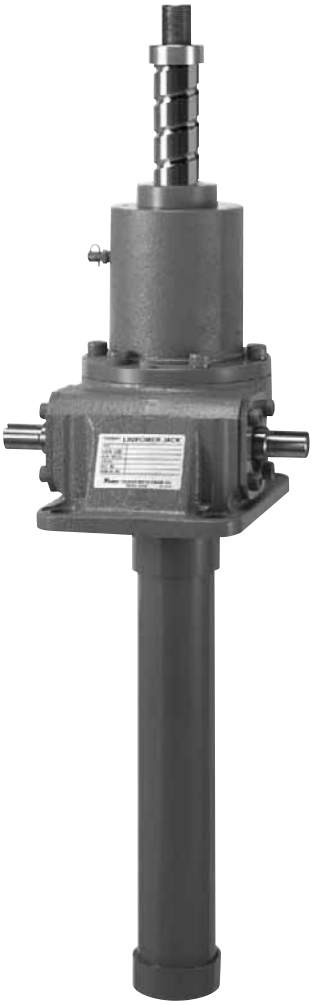
Linipower Jack

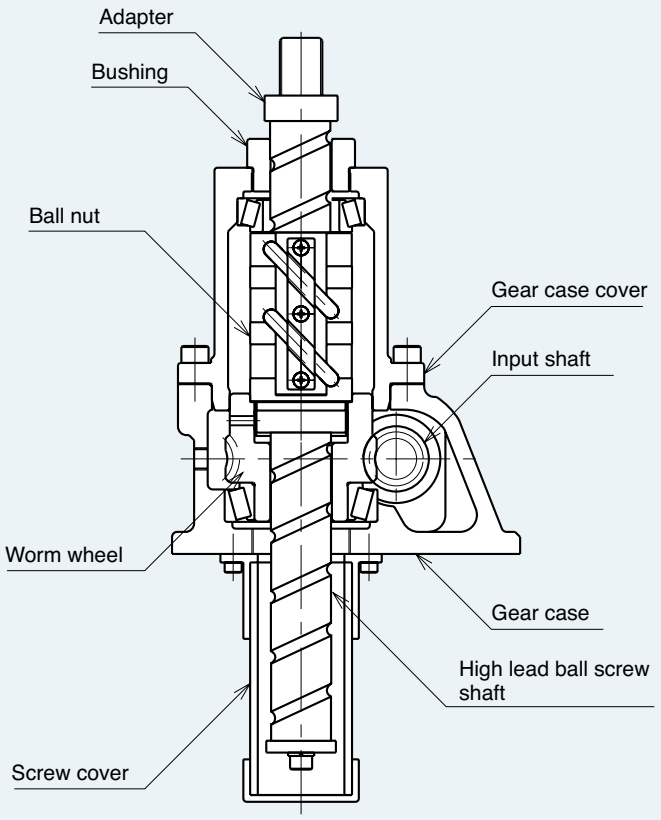
JWH (High Lead Ball Screw Type)



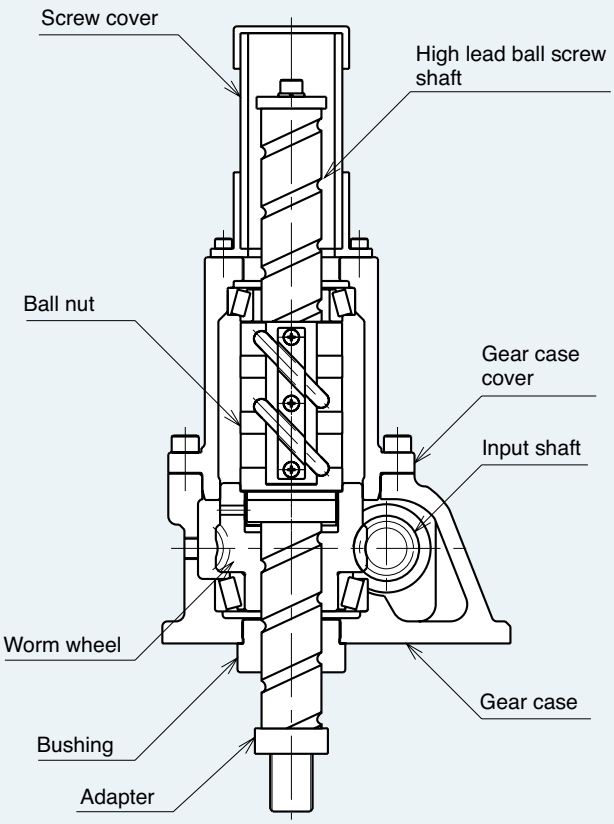
Drawings

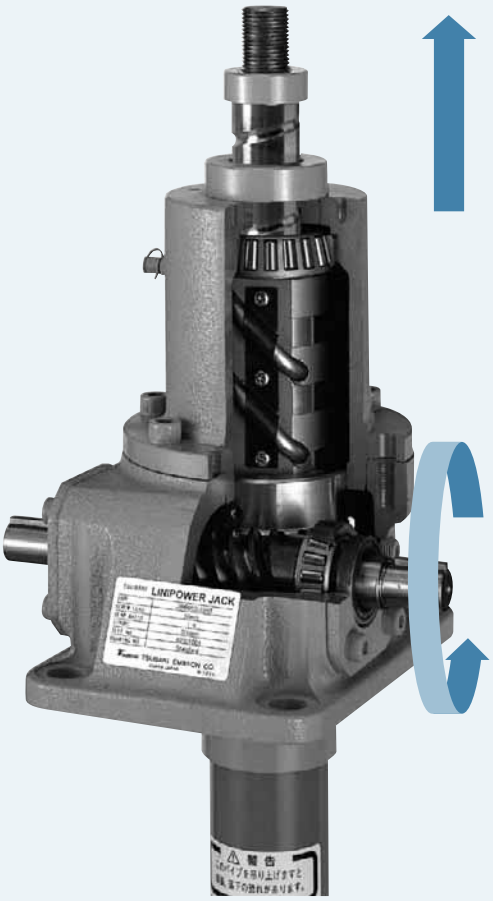
JWH (High Lead Ball Screw Type) Standard Model

JWH Standard Use for Lifting



JWH Standard Use for Suspending

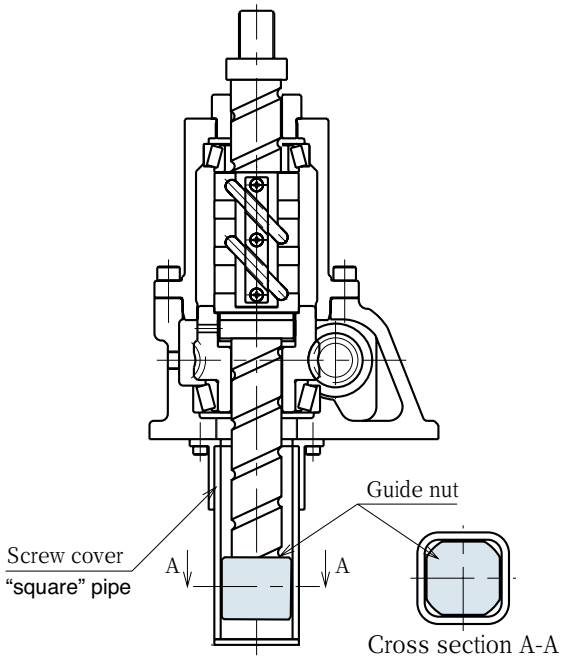




JWH (High Lead Ball Screw Type) Rotation Prevention Type

JWH010～200

〈With Rotation Prevention and Guide Nut〉

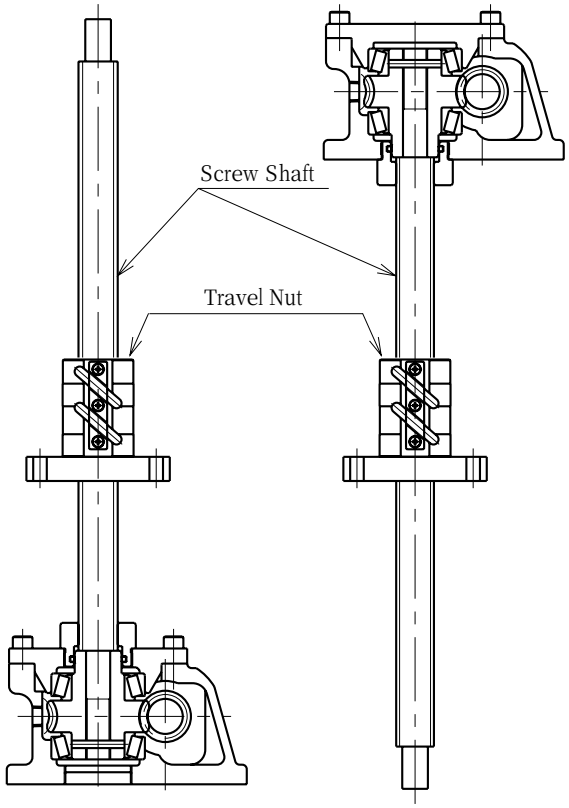


Note) The 10° space in each corner between the guide and the pipe allows smooth rotation.

Caution

Each High Lead Ball Screw Jack with rotation prevention is made-to-order based.
Inform Tsubaki Emerson 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)

JW	H	050	US	H	10	U	JM	C	K4P	G2

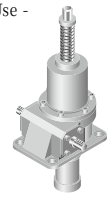
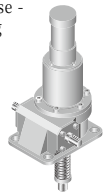
Linipower Jack

Jack Type
H : High Lead Ball Screw

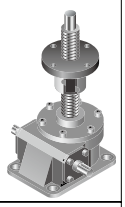
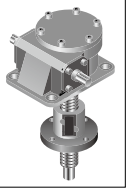
Basic Capacity

Frame No.	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}

Installation Type

US	Standard Use - Lifting 
DS	Standard Use - Suspending 

* Rotation prevention for JWH are available upon request. To request, provide Tsubaki Emerson with information on your operation conditions.

UR	Travel Nut - Lifting 
DR	Travel Nut - Suspending 

* Be sure to use the flange installation method U or D with travel nuts.
* Contact Tsubaki Emerson if rotation prevention is required.

Stroke mm

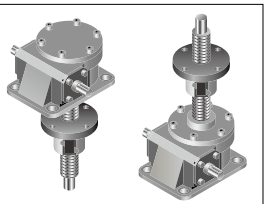
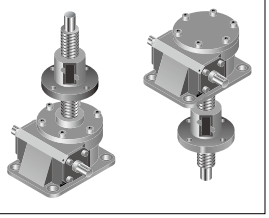
1	100
3	300
6	600
10	1000

*The above values are examples. For actual stroke used, refer to the Model Comparison Table for JWH on page 115.

Gear Ratio

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

Flange Installation

U	
D	

* Above are only necessary with travel nuts.

Examples)

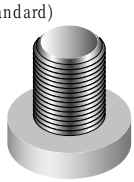
JWH100UMH3

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

JWH050USH10JMK4P

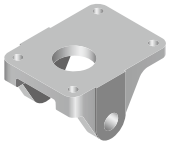
• High Lead Ball Screw Type • 49.0kN {5tf} • Standard use (for lifting) • Gear ratio H (1/6) • Stroke 1000mm
• Bellows / Table Type End Fitting • 4 Internal LS / Potentiometer

Output Option

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

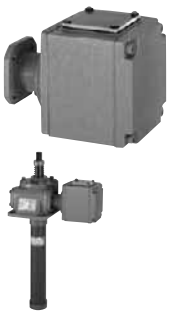
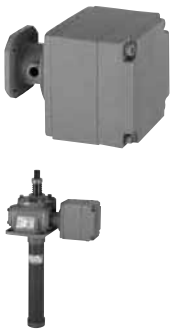
Note) To request the above parts, provide their letter symbols in the order given. When travel nuts are used, B, I and M are not required.
Note) Bellows is of special specification, therefore contact Tsubaki Emerson.
Note) Travel nut type with bellows is estimated for each order. Enter necessary information in the inquiry form on page 219 to contact Tsubaki Emerson.

Installation Option

C	Clevis Mounting Adapter  (See page 215)

Note) For standard lifting only.

Sensor Option

Y	LS Counter  (See page 209)
K2 K4 P R	Position Sensor K2・・・2 Internal LS K4・・・4 Internal LS P・・・Potentiometer R・・・Rotary Encoder  (See page 211)

Note) To request the above parts, provide their letter symbols in the order given.

Input Option

3 phase brake and motor  (Page 199～)
3 phase brake and gear- motor  (Page 199～)

Accessories

Control Options

Stroke Meter and PCB 

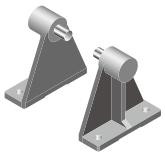
Meter Relay and PCB 

R Controller 

Pulse Counter 

(Page 212～)

Others

Trunnion Mounting Adapter 

*Use as a set with clevis mounting adapter.
(See page 215)

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}
*Note 1 Allowable Input Torque	N·m	19.6	49.0	153.9
	{kgf·m}	{2}	{5}	{15.7}
Required Input Torque for Basic Capacity *Note 2	N·m	10.2	25.6	49.2
	{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	−15～80℃ (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 30minute 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. Allowable input rpm is 1800/min. Be sure to operate within this allowable capacity.
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.
7. Since JWH (High Lead Ball Screw Type) is extremely efficient, sufficient brake that over powers the “holding torque” is required to sustain its shaft.

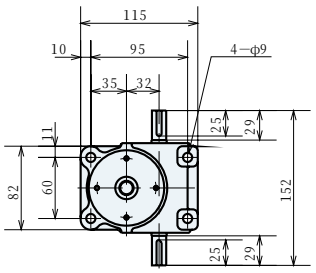
JWH100	JWH150	JWH200
98.0 {10}	147 {15}	196 {20}
45	50	63
38.9	42.7	55.7
32	32	32
8	8	8
65	65	64
4.1	4.1	5.6
1.96 {0.2}	2.65 {0.27}	3.92 {0.4}
52.8 {5.4}	79.2 {8.1}	105.6 {10.8}
292.0 {29.8}	292.0 {29.8}	292.0 {29.8}
98.0 {10.0}	146.8 {15.0}	199.1 {20.3}
4	4	4
1800	1800	1800
400	270	270
531.5 {54.2}	797.3 {81.3}	1063.0 {108.4}
Steel Pipe		
Screw: Grease　Reducer Unit: Grease Bath		
Tsubaki Olive Grey (Munsell 5GY6/0.5)		
−15～80℃ (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 TEM for details.)

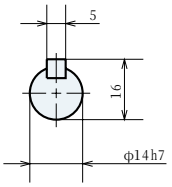
⚠9.Do not use mechanical stops under any circumstances. This will cause major internal damage.

10.Input shaft key is provided with each unit.
(Key complies with JIS B-1301-1996 standards.)

JWH010 Dimensions - Standard Model

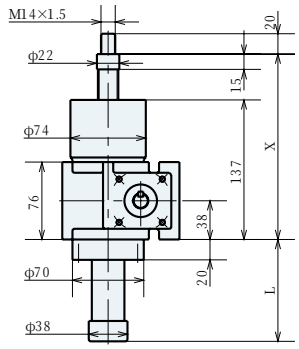


●Input Shaft

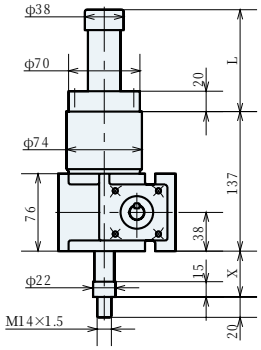


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	162	262	212	312	194	25	125	75	175	194	6.7
200	162	362	212	412	294	25	225	75	275	294	7.0
300	162	462	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)

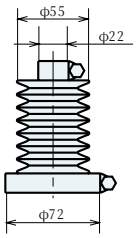


Suspend (JWH010DS)

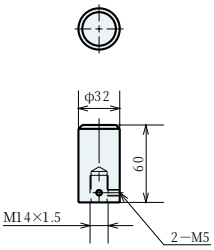


Output Option

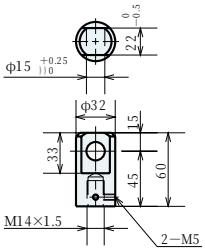
■Bellows (- J)



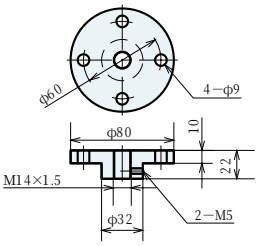
■Rod Type End Fitting (-B)



■I Type End Fitting (-I)

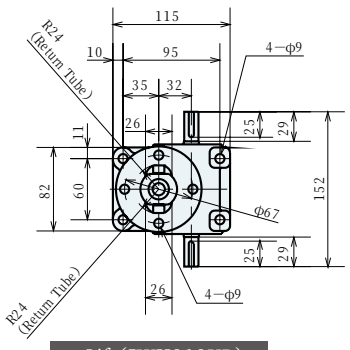


■Table Type End Fitting (-M)

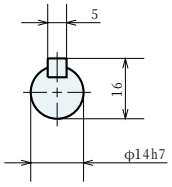


Note) For detailed measurements on units with bellows, see page 218.

JWH010 Dimensions - Travel Nut Type

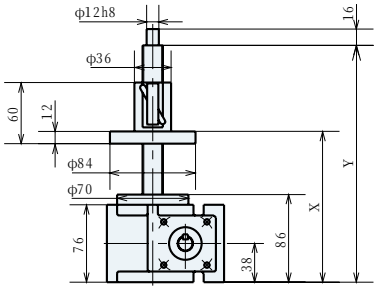


●Input Shaft

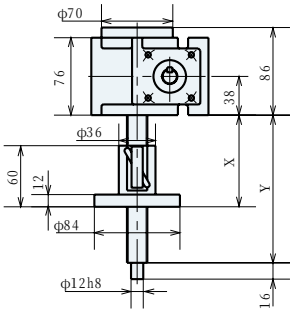


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	108	208	265	69	169	179	5.9
200	108	308	365	69	269	279	6.1
300	108	408	465	69	369	379	6.4
400	108	508	565	69	469	479	6.6
500	108	608	665	69	569	579	6.8
600	108	708	765	69	669	679	7.0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

Lift (JWH010UR)



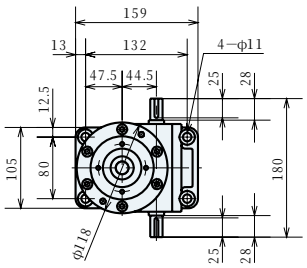
Suspend (JWH010DR)



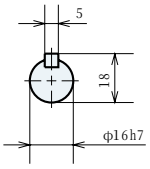
Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 219.

JWH025 Dimensions - Standard Model

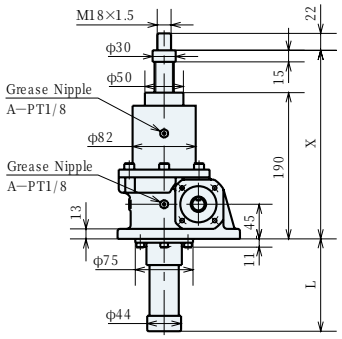


●Input Shaft

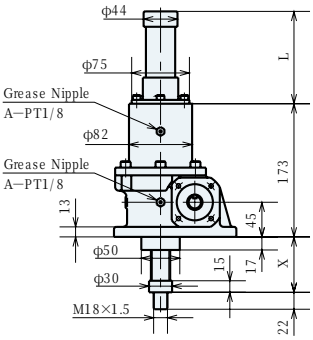


Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	215	315	230	330	149	42	142	57	157	149	11
200	215	415	230	430	249	42	242	57	257	249	11
300	215	515	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)

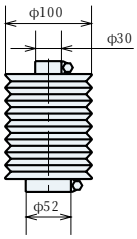


Suspend (JWH025DS)

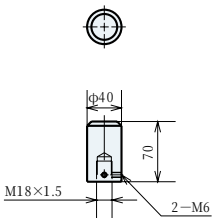


Output Option

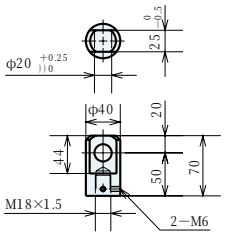
■Bellows (- J)



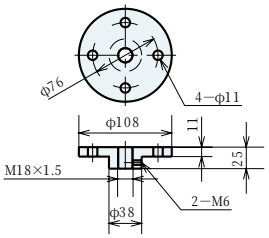
■Rod Type End Fitting (-B)



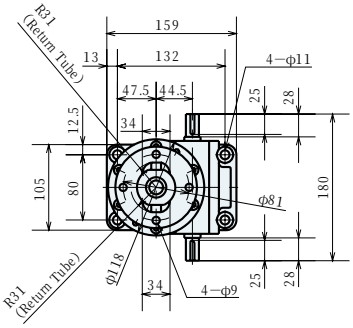
■I Type End Fitting (-I)



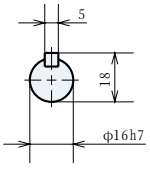
■Table Type End Fitting (-M)



JWH025 Dimensions - Travel Nut Type

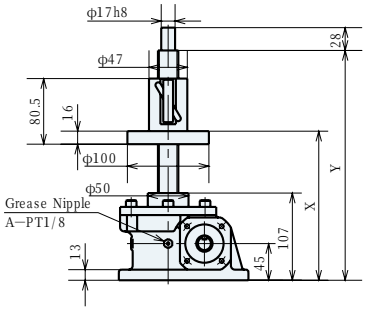


●Input Shaft

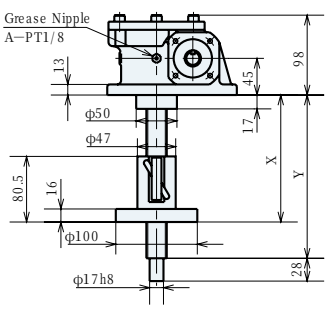


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	133	233	309	108	208	219	9.2
200	133	333	409	108	308	319	9.5
300	133	433	509	108	408	419	9.8
400	133	533	609	108	508	519	11
500	133	633	709	108	608	619	11
600	133	733	809	108	708	719	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)



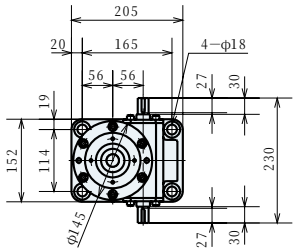
Suspend (JWH025DR)



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

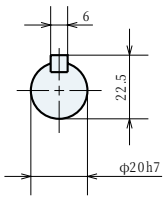
Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 219.

JWH050 Dimensions - Standard Model

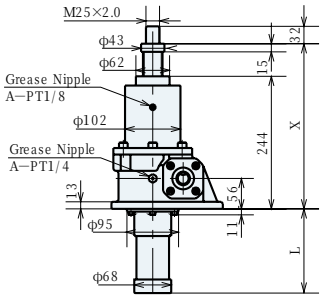


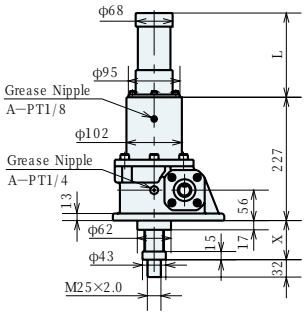
Lift (JWH050US)

●Input Shaft



Suspend (JWH050DS)

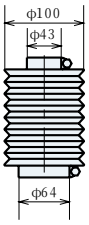




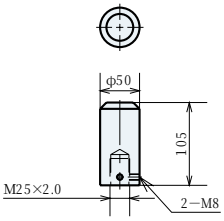
Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	269	369	284	384	147	42	142	57	157	147	23
200	269	469	284	484	247	42	242	57	257	247	23
300	269	569	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

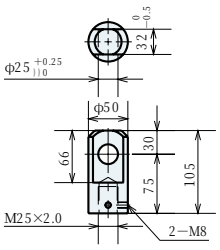
■Bellows (- J)



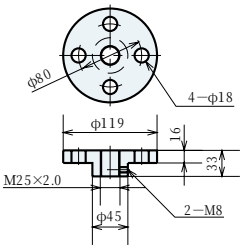
■Rod Type End Fitting (-B)



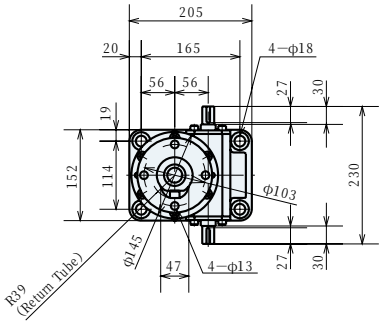
■I Type End Fitting (-I)



■Table Type End Fitting (-M)

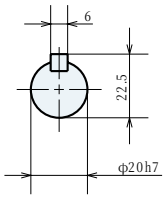


JWH050 Dimensions - Travel Nut Type

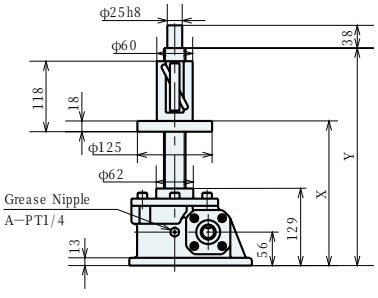


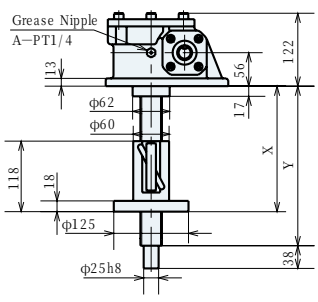
Lift (JWH050UR)

●Input Shaft



Suspend (JWH050DR)



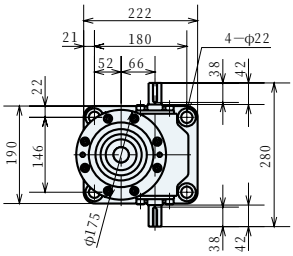


Stroke	UR Travel Nut Type for Lifting			DR Travel Nut Type for Suspending			Weight kg
	X		Y	X		Y	
	MIN	MAX		MIN	MAX		
100	157	257	369	145	245	257	21
200	157	357	469	145	345	357	22
300	157	457	569	145	445	457	22
400	157	557	669	145	545	557	23
500	157	657	769	145	645	657	24
600	157	757	869	145	745	757	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.

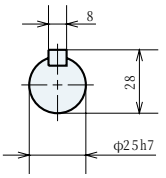
Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 219.

JWH100 Dimensions - Standard Model



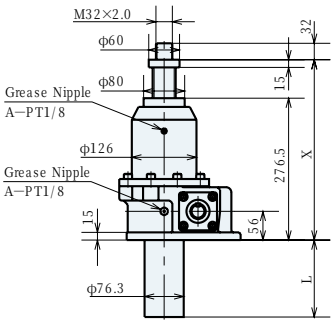
Lift (JWH100US)

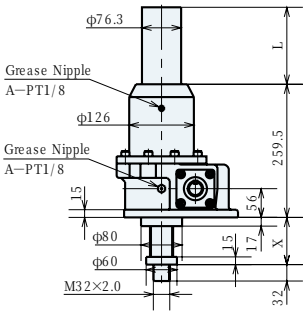
●Input Shaft



Suspend (JWH100DS)

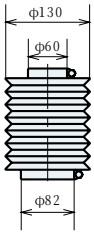
Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	302	402	312	412	151	42	142	52	152	151	36
200	302	502	312	512	252	42	242	52	252	252	38
300	302	602	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



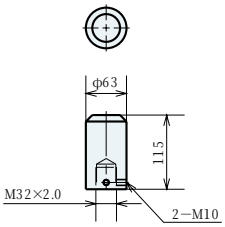


Output Option

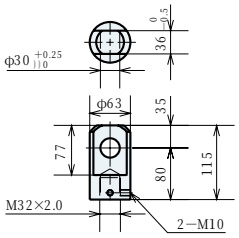
■Bellows (- J)



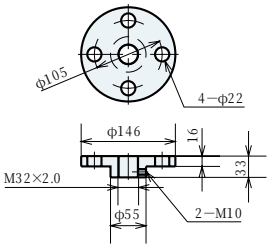
■Rod Type End Fitting (-B)



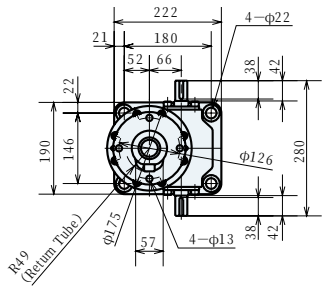
■I Type End Fitting (-I)



■Table Type End Fitting (-M)

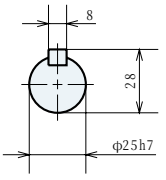


JWH100 Dimensions - Travel Nut Type



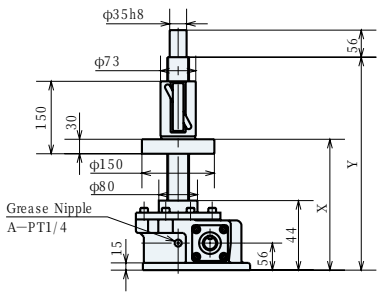
Lift (JWH100UR)

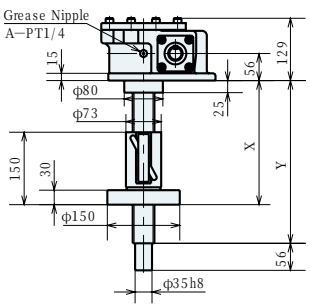
●Input Shaft



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

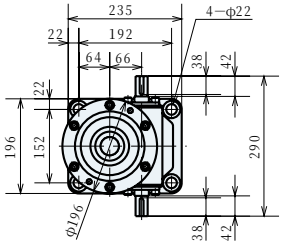




Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

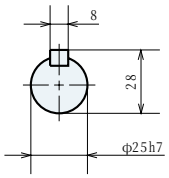
Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 219.

JWH150 Dimensions - Standard Model



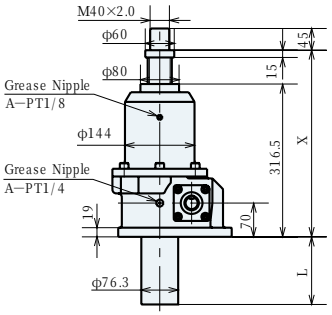
Lift (JWH150US)

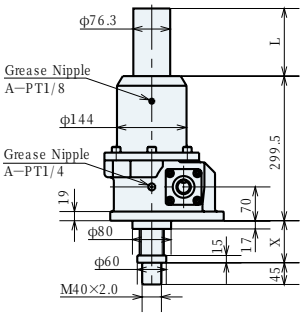
●Input Shaft



Suspend (JWH150DS)

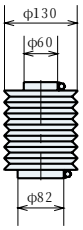
Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	342	442	352	452	151	42	142	52	152	151	46
200	342	542	352	552	252	42	242	52	252	252	48
300	342	642	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



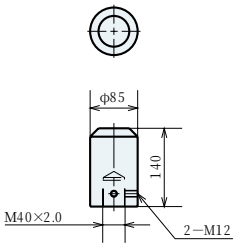


Output Option

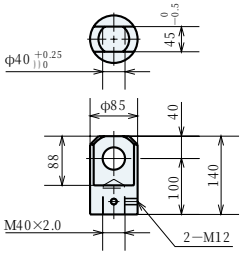
■Bellows (- J)



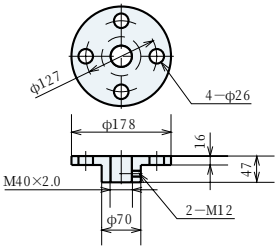
■Rod Type End Fitting (-B)



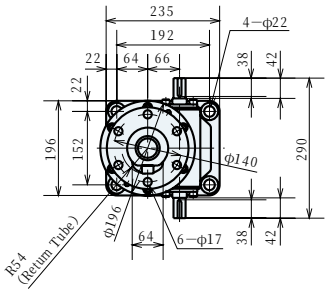
■I Type End Fitting (-I)



■Table Type End Fitting (-M)

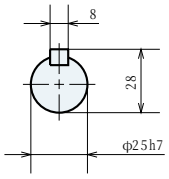


JWH150 Dimensions - Travel Nut Type



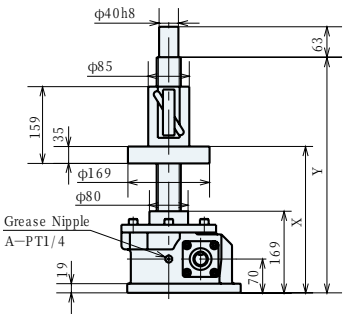
Lift (JWH150UR)

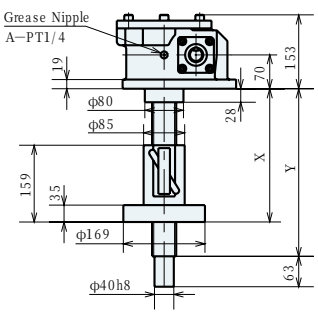
●Input Shaft



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

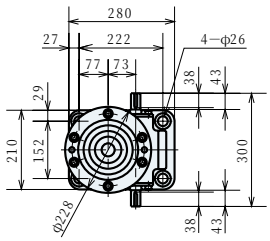




Note) Ball nut return tube and travel flange openings may vary from this drawing. Note the return tube measurements when installing to equipment.

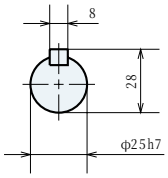
Travel nut type cannot be equipped with optional end fitting (B.I.M). For types with bellows, refer to page 219.

JWH200 Dimensions - Standard Model



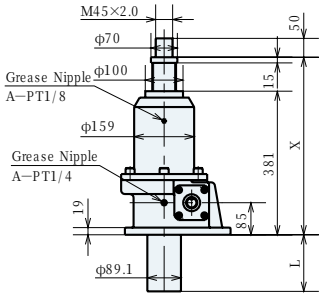
Lift (JWH200US)

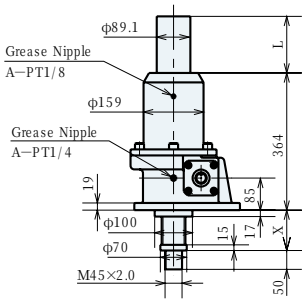
●Input Shaft



Suspend (JWH200DS)

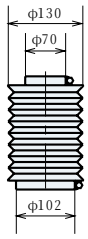
Stroke	US Standard Model for Lifting					DS Standard Model for Suspending					Weight kg
	X Without Bellows		X With Bellows		L	X Without Bellows		X With Bellows		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	406	506	416	516	136	42	142	52	152	136	65
200	406	606	416	616	236	42	242	52	252	236	68
300	406	706	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



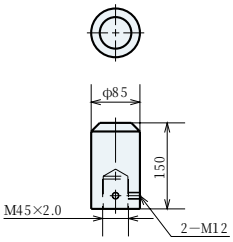


Output Option

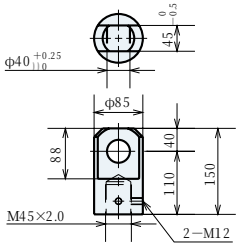
■Bellows (- J)



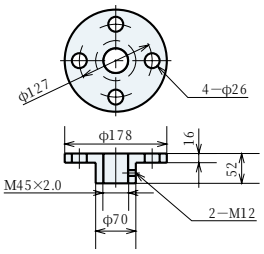
■Rod Type End Fitting (-B)



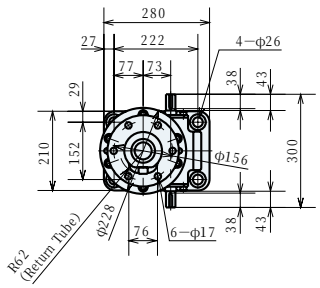
■I Type End Fitting (-I)



■Table Type End Fitting (-M)

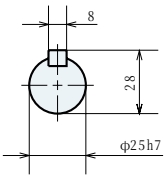


JWH200 Dimensions - Travel Nut Type



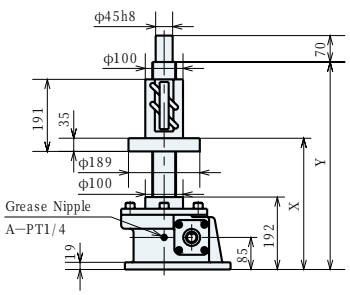
Lift (JWH200UR)

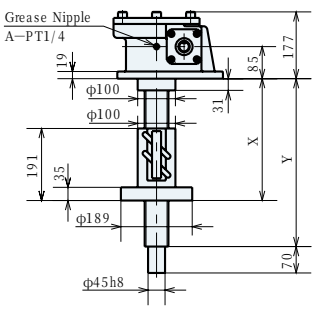
●Input Shaft



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 219.

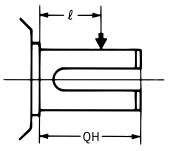
⚠ Warning

■ 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 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 127.
- 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 Tsubaki Emerson.
  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 Tsubaki Emerson.
- 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.

$$\text{Allowable O.H.L} \geqq \frac{T \times f \times Lf}{R}$$

O.H.L. : Overhang load N {kgf}
T : Input torque N・m {kgf・m}
f : Coefficient - power transmission element
Lf : 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 (Lf) – Load Position

ℓ/QH	0.25	0.38	0.5	0.75	1
Lf	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	−15～80℃ (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 223.
- 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.