

Ball Small Jack

High performance, high efficiency, lightweight and compact

03

Small Screw Jack /01

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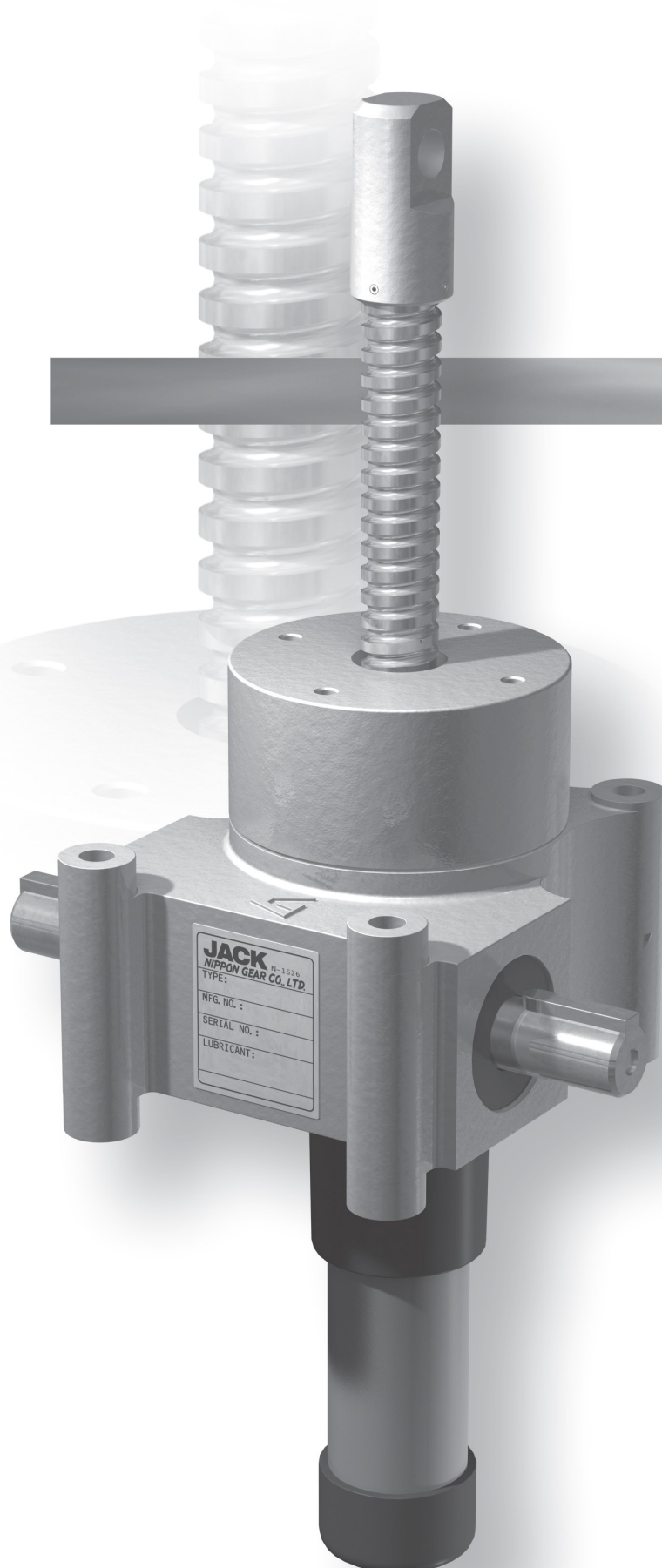
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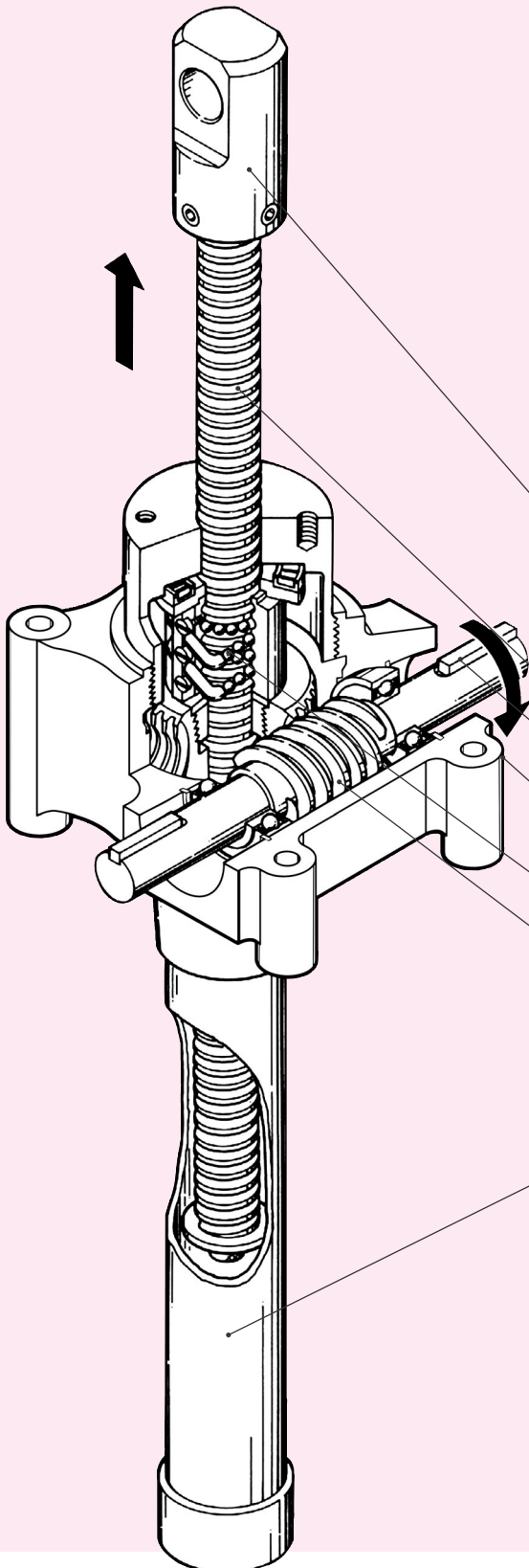
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Ball Small Jack: Structure & Features

Extremely compact, lightweight, and easy-to-use jacks, delivering high performance similar to standard ball jacks

Structural Drawing: Upright Translating Ball Small Jack



- The lightest weight possible is achieved, while securing sufficient strength.
- The housing is compact and space-efficient; and its shape and mounting holes are designed to allow either its upper or lower surface to be attached to your device.
- The jack consists of a high-precision worm gear and a ball screw; and realizes high speed and high efficiency by using rolling friction.
- This type of jack does not have a self-locking function, so it is required to install a brake.
- We can also manufacture a jack with anti-rotation mechanism which prevents its lifting screw from drag turning.
- We can also manufacture a jack with anti-rotation mechanism which prevents its lifting screw from drag turning.
- Wide-ranging options are available, including dustproof bellows to protect the lifting screw, limit switch for control, and RC encoder.

The lifting screw end is designed to allow attaching two types of end fittings (e.g. clevis in the drawing) in order to prevent the lifting screw from drag turning on the side of your device.

- ① The lifting screw is made of carbon steel (right-hand thread).
 - ② The housing is made of lightweight aluminum alloy (the main body not painted; silver color).
 - ③ The ball nut uses a precision ball.
- The worm is made of chrome molybdenum steel. (right-hand thread).

Part Names

Part name

① Ball screw

② Sub-assy

③ Lifting screw cover

Specification

Standard Specifications

Series/size code		RSB
Capacity		4kN
Lifting screw diameter		16mm
Lifting screw lead		5mm
Worm gear ratio	H	5
	L	24
Efficiency	H	0.64
	L	0.36
Maximum allowable power per jack		0.63kW
Input shaft torque at no load (b)		0.15N·m
Torque coefficient (a)	H	0.25
	L	0.09
Required input torque at maximum load	H	1.15N·m
	L	0.52N·m
Holding torque at maximum load	H	1N·m
	L	0.15N·m
Worm rotation per 10mm of stroke	H	10
	L	48
Speed coefficient (c) (screw lead per rotation of input shaft)	H	1.0mm
	L	0.21mm
Maximum allowable input rotation speed		2000min ⁻¹
Anti-rotation key torque at maximum load		1.5N·m
Input shaft allowable overhang load		300N
Amount of filled grease		Maintenance free
Operating temperature range		-15~80℃

Lifting load/
Lifting screw
speed

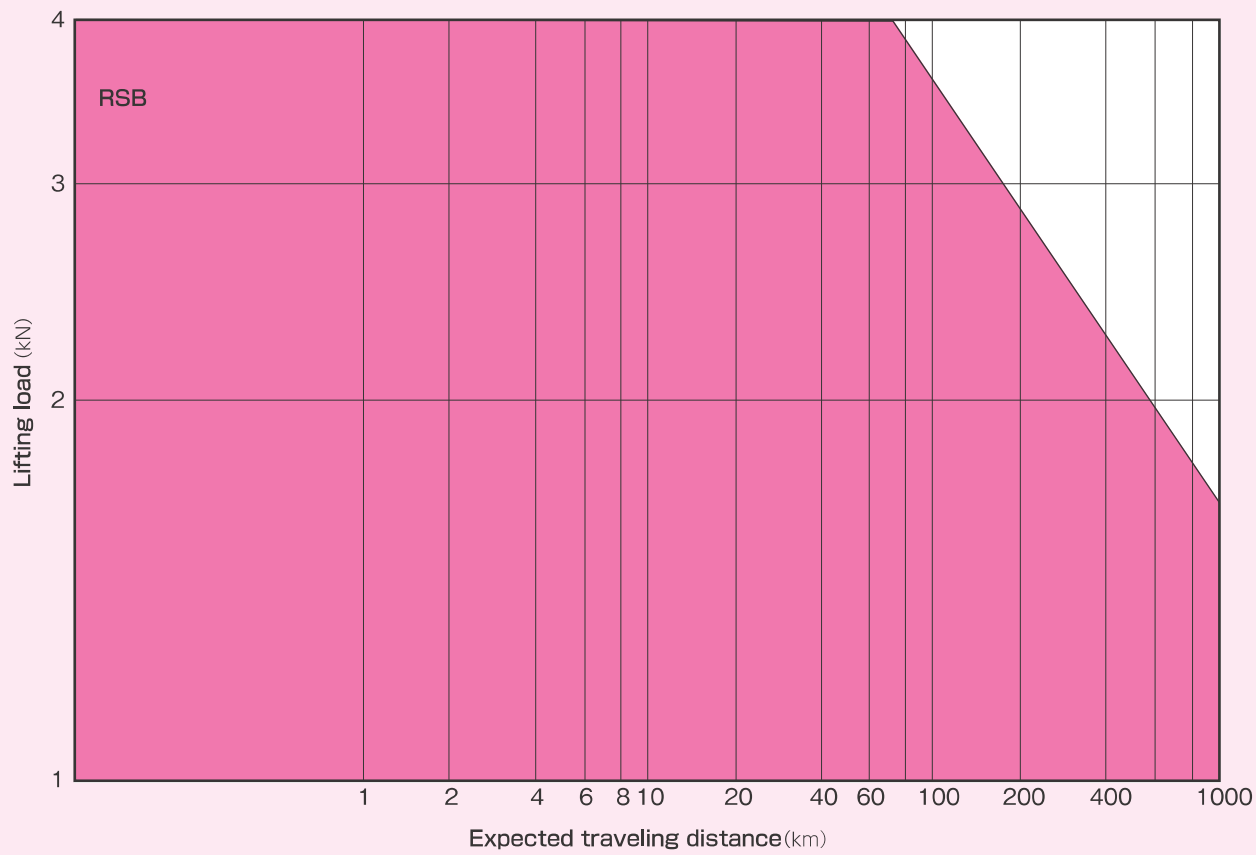
Lifting Load / Lifting Screw Speed Graph

In case of worm gear ratio H, when the lifting load is 4kN, the maximum lifting screw speed is 2000 mm/min.
In case of worm gear ratio L, when the lifting load is 4kN, the maximum lifting screw speed is 416 mm/min.

Expected
traveling
distance

Expected Traveling Distance

The ball screw life, similarly to the bearing life, is determined by the flaking of the ball rotating surface due to fatigue. The following graph shows the relationship between load on the ball screw and traveling distance. It is necessary to consider the following factors which affect the ball screw life: installed conditions, loading conditions, frequency of use, operating conditions, lubrication conditions, surrounding environment, maintenance conditions. Furthermore, when selecting a jack, you also need to consider other machine and seal components, taking into account operating conditions. Please contact us to find necessary components.



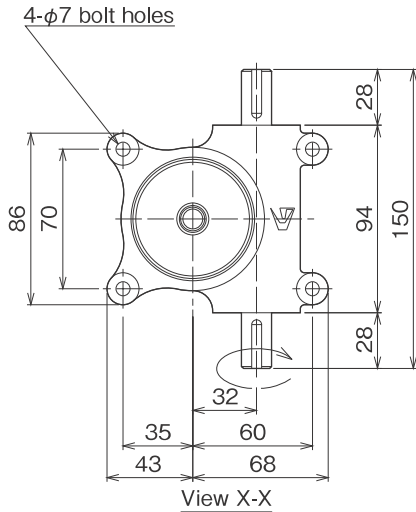
RSB

Dimensional Drawing

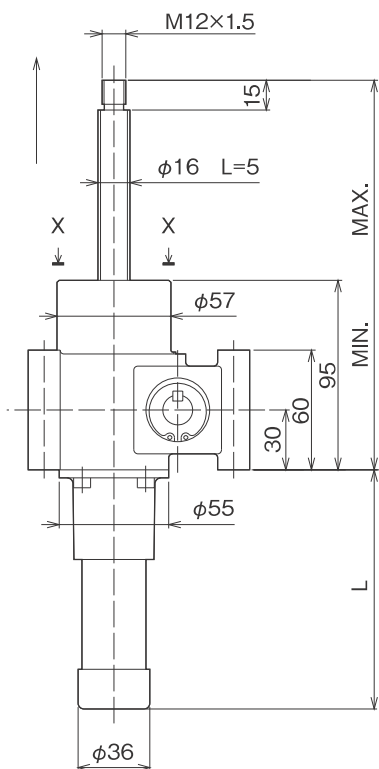
Dimensional Drawing: RSB Translating Ball Small Jack

When the input shaft rotates in the direction indicated by an arrow, the lifting screw ascends.

Two-dimensional drawing

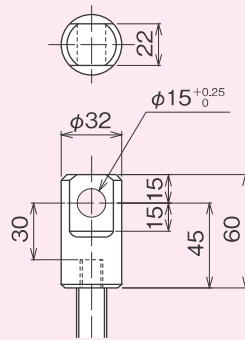


Upright

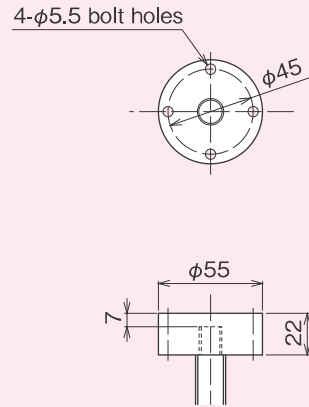


Dimensional drawing of screw end fittings

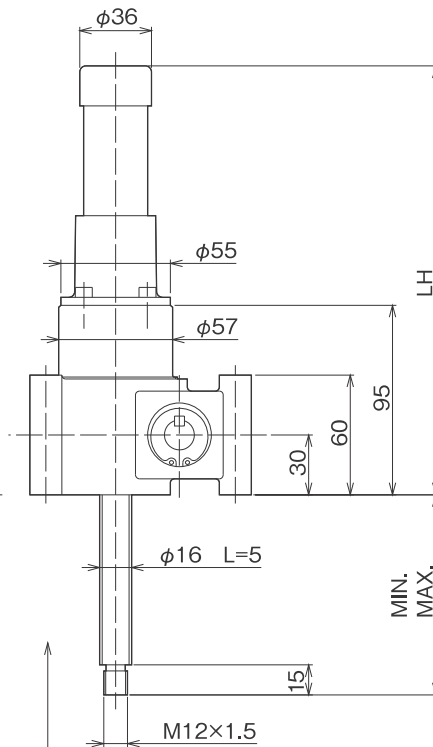
Clevis



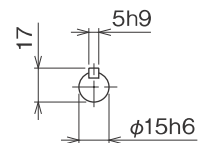
Flange



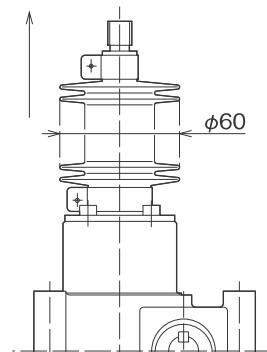
Inverted



Dimensional drawing of input shaft end



Outer diameter of bellows



RSB Ball Small Jack Measurement Table

Stroke	U: Upright						I: Inverted					
	N: Without bellows			B: With bellows			N: Without bellows			B: With bellows		
	MIN.	MAX.	L	MIN.	MAX.	L	MIN.	MAX.	LH	MIN.	MAX.	LH
100	130	230	150	180	280	250	35	135	245	85	185	345
200	130	330	250	180	380	350	35	235	345	85	285	445
300	130	430	350	210	510	450	35	335	445	115	415	545
400	130	530	450	210	610	550	35	435	545	115	515	645
500	130	630	550	220	720	650	35	535	645	125	625	745
600	130	730	650	220	820	850	35	635	745	125	725	945
800	130	930	850	270	1070	1050	35	835	945	175	975	1145

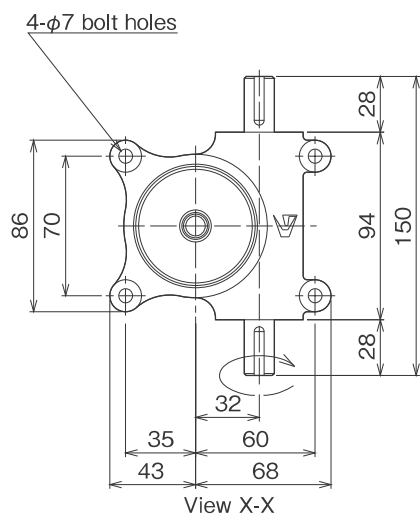
If your required stroke is not shown in the above table, please consult with us, as we can manufacture what you need.

RSB
 Dimensional
 Drawing

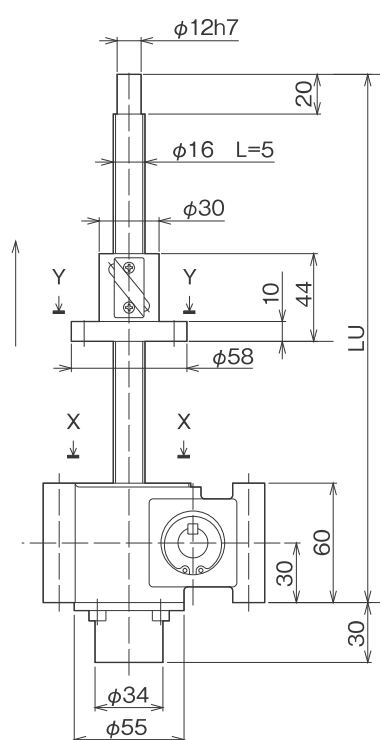
Dimensional Drawing: RSB Traveling Nut Type Ball Small Jack

When the input shaft rotates in the direction indicated by an arrow, the traveling nut ascends.
 For information on sizes of the jack with bellows, please contact us.

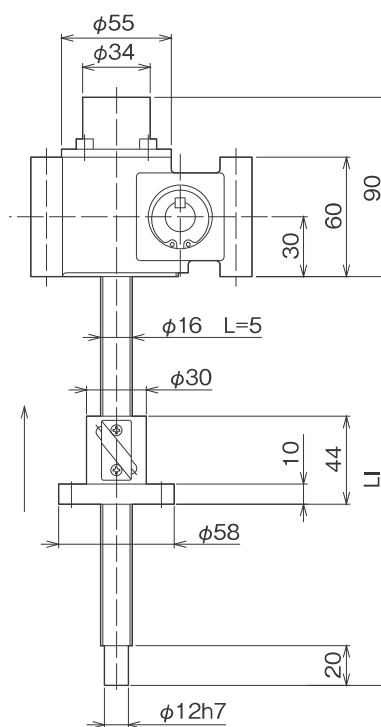
Two-dimensional drawing



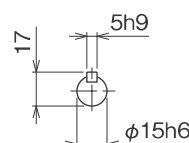
Upright



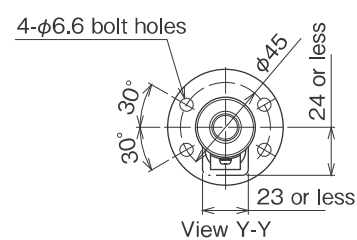
Inverted



Dimensional drawing of input shaft end



Traveling Nut



Approximate Weight (kg)

Stroke	Translating		Traveling nut type
	Without bellows	With bellows	
100	2.5	2.9	2.5
200	2.7	3.1	2.7
300	2.9	3.3	2.9
400	3.1	3.5	3
500	3.3	3.7	3.2
600	3.5	4.2	3.4
800	3.9	5	3.8

RSB

Stroke	Traveling nut type	
	U: Upright	I: Inverted
100	265	205
200	365	305
300	465	405
400	565	505
500	665	605
600	765	705
800	965	905

· If your required stroke is not shown in the above table, please consult with us, as we can manufacture what you need.

