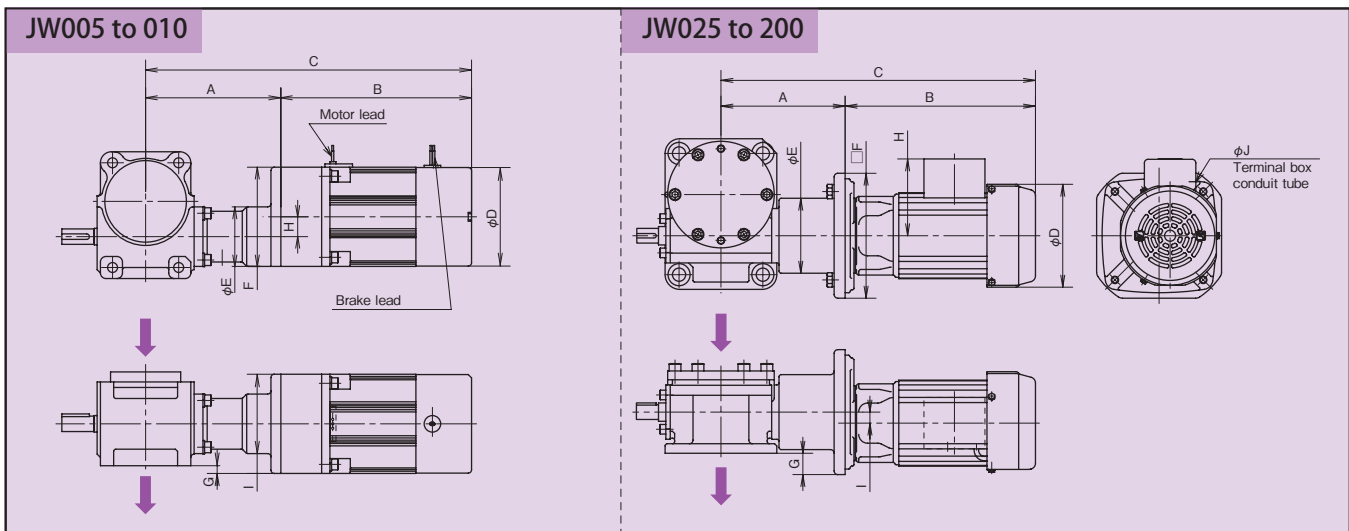
Dimensions for Motored Jacks

Standard Gearmotor Mounting



Note) For standard (US, DS) and rotation prevention types (UM, DM), screw shafts will lift in the direction of with normal wiring.
For travel nut types (UR,DR), nuts will lift in the direction of with normal wiring.

Gearmotor Mounting on the Opposite Side



Note) For standard (US, DS) and rotation prevention types (UM, DM), screw shafts will lift in the direction of with normal wiring.
For travel nut types (UR,DR), nuts will lift in the direction of with normal wiring.

Unit: mm

Frame Size	Motor Weight	A	B	C	D	E	F	G	H	I	J
JW005	25W	106	160	266	84	60	85	15	15	80	—
JW010	40W	123	188	311	93	54	90	7	18	90	—
JW025	0.1kW	144	242	386	140	93	170	40	105	15	12
	0.2kW	144	259	403	140	93	170	40	105	15	12
JW050	0.2kW	169	259	428	140	102	170	29	105	15	12
	0.4kW	191	301	492	140	102	200	44	105	18	12
JW100	0.4kW	207	301(323)	508(530)	140	131	200	44	105	18(23)	12
	0.75kW	207	353	558	158	131	200	44	114	23	12
JW150	0.4kW	211	301(323)	512(534)	140	131	200	30	105	18(23)	12
	0.75kW	211	353	564	158	131	200	30	114	23	12
JW200	0.75kW	231	353	584	158	144	200	15	114	23	12
	1.5kW	246	461	707	198	150	280	55	143	27	27

* () assumes 1/30 rpm.

Standard Gearmotor

Output	25W to 40W	0.1kW to 1.5kW
Model	With Brake/Totally Enclosed	
Voltage	200/200/220V	
Frequency	50/60/60Hz	
Pole	4P	
Phase	3 Phase	
Protection	IP 20	IP44
Rating	SI (Continuous)	
Insulation Class	E (F:0.75 to 1.5kW)	

Specialized Gearmotor

Specifications	25W to 40W	0.1kW to 0.4kW	0.75kW to 1.5kW
Inverter Motor	—	○	○
400V Class Voltage	△*	○	○
Special Voltage	—	○	○
Global Use (CCC,CE,UL)	△*	○	—
One touch brake manual release	—	○	○
Manual shaft	—	○	○
Rotary encoder	—	○	○

* Contact to Tsubaki.

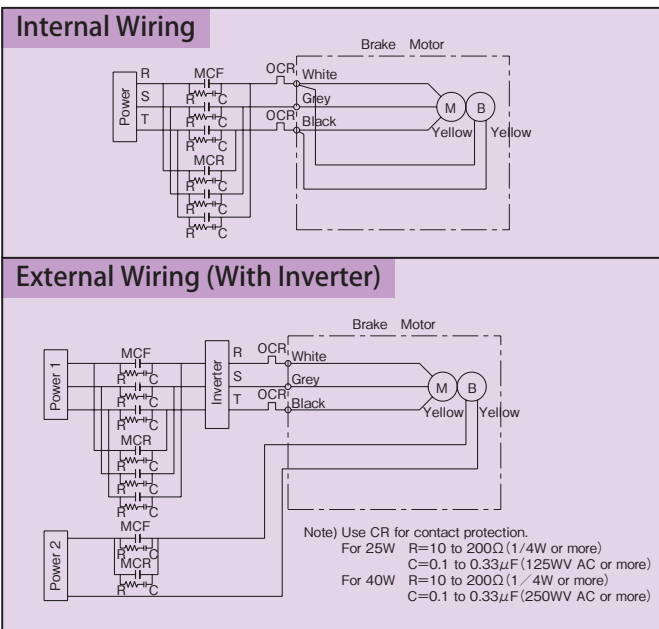
Motor current value and brake current value

Motor	Motor current value (A)			Brake model No.	Brake current value (A)		
	200V 50Hz	200V 60Hz	220V 60Hz		200V 50Hz	200V 60Hz	220V 60Hz
4P - 25W	0.25	0.22	0.23	—	0.03	0.03	0.03
4P - 40W	0.31	0.29	0.28		0.07	0.07	0.08
4P - 0.1 kW	0.63	0.57	0.58	SLB01	0.178	0.178	0.178
4P - 0.2 kW	1.2	1.1	1.1	SLB02	0.178	0.178	0.178
4P - 0.4kW	2.3	2.0	2.0	SLB04	0.232	0.232	0.232
4P - 0.75kW	4.0	3.5	3.4	SLB07	0.272	0.272	0.273
4P - 1.5 kW	6.8	6.4	6.0	SLB15	0.289	0.289	0.289

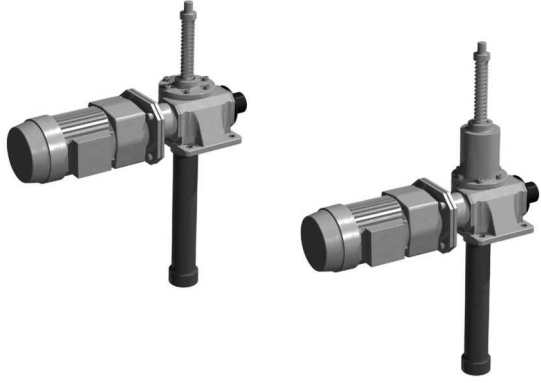
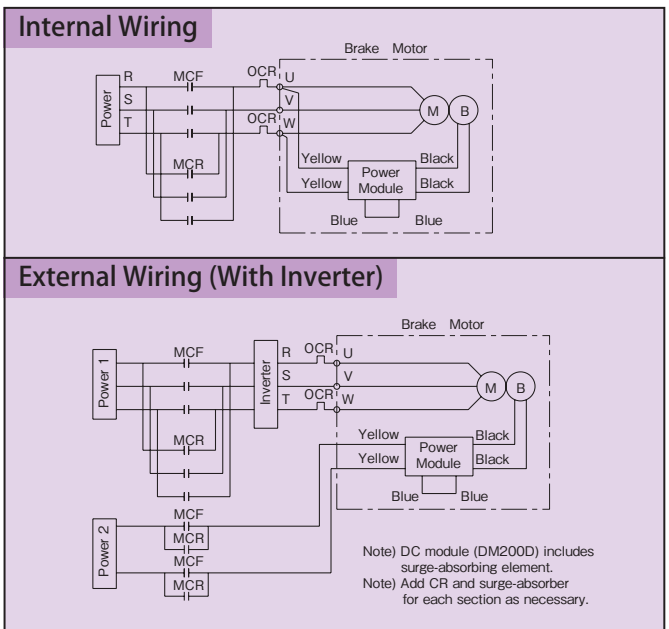
- Note) 1. The above values are the rated current values of motors and brakes.
 They are given for reference because they may differ according to the actually acting thrust, jack efficiency, etc.
 2. The rated motor current values do not include brake current values.
 3. The brake current values show the values on the secondary side of the power supply module (0.1kW up to 1.5kW).

Circuit Diagrams

Circuit Diagrams for 25 to 40W



Circuit Diagrams for 0.1 to 1.5kW



With Motor JWM (Machine Screw Type)




Frame Size	Motor Capacity	Jack Gear Ratio H			
		50Hz (1500r/min)		60Hz (1800r/min)	
		Shaft Speed mm/min (mm/s)	Thrust kN {kgf}	Shaft Speed mm/min (mm/s)	Thrust kN {kgf}
JWM025	0.2kW	1260 (21)	1.96 {200}	1500 (25)	1.66 {170}
	0.4kW	1260 (21)	4.02 {410}	1500 (25)	3.33 {340}
	0.75kW	1260 (21)	7.55 {770}	1500 (25)	6.27 {640}
	1.5kW	1260 (21)	10.0 {1020}	1500 (25)	8.33 {850}
JWM050	0.75kW	1980 (33)	4.98 {508}	2400 (40)	4.12 {420}
	1.5kW	1980 (33)	9.80 {1000}	2400 (40)	8.23 {840}
JWM100	2.2kW	1860 (31)	15.5 {1580}	2280 (38)	12.8 {1310}
	3.7kW	1860 (31)	19.6 {2000}	2280 (38)	16.4 {1670}
JWM150	2.2kW	1860 (31)	14.0 {1430}	2280 (38)	11.7 {1190}
	3.7kW	1860 (31)	19.8 {2020}	2280 (38)	16.4 {1670}
JWM200	2.2kW	2280 (38)	11.7 {1190}	2700 (45)	9.70 {990}
	3.7kW	2280 (38)	19.7 {2010}	2700 (45)	16.4 {1670}

With Motor JWB (Ball Screw Type)


Frame Size	Motor Capacity	Jack Gear Ratio H			
		50Hz (1500r/min)		60Hz (1800r/min)	
		Shaft Speed mm/min (mm/s)	Thrust kN {kgf}	Shaft Speed mm/min (mm/s)	Thrust kN {kgf}
JWB025	0.2kW	1980 (33)	3.72 {380}	2400 (40)	3.13 {320}
	0.4kW	1980 (33)	7.45 {760}	2400 (40)	6.27 {640}
	0.75kW	1980 (33)	14.0 {1430}	2400 (40)	11.7 {1190}
	1.5kW	1980 (33)	24.4 {2490}	2400 (40)	20.0 {2050}
JWB050	0.75kW	2520 (42)	11.6 {1180}	3000 (50)	9.60 {980}
	1.5kW	2520 (42)	22.9 {2340}	3000 (50)	19.1 {1950}
JWB100	2.2kW	2280 (38)	36.9 {3770}	2700 (45)	30.8 {3140}
	3.7kW	2280 (38)	59.5 {6080}	2700 (45)	50.3 {5140}
JWB150	2.2kW	3000 (50)	27.7 {2830}	3600 (60)	23.0 {2350}
	3.7kW	3000 (50)	46.6 {4750}	3600 (60)	38.7 {3950}
JWB200	2.2kW	3000 (50)	27.2 {2780}	3600 (60)	22.6 {2310}
	3.7kW	3000 (50)	45.8 {4670}	3600 (60)	38.1 {3890}

With Motor JWH (High Lead Ball Screw Type)

Frame Size	Motor Capacity	Jack Gear Ratio H			
		50Hz (1500r/min)		60Hz (1800r/min)	
		Shaft Speed mm/min (mm/s)	Thrust kN {kgf}	Shaft Speed mm/min (mm/s)	Thrust kN {kgf}
JWH025	0.4kW	6240 (104)	2.45 {250}	7500 (125)	2.06 {210}
	0.75kW	6240 (104)	4.70 {480}	7500 (125)	3.92 {400}
	1.5kW	6240 (104)	9.31 {950}	7500 (125)	7.74 {790}
JWH050	0.75kW	6240 (104)	4.90 {500}	7500 (125)	4.12 {420}
	1.5kW	6240 (104)	9.70 {990}	7500 (125)	8.13 {830}
JWH100	2.2kW	6000 (100)	14.3 {1460}	7200 (120)	11.9 {1210}
	3.7kW	6000 (100)	24.0 {2450}	7200 (120)	20.0 {2040}
JWH150	2.2kW	6000 (100)	14.3 {1460}	7200 (120)	11.9 {1210}
	3.7kW	6000 (100)	24.0 {2450}	7200 (120)	20.0 {2040}
JWH200	2.2kW	6000 (100)	14.0 {1430}	7200 (120)	11.7 {1190}
	3.7kW	6000 (100)	23.6 {2410}	7200 (120)	19.7 {2010}

	: Standard
	: Rush Order
	: Made-to-Order

* Other shaft speeds and thrusts also available.

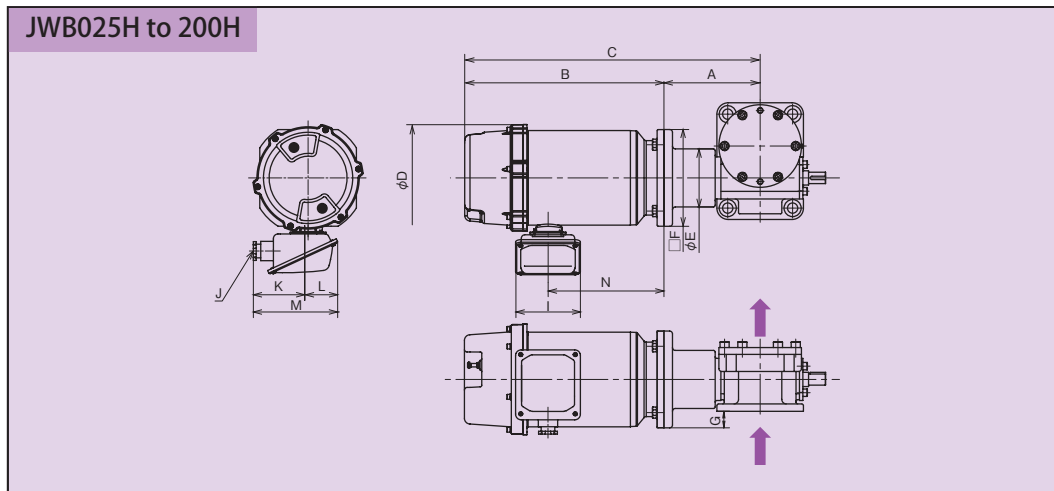
* Values in striped cells  indicate thrust rates that exceed allowable capacities. Be sure to adjust thrust to below these rates.

* These thrust rates do not take allowable buckling rates into account. Consider as necessary.

* As for worm ratio L, consult Tsubakimoto chain.

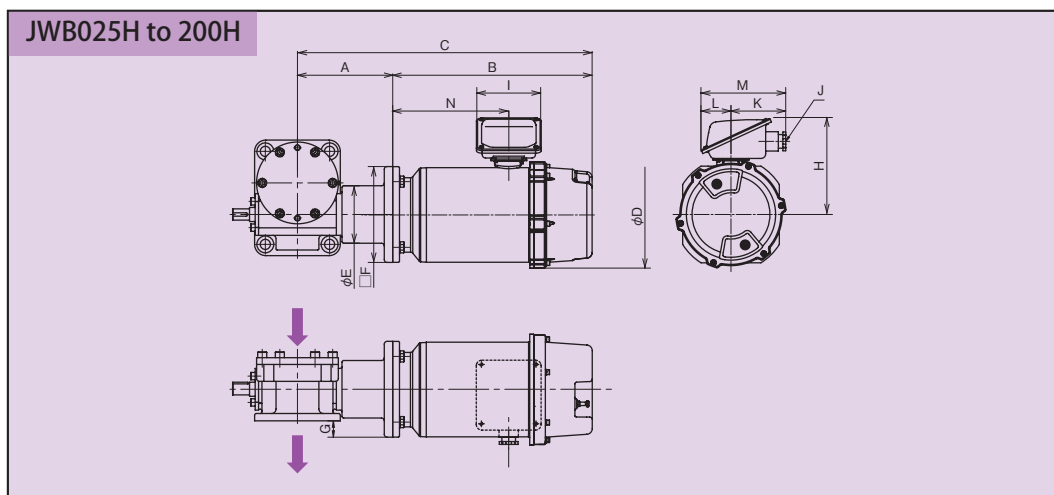
Dimensions for Motored Jacks

Standard motor Mounting



Note) For standard (US, DS) and rotation prevention types (UM, DM), screw shafts will lift in the direction of with normal wiring.
For travel nut types (UR,DR), nuts will lift in the direction of with normal wiring.

Motor mounting on the Opposite Side



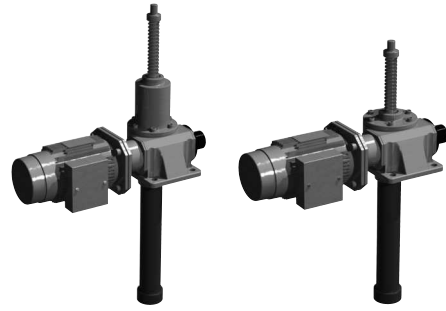
Note) For standard (US, DS) and rotation prevention types (UM, DM), screw shafts will lift in the direction of with normal wiring.
For travel nut types (UR,DR), nuts will lift in the direction of with normal wiring.

Unit: mm

Frame Size	Motor Capacity	A	B	C	D	E	F	G	H	I	J	K	L	M	N
JW025	0.2kW	132	231	363	132	95	120	15	125	84	SK-14L(PF1/2)	79	45	124	112
	0.4kW	139	253	392	132	95	120	15	125	84	SK-14L(PF1/2)	79	45	124	134
	0.75kW	146	289	435	180	102	170	40	166	114	A20C(PF3/4)	106	49	155	145
	1.5kW	146	351	497	194	102	170	40	178	114	A20C(PF3/4)	106	49	155	204
JW050	0.75kW	169	289	458	180	102	170	29	166	114	A20C(PF3/4)	106	49	155	145
	1.5kW	169	351	520	194	102	170	29	178	114	A20C(PF3/4)	106	49	155	204
JW100	2.2kW	207	381	588	207	131	200	44	178	114	A25C(PF1)	110	49	159	213
	3.7kW	207	414	621	229	144	200	44	189	114	A25C(PF1)	110	49	159	239
JW150	2.2kW	211	381	592	207	131	200	44	178	114	A25C(PF1)	110	49	159	213
	3.7kW	211	414	625	229	144	200	44	189	114	A25C(PF1)	110	49	159	239
JW200	2.2kW	231	381	612	207	131	200	15	178	114	A25C(PF1)	110	49	159	213
	3.7kW	231	414	645	229	144	200	15	189	114	A25C(PF1)	110	49	159	239

Motor Specifications

Output	0.2kW to 0.4kW	0.75kW to 3.7kW
Power Source	200/200/220V	
	400/400/440V	
Frequency	50/60/60Hz	
Pole	4P	
Phase	3 Phase	
Protection	IP55	
Rating	S2 30min	
Insulation Class	E (B for 400V)	
With Brake	Electromagnetic Brake (DC, non-excitation type)	



Motor current value and brake current value

Motor	Motor current value (A)						Brake model No.	Brake current value (A)					
	200V 50Hz	200V 60Hz	220V 60Hz	400V 50Hz	400V 60Hz	440V 60Hz		200V 50Hz	200V 60Hz	220V 60Hz	400V 50Hz	400V 60Hz	440V 60Hz
4P - 0.2 kW	1.3 (4.91)	1.1 (4.68)	1.1 (5.14)	0.63 (2.40)	0.55 (2.22)	0.56 (2.41)	SBH02LP	0.17 0.26	0.17 0.26	0.17 0.28	0.17 0.26	0.17 0.26	0.17 0.28
4P - 0.4 kW	2.4 (11.6)	2.1 (10.2)	2.1 (11.0)	1.2 (5.14)	1.1 (4.88)	1.1 (5.39)	SBH04LP	0.17 0.26	0.17 0.26	0.17 0.28	0.17 0.26	0.17 0.26	0.17 0.28
4P - 0.75 kW	3.9 (24.0)	3.5 (22.0)	3.4 (24.0)	1.9 (12.0)	1.7 (11.0)	1.7 (12.0)	SLB07LP	0.21 0.28	0.21 0.28	0.23 0.31	0.11 0.15	0.11 0.15	0.12 0.16
4P - 1.5 kW	6.5 (49.0)	6.1 (45.0)	5.8 (50.0)	3.2 (24.5)	3.1 (22.5)	2.9 (25.0)	SLB15LP	0.22 0.29	0.22 0.29	0.24 0.32	0.11 0.15	0.11 0.15	0.12 0.16
4P - 2.2 kW	9.4 (63.7)	8.9 (58.2)	8.3 (63.0)	4.7 (31.8)	4.4 (29.1)	4.2 (31.5)	SLB22LP	0.18 0.29	0.18 0.29	0.20 0.32	0.09 0.15	0.09 0.15	0.11 0.16
4P - 3.7 kW	14.8 (104)	14.3 (87.9)	13.2 (98.0)	7.4 (52.0)	7.1 (43.9)	6.6 (49.0)	VNB371K (NB-31186)	0.10 0.30	0.10 0.30	0.10 0.30	0.05 0.15	0.05 0.15	0.05 0.15

Note) 1. The above values are rated current values of the motor and brake. A numerical value in parentheses is a start current value of the motor.

2. The rated current values and start current values do not include a brake current value.

3. A DC brake is used as a brake. The upper stage of the brake current value indicates a value on the primary side of the power module, and the lower stage indicates a value on the secondary side.

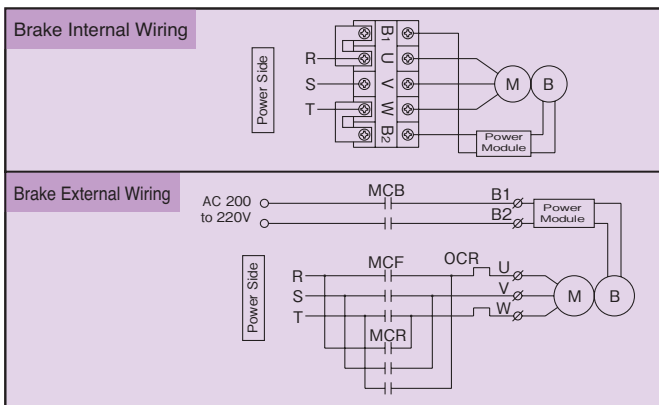
4. The above values are references because the rated current values for the power cylinder vary depending on operating conditions.

5. For simultaneous turnoff of 0.1kW to 0.4kW, 400V class, the voltage is converted to 200V through the motor intermediate tap to be input. For individual turnoff, decrease the voltage to 200 to 220V by a transformer. The capacity of the transformer capacity shall be 90VA or more.

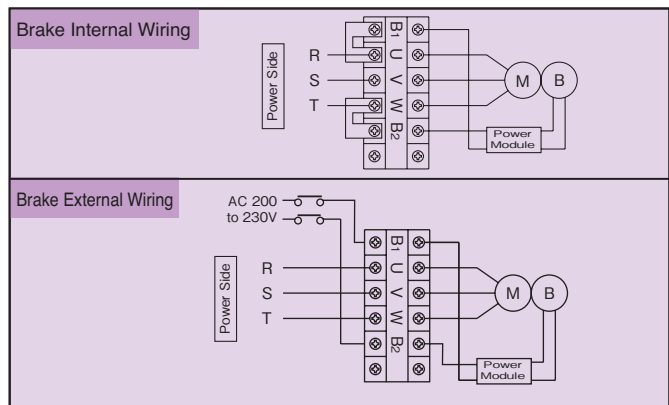
6. For individual turnoff of 0.75kW or more, 400V class, the DC module is applicable for 400V class, therefore, it is unnecessary to decrease the voltage.

Circuit Diagrams

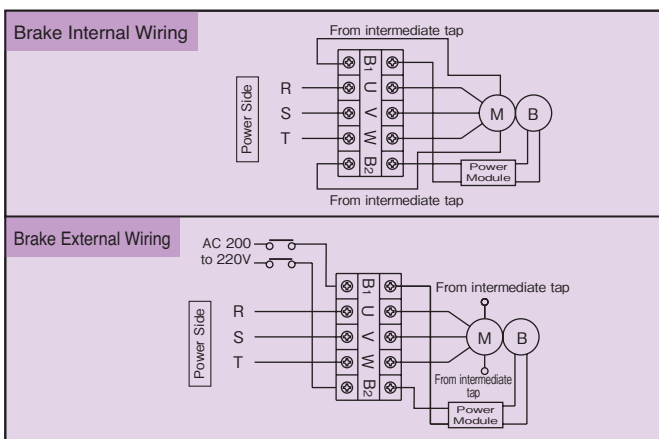
Circuit Diagrams for 0.2 to 0.4kW(200V)



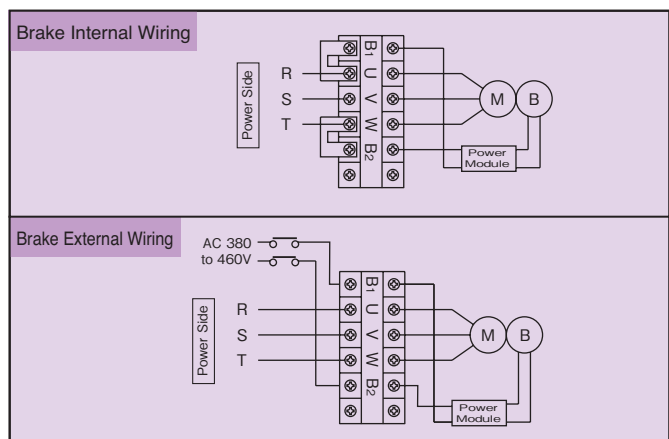
Circuit Diagrams for 0.75 to 3.7kW(200V)



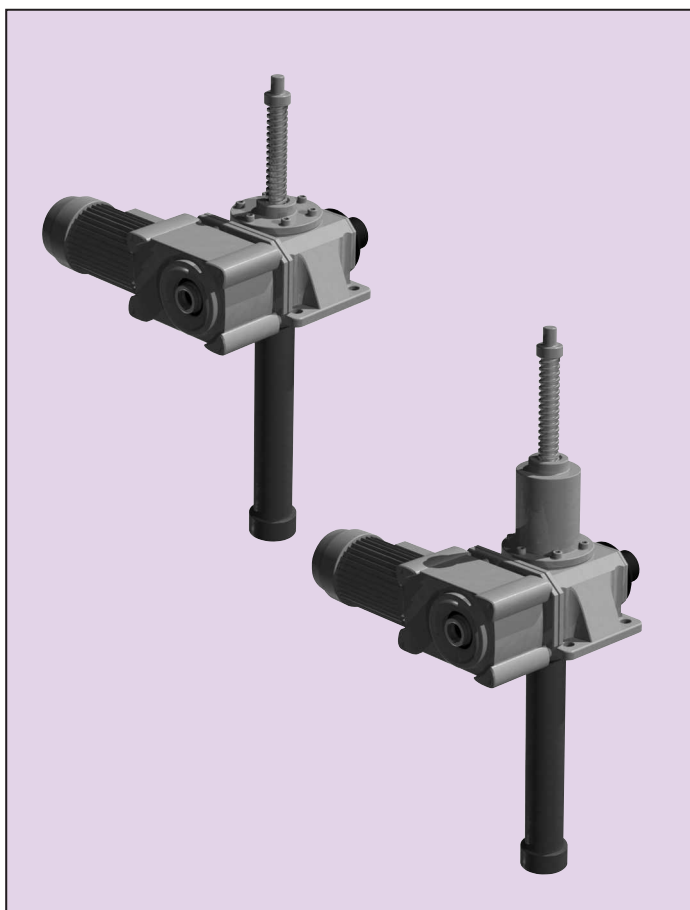
Circuit Diagrams for 0.2 to 0.4kW(400V)



Circuit Diagrams for 0.75 to 3.7kW(400V)

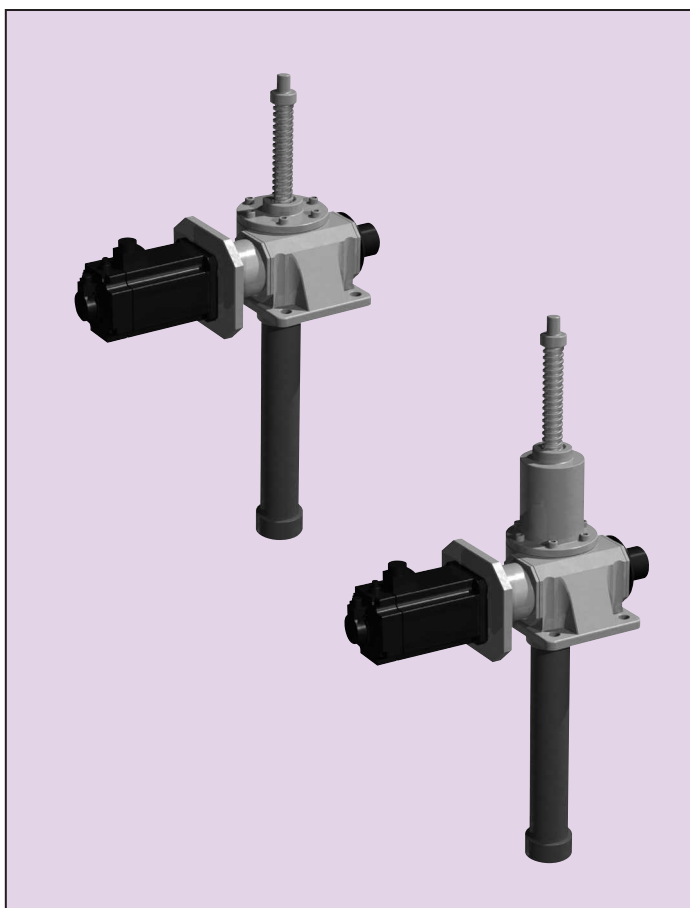


Hypoid Motor Type



1. TSUBAKI Hypoid Motor is a space saver.
2. To install, the Hypoid Motor can be adjusted at 90° intervals from the input shaft.

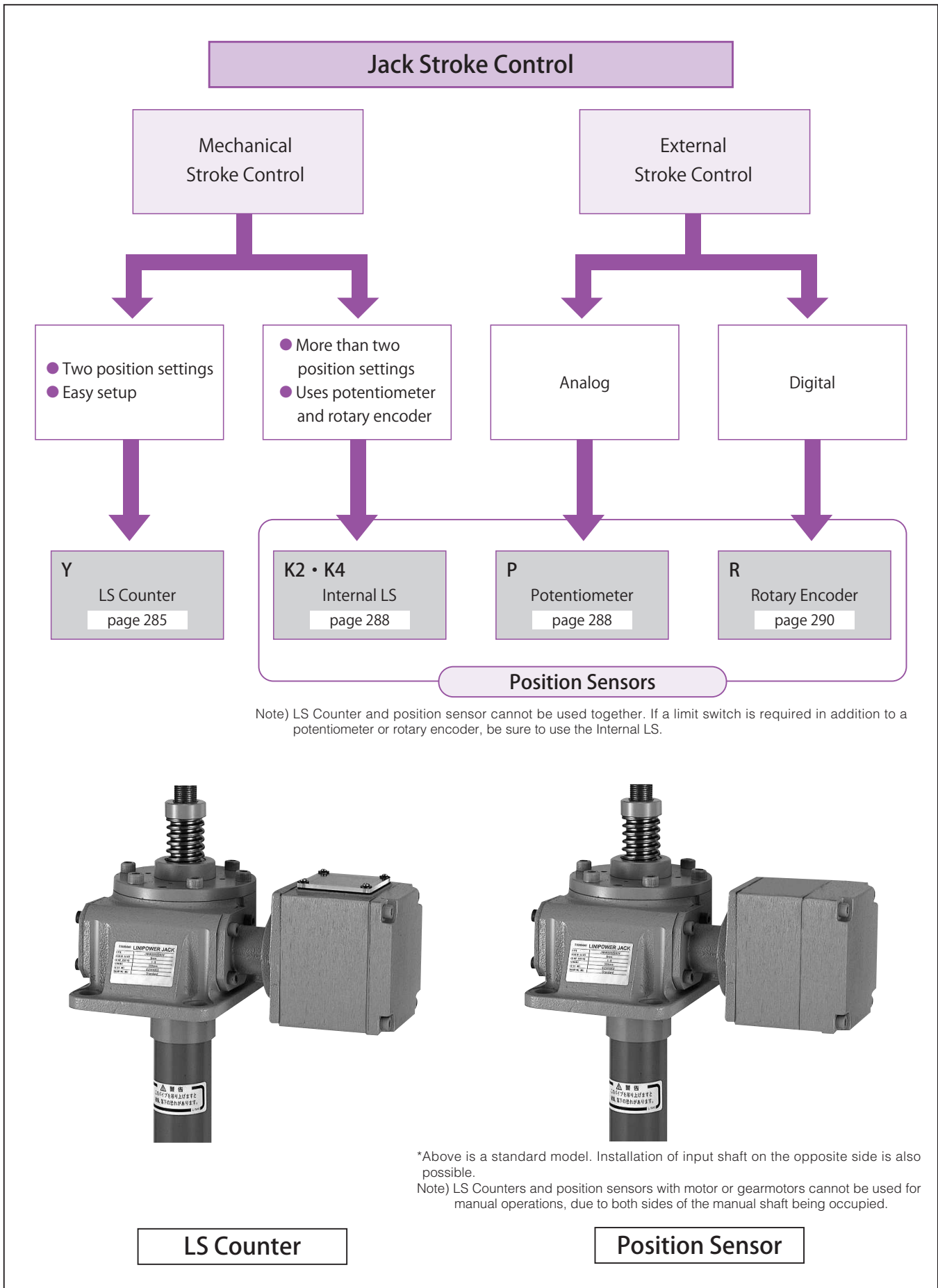
Servo Motor Type



1. Allows complete control of screw shaft speed.
2. Allows accurate control of stopping.
3. Allows accurate control of force applied to the jack.
4. Maintains load with Servo Lock function.
5. Operates multiple jack systems without mechanical connections.
6. Compatible with any brand of servo motor.

Jack Control System

We offer various stroke control options to suit your specific needs and conditions. Select from a limit switch, analog device with potentiometer, and digital device with an encoder.





LS Counter

A compact stroke adjusting device as well as a detection unit that combines a cam mechanism with a microswitch. It can be mounted directly to the input shaft of a jack, and mechanical positioning of upper and lower limits of strokes can easily be performed. Stroke control can be performed only by setting the stop position by the reset button. This economy-type limit switch allows for easy adjustment.

Position Sensor

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> (1) Internal LS (2) Potentiometer (3) Rotary Encoder | } | <p>3 options are available based on specific needs.
A combination of all 3 is also available.</p> |
|--|---|---|

(1) Internal LS

Can be used in addition to a potentiometer and rotary encoder, and is effective under dusty conditions. 2 or 4 microswitch types available. (K2 or K4)

(2) Potentiometer

Comes with a convenient meter that displays stroke range, and allows full adjustment of stroke. It also measures changes in stroke resistance. Below are options available with a potentiometer.

- Stroke display meter (PCB provided)
- Meter relay (PCB provided)

(3) Rotary Encoder

Digital signal of Sequencer or PLC (programmable controller) allows you to control jack stroke. Open collector and line driver output power sources are available. The following option is possible with a rotary encoder.

LS Counter

A Limit Switch that uses a mechanical counter to accurately measure and adjust stroke at small intervals. It can be mounted directly to the input shaft. Use two counters and limit switches to control both the upper and lower travel limits. Its one-touch reset button also allows you to stop or reset stroke at any time.

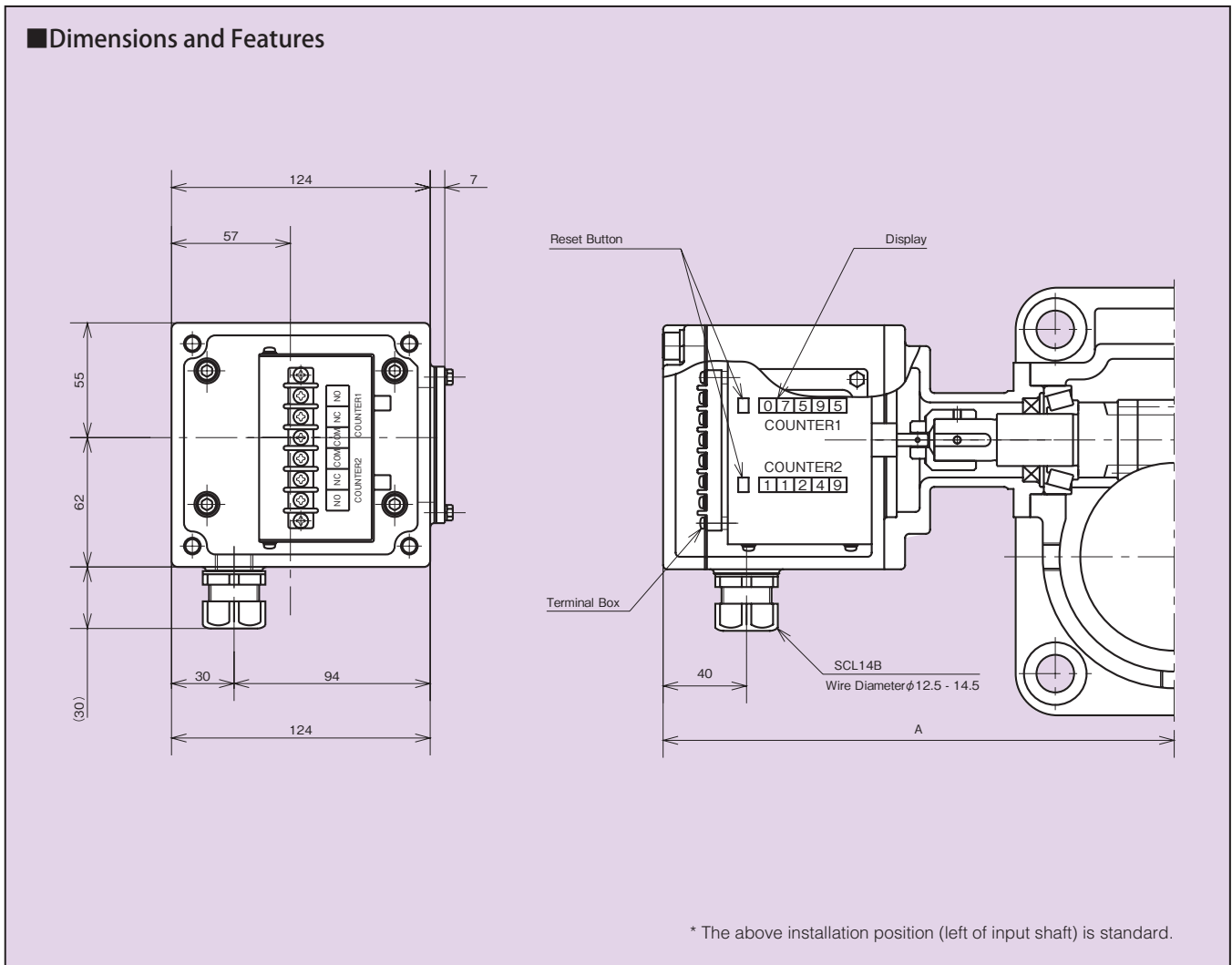
Note) LS Counters cannot be used with a rotary encoder or potentiometer. Rotary encoders and potentiometers must be used with a position detection unit (with internal LS).

Form	Mechanical Counter
No. of Counter Digits	5 (1 Count/Input Shaft Revolution)
Allowable Max. Input Rotation	1800r/min
Limit Switch Used	AVT3254 (Matsushita Electronics)
Contact Composition	1 C (Max. and Min. 1 pt. each)
Power Voltage	250V AC 3A
Ambient Temperature	-5 to 40°C

* LS is not factory adjusted and requires initial setting before use.

* Take caution so as to avoid water from contacting internal parts while adjusting.

When the limit switch is working, the numbers displayed on the LS Counter unit changes from 00000 to 99999 (or 99999 to 00000).



Linipower Jack

Unit: mm

Frame No.	002	005	010	025	050	100	150	200
A	187	187	211	220	245	271	275	280

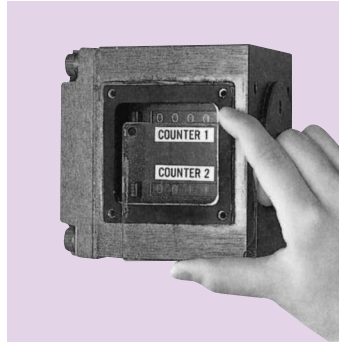
Linispeed Jack

Unit: mm

Frame No.	SJ030H	SJ050H
A	277	306

Setting the LS Counter

Setting the limit switch is as easy as 1 to 6 below.



1. Remove cover.

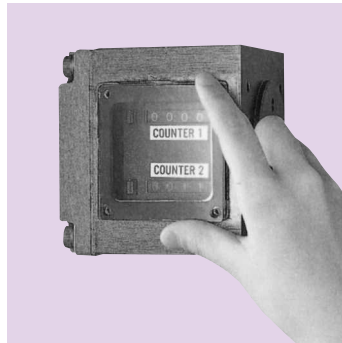


- 2. Set jack at desired maximum and minimum positions manually or by inching.
- 3. Press the counter reset button.
(The display will show 00000 and measure from this position.)
- 4. Confirm by moving the jack and then returning it to the set position. Limit switch is now activated.

5. Next, set the jack at another position and confirm in the same manner.



6. Replace cover.



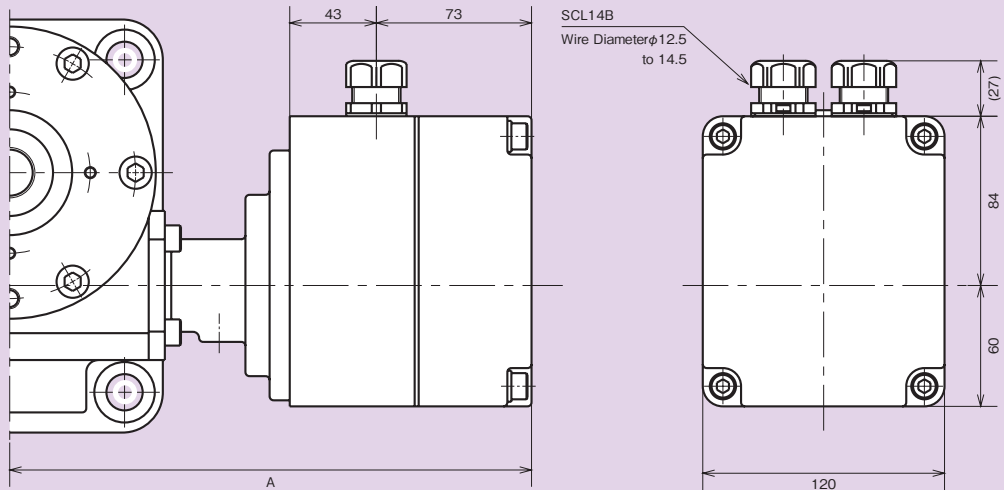
Note) Turning the shaft or travel nut after adjustment will change the setting.

Position Sensors

3 kinds of position sensors are available.

- ① Internal LS (2 or 4)
- ② Potentiometer
- ③ Rotary Encoder

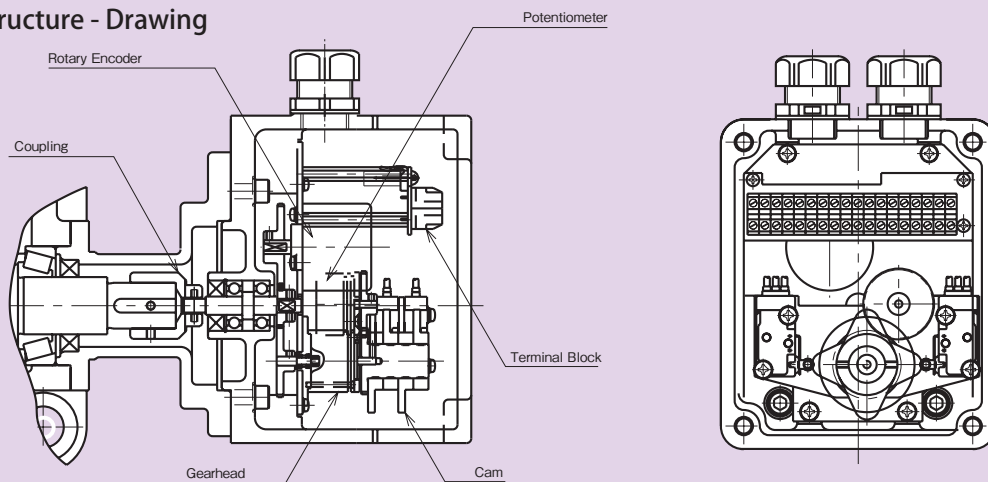
■ Dimensions



Unit: mm

Frame No.	JWM 002	JWM JWB 005	JWM JWB 010 JWH	JWM JWB 025 JWH	JWM JWB 050 JWH	JWM JWB 100 JWH	JWM JWB 150 JWH	JWM JWB 200 JWH
A	197	197	222	230	255	281	285	290

■ Internal Structure - Drawing



Position detection unit wiring

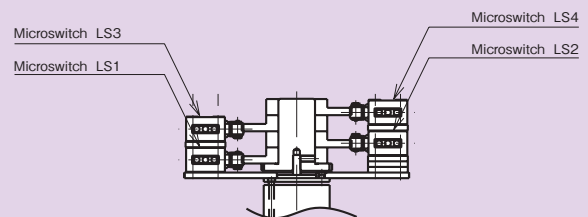
To connect internal LS, potentiometer or rotary encoder, use the terminal block installed in the unit.

Use a shield wire in wiring a rotary encoder.

⚠ Each terminal is connected behind terminal block by printing board.




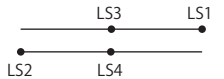
Terminal No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

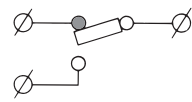


Option	Internal LS (K2,K4)								Potentiometer			Rotary Encoder						
Symbol	LS1		LS2		LS3		LS4		Common	P			R					
Contact	a	b	a	b	a	b	a	b	c	1	2	3	1	2	Z	+5 to 24V	0V	Case
Terminal No.	18	17	5	6	16	15	7	8	4	1	2	3	9	10	11	12	13	14

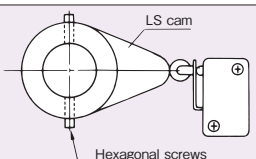
① Internal LS

- K2·····Arrange microswitches LS1 and LS2 as shown below.
- K4·····Arrange microswitches LS1, LS2, LS3, LS4 as shown below.

	Option Symbol	Example
Position Detection Unit Internal LS	K2	 <p>Both ends fixed</p>
Position Detection Unit Internal LS	K4	 <p>Forward: Fixed at midway position. Fixed end.</p> <p>Return: Fixed at midway position. Fixed end.</p>

Model No.	D2VW-5L2A-1M Equivalent
Electric Composition	250V AC 4A (cosφ0.7)
Contact Composition	1C 

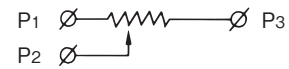
<LS Setting>
 Consider inertia when adjusting LS Cam.
 To adjust LS Cam, use a hexagonal wrench and loosen the hexagonal screws (2).
 *LS is not factory adjusted.



② Potentiometer

Potentiometers are programmed to activate within effective angles.
 Do not rotate the input shaft before installing the screw shaft to your equipment. This can shift the stroke phase.
 Note that the output resistance value varies depending on each frame No. and each stroke.
 Total resistance value is 1.0 kΩ, however, depending on the stroke, approximately 1/3 of the total resistance value may be output according to the rotation angle, therefore, confirm it before use.

Model No.	CP-30 Equivalent
Maker	Sakae Tsushin Kougyou
Maximum Resistance	1.0kΩ
Rated Power	0.75W
Dielectric Strength Voltage	1000V AC (1min)
Effective Electrical Angle	355°
Effective Mechanical Angle	360° Endless



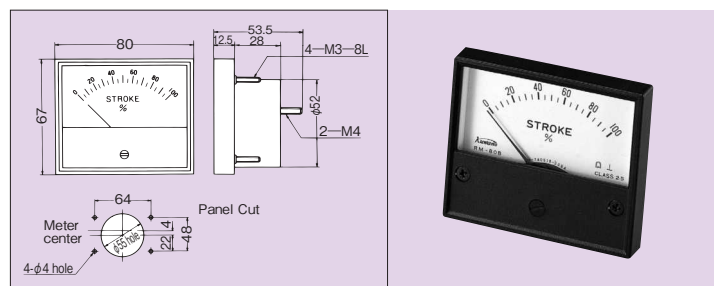
Potentiometer Control Option 1

Stroke Display Meter

Displays stroke in % by receiving signals from the Printed Circuit Board.
 Jack models with a potentiometer should be used.

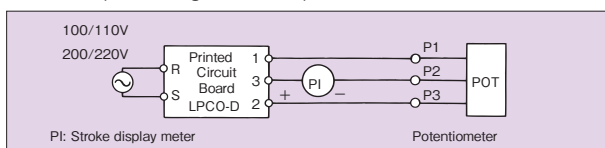
Model No.	RM-80B (100 μA DC) Equivalent
Class	JIS C 1102 2.5
Exterior	Black Frame
Scale Used	Maximum Stroke 100%

* A separate printed board is also required.



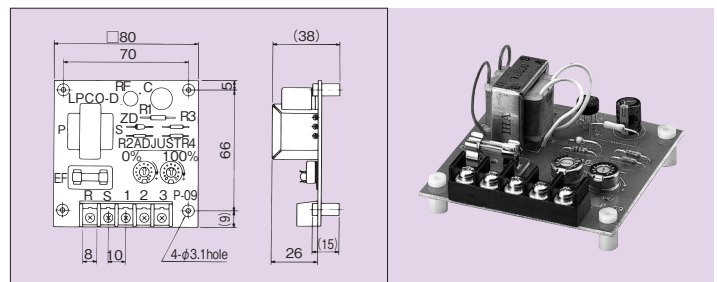
Printed Circuit Board

Converts power signals from potentiometer into currents.



In order to adjust the meter, adjust the volume on the printed circuit board. Do not confuse - and +. When adjusting the meter to 100% while stroke is at MIN, replace the terminal 1.2 of the printed circuit board.

Model no. LPCO-D1 (voltage 100/110V 50/60Hz)
 LPCO-D2 (voltage 200/220V 50/60Hz)



Potentiometer Control Option 2

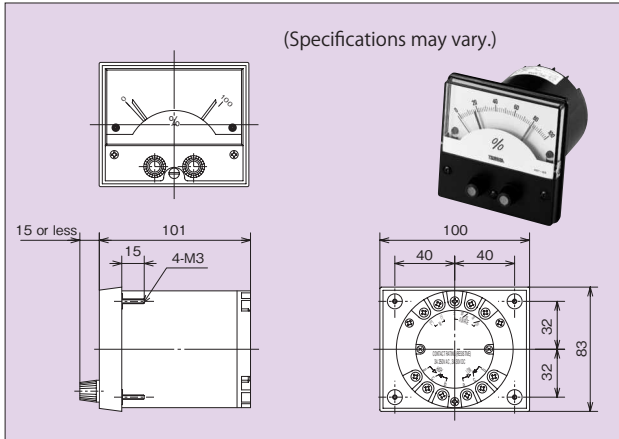
Meter Relay

Easy stroke adjustment is possible using the display panel.

(Standard model comes with a metal panel.
 Aluminum panels are available upon request.)

Note) For using 4 – 20mA output, designate as "for 4 – 20mA output."

* A separate printed board is also required.



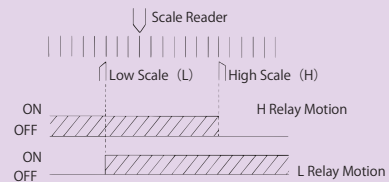
Model No.	NRC-100HL (TSURUGA) or Equivalent
Class	JIS C1102 2.5
Exterior	Black Frame
Scale	Maximum Stroke 100%
Power	100/100V AC 200/220V AC 50/60 Hz
Input	Maximum 100 μ A DC
Output Contact Composition	High, Low both 1C (see graph below)
Contact Capacity	250V AC 3A ($\cos \phi = 1$)

Use Linipower Jack models with a potentiometer. Take caution so that the input shaft does not rotate while the shaft and the potentiometer are not fully connected. This can shift the phase of the stroke.

Once the maximum and minimum stroke positions are roughly set using the LS, use the meter relay thereafter.

<Relay> (Brake Contact)

Wiring is the same as that for a stroke display meter. However, a separate power source is necessary for the relay. Supply power from the main source used for operation and connect brakes contact in series rather than arranging them in a parallel method.



③ Rotary Encoder

Rotary encoder specifications	
Model	TS5305N251
Manufacturer	Tamagawa Seiki Co., Ltd.
Output pulse number	600P/R
Output waveform	90° phase difference two-phase square wave + home position output
Output voltage	H — Note 1)
	L 1V or less Note 1)
Power supply	5 to 24V DC

The output signal of the standard specification is of an incremental type, however, an absolute type is also available.
 The output type in standard specifications is open collector.
 If voltage output type is required, see (Note 1) below.
 If the specification of line driver output is required, contact us.

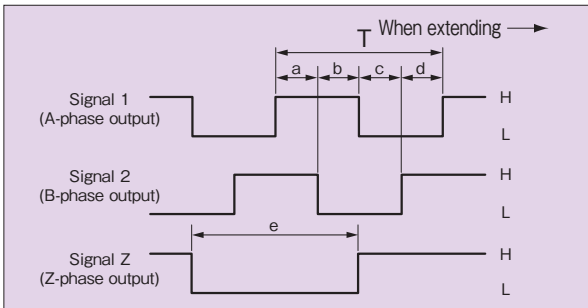
Note 1) Due to the open collector output, output signals are obtained when the pull-up resistor is connected.
 Signal 1 and signal 2 are output voltages of H "(power supply voltage - 1)V or more" and L "1V or less."
 For the Z-phase, negative logic applies.
 <Reference resistance values> 5V: 220Ω, 12V: 470Ω, 24V: 1kΩ

Output connection

Signal 1	Signal 2	Signal Z	+5V to 24V	0V	Case
(9)	(10)	(11)	(12)	(13)	(14)

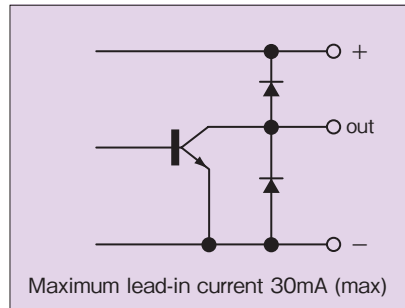
Figures in parentheses indicate terminal No.

Output waveform



a. b. c. d = $T/4 \pm T/8$ $T/2 \leq e \leq 3T/2$

Output circuit



* Best suited to controlling the stroke by a sequencer or programmable controller, etc.

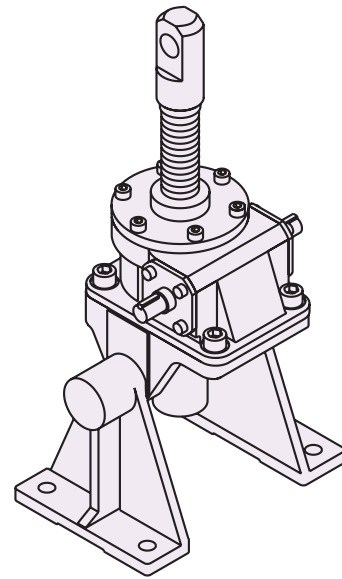
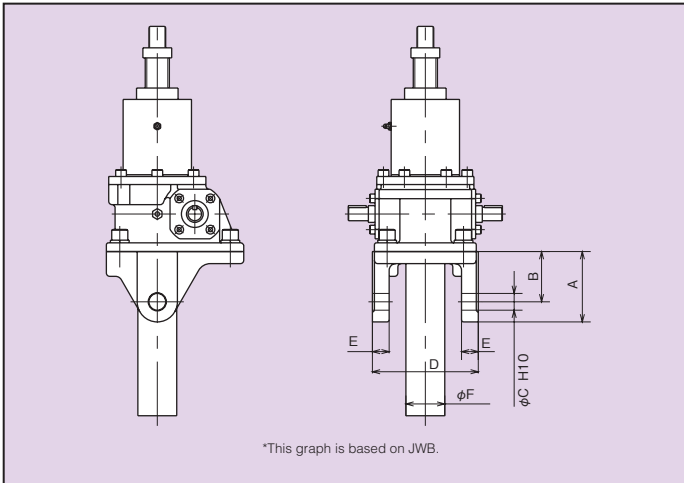
More accurate positioning control is possible in combination with motor speed control by an inverter, etc.

- ① The standard products incorporate an incremental type encoder.
- ② It has been set to output 300 pulses per revolution of the input shaft.
- ③ It is possible to set an accurate home position of the machine in combination with a limit switch because home position output is read out every 600 pulses.
- ④ Do not apply vibration or impact to the rotary encoder because it is precision equipment.
- ⑤ Use shield wire for wiring to the rotary encoder.
- ⑥ As a guide for the distance between the rotary encoder and control panel, a collector current of 20mA should be able to be transmitted approximately 50m (12V pull-up).
 For distances other than the above, consult with us.

Clevis and Trunnion Mounting Adapters

1. Clevis Mounting Adapter

Convenient for use with opening/closing or tilting devices.



Clevis Measurements

Unit: mm

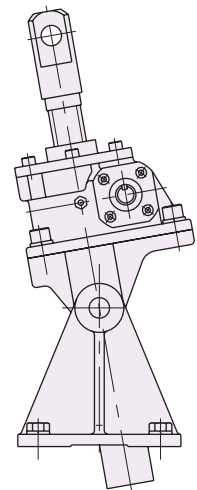
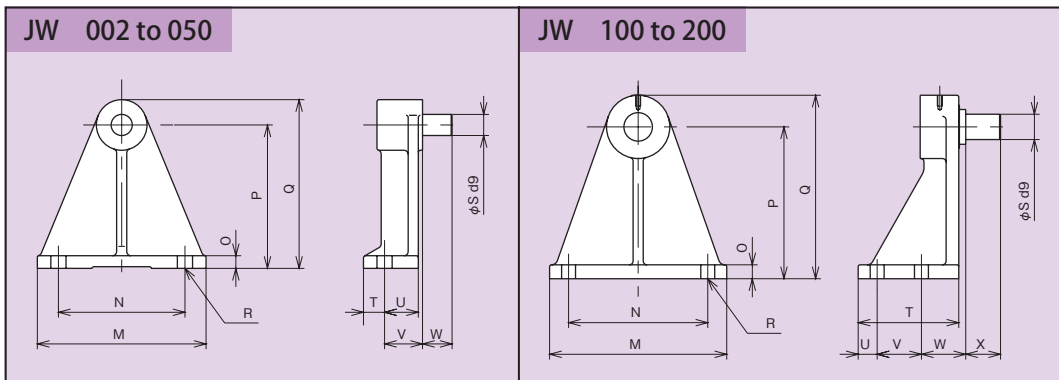
Frame No.	A	B	C	D	E	φF
002	75	60	15	64	12	25
005	75	60	15	64	12	25
010	77.5	60	15	86	15	35
025	100	75	20	115	20	45
050	105	75	25	158	25	58
100	145	100	40	201	30	76.3
150	155	105	50	224	44	76.3
200	173	110	63	244	50	89.1

Note) Although standard clevis mounting adapters are for lifting, suspending types are also available.

Note) Clevis mounting adapters for rotation prevention are also available in different configurations.

2. Trunnion Mounting Adapter

This trunnion mounting adapter is the same as those for power cylinders.



Trunnion Measurements

Unit: mm

Frame No.	Trunnion Model No.s	M	N	O	P	Q	R	S	T	U	V	W	X
002	LPD300KT-T	130	100	12	100	118.5	2-φ12	15	15	28	30	15	—
005	LPD300KT-T	130	100	12	100	118.5	2-φ12	15	15	28	30	15	—
010	LP500L-T	180	130	15	150	178	2-φ18	15	25	40	45	17	—
025	LPTB1000-T	180	130	15	150	178	2-φ18	20	25	40	45	30	—
050	LPTB2000-T	200	150	15	170	200	2-φ18	25	25	40	45	35	—
100	LPTB6000-T	280	220	22	240	290	4-φ22	40	159	30	70	70	55
150	LPTB12000-T	360	280	27	300	360	4-φ33	50	195	40	85	85	70
200	LPTB16000-T	400	320	30	380	450	4-φ33	63	210	40	90	90	75

Hand Wheel and Fitting

1. Hand Wheel

Hand wheels are available for Linipower Jack so that it can be easily used for manual operation.

Types of hand wheels and applicable jack frame No. are as follows.

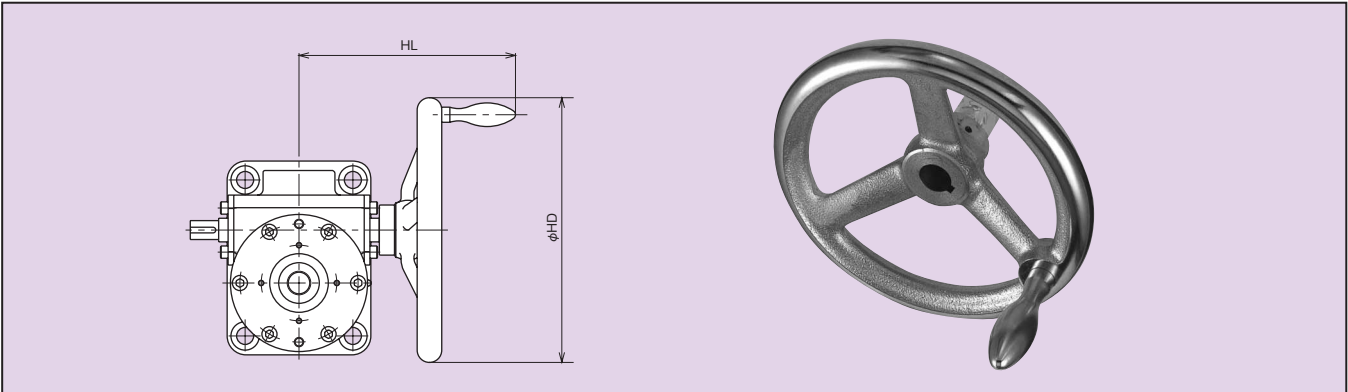
Hand wheels are used for self-lock equipped JWM (Machine Screw Type) only.

Hand wheels are not available for JWB (ball screw type) and JWH (high lead ball screw type) because they are not equipped with a self-lock with the result that the input shaft may be reversed by a load, where it is dangerous to use the hand wheel. Hand wheel efficiency is determined by the required torque for a specified load and the diameter of the hand wheel via the following equation.

$$\text{Hand Wheel Efficiency} = \frac{\text{Required Input Torque}}{\text{Hand Wheel Radius}}$$

Hand wheel efficiency equivalent to or below 49N {5kgf} is recommended.

Also, vibration and shock may cause self-lock failure, in which case a brake unit is recommended.



Hand Wheel Measurements

Example model No. for order placement: JWM010-NV100

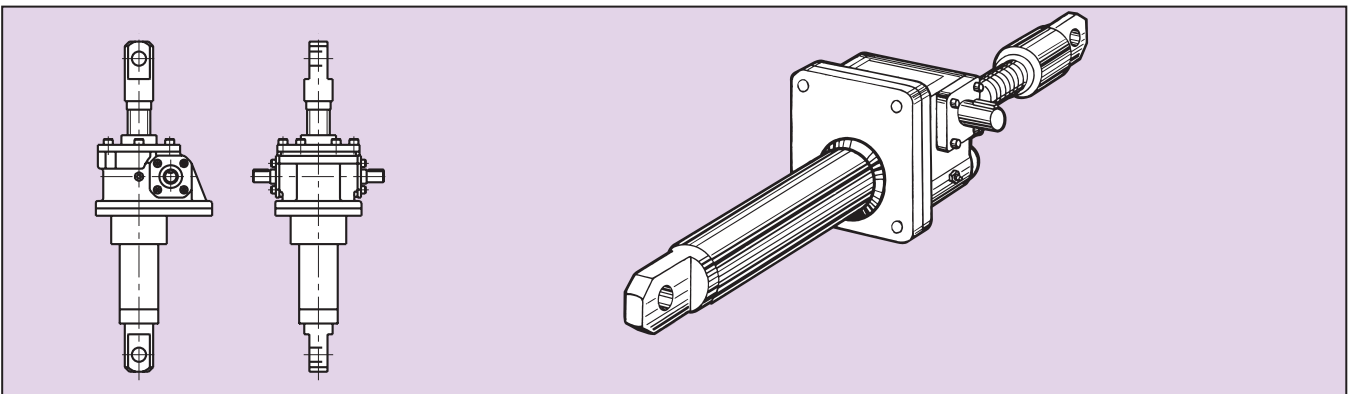
Unit: mm

Handle Size Frame No.	JWM005-NV80		JWM010-NV80		JWM010-NV100		JWM025-NV100		JWM025-NV200		JWM050-NV200		JWM050-NV280*		JWM100-NV280*		JWM100-NV450*		
	HD	HL	HD	HL	HD	HL	HD	HL	HD	HL	HD	HL	HD	HL	HD	HL	HD	HL	
JWM002	80	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JWM005	80	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JWM010	—	—	80	122	100	125	—	—	—	—	—	—	—	—	—	—	—	—	—
JWM025	—	—	—	—	—	—	100	140	200	198	—	—	—	—	—	—	—	—	—
JWM050	—	—	—	—	—	—	—	—	—	—	200	221	280	229	—	—	—	—	—
JWM100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	280	242	450	295	—
JWM150	—	—	—	—	—	—	—	—	—	—	—	—	—	—	280	247	450	300	—
JWM200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	450	304	—

Note) When using in combination with hand wheels marked with an * and clevis fitting, trunnion fitting, hand wheel interferes with trunnion fitting. Separately contact Tsubakimoto Chain.

2. Fitting

This can be used with Open/Close, Reverse Rotation, Positioning and other devices.



Safety Cap

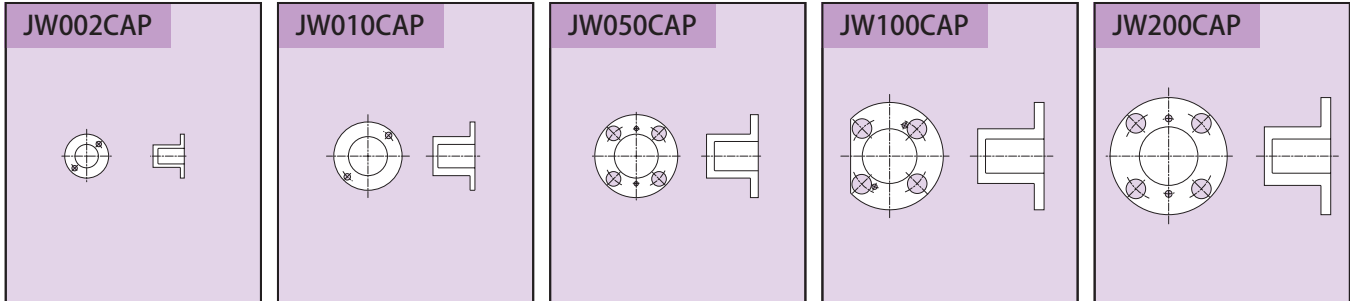
The cap is attached to the jack input shaft, on the other side of the motor unit.

By covering the shaft, a safety cap can prevent accidents and even prevent dust generation for clean room operations.

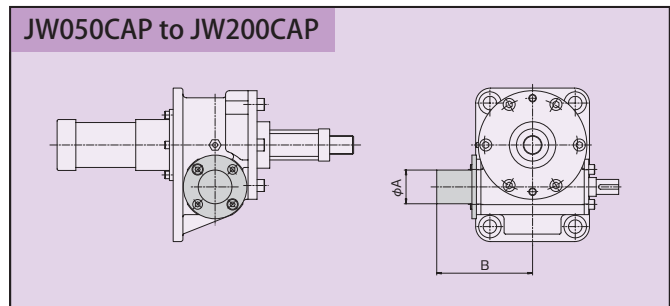
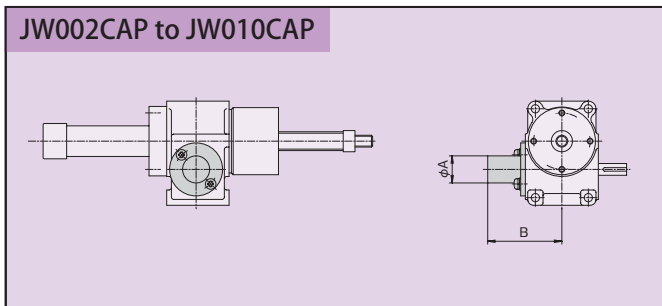
It is compatible with any of the three jack models: JWM (Machine Screw Type), JWB (Ball Screw Type) and JWH (High Lead Ball Screw Type).

Even if the jack body has already been purchased, safety caps can be installed subsequently.

Cap structure



Dimensional drawing



Unit: mm

Safety Cap Model No.	Suitable Jack Model No.	A	B
JW002CAP	JW002	φ22	63
	JW005		
JW010CAP	JW010	φ40	87
	JW025		100
JW050CAP	JW050	φ45	128
JW100CAP	JW100	φ52	155
	JW150		159
JW200CAP	JW200	φ60	163

*All of the above are in stock. Installation screws are provided.

Material : MC Nylon Color : Black

Safety caps made from other materials are also available.

Bellows

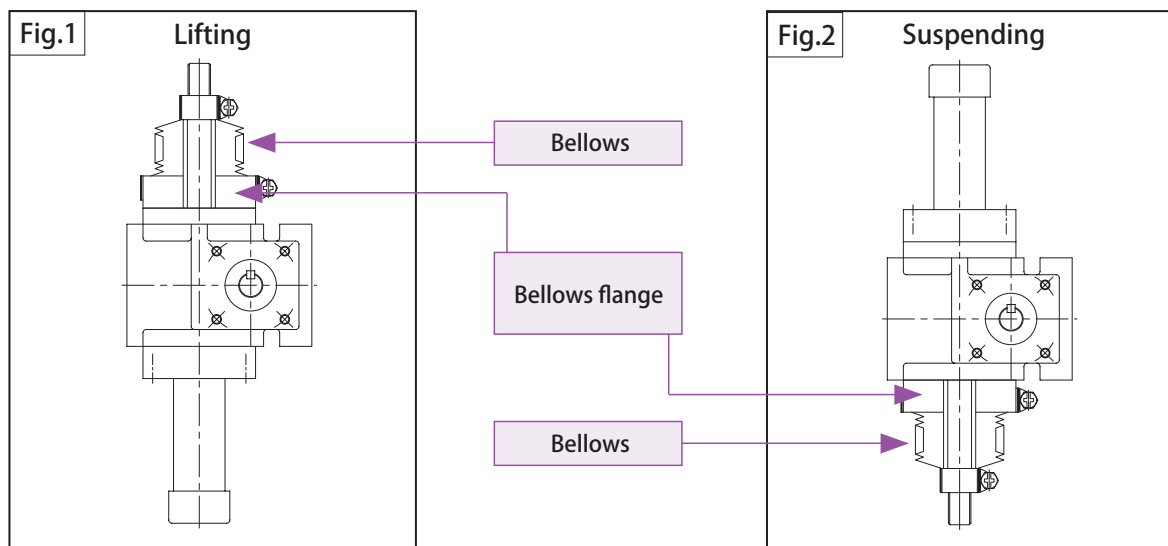
Use to protect jack components from liquid, chips, dirt, dust and other debris.

Bellows Below JW010

Sizes below JW010 with bellows are as follows.

Take caution in jack sizing, especially when using for suspension.

Jack Models	JWM002 • 005 • 010
	JWB005 • 010
	JWH010

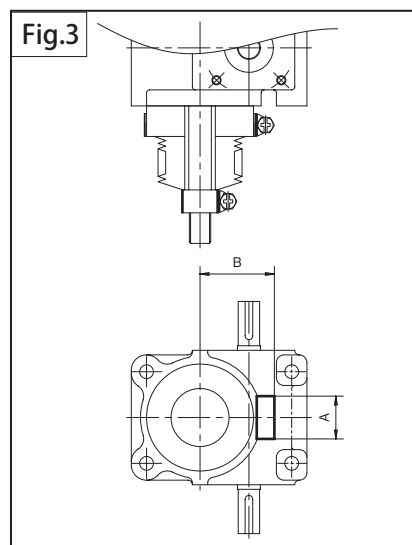


A flange is provided for jacks under JW010 with bellows.

When using for suspension, avoid the bellows interfering with machine parts, including the bellows band.

Unit: mm

Frame No.	A	B
JW002	28	42
JW005	28	42
JW010	28	47



High Lead Ball Screw

Bellows for High Lead Ball Screw Types are specially designed for specific shaft rpm.

Contact Tsubakimoto chain to select the most suitable bellows for your High Lead Ball Screw.

A series of horizontal dashed lines for writing.

Notes on Installation

Installation	P297•298
Maintenance and Inspection	P299
General Notes	P300
Glossary	P301

Installation

1. Orientation

Jacks can be installed horizontally, perpendicularly or inclined. Before installing, however, be sure to select the correct (lifting or suspending) jack type.

Since jacks have an open structure, grease or oil separated from grease may splatter or drop. Prepare oil pans or the like. Especially in the case of using a jack for suspending, grease may run down the screw shaft.

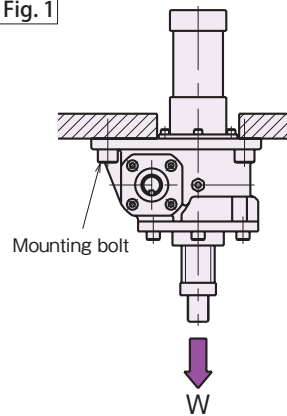
2. Installation Method

Tighten bolts into the 4 mounting holes in the gear case (mounting bolts are not provided). See Table 1 for bolt sizes. Strength class 8.8 or 10.9 bolts are usually used for mounting. Use 10.9 when load applies directly to the mounting bolts as in Fig. 1.

Table 1. Bolt Sizes

Frame No.	Mounting Hole	Bolt Size
JW002	4-φ7	M6
JW005	4-φ7	M6
JW010	4-φ9	M8
JW025	4-φ11	M10
JW050	4-φ18	M16
JW100	4-φ22	M20
JW150	4-φ22	M20
JW200	4-φ26	M24
JW300	4-φ33	M30
JW500	4-φ42	M39
JW750	4-φ42	M39
JW1000	6-φ42	M39
SJ030H	4-φ14	M12
SJ050H	4-φ18	M16

Fig. 1

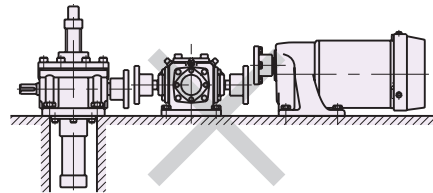


* A suspending load together with a self weight of the jack are applied on the mounting bolt as a tension load.

3. Installing Motor, Reducer

When installing a motor and reducer unit in addition to the jack body, prepare a robust counter making allowance for a safety factor to prevent alignment accuracy at installation from being reduced even if the maximum load is applied. Make sure that the transmission shaft connected to the input shaft is aligned accurately (Fig.2). Using a floating shaft may result in malfunction due to vibration depending on rotation speed, therefore, sufficiently consider rigidity of the shaft and backlash of the coupling.

Fig. 2



4. Rotation Prevention

The jack's thrusting force may cause the screw shaft (nut in the case of ravel nut type) to rotate, in which case a rotation prevention is required. Screw rotation torque at the basic capacity is described in the standard specification list. When operating with the end connected, and pulling the rope or chain with a sheave or sprocket installed, use the rotation prevention type (symbol M).

5. Shaft End

Attach shaft end by applying an adhesive agent to its setscrew. It is possible for the shaft end to become detached by the rotational torque applied to the shaft. To avoid this, use one of the following adhesives:

<Tightening Agents>

Use the following brands or their equivalent.

Read instructions and safety precautions provided with each product before applying.

Tightening Agents

Brand	Model
Nihon Lock Tight	# 262, 271
Three Bond	# 1307N

<Fixing with set screw>

After tightening the end fitting, fix with the attached set screw (hexagon socket head screw) as a locking device.

6. Setting the Limit Switch

Consider maximum possible inertia before setting the limit switch. This means calculating the maximum coasting distance affected by specific load and installation conditions. Also, install a mechanical stopper within the stroke range in case of emergencies.

7. Setting the Position Detection Unit

An optional position detection unit (internal LS, potentiometer or rotary encoder) is not factory adjusted for its stroke. Make sure to adjust stroke prior to use. Control units such as the potentiometer and rotary encoder generate various signals by measuring the rotation number of the input shaft. Do not allow the screw shaft (nut in the case of the travel nut) to rotate after adjustment because the setting will deviate if the screw shaft is rotated with the input shaft fixed. When adjusting the internal LS, operate the jack manually or by inching with sufficient care so as not to exceed the stroke range of the jack. If the jack exceeds its stroke limit, the screw shaft may fall off or the bellows may be damaged.

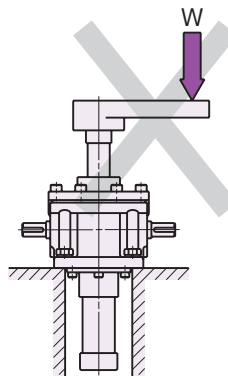
8. Horizontal use of jack with bellows

When using a jack with bellows in the horizontal direction (including use with swing), the screw shaft may catch the bellows, and damage the bellows, or result in failure of the jack. Please contact Tsubakimoto chain.

9. Caution

- ⚠ (1) Jacks that range under the standard capacity of 49.0kN {5tf} are provided with screw covers made of hard vinyl chloride pipe. Never suspend or carry a jack by its cover.
- ⚠ (2) Be certain that the jack rating exceeds the maximum possible stroke. If the stroke capacity is exceeded, the shaft may disengage from the unit or fail to function. Preventative devices for such situations are not provided for JWMs (Machine Screw Type) so over stroke must be avoided. Shaft protection provided for JWBs (Ball Screw Type) and JWHs (High Lead Ball Screw Type) is solely for the purpose of preventing shaft rotation during installation. When installing, be sure that the shaft does not rotate or move. When rotation cannot be avoided, use a rotation prevention type.
- ⚠ (3) Do not operate input shaft manually while loaded. Load pressure will rotate the shaft.
- ⚠ (4) Do not use mechanical stops. This will cause major internal damage.
- (5) Provide oil pans for food manufacturing machines to prevent oil from leaking into food products.
- (6) To install a screw shaft or cover to the base, avoid drilling large holes so as not to reduce the surface area of contact between the jack and the base.
- (7) Apply load in the same direction as that of the screw shaft. Load from inappropriate angles can bend the shaft (Fig. 3). For side load, make sure to use guides so the load or bending momentum do not apply directly to the jack.

Fig. 3



Maintenance and Inspection

1. Screw shaft and reducer unit are factory greased. See Table 1 for the type of grease used.
2. Regular lubrication intervals for the shaft screw are as recommended in Table 2. For the amount of grease, see Table 3. To regrease, expand the shaft to full stroke, remove old grease and apply using a grease gun or brush. Grease for maintenance is also available. Contact Tsubakimoto Chain.
3. Reducer units should be greased based on the lubrication intervals shown in Table 2. However, these intervals may vary depending on operation frequency and conditions. Reducer units of JW025 or greater are provided with grease nipples and hexagon socket head plug. When greasing, remove the hexagon socket head plug and pour grease until grease seeps from the hole for the hexagon socket head plug. After greasing, firmly rewind the seal tape on the hexagon socket head plug to tighten so as to prevent grease from leaking.

Table 1. Recommended Grease

Part	Maker	Grease
Shaft	TSUBAKI	JWGS100G
	Idemitsu	* Daphne Eponex Grease SR No.1
	Nippon Grease	Niglube EP-1K
Reducer Unit	Exxon Mobil	Mobilux EP No.1
	Cosmo Lubricants	Cosmo Grease Dynamax EP No.1
	Showa Shell	Shell Alvania EP Grease 1

* Factory filled with this grease.

Note) JWGS100G is separately sold in a 100g container. (See page 280.)

Table 2. Lubrication Intervals

Operation Frequency	Lubrication Intervals		
	Machine screw shaft	Ball screw shaft	Reducer unit
50 to 100/day	1 month	3 months	3 months
10 to 50/day	3 months	3 months to 6 months	3 months to 6 months
1 to 10/day	6 mo.s to 1 yr.	6 mo.s to 1 yr.	6 mo.s to 1 yr.

* Numerical values described above do not indicate the life of screws and reducer units.

Table 3. Amount of Grease

Frame No.	Application quantity	Initial enclosed quantity
	Shaft (Stroke 100mm)	Reducer Unit
JW002	5g	35g
JW005	5g	35g
JW010	5g	80g
JW025	10 to 15g	170g
JW050	10 to 15g	370g
JW100	20 to 30g	470g
JW150	20 to 30g	700g
JW200	40 to 50g	830g
JW300	40 to 50g	2600g
JW500	50 to 100g	5500g

4. Grease upper bearings for JWB (Ball Screw Type) and JWH (High Lead Ball Screw Type) using the grease nipple set attached to their housings, at 6-month intervals. Not necessary for jacks JWB/JWH010 and below.
5. Inspect regularly for general backlash and screw unit condition. Jack life and replacement timing are determined by the following:
 - JWM···Backlash in the direction of screw shaft and nut hits 1/4 of the screw pitch.
 - JWB · JWH···Visible particles due to wear and tear of the screw unit.
 - All types···Replace gear when its input shaft exceeds 30 rpm with backlash at H speed, or exceeds 60 rpm at L speed.
- ⚠ Generally, continuous use without lubrication at recommended intervals may cause inefficiency of shafts and failure of travel nuts.
6. Adjust brake gaps for brake and gearmotors before their gaps reach their maximum capacities. Gap adjustment is not possible for gearmotors with outputs 25W or 40W. For details, see respective instruction manuals.

General Notes

1. Carefully consider jack ratings before making a selection. Make sure that all anticipated loads, whether static, dynamic or shock, fall within the rated capacity of the jack at reasonable safety levels.
2. Carefully consider the combination of screw shaft rpm and rated load. Also, take extra care in verifying rated buckling load, overhang load and shaft rpm. Exceeding the data provided in this catalog can cause major damage to the system.
3. Confirm that the operating temperature of the jack is within -15 to 80°C. To measure, check the surface temperature of input shaft (or nut, if used). Make sure that all rotating parts are completely stopped before proceeding to measure.
4. Do not exceed the maximum rpm of 1800/min.
5. Continuous operation is not possible. Duty cycle at 30 minute intervals for JWM is within 20% ED, JWB and JWH are within 30% ED.

$$\text{Duty cycle (\%ED)} = \frac{1 \text{ Duty cycle}}{1 \text{ Duty cycle} + 1 \text{ Rest cycle}} \times 100\%$$

6. Be sure not to exceed the maximum input torque for multiple jack systems by verifying the rated input torque for each jack.
7. Activating torque should be maintained at 200% above the required torque.
8. If operating in freezing temperatures, a change in viscosity may reduce the efficiency of the grease. Set the drive unit so as to accommodate this change.
- ⚠ 9. Although JWM is equipped with a self-locking device, vibration and shock may affect its efficiency, in which case a brake unit is required. Because of their extremely high efficiencies, JWB and JWH must have sufficient brake units that over power their holding torques.
- ⚠ 10. Evaluate operating environment based on the following:

Location	Indoors where rain and moisture are not present
Room Condition	Dust Volume - Normal
Ambient Temperature	-15°C to 80°C (See General Notes No.3)
Relative Humidity	85% or less (no dew condensation)

11. When dust level is high, protect shaft with a bellows.
 The bellows, which are not water-proof, do not prevent external water from entering and grease in the jack from penetrating to the outside.
 (For outdoor use, place a cover to protect jack from factors such as rain and wind).

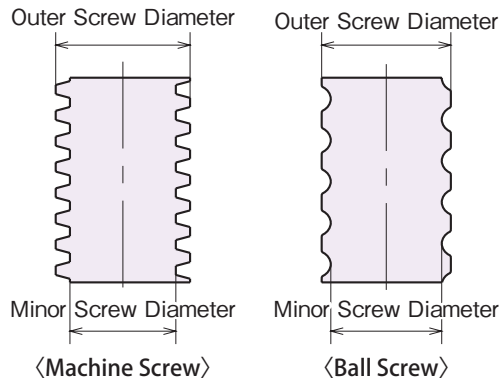
Glossary

① Basic Capacity :

The maximum possible load sustained or lifted by a jack.
Must be calculated by using the safety rate Sf.

② Outer Screw Diameter / Minor Screw Diameter:

As illustrated below.



③ Screw Lead :

Distance the shaft (or nut, if used) advances in one revolution of worm wheel.

④ Stroke :

Possible distance traveled by screw shaft (or nut). Derived from $X_{MAX} - X_{MIN}$.

⑤ Worm Ratio :

Number of input shaft revolutions required to complete one worm wheel revolution. (Gear ratio of input shaft and worm wheel.)

⑥ Overall Efficiency :

Total efficiency of the jack including those of the screw and the worm wheel.

⑦ Maximum Allowable Input Capacity :

Input capacity that can regulate the balance between load and screw shaft speed or input rpm.

Operate within the rated capacity of duty cycle (%ED) and reducer unit surface temperature (max.80°C).

⑧ Tare Drag Torque :

Torque required to rotate the input shaft of an unloaded jack.

⑨ Holding Torque :

Input torque required for sustaining basic load capacity.

⑩ Allowable Input Shaft Torque :

Maximum possible torque allowed for input shaft only. For multiple jack systems, it is the sum of total torque required for synchronous drive, and the actual amount of torque transferred from one jack to another.

⑪ Required Input Torque of Basic Capacity :

Input torque required at the input shaft to lift load of basic capacity.

⑫ Screw Movement Per Revolution of Input Shaft :

Distance the screw shaft (or nut) advances in one revolution of the input shaft.

⑬ Maximum Input rpm for Basic Capacity :

Maximum possible rpm applied to the input shaft to lift load of basic capacity.

⑭ Screw Shaft Rotational Torque for Basic Capacity :

Torque generated when the screw (or nut) auto-rotates to lift load of basic capacity. Rotation prevention must be installed either on the machine or the jack to prevent screw and nut from rotating simultaneously.

⑮ Rated Load :

Load derived from the maximum allowable input capacity once the input screw shaft rpm is determined.

⑯ Buckling :

Buckling is produced when the jack rapidly bends from excessive thrusts. Buckling load varies depending on installation condition and/or position.

⑰ Rated Screw Shaft rpm :

Screw shaft may resonate and vibrate when its rpm comes close to the eigen frequency. It is important that the rpm is lower than the resonance point or the rated screw shaft rpm. Must confirm this for travel nut types.

⑱ Coasting Distance (Inertia) :

Distance traveled after the motor is switched off. System inertia results in over travel depending on the load, brake size and operation circuit.

⑲ Stopping Accuracy :

Range of positions where the screw shaft stops after each operation.

⑳ Self-lock :

The ability to maintain load with no brake unit. Self-lock applies to all frame numbers for JWM (Machine Screw Type) 002 to 1000.

㉑ Duty Cycle :

The ratio of run time to total cycle time.

$$\text{Duty cycle (\%ED)} = \frac{1 \text{ Duty cycle}}{1 \text{ Duty cycle} + 1 \text{ Rest cycle}} \times 100 (\%)$$

㉒ Thrust :

Power converted from rated torque that is used to lift maximum loads for motored or geared jacks. Motors must be selected carefully when used to run a jack with another motored jack. Also, select thrust for motored jacks with care.

㉓ Ball Screw Wear Life :

Ball screw wear life is determined by the distance advanced by the screw nut until the ball "flakes" from friction and fatigue. This distance varies even when operated under similar conditions. If the system runs without this "flaking" of the nut for more than 90% of the time, this is considered B10 or the rated ball screw wear life.

Linipower Jack

Product Information

Technical Notes

JWM

JWB

JWH

Options

Installation Precautions

Product Information

Inquiry Form

Linipower Jack LD Type	_____	P303
Linipower Jack Bevel Gear Type	_____	P304
Mechatro Center	_____	P305•306

Linipower Jack LD Type

Excellent choice for clean room systems such as FDP (Liquid Crystal/PDP). This model regulates dust generation caused by wear as well as rust produced from the screw. Factory tested for dust volume, it is highly reliable for clean room operations.

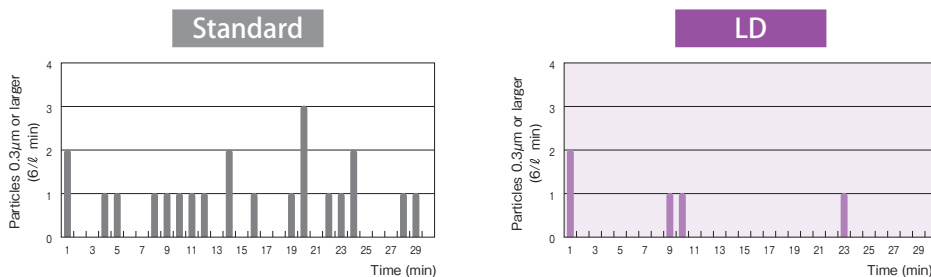
1. Basic Specifications

RAYDENT Treatment on the screw shaft
Feature 1 Special anti-rust element is processed into the surface of the screw shaft.
 Rust prevention

Grease for clean room applied to the screw shaft
Feature 2 Special grease for clean room is factory applied to screw shafts. This grease is effective in preventing dusting.
 Dust prevention

Urethane resin painting
Feature 3 Urethane resin painting is applied to the jack housing. The painting itself is peel-resistant, and its glossy appearance offers a clean look.
 Cleanliness

2. Dust Emission Comparison Graphs (Our test results)



[Test Conditions]

Heading	Contents
Frame no.	JWBO25URH5D (Travel nut type)
Speed	40mm/s (Fixed nut, lift/lower repetition, no load)
Location	Clean Room Clean Bench
Portion	Bottom of screw
Equipment	Laser Dust Monitor
Flow	6 l / min
Measured dia. of particles	0.3 µm and larger

* The above data is based on dust emitted from the screw portion. Use a safety cap to prevent dust from the oil seal in the input shaft portion. Dust is collected in this cap and prevented from entering into the atmosphere.

3. Options

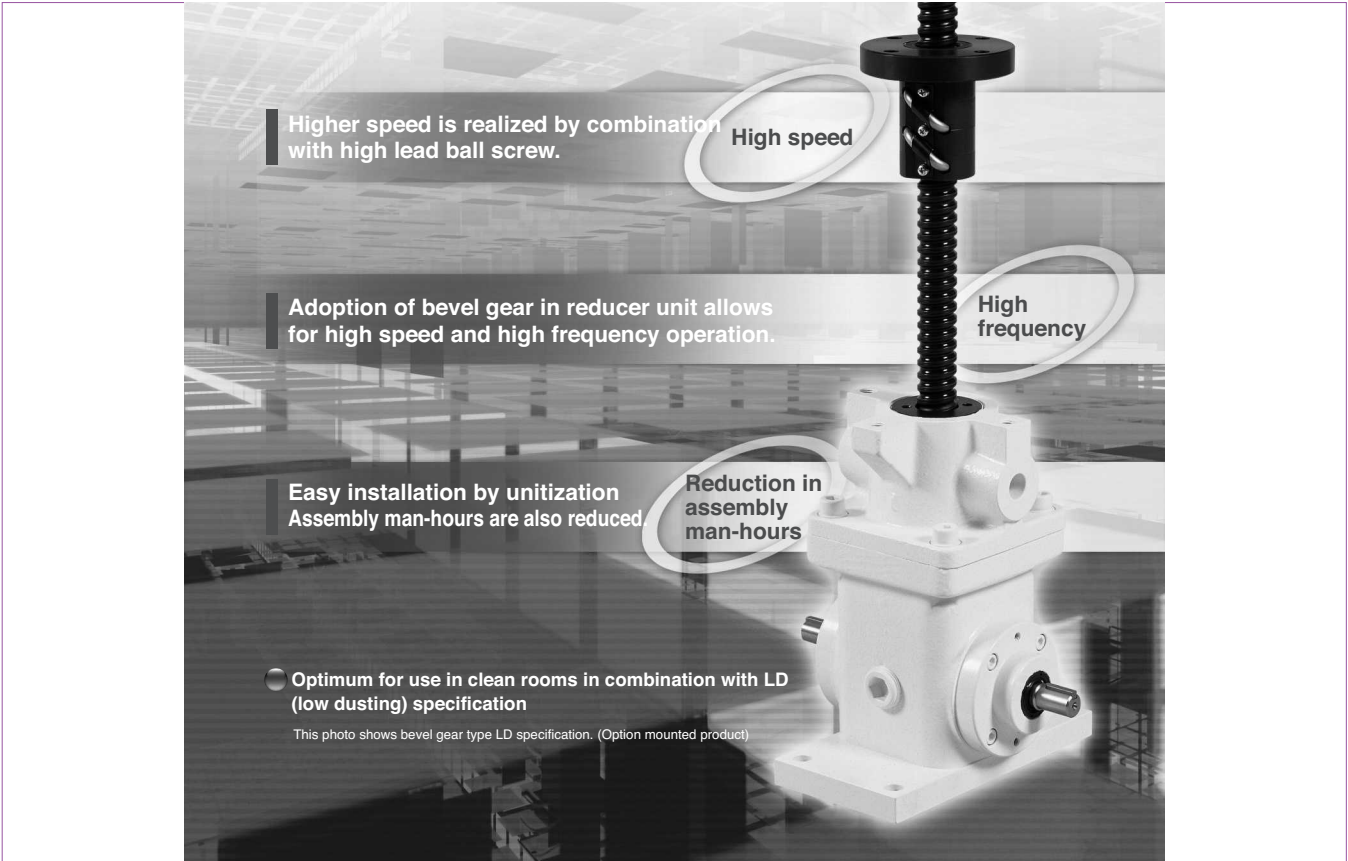
The following options are available with Linipower Jack LD Type:
 (Select according to specific requirements)

- Input shaft.....Electroless nickel plating
- End fitting.....Electroless nickel plating
- Steel pipe.....Metallic screw cover
- Safety cap.....Plastic
- Ball nut.....RAYDENT treatment.

Linipower Jack Bevel Gear Type

Bevel gear type released in response to voices demanding high speed and high frequency operation.

1. Basic Specifications



Lubrication Grease for Power Cylinder and Linipower Jack

TSUBAKI screw shaft lubrication grease

Model No.: JWGS100G



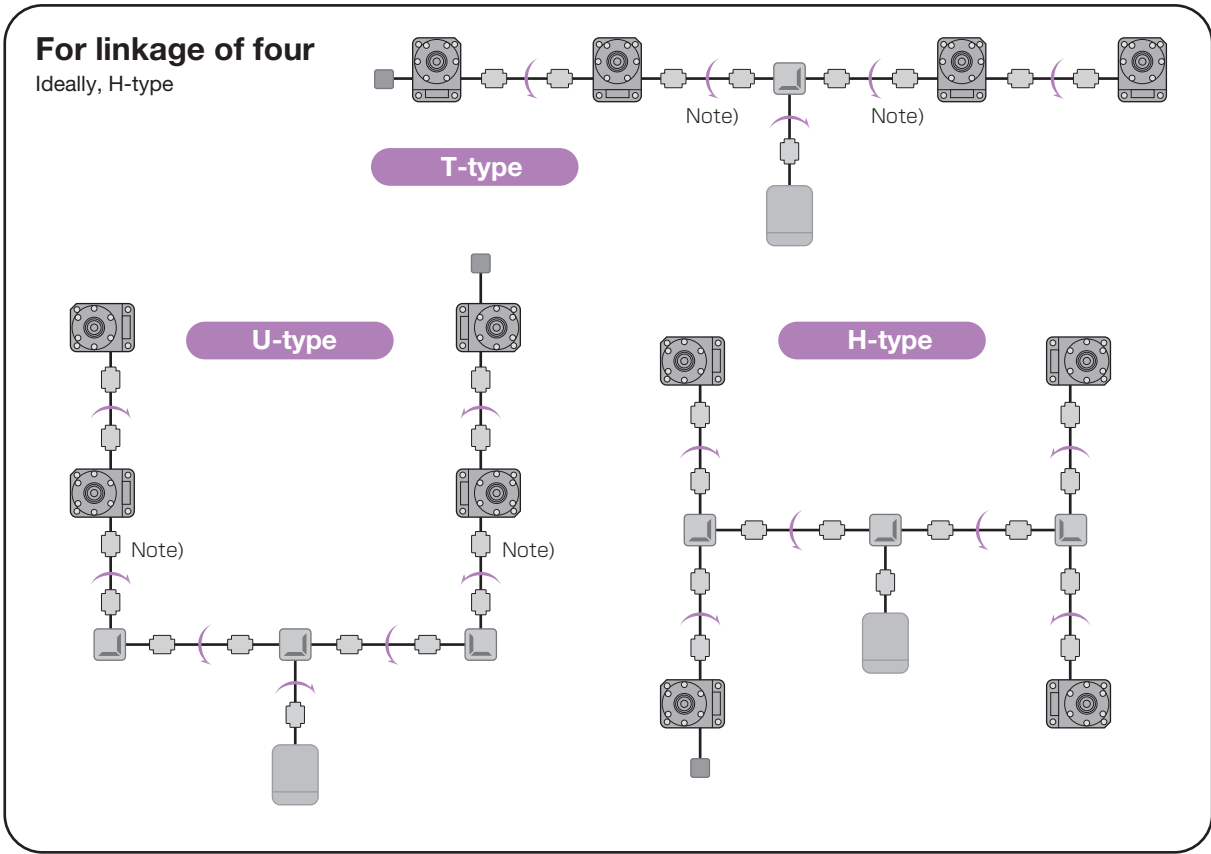
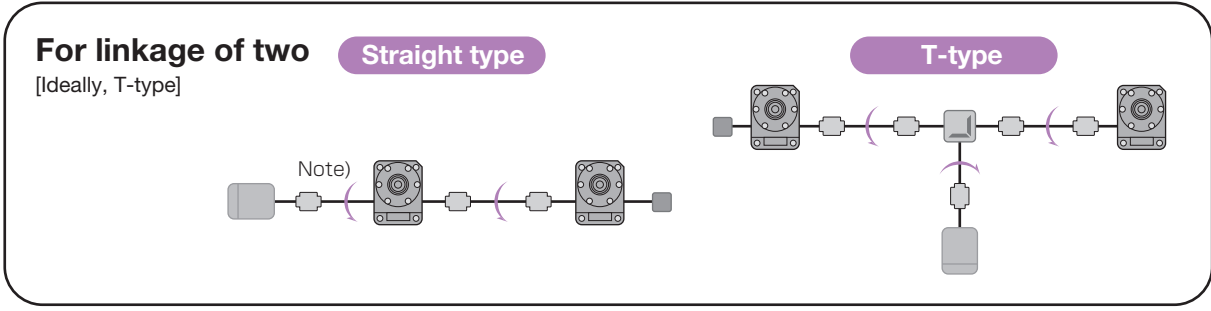
Linipower jack screw set on sale

Sets of screw shafts and nuts for linipower jacks are on sale. For screw specifications (screw diameter and screw lead), see the following pages.

- | | |
|-------------------|--------------------------------|
| Trapezoidal screw | P215 to 216 (up to $\phi 85$) |
| Ball screw | P241 to 242 (up to $\phi 85$) |

For use and selection set with coupling and reducer, please feel free to consult with us.





...Linipower Jack



...Drive Source



...Coupling



...LS Counter Position Sensor



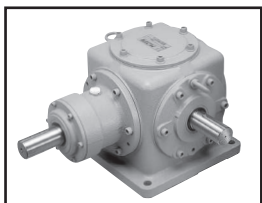
...Gear Box



Jacks lift as rotational input is applied in the direction of each arrow.
Note) Consider allowable input torque when driving in series.

[Gear Boxes]

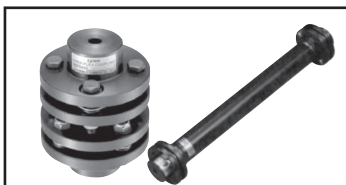
Miter Gear Box



- Gear ratio 1 : 1 size 10
- Gear ratio 1.5 : 1 size 5
- Gear ratio 2 : 1 size 9
- Gear ratio 2.5 : 1 size 5
- Gear ratio 3 : 1 size 5
- Enhanced performance by new AGMA standards.
- Wide variation of models.
- High reliability

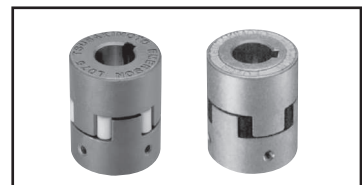
[Coupling]

ECHT-FLEX® coupling



- Torque range : 2.9 to 176400 N·m
- Bore diameter range : 5 to 289 mm
- No backlash, high efficiency and servo motor compatible.
- Requires less maintenance, no lubrication and long life.
- Long Spacer Types requiring no bearings available.

Jaw Flex Coupling



- Compact, light
- Simple
- Easy to un/install

Ask Tsubakimoto Chain for other protecting devices such as shock relays, torque limiters, and shock guards.

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Inquiry Form

Power Cylinder Inquiry Form

Inform Tsubakimoto Chain of the following items when making an inquiry.

Company name: _____

Your name: _____

Phone : _____

FAX : _____

Address: _____

Basic Specification	1. Application load (thrust)	Normal operation	N{kgf}	Max	N{kgf}
	2. Speed	mm/s (at 50Hz, 60Hz)			
	3. Stroke	Actual stroke	mm	Max stroke	mm
Electric Motor	4. Power source	3-phase 200V/50Hz, 200V/60Hz, 220V/60Hz 3-phase 400V/50Hz, 400V/60Hz, 440V/60Hz			Others
	5. Special specification	Brake, Outdoors			Others
Operating Environment	6. Operation	times/min x	min/hr x	hrs./day x	days/yr
	(Back and forth count as 2 times)				
	7. Ambient temperature	°C			
	8. Mounting location	Indoor, Outdoors			Others
	9. Dust	Average, High			
	10. Control device	Stroke adjustment external limit switch, Thrust detection limit switch, Internal limit switch, Potentiometer, Rotary encoder			Others
11. Others	Trunnion fitting, clevis fitting, I-shape end fitting			Others	

Layout and other information

Servo Type Inquiry Form

Inform Tsubakimoto Chain of the following items when making an inquiry.

Company name: _____ Your name: _____

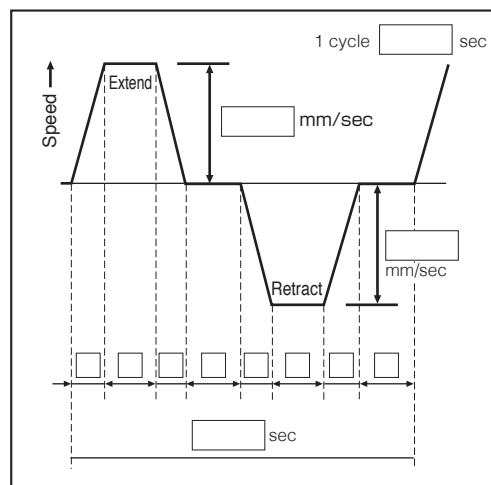
Phone: _____ FAX : _____

Address: _____

[Equipment standard condition] Description of equipment used

Type and property of load	<input type="checkbox"/> Horizontal <input type="checkbox"/> lift <input type="checkbox"/> suspension <input type="checkbox"/> tilt <input type="checkbox"/> others extent of shock, inertia and vibration <input type="checkbox"/> Small <input type="checkbox"/> Middle <input type="checkbox"/> Large			
Transfer mass	kg	kg		
Necessary thrust	Normal operation	N (kgf)	Max.	N (kgf)
Speed	Normal operation	mm/s	Max.	mm/s
Stroke	Normal operation	mm	Max.	mm
Operating frequency <small>(Back and forth count as 2 times)</small>	times/min x	min/hr x	hrs./day x	days/yr
Power cylinder expected life	() years operating			

[Power cylinder operation cycle]



[Servomotor used]

Servomotor manufacturer		Servomotor model No.	
-------------------------	--	----------------------	--

[Other conditions]

Operating Environment	Ambient temperature	°C
	Location	<input type="checkbox"/> Indoor <input type="checkbox"/> Others ()
	Dust	<input type="checkbox"/> Nearly average <input type="checkbox"/> Others ()
	Power source	<input type="checkbox"/> 3-phase 200/200 220V AC 50/60/60Hz <input type="checkbox"/> Others ()
	Others	<input type="checkbox"/> Trunnion fitting <input type="checkbox"/> U-shape end fitting <input type="checkbox"/> Magnetic sensor <input type="checkbox"/> Bellows <input type="checkbox"/> Others ()

Layout and other information

Linipower Jack Inquiry Form

Inform Tsubakimoto Chain of the following items when making an inquiry.

Company name: _____

Your name: _____

Phone _____

FAX : _____

Address: _____

Operating condition	Equipment or load condition	Equip. description _____ • no shock light load • moderate shock medium load • severe shock heavy load
	Overall equip. weight/No.of jacks	Equip. Max load _____ kN { _____ tf}/Jack (Equip. Min. load _____ kN { _____ tf}/Jack)
	Installation form	Standard specification (Lift/Suspend) With/Without Rotation prevention Travel Nut (Lift/Suspend)
	Installation condition (Buckling safety rate sf)	A. Fixed base, and free shaft end B. Clevis on both ends C. Fixed base and fixed shaft end (Sf= _____) Leave open if no buckling load applies to the screw shaft.
	Screw type	Machine screw type Ball screw type High lead screw type

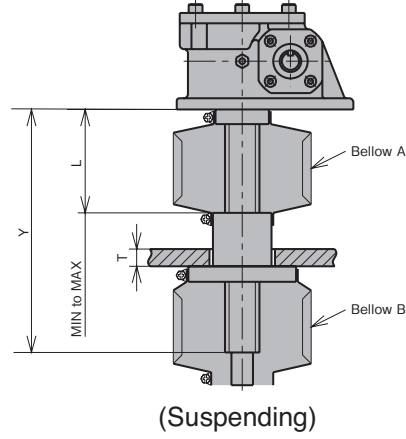
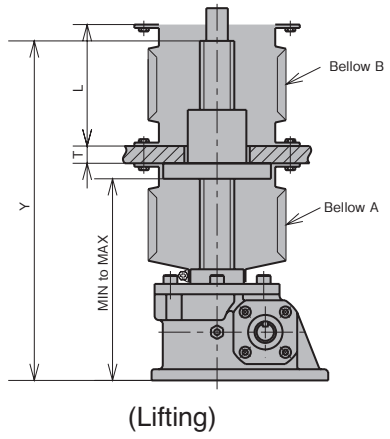
Three specifications	1. Load requirement	Load /Jack based on above information _____ kN { _____ tf}
	2. Speed	_____ to _____ mm/s (_____ to _____ mm/min)
	3. Stroke	Actual Stroke _____ mm Max. stroke _____ mm

Operating condition	Operation	_____ times/min x _____ min/hr x _____ hrs./day x _____ days/yr (Back and forth count as 2 times)
	Source	Motor with brake (Gearmotor with brake)
	Power	_____ kW (1/ _____) Others _____
	Input R.P.M	_____ V _____ Hz
	Ambient temperature	_____ r/min
	Equipment condition	_____ °C
	Dust	Location _____ with/without guides Average High with / without bellows Others _____
	Control device	Counter limit switch • Internal limit switch • Potentiometer • Rotary encoder • Others _____ K2-K4
Others	Shaft end (B·I·M type end fitting) • Hand wheel • Clevis • Others _____	

Layout and other information

Bellows Inquiry Form for Travel Nut Type

Select bellows for use with travel nuts based on the diagrams below. Select from band or flange type bellows.



① Jack model No. _____

② Actual stroke _____ mm
 MIN _____ mm to MAX _____ mm

③ Type of bellows
 Bellows A Band-band, band-flange, flange-flange
 Bellows B Band-band, band-flange, flange-flange

④ Jack screw shaft length limited yes / no
 Y= _____ mm

⑧ Bellows L measurements L
 LA_{MIN} _____ mm to LA_{MAX}= _____ mm (bellows A)
 LB_{MIN} _____ mm to LB_{MAX}= _____ mm (bellows B)

⑤ Base measurements
 T= _____ mm

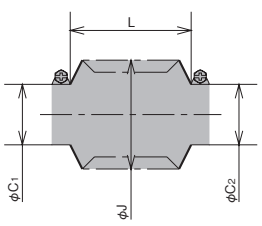
⑨ Bellows attachment opening ϕC
 $\phi CA1$ = _____ mm $\phi CA2$ = _____ mm (bellows A)
 $\phi CB1$ = _____ mm $\phi CB2$ = _____ mm (bellows B)

⑥ Maximum outer diameter of bellow ϕJ
 No Limit, ϕJA = _____ mm ϕJB = _____ mm

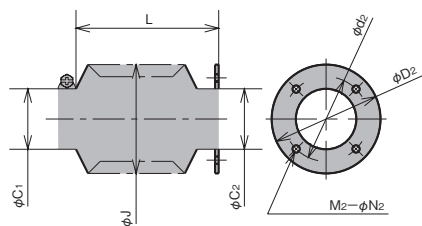
⑦ Flange type and structure (Record only if flange type was selected in ③).
 $\phi DA1$ = _____ mm $\phi dA1$ = _____ mm bolt mounting part M1= _____ Pcs $\phi N1$ = _____ mm (bellows A)
 $\phi DA2$ = _____ mm $\phi dA2$ = _____ mm bolt mounting part M2= _____ Pcs $\phi N2$ = _____ mm
 $\phi DB1$ = _____ mm $\phi dB1$ = _____ mm bolt mounting part M1= _____ Pcs $\phi N1$ = _____ mm (bellows B)
 $\phi DB2$ = _____ mm $\phi dB2$ = _____ mm bolt mounting part M2= _____ Pcs $\phi N2$ = _____ mm

● Bellows Types

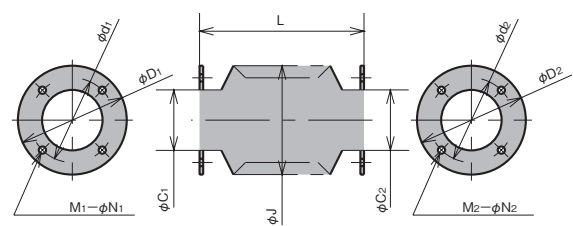
Band - Band Type



Band - Flange Type



Flange - Flange Type



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SAFETY



Warning Observe the following safety precautions to prevent serious injuries.

- Do not release the brake while jack is loaded. If the brake is released under loaded conditions, suspended objects may fall and lead to accidents.
- Make sure the jack is not loaded when manually operated. Operate jack according to the instruction manual.
- During suspending operations, provide safety guards to prevent load from falling and never stand under the jack.
- Observe the Labor Safety & Hygiene Regulations, General Criteria, Paragraph 1, Chapter 1, Edition 2, or your local regulations.
- Installation, removal, maintenance and inspection:
 - Carry out operation according to the instruction manual.
 - While performing electrical wiring, observe laws and regulations such as Electricity Equipment Criteria and Extension Rules, as well as the cautions (e.g. direction, space, operating conditions, etc.) indicated in the manual. Be especially careful in following the instructions on grounding to prevent electric shocks.
 - Turn off the power and make sure that it does not reconnect accidentally.
 - Wear appropriate clothing and protective gears (safety glasses, gloves, safety shoes, etc.).



Caution Observe the following safety precautions to prevent accidents.

- Always operate within the allowable stroke range. Operating a jack outside its allowable stroke range may result in accidents.
- Before switching on the jack, make sure the limit switches have been wired correctly and the stroke has been adjusted appropriately.
- The motor must be driven within the correct electrical voltage range to prevent motor burnout or fire.
- Efficiencies of parts may decrease with wear and age. Carry out periodic inspections as set forth in the manual.
When the parts are no longer functioning or are ineffective, please contact a TSUBAKI distributor for repair.
- Read the manual provided with the product thoroughly before operating and refer to it as necessary. If the instruction manual is misplaced, request a replacement copy from TSUBAKI or your TSUBAKI distributor, indicating the product name, series, and model number.
- The instruction manual must be delivered to the final user.

Warranty

1. Warranty period without charge

18 months effective the date of shipment or 12 months effective the first use of Goods, including installation of Goods to Buyer's equipment or machine - whichever comes first.

2. Warranty coverage

Should any damage or problem with the Goods arise within the warranty period, given that the Goods were operated and maintained according to the instructions provided in the manual, Seller will repair and replace at no charge once the Goods are returned to the Seller. This warranty does not cover the following:

- 1) Any costs related to removal of Goods from the Buyer's equipment or machine to repair or replace parts.
- 2) Cost to transport Buyer's equipment or machine to the Buyer's repair shop.
- 3) Costs to reimburse any profit loss due to any repair or damage and other consequential losses caused by the Buyer.

3. Warranty with charge

Seller will charge any investigation and repair of Goods caused by:

- 1) Improper installation by failing to follow the instruction manual.
- 2) Insufficient maintenance or improper operation by the Buyer.
- 3) Incorrect installation of Goods to other equipment or machine.

4) Any modifications or alterations of Goods by the Buyer.

5) Any repair by engineers other than the Seller or those designated by the Seller.

6) Operation in an inappropriate environment not specified in the manual.

7) Force Majeure or forces beyond the Seller's control such as natural disasters and injustices done by a third party.

8) Secondary damage or problem incurred by the Buyer's equipment or machine.

9) Defected parts supplied, or specified by the Buyer.

10) Incorrect wiring or parameter setting by the Buyer.

11) The end of life cycle of the Goods under normal usage.

12) Loss or damage not liable to the Seller

4. Dispatch service

Service to dispatch a Seller's engineer to investigate, adjust or trial test Seller's Goods is at the Buyer's expense.



Caution This catalog does not include operating instructions. Read the actual manual thoroughly before installing or operating the product.



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Japan Tsubakimoto Chain Co. <https://tsubakimoto.com/>

Global Group Companies

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New Zealand Tsubaki Australia Pty. Limited - New Zealand Branch <https://tsubaki.com.au/>
Philippines Tsubakimoto Philippines Corporation <https://en.tsubaki.ph/>
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Vietnam Tsubakimoto Vietnam Co., Ltd. <https://tsubaki.net.vn/>

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The Tsubaki Eco Link logo is used only on products that satisfy the standards for environmental friendliness set by the Tsubaki Group.