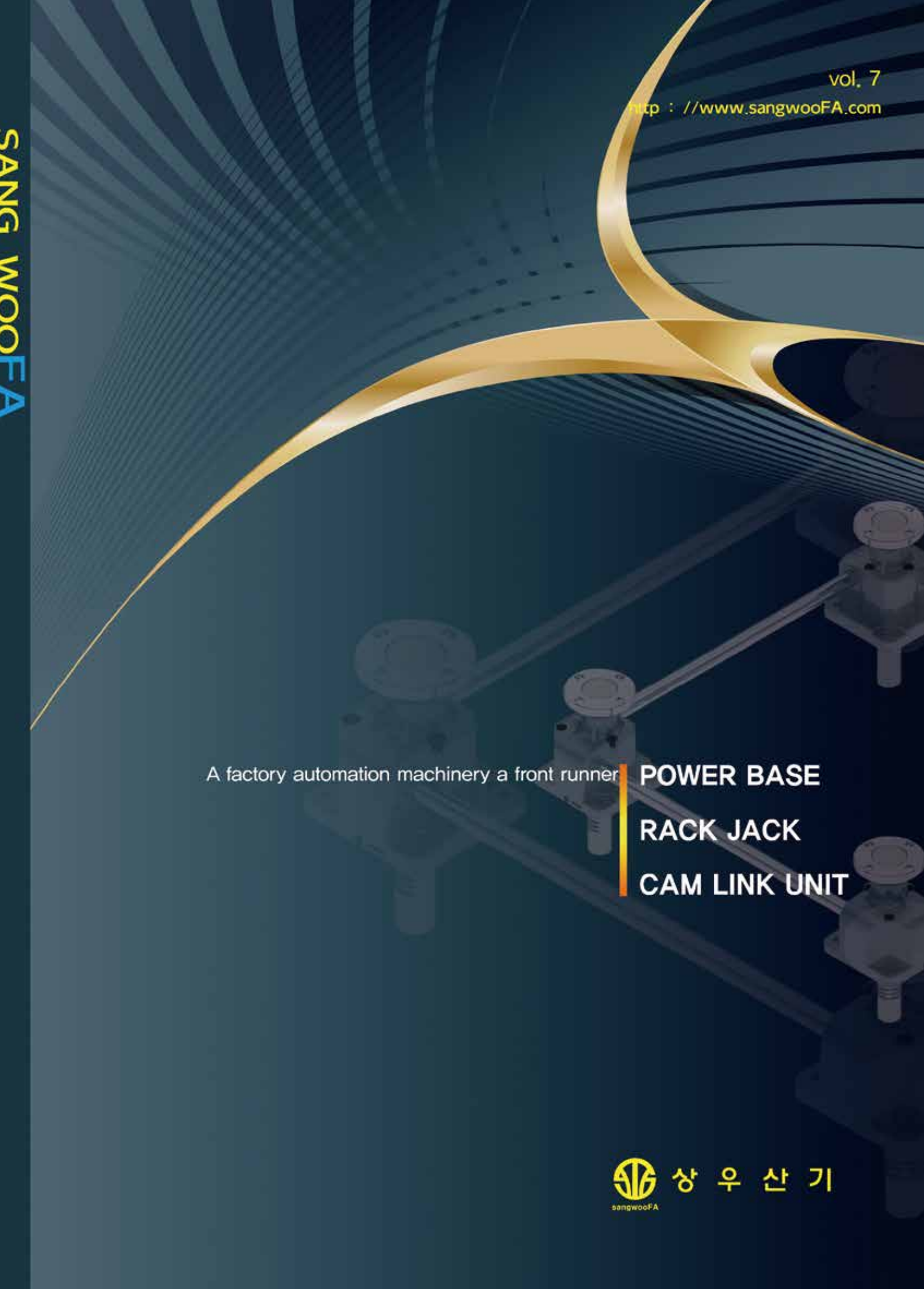
SANG WOOFA

vol. 7

http : //www.sangwooFA.com



A factory automation machinery a front runner

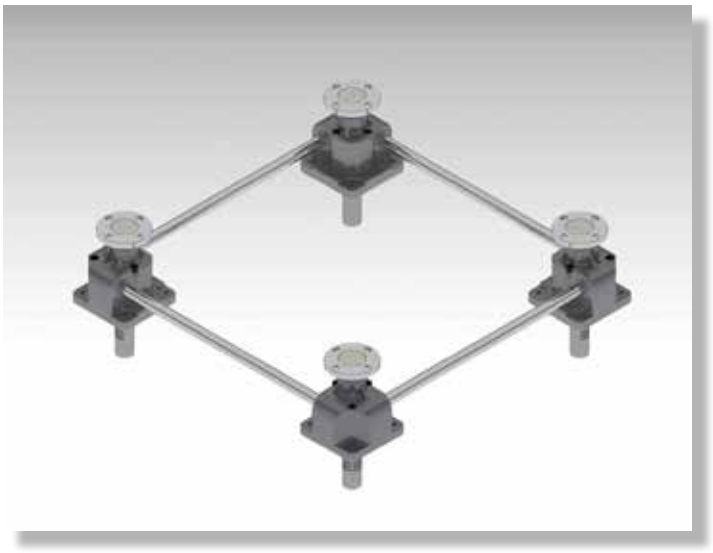
POWER BASE
RACK JACK
CAM LINK UNIT

sangwooFA

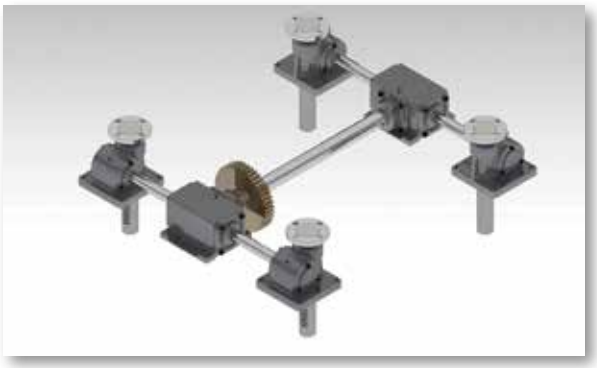
상 우 산 기

상우산기 회사전경

CONTENTS



◈ POWER BASE



◈ RACK JACK

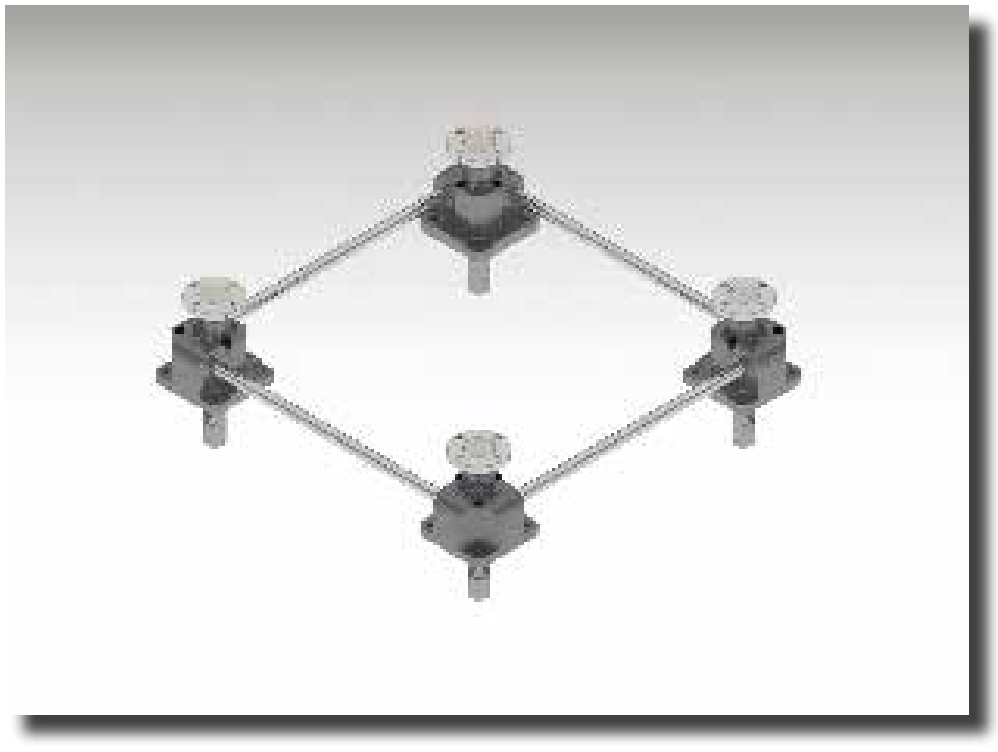
1. Rack Jack 구조 및 성능(Structure and efficiency)
2. Rack Jack의 종류(Type)
3. 내부구조도(Inside constructional draw)
4. 사용용도(Use)
5. RJ series 선정표(RJ series selecting method)
6. RJ-B series 선정표(RJ-B series selecting method)
7. RJ-H series 선정표(RJ-H series selecting method)
8. Geared Motor 선정방법(Selection mode of Geared motor)
9. 속도계산식(Speed Calculation)
10. Rack Jack 과 Power base의 차이점(Rack Jack & Power base of Comparison)
11. Rack Jack의 외관및 후처리(Exterior and after treatment)
12. 표준사양(General specification)
13. 조립시 유의사항(Attention fact)
14. 형식표시방법-일반Type(Product serial No-general type)
15. Dimension-일반Type(General type)
16. 형식표시방법-클린Type(Product serial No-Clean type)
17. Dimension-클린Type(Clean type)
18. 응용방법(Application method)
19. Accessories
20. 사진자료(Photo data)

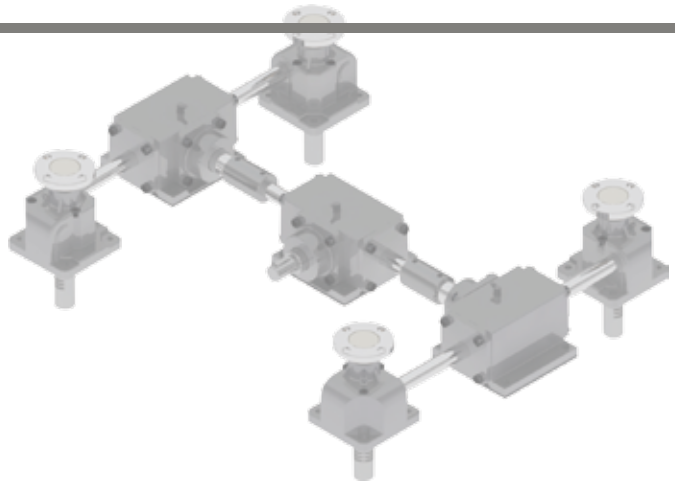
◈ CAM LINK UNIT

1. Cam Link Unit의 구조 및 성능(Structure and efficiency)
2. Cam Link Unit의 사용용도(Use)
3. 내부구조도(Inside constructional draw)
4. 형식표시방법(Product serial No)
5. 표준사양(General specification)
6. 속도계산식(Speed Calculation)
7. Geared Motor 선정방법(Selection mode of Geared motor)
8. Dimension
9. 응용방법(Application method)
10. 사진자료(Photo data)

POWER BASE

(Linear Guide Unit)





◈ CONTENTS

1. 구조 및 성능 (Structure & efficiency)

1) Rack Gear 와 pinion gear가 조합된 gear box가 사각으로 4개의 shaft로 연결된 구조로 up-down 작동시 좌, 우 동조를 맞추어 주는 unit이다.
2) Gear와 gear가 서로 맞물려 있어 좌우 동조 오차가 최소이다.
3) Lifter에 있어서 한쪽으로 편하중을 받아도 원활한 up-down 작동을 할 수 있다.
4) LM GUIDE나 BALL BUSH, X-LINK와는 달리 guide 자체가 unit로 구성되어 있어 하자 보수가 용이하고 부품의 신속한 교환이 가능하다.
5) X-LINK 와는 달리 표준품으로 되어 있어 ass'y설계가 쉽고 up-down guide 역할에 필요한 부수적인 장치물이 필요없다.

1) This is guide unit which consists of Gear box composed of Rack Gear and Pinion gear, connected with 4 Torque bar fix the parallel balance on up-down operation.
2) It shows minimum error because of perfect match in between two gears.
3) Smooth up-down operation is available when it is weighed on only one side because of Lifter.
4) Unlike LM guide, Ball bush and X-Link, it is easily possible for the guide to fix and change parts because of the fact that it includes built-in unit.
5) For standardized part, designing ass'y is easy and there is no need to extra devices for the role of up-down guide

2. POWER BASE 종류 (Type of Power base)

▣ Power base 는 크게 일반 type과 Clean type으로 나눈다

· 일반 type : 일반적인 산업용 설비에 사용되는 model로 외관은 painting 과 흑착색으로 되어 있다.
· Clean type : 반도체, LCD, PDP 생산설비, 의료, 식품 생산설비에 사용되는 model로 부품의 다양한 후처리 방법이 있으며 Clean room의 조건에 따라 다양한model이 있다.

1) SP series(guide type), SP1 series(분리형)
· 기본적인 model로 SP100~SP20000까지의 규격품이 있으며, 20ton 이상의 용도도 주문 사양으로 제작 가능하다.
· up-down guide 역할만 할 수 있으며 gear box간의 center 거리는 설계자의 임의로 선정 할 수 있다.

2) SPM series(motor또는 cylinder 구동 type)
· power base의 구동 shaft에 spur gear나 sprocket, timebelt pully를 설치하여 motor를 이용하여 승하강 시키거나, cylinder의 수직설치가 곤란할 경우 cylinder를 수평설치하고 rod 끝단에 rack gear를 설치하여 power base 축의 pinion gear를 회전시켜 승하강 시킬때 적용한다.

3) SPMB series(motor 구동type)
· SPM series에 motor를 직결연결하는 model로 spur gear나 chain, belt가 사용되지 않으므로 clean room 환경에 적합하다.

4) SPMH series(motor, handle 구동type)
· SPM series에 worm reducer를 부착하여 motor나 수동 handle을 이용하여 사용한다.
이때 worm reducer는 1/40 이상의 감속비를 사용하여야 역회전 방지가 되어 상승시 자중으로 하강이 되지 않는다.

5) SPH series(handle 구동type)
· SP series에 worm reducer를 부착하여 수동으로 승하강시키려 할때 적용한다. 이때 worm reducer는 1/40 이상의 감속비를 사용하여야 역회전 방지가 되어 상승시 자중으로 하강이 되지 않는다.

6) SPB series(motor 구동type)
· SP series에 miter gear box를 부착하여 motor를 이용 승하강 시키는 model로 정밀을 요하지 않는 조건에서 경량물을 단순 승하강 시키는 조건에 사용한다.

▣ Power base diverting into general type and clean type

· General type: the model used in general industry device, is painted with black.
· Clean type: the model used in facilities producing semi-conductor, LCD, PDP, medical and edible goods has a variety of disposal and it could be freely adapted by the from of the clean room.

1) SP series(guide type), SP1 series(available to separate)
As a basic model of the guide unit, SP100~SP20000 is already introduced and order for over 20 ton objects is also possible.
It is designed only for Up-down guide and the distance in between gears can be managed by the designer.

2) SPM series(operated by motor)
With the installation of spur gear sprocket and time belt on drive shaft of the power base, when operating by motor or having difficulty in perpendicular installation, it is practically used with the method that parallel installation of cylinder and rack gear on the end of the rod so it make pinion gear spin and move upside down by drive shaft on power base.

3) SPMB series(operated by motor)
It is perfectly matched with clean room because it is the model directly connected with motor therefore it dose not need spur gear, chain and belt.

4) SPMH series(motored operation controlled with wheel)
It is SPM model patched by worm reducer so it could be controlled by motor or handle. When operating, worm reducer has to use over 1/40 reducing rate because under the below level of the rate, it could reversed spin and fall down by itself.

5) SPH series(operated by handle)
It is SP series patched by worm reducer to move up and down by handle. It is easily adapted to the condition that is no necessary to be precise. When operating, worm reducer has to use over 1/40 reducing rate because under the below level of the rate, it could reversed spin and fall down by itself.

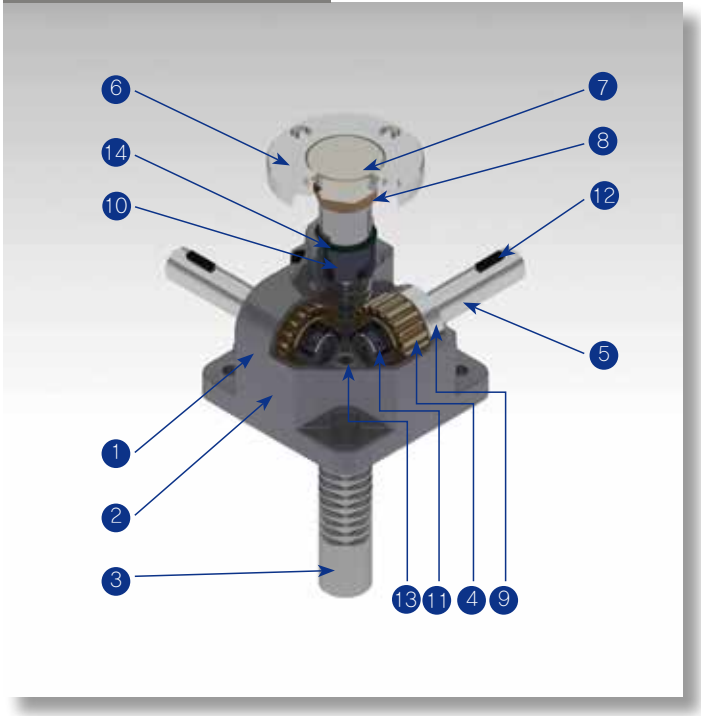
6) SPB series(operated by handle)
It is SPB series patched by miter gear box to move up and down by motor. It is easily adapted to the condition that is no necessary to be precise when moving light objects up and down.

3. 사용용도 (Use)

일반 TYPE(GENERAL TYPE)	CLEAN TYPE
1) Conveyor up–down diverter	1) FPD conveyor up/down unit
2) Table lifter	2) Glass pin up/down unit
3) General up–down lifter	3) EUV up/down unit
4) 자동창고용 입,출고(auto warehouse delivery of goods from) Home position lifter	4) LCD ageing line up/down unit
5) Fork lifter	5) Clean room in up/down unit
6) Ball bush, LM guide 대용 Guide unit(SP Series)	6) 의약품 제조설비(Medical supplies making equipment)
7) 기타산업기기(Etc.. Industrial equipment)	7) 식품제조설비(Food supplies making equipment)

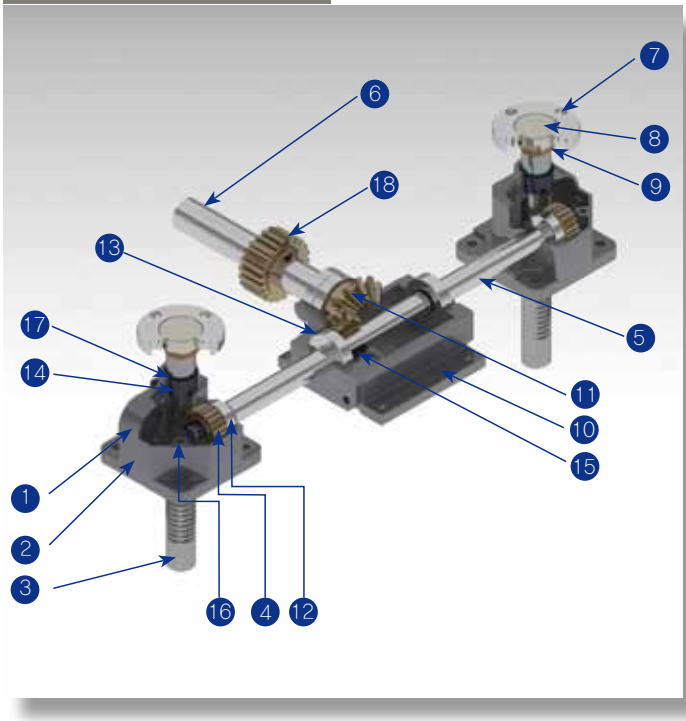
4. 내부구조도 (Inside constructional draw)

(SP, SP1 SERIES)



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	8
5	Shaft	S45C	4
6	Flange	S45C	4
7	Flange joint	S45C	4
8	Lock nut	S45C	4
9	Ball bearing	SUJ	8
10	Du bush / oilless bearing		8
11	Du bush		8
12	Key	S45C	8
13	Wrench bolt	S45C	12
14	Stop ring	SWP	8

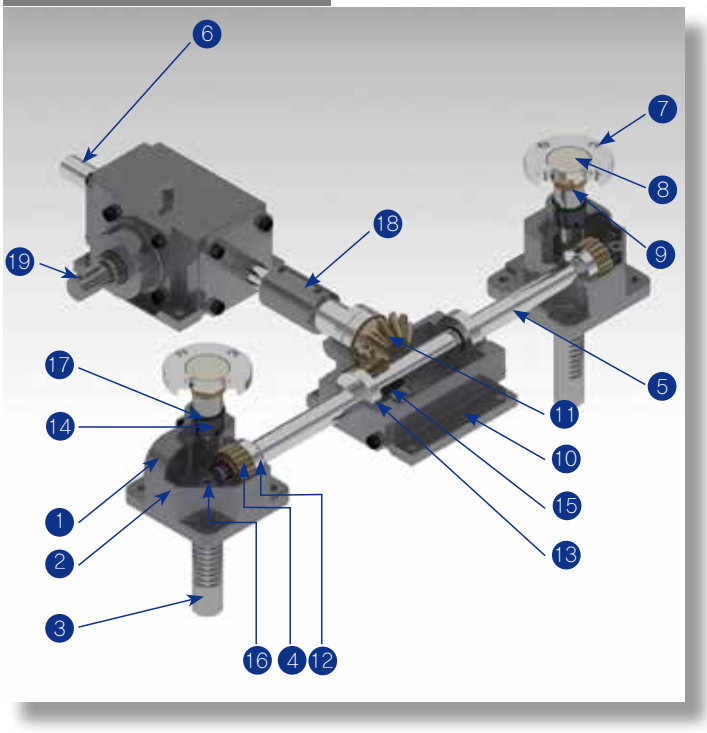
(SPM SERIES)



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	4
5	Shaft A	S45C	2
6	Shaft B	S45C	1
7	Flange	S45C	4
8	Flange joint	S45C	4
9	Lock nut	S45C	4
10	Bevel gear box	AL/FCD25	2
11	Bevel gear	S45C/SCM21	4
12	Ball Bearing	SUJ	10
13	Taper Bearing	SUJ	2
14	Du bush/oilless bearing		8
15	Key	S45C	9
16	Wrench bolt	S45C	36
17	Stop ring	SWP	8
18	Spur gear/sprocket	S45C	1

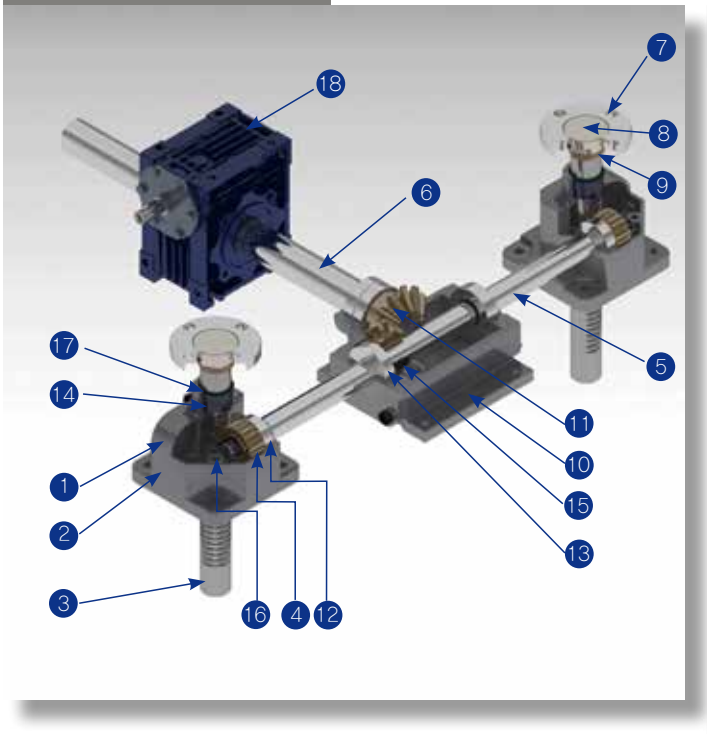
◈ 내부구조도 (Inside constructional draw)

(SPMB SERIES)



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	4
5	Shaft A	S45C	2
6	Shaft B	S45C	1
7	Flange	S45C	4
8	Flange joint	S45C	4
9	Lock nut	S45C	4
10	Bevel gear box	AL/FCD25	3
11	Bevel gear	S45C/SCM21	6
12	Ball Bearing	SUJ	13
13	Taper Bearing	SUJ	3
14	Du bush/oilless bearing		8
15	Key	S45C	11
16	Wrench bolt	S45C	48
17	Stop ring	SWP	8
18	Coupling	S45C	2
19	Input shaft	S45C	1

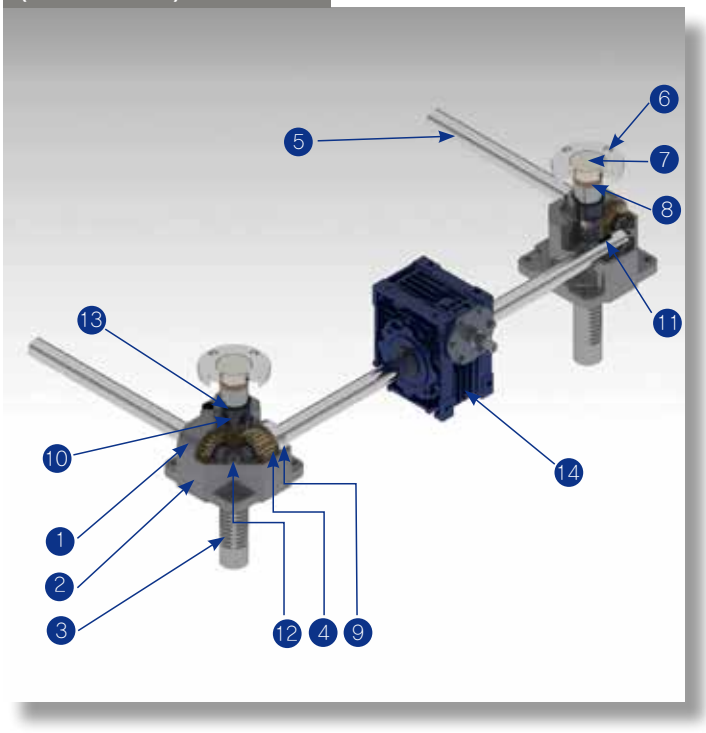
(SPMH SERIES)



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	4
5	Shaft A	S45C	2
6	Shaft B	S45C	1
7	Flange	S45C	4
8	Flange joint	S45C	4
9	Lock nut	S45C	4
10	Bevel gear box	AL/FCD25	2
11	Bevel gear	S45C/SCM21	4
12	Ball Bearing	SUJ	10
13	Taper Bearing	SUJ	2
14	Du bush/oilless bearing		8
15	Key	S45C	9
16	Wrench bolt	S45C	36
17	Stop ring	SWP	8
18	Worm reducer		1

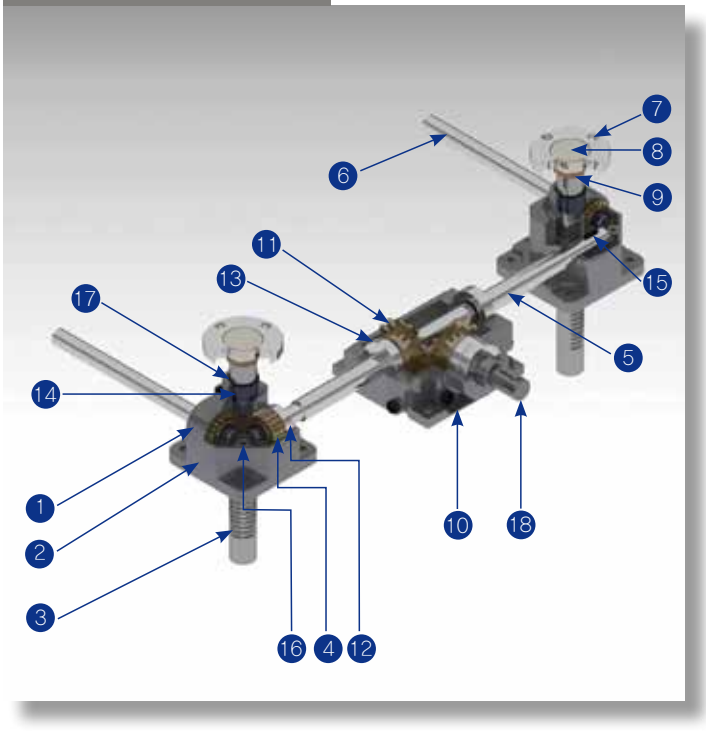
◈ 내부구조도 (Inside constructional draw)

(SPH SERIES)



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	8
5	Shaft	S45C	4
6	Flange	S45C	4
7	Flange joint	S45C	4
8	Lock nut	S45C	4
9	Ball bearing	SUJ	8
10	Du bush/oilless bearing		8
11	Key	S45C	9
12	Wrench bolt	S45C	12
13	Stop ring	SWP	8
14	Worm reducer		1

(SPB SERIES)



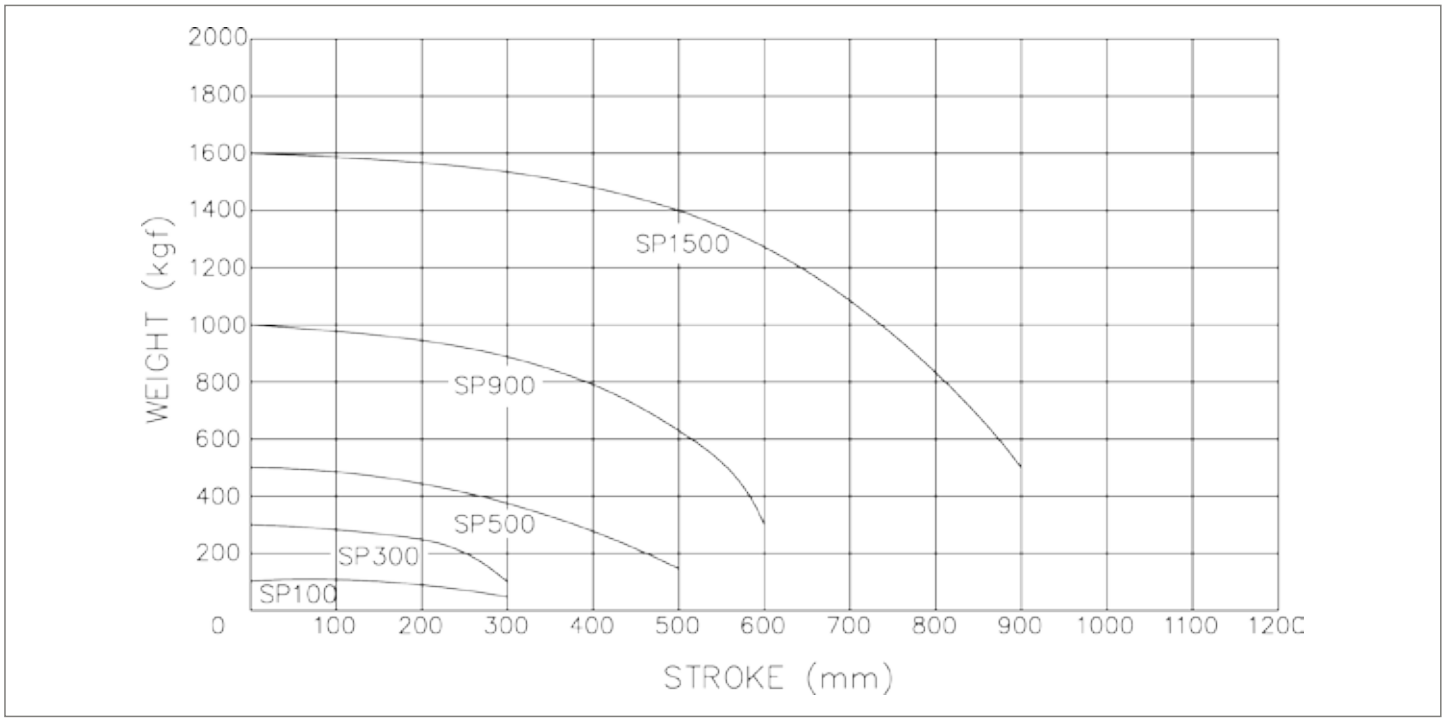
No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	8
5	Shaft A	S45C	1
6	Shaft B	S45C	3
7	Flange	S45C	4
8	Flange joint	S45C	4
9	Lock nut	S45C	4
10	Bevel gear box	AL/FCD25	1
11	Bevel gear	S45C/SCM21	2
12	Ball Bearing	SUJ	11
13	Taper Bearing	SUJ	1
14	Du bush/oilless bearing		8
15	Key	S45C	11
16	Wrench bolt	S45C	24
17	Stop ring	SWP	8
18	Input shaft	S45C	1

5. SP Series 선정표 (Selecting method)

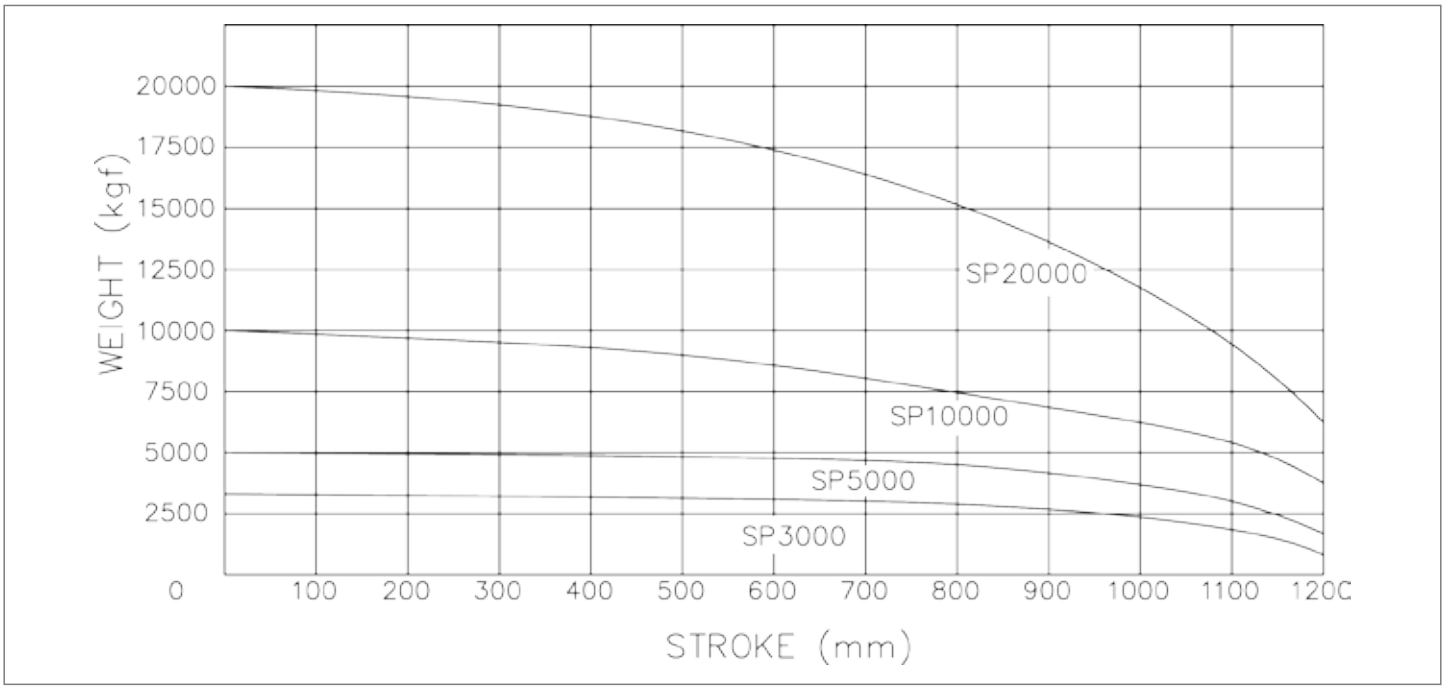
⚠ **주 의**

– SP Series는 Cylinder나 Jack을 구동원으로 사용할때 Up/Down Guide Unit 역할로만 사용하며, Motor를 연결하여 Up/Down 구동원으로 사용할때에는 SPM, SPMB, SPMH, SPB, SPH Type을 선정하여 사용한다.

(1) 중하중용 (For middle weight load)



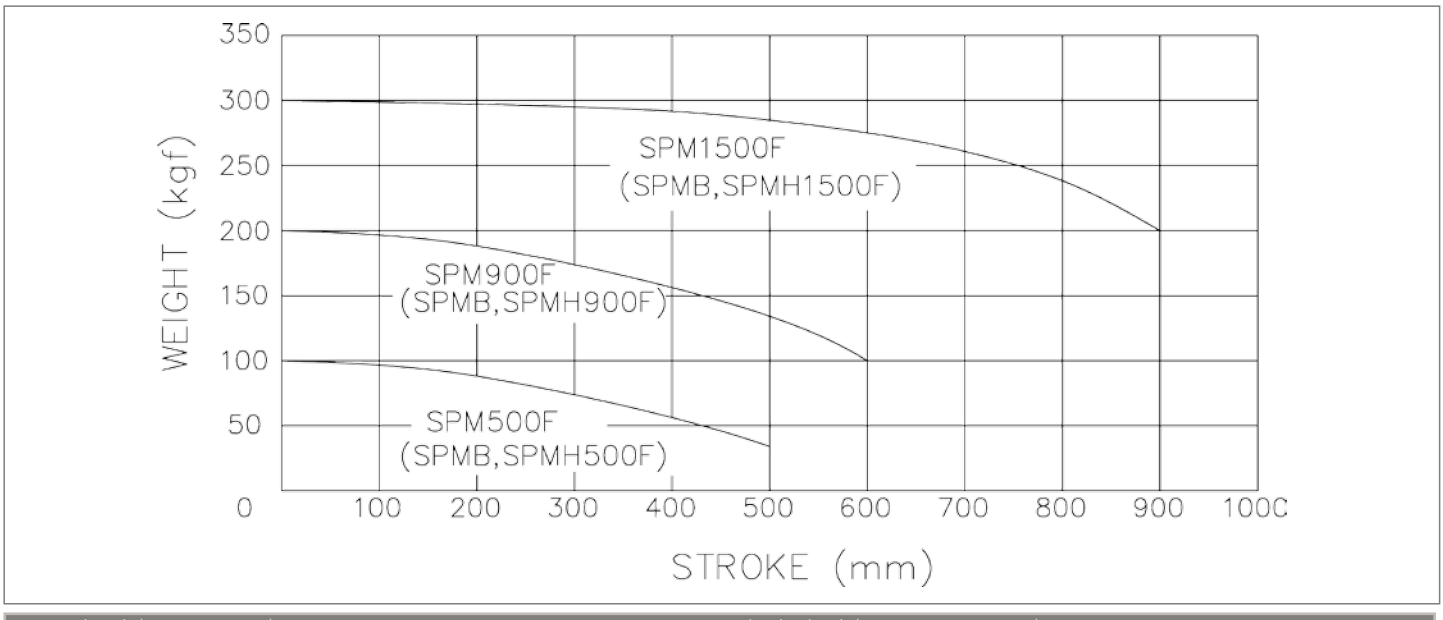
(2) 고하중용 (For heavy weight load)



사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 1200 (kgf) 2. Stroke : 280 (mm) 3. 축간거리(Shaft pitch) (L x W) : 950 x 600 (mm)	그래프에서 SP 1500 model을 보면 하중 1200kgf와 280Stroke의 교차점이 그래프 하측에위치 하므로, SP 1500 model을 선정 하면 된다. 축간 최대 한계표를 참조하면 SP 1500 model의 축간 최대거리가 1600mm 이므로 950 x 600(mm)는 일반형으로 사용한다. Looking at SP1500 model on graph, the intersection point is located on the bottom of the graph so SP1500 is selected Referring maximum limit table between shafts, the maximum distance between shafts of SP1500 is 1600(mm) so general model could be used in 950 x 600(mm)

6. SPM, SPMB, SPMH Series 선정표 (Selecting method)

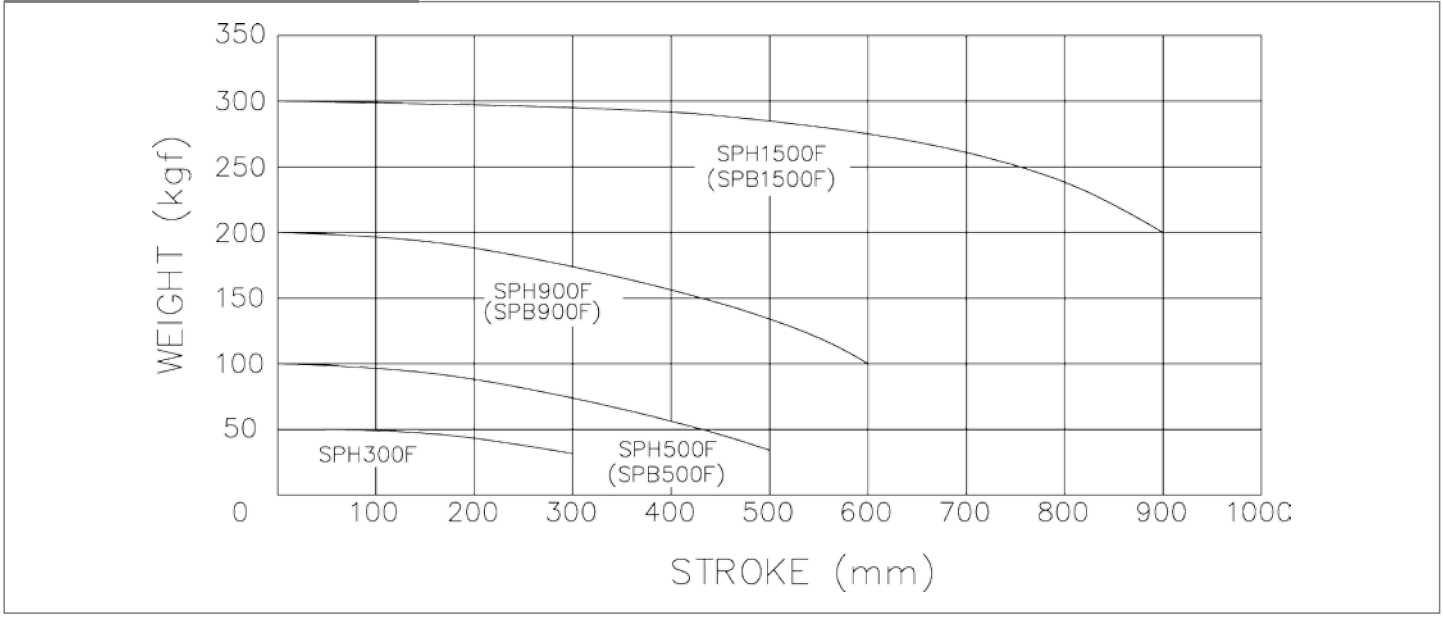
(1) 경하중용 (For light weight load)



사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 150 (kgf) 2. Stroke : 600 (mm) 3. 축간거리(Shaft pitch) (L x W) : 800 x 750 (mm) 4. 속도(Speed) : 3(m/min)	그래프에서 SPM 1500 model을 보면, 교차점이 그래프 하측에 위치 하므로 SPM 1500 model을 선정하면 된다. 또한 축간 최대 한계표를 참조하면 SPM1500 model의 축간 최대거리가 1200mm 이므로 800 x 750(mm)는 일반형으로 사용한다. Looking at SPM1500 model on the graph, the intersection point is located on the bottom of the graph so SPM1500 is selected. And also referring maximum limit table between shafts, the maximum distance between shafts of SPM1500 is 1200mm so general model could be used in 800 x 750(mm)

7. SPH, SPB Series 선정표 (Selecting method)

(1) 경하중용 (For light weight load)



사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 150 (kgf) 2. Stroke : 300 (mm) 3. 축간거리(Shaft pitch) (L x W) : 800 x 600 (mm) 4. 구동원(Actuator): handle	그래프에서 SPH900F model을 보면, 교차점이 그래프 하측에 위치하므로 SPH900F model을 선정한다. 또한 축간 최대 한계표를 참조하면 SP 900F model의 축간 최대 한계거리가 1200mm 이므로 800 x 600(mm)는 일반형으로 사용한다. 입력축 1회전시 상승거리는 SPH 900F model의 경우 125.66mm 이므로 1/50 감속기를 사용할 경우 handle 1회전시 상승 거리는 125.66/50=2.51mm 이다. Looking at SPH 900F model on graph, the intersection point is located on the bottom of the graph so SPH 900F is selected. And also referring maximum limit table between shafts, the maximum distance between shafts of SP900F is 1200mm so general model could be used in 800 x 600(mm). Per one rotation, rising distance is 125.66mm of SPH900F model so when using 1/50 reducer, it is risen by 125.66/50=2.51mm per a rotation.

8. Geared Motor 선정방법 (Selection mode of Geared Motor)

사 양 (Spec)

① 하 중(Weight) : 180(kgf)　　② 속 도(Speed) : 3(m/min)

P=POWER (kw)	m=중량(Weight)kgf	V=속도 (Speed)m/sec	n=효율(Efficiency)	g=9.81

$$\text{HOISTING } P = \frac{m \times g \times v}{n \times 1000} \qquad P = \frac{180 \times 9.81 \times 0.05}{0.8 \times 1000}$$

▣ P =0.11(kw) 이므로 Geared motor는 0.2kw 용량의 break type으로 사용한다.

▣ P =0.11(kw) so break type having capability of 0.2kw should be used as the geared motor.

9. 속도계산식 (Speed Calculation)

예) SPM 1500F model을 사용하여 속도는 3m/min 으로 하고 geared motor는 감속비 1/60로 하고 spur gear를 사용한다.
[계 산 식] V=1750 x 1/60 x 26/35 x 0.138 = 3m/min 이므로 power base 구동 shaft의 spur gear는 Z=35로 선정하고,
Motor측 spur gear는 Z=26으로 선정한다(0.138은 shaft 1회전당 상승거리(mm)를 m로 환산한 치수임)

Ex) Using SPM 1500F model, the velocity is 3m/min, reduced rate is 1/60 and spur gear is used.
[Calculation] V=1750 x 1/60 x 26/35 x 0.138 = 3m/min, so Z value for spur gear of power base shaft is selected to 35,
Z value spur gear on motor is fixed to 26. (0.138 is the value calculated by rising distance mm to m per one input shaft.

10. Cylinder stroke선정방법 (Selection mode)

예) SPM 900F model을 사용하여 170mm를 up-down 시키려 한다. Cylinder를 수평으로 설치 사용할 때, pinion gear의 module은
M = 2로 하고 잇수 Z = 24로 선정할 때, Cylinder의 stroke는?
[계 산 식] Cyl. ST = 170(사용stroke)/125.66(shaft 1회전당 상승거리) x 24(spur gear 잇수(Z)) x 6.283(M=2의 pitch)
= 203.9(mm) 이므로 204stroke로 선정한다.

Ex) move it by 170mm up and down, using SPM 900F. When having parallel installation, module (M) on pinion gear
should be 2 and fix Z to 24, calculate stroke of the cylinder.
[Calculation] Cyl. ST = 170(using stroke)/125.66(rising distance per 1 rotation of input shaft) x 24(the number of gear
(Z)) x 6.283(pitch of M=2) = 203.9(mm) so the value of the stroke will be 204.

11. Rack gear of Pitch (mm)

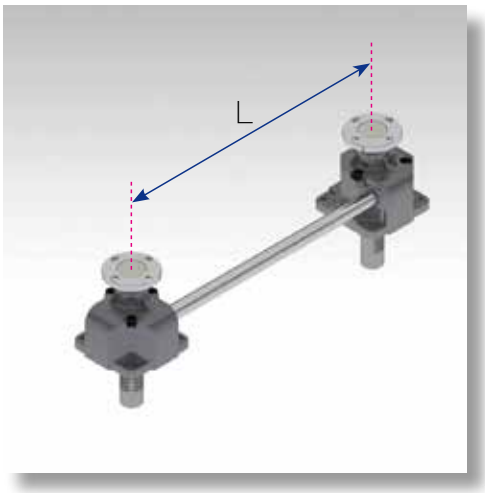
Module(M)	1	1.5	2	2.5	3	3.5	4	5
Pitch(P)	3.141	4.712	6.283	7.854	9.426	10.996	12.568	15.707

12. 외관 및 후처리 (Exterior & after treatment)

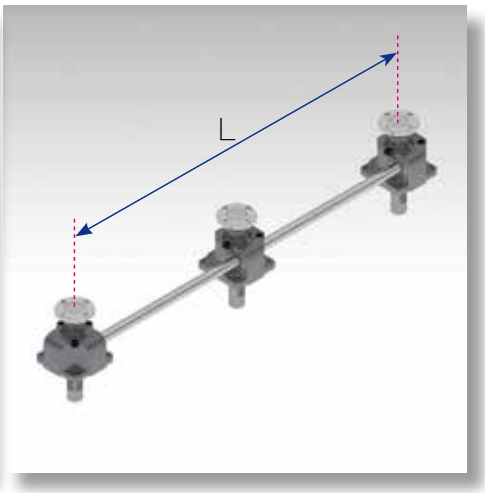
품 목 (Names of Goods)	표 준 (Standard)	녹방지용 (Blunt prevention)	클린룸용 (Clean room)	반도체장비 (Equipment semiconductor)	식품회사 (Food company)
Gear box	분체도장 (powder painting)	분체도장 (powder painting)	분체도장(powder painting) / 무전해 니켈도금(non-electrolytic nickel plating)		
Rack gear	흑착색 (black coloring)	크롬도금 (chrom plating)	경질크롬도금(hard chrom plating) / 레이던트(raydent)		sus
Shaft	흑착색 (black coloring)	크롬도금 (chrom plating)	경질크롬도금(hard chrom plating) / 무전해 니켈도금(non-electrolytic nickel plating)		sus
Flange	흑착색 (black coloring)	크롬도금 (chrom plating)	무전해 니켈도금(non-electrolytic nickel plating)		sus
Pinion gear	일반 (general)	일반 (general)	일반(general) / 레이던트(raydent)		sus
Bearing	일반 (general)	일반 (general)	일반(general)		sus
Bolt	일반 (general)	도금볼트 (plating bolt)	sus bolt		sus bolt

13. 최대한계거리 (Shaft maximum limit)

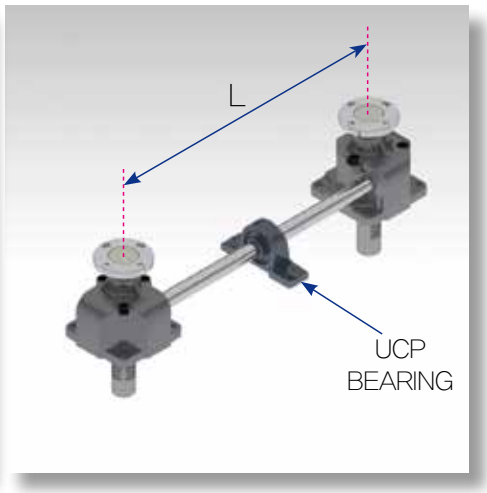
1) SD TYPE



2) B TYPE

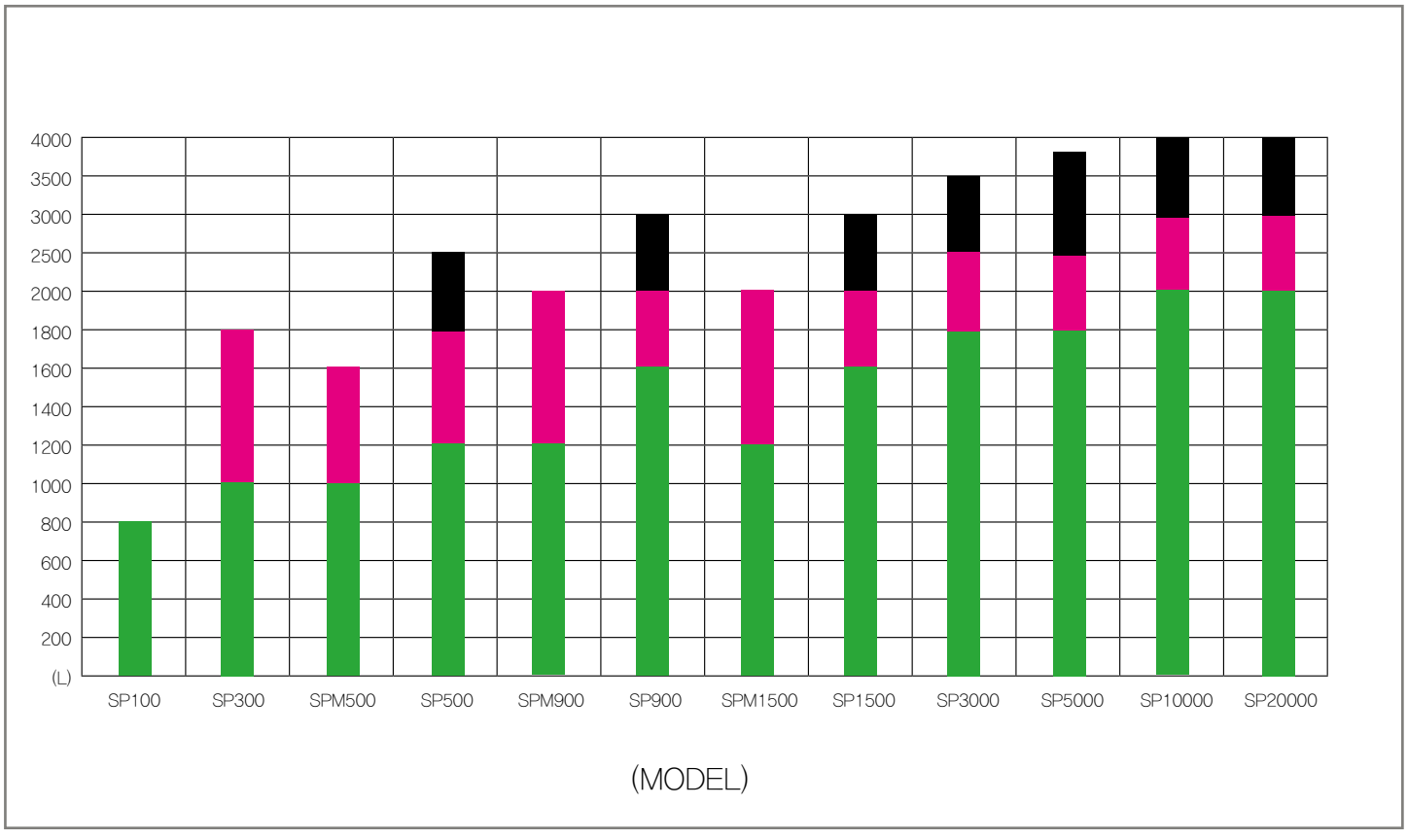


3) C TYPE



▣ UNIT BEARING 선정표(Selection mode)

Model	SP 300	SP 500	SP 900	SP 1500	SP3000	SP 5000	SP 10000	SP 20000
BEARING	UCP201	UCP202	UCP204	UCP205	UCP205	UCP206	UCP207	UCP208



1. SD type : B type : C type :

2. C type은 B type과 같이 power base unit 중간에 gear box를 추가로 설치할 여건이 안될 때 적용 하는 type으로 shaft 중간에 bearing unit를 설치하여 shaft의 처짐을 방지하며, gear box 내부에 삽입 되어 있는 ball bearing의 수명을 연장 시킬 수 있다. 또한 B type은 중앙에 gear box 가 설치되어 있어 상부frame의 처짐을 방지 할 수 있으나, C type은 shaft의 처짐만 잡아주기 때문에 C type으로 사용할 때는 상부 frame의 처짐을 고려하여 설계하여야 한다.

2. If there is no room for installation of extra gear boxes in the middle of power base unit such as C, B type, it is adapted by installing bearing unit on the middle of the shaft and the installation prevents it from drop and it also makes ball bearing in the gear box live longer. And also B type can prevent upper frame from drop with gear box located on it's center but C type should be designed to consider of drop of the upper part of it because it just holds drop of shaft.

14. Hydraulic Cylinder 출력표 (Output power sheet)

◈ 유압 실린더 이론 출력표 (실효율100%) (Hydraulic cylinder output power sheet-substance efficiency 100%)

내경(mm) Inside diameter	로드경 Rod diameter (mm)	작 동 방 향 Operation direction	유 효 면 적 Effective area(㎠)	Output(kgf)		
				35(kgf/㎠)	70(kgf/㎠)	140(kgf/㎠)
Φ 40	Φ 18	로드전진(Rod forward)	12.56	439.6	879.2	1758.4
		로드후진(Rod behind)	10.02	350.7	701.4	1402.8
Φ 50	Φ 22.4	로드전진(Rod forward)	19.63	687	1374.1	2748.2
		로드후진(Rod behind)	15.83	554.01	1081.2	2162
Φ 63	Φ 28	로드전진(Rod forward)	31.17	1090.9	2181.9	4363.8
		로드후진(Rod behind)	25.01	875.3	1750.7	3501.4
Φ 80	Φ 35	로드전진(Rod forward)	50.26	1759.1	3518.2	7036.4
		로드후진(Rod behind)	40.64	1422.4	2844.8	5689.6
Φ 100	Φ 45	로드전진(Rod forward)	78.54	2748.9	5497.8	10995.6
		로드후진(Rod behind)	62.63	2192	4384.1	8768.2
Φ 125	Φ 55	로드전진(Rod forward)	122.71	4294.8	8589.7	17179.4
		로드후진(Rod behind)	98.95	3463.2	6926.5	13853
Φ 140	Φ 60	로드전진(Rod forward)	153.93	5387.5	1077.5	21551.4
		로드후진(Rod behind)	125.66	4398.1	8796.2	17592.4
Φ 150	Φ 65	로드전진(Rod forward)	176.71	6184.8	12369.7	23739.4
		로드후진(Rod behind)	143.53	5023.5	10047.1	20094.2
Φ 160	Φ 70	로드전진(Rod forward)	201.06	7037.1	14074.2	28148.4
		로드후진(Rod behind)	162.57	5689.9	11379.9	22759.8
Φ 180	Φ 80	로드전진(Rod forward)	254.46	8906.1	17812.2	35624.4
		로드후진(Rod behind)	204.2	7147	14294	28588
Φ 200	Φ 90	로드전진(Rod forward)	314.15	10995.2	21990.5	43981
		로드후진(Rod behind)	250.54	8768.9	17537.8	35075.6
Φ 250	Φ 112	로드전진(Rod forward)	490.87	17180.4	34360.9	68721.8
		로드후진(Rod behind)	395.84	13855.4	27710.9	55421.8

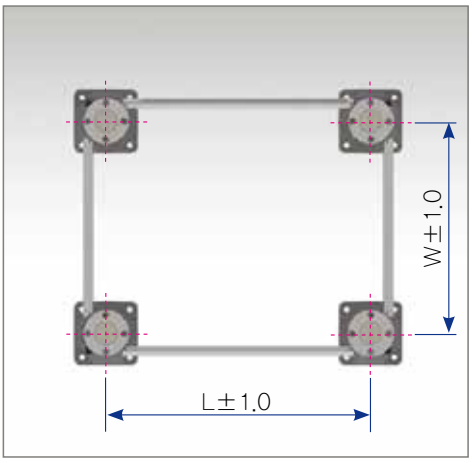
15. Air Cylinder 출력표 (Output power sheet)

◈ 공압 실린더 이론 출력표(실효율 70%) (Air cylinder output power sheet–substance efficiency 70%)

(Unit : kgf)

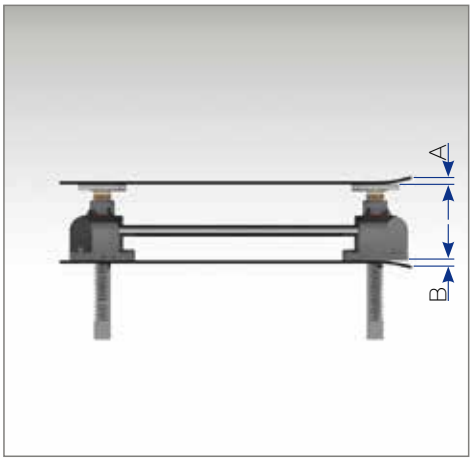
내경(mm) Inside diameter	작 동 방 향 Operation direction	1	2	3	4	5	6	7	8	9	10
Φ 20	로드전진(Rod forward)	2.1	4.3	6.5	8.7	10.9	13.1	15.3	17.5	19.7	21.9
	로드후진(Rod behind)	1.6	3.2	4.9	6.5	8.2	9.8	11.5	13.1	14.8	16.4
Φ 25	로드전진(Rod forward)	3.4	6.8	10.3	13.7	17.1	20.6	24	27.4	30.9	34.3
	로드후진(Rod behind)	2.6	5.2	7.9	10.5	13.2	15.8	18.5	21.1	23.7	26.4
Φ 30	로드전진(Rod forward)	4.9	9.8	14.8	19.7	24.7	29.6	34.6	39.5	44.5	49.4
	로드후진(Rod behind)	4.1	8.3	12.4	16.6	20.7	24.9	29	33.2	37.4	41.5
Φ 40	로드전진(Rod forward)	8.7	17.5	26.3	35.1	43.9	52.7	61.5	70.3	79.1	87.9
	로드후진(Rod behind)	7.3	14.7	22.1	29.5	36.9	44.3	51.7	59.1	66.5	73.8
Φ 50	로드전진(Rod forward)	13.7	27.4	41.2	54.9	68.7	82.4	96.2	109.9	123.7	137.4
	로드후진(Rod behind)	11.5	23	34.6	46.1	57.7	69.2	80	92.3	103.9	115.4
Φ 63	로드전진(Rod forward)	21.8	43.6	65.4	87.2	109.1	130.9	152.7	174.5	195.3	218.2
	로드후진(Rod behind)	19.6	39.2	58.8	78.4	98.1	117.7	137.3	156.9	176.5	196.2
Φ 80	로드전진(Rod forward)	35.1	70.3	105.5	140.7	175.9	211.1	246.3	281.4	316.5	351.8
	로드후진(Rod behind)	31.7	63.4	95.2	126.9	158.7	190.4	222.2	253.9	285.7	317.4
Φ 100	로드전진(Rod forward)	54.9	109.9	164.9	219.9	274.8	329.8	384.8	439.8	494.8	549.7
	로드후진(Rod behind)	50	100	150	200.1	250.1	300.1	350.2	400.2	450.2	500.2
Φ 125	로드전진(Rod forward)	85.91	171.8	257.7	343.6	429.5	515.4	601.3	687.2	773.1	859
	로드후진(Rod behind)	79.1	158.3	237.5	316.6	395.8	475	554.1	633.3	712.6	791.6
Φ 140	로드전진(Rod forward)	107.7	215.5	323.2	431	538.7	646.5	754.2	862	969.8	1077.5
	로드후진(Rod behind)	101	202	303	404	505.1	606.1	707.1	808.1	909	1010.2
Φ 150	로드전진(Rod forward)	123.7	247.4	371.1	494.8	618.5	742.2	865.9	989.6	1113.3	1237
	로드후진(Rod behind)	114.9	229.8	344.7	459.6	574.5	989.4	804.3	919.2	1034.1	1149
Φ 160	로드전진(Rod forward)	140.7	281.4	422.2	562.9	703.7	844.4	985.2	1125.9	1266.6	1407.4
	로드후진(Rod behind)	131.9	263.8	395.8	527.7	659.7	791.6	923.6	1055.5	1187.5	1319.4
Φ 180	로드전진(Rod forward)	178.1	356.2	534.3	712.5	890.6	1068.7	1246.8	1425	1603.1	1781.2
	로드후진(Rod behind)	166.9	333.9	500.9	667.9	834.9	1001.9	1168.9	1335.9	1502.9	1669.9
Φ 200	로드전진(Rod forward)	219.9	439.8	659.7	879.6	1099.5	1319.4	1539.3	1759.2	1979.2	2199.1
	로드후진(Rod behind)	206.1	412.3	618.5	824.6	1030.8	1237	1443.1	1649.3	1855.5	2061.6
Φ 250	로드전진(Rod forward)	343.6	687.2	1030.8	1374.4	1718	2061.6	2405.2	2748.8	3092.5	3436.1
	로드후진(Rod behind)	323.8	647.6	971.4	1295.2	1619	1942.9	2266.7	2590.5	2914.3	3238.1
Φ 300	로드전진(Rod forward)	494.8	989.6	2455.8	3274.4	4093.1	4911.7	5730.3	6548.9	7367.5	8586.2
	로드후진(Rod behind)	471.5	943.1	1417.7	1886.2	2357.8	2829.4	3310	3772.5	4244.1	4715.7

16. 조립시 유의사항 (Attention Fact)



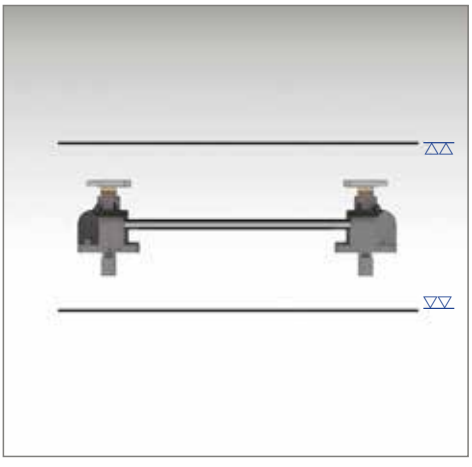
Power base unit의 center 간 거리는 ±1mm 의 여유가 있으므로 취부면의 가공 치수가 2mm 정도 차이가 나도 Power base 자체의 유격과 취부 hole size 의 여유가 있으므로, 별도의 수정 없이 취부가 가능하다.
다만, 상, 하면이 같은 치수가 나와야만 원활한 작동이 이루어지는데 상, 하면의 치수가 서로 틀린 상태에서 강제로 조립을 하면 gear의 마찰계수가 높아져 gear의 마모는 물론, 부드러운 작동이 되지않는다.

The distance between centers of power base unit has extra room of (±)1mm so if there is 2mm of difference in ideal size, connecting to it is still available without fixing it due to the fact that the extra room of hole size of the power base.
Upper and below part should be the same length and it works smoothly but forced connecting when the size of the upper and below is different could cause friction and it causes worn-away of the gear and disturbs smooth driving.



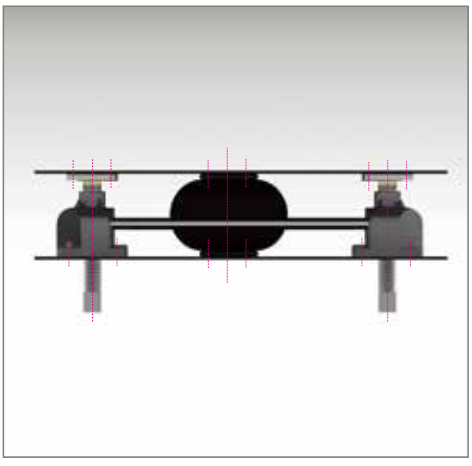
상부 frame 이나 철판의 변형으로 A치수가 1mm 이상 차이가 난 상태에서 조립을 하면 gear의 마찰계수가 높아져 작동이 뻑뻑해 진다. 이때에는 powerbase flange가 가변형으로 제작 되었으므로 rack gear 상면의 joint를 조정하여 상부 frame 취부면과 flange면이 최대한 밀착된 상태에서 조립을 한다.
또한 하부 frame 이나 철판의 변형으로 B 치수가 1mm 이상 차이가 생길 때에는 그냥 조립하지 말고 얇은 철판으로 liner 작업을 하여 유격을 없앤 뒤 조립을 하는 것이 제품의 수명이나 작동에 있어서 이상적이다.

When connecting it, if there is over 1mm difference in A by distortion of upper frame or steel plate the friction rises and it does not work smoothly.
In above circumstances, power base flange is designed to transform so connecting the frame and flange as closely as possible by fixing joint on upper side of rack gear
And also it is strongly recommended for using it longer to keep narrowing the differences between the frames by linear work before connecting when the difference in B due to distortion of steel plate or below side of the frame is more than 1mm.



보다 정밀한 작동과 수평 level을 위해서는 Power base 취부면을 연마 가공한 후 취부한다.

For more minute drive and keeping parallel level of the frame, connect it after grinding and cutting on the connecting side of power base.

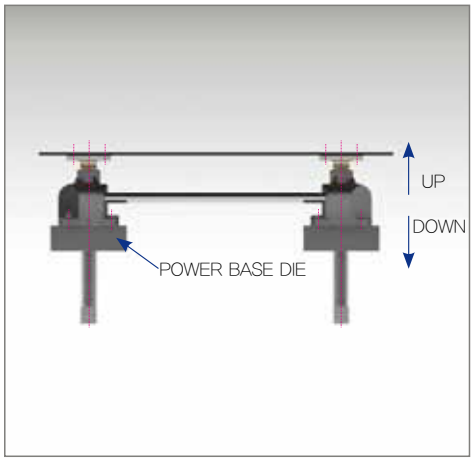


구동원을 단동 cylinder 나 air spring을 사용할 때는 power base 취부면을 연마 가공하거나 필히 liner 작업을 하여, 상하면의 유격을 없이 한 뒤 power base를 조립한다. 상승은 air 압력으로 하지만, 하강은 자중으로 이루어지므로 상,하 frame이 변형이 된 상태에서 그대로 조립을 하면 gear의 마찰계수가 높아져 하강이 되지 않거나 자중이 무거워 하강이 된다해도 부드럽지 못한 작동이 된다.

When using Actuator as a cylinder or air spring, connect it as closely as possible to get rid of the difference between the frames by liner work or grinding and cutting on the connecting side of power base. Upward move is made by air but the downward is made by itself.
So connecting it with remained distortion of up and down frame can cause not to move to downward or even if it works, it does not drive smoothly.

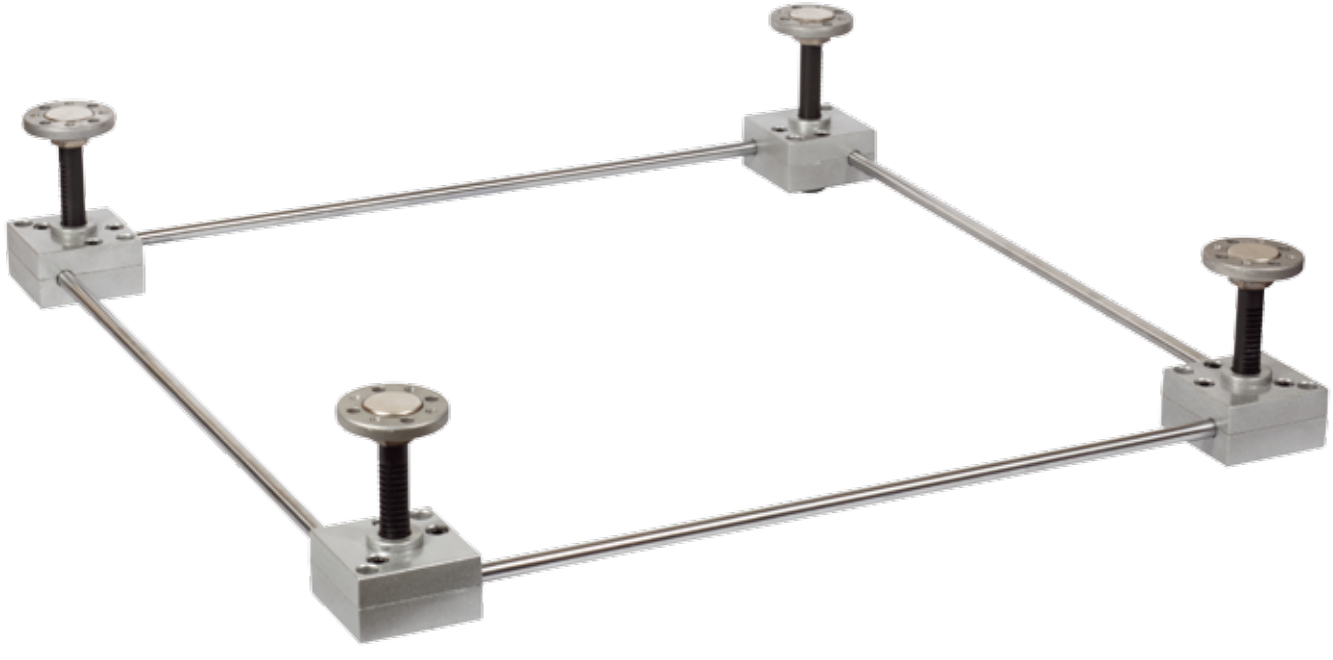
Motor 나 다른 장치물의 간섭으로 power base의 한쪽연결 shaft를 제거하여 사용하여도 좌우 동조에는 큰 지장이 없다. 하지만, 4개의 shaft가 연결되어 사용할 때 보다는 약간의 유격이 생길 수 있으며, 전체적인 제품 수명은 조금 저하될 수 있다. 그러므로 편하중을 많이 받는 용도에서는 적용을 피하는 것이 좋다.

There is no difference if connecting shaft is fallen apart from the power base by interference of motor or other devices. But there can be more room than connecting in between 4 frames and it make the durability shorter slightly. Therefore it is not recommended when if partial weighing is much on the frame.



높이 H를 맞추기 위해 power base die를 설치하여 취부할 경우, 취부 bolt를 처음부터 꽉 조이면 power base center 간 거리가 틀려져 작동이 뻑뻑해 질 수 있으므로 취부 bolt를 약간 풀어놓은 상태에서 up-down test를 한 후 조이면 보다 원활한 작동을 할 수 있다.

When connecting it with power base die to fit to the height of the frame, it is suggested to fasten the bolt after making the up-down test by loosing connecting bolt because if the bolt is too fasten at the beginning, the drive would not be smooth due to the difference between distances of power base center.

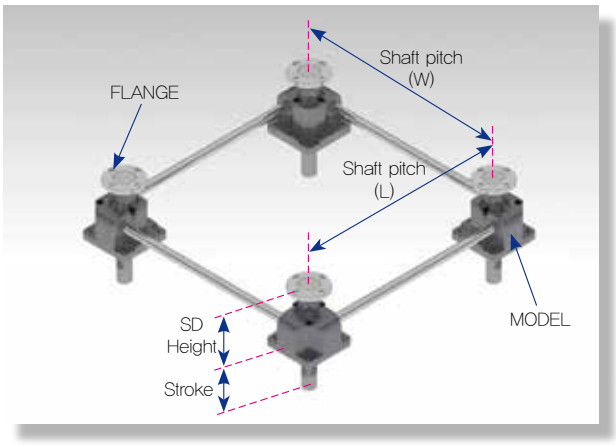


17. 형식표시방법-일반Type (Product Serial No-General Type)

SP Series

SP ① 900 ② F ③ – 600×500 ④ – 50ST ⑤

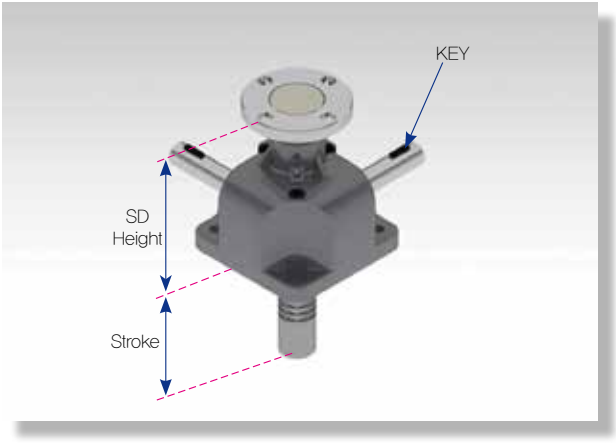
① Power base(Guide type)					
② Model	100	300	500	900	1500
	3000	5000	10000	20000	
③ Rack gear flange					
F	부착(With flange)	무기호(NON)	미부착(Without flange)		
④ 축간거리(mm)-Shaft pitch					
⑤ Stroke(mm)					



SP1 Series

SP1 – 900 ① F ② – 100ST ③ ④

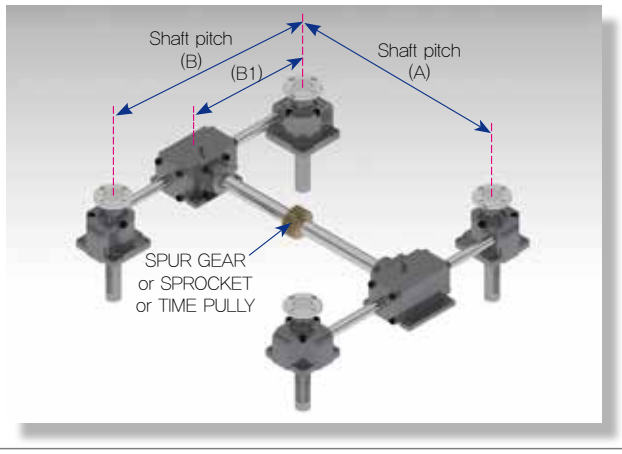
① Power base분리형(Separation)					
② Model	100	300	500	900	1500
	3000	5000	10000	20000	
③ Rack gear flange					
F	부착(With flange)	무기호(NON)	미부착(Without flange)		
④ Stroke(mm)					



SPM Series

SPM ① 1500 ② F ③ – 800×600 ④ ⑤ – 300 ⑥ – 250ST ⑦

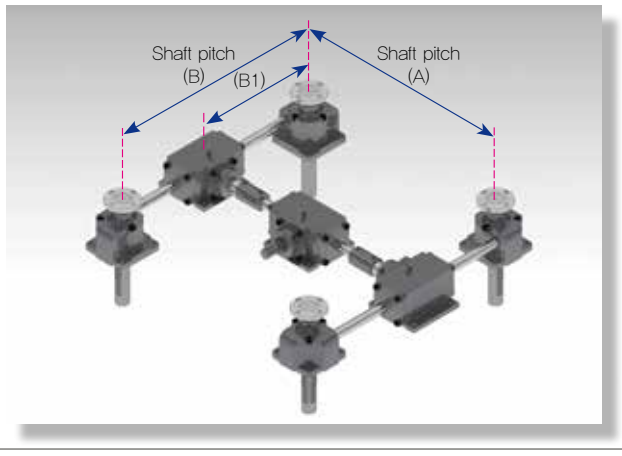
① Power base구동Type(Actuator type)			
② Model	500	900	1500
③ Rack gear flange			
F	부착(With flange)	무기호(NON)	미부착(Without flange)
④ Shaft A 축간거리 (Shaft A pitch)mm			
⑤ Shaft B 축간거리 (Shaft B pitch)mm			
⑥ 구동 Shaft 축간거리(B1)mm-Driving shaft pitch(B1)mm			
⑦ Stroke(mm)			



SPMB Series

SPMB ① 900 ② F ③ – 900×600 ④ – 300 ⑤ – 250ST ⑥

① Power base(Miter box type)			
② Model	500	900	1500
③ Rack gear flange			
F	부착(With flange)	무기호(NON)	미부착(Without flange)
④ 축간거리 (Shaft pitch)A×Bmm			
⑤ 구동 Shaft 축간거리(B1)mm-Driving shaft pitch(B1)mm			
⑥ Stroke(mm)			

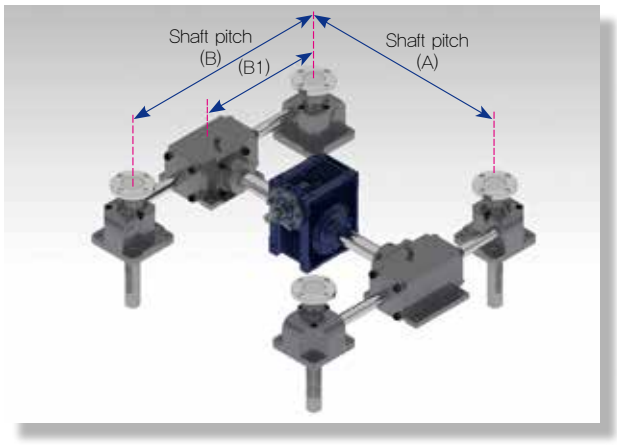


◈ 형식표시방법-일반Type (Product Serial No-General Type)

SPMH Series

SPMH ① 900 ② F ③ – 800×600 ④ – 300 ⑤ – 300ST ⑥ – 063 ⑦ – 1/100 ⑧

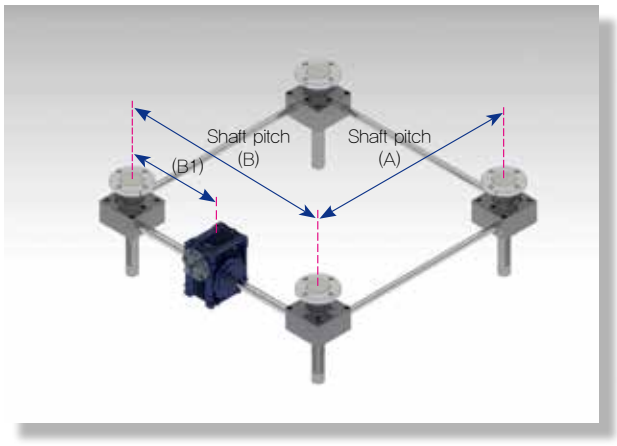
① Power base(Actuator type)			
② Model	500	900	1500
③ Rack gear flange			
F	부착(With flange)	무기호(NON)	미부착(Without flange)
④ 축간거리 (Shaft pitch) A×Bmm			
⑤ 구동 Shaft 축간거리(B1)mm–Driving shaft pitch(B1)mm			
⑥ Stroke(mm)			
⑦ Worm reducer model			
030	040	050	063
⑧ 감속비(Deceleration ratio)			
1/25	1/30	1/40	1/50
1/60	1/80	1/100	



SPH Series

SPH ① 500 ② F ③ – 800×600 ④ – 300 ⑤ – 100ST ⑥ – 040 ⑦ – 1/50 ⑧

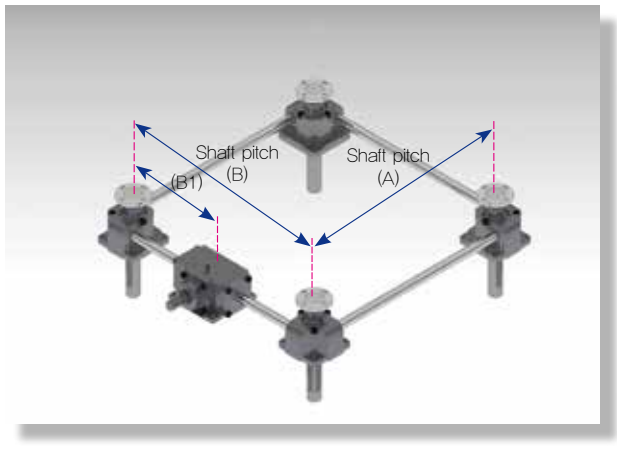
① Power base(Handle type)				
② Model	300	500	900	1500
③ Rack gear flange				
F	부착(With flange)	무기호(NON)	미부착(Without flange)	
④ 축간거리 (Shaft pitch) A×Bmm				
⑤ 구동 Shaft 축간거리(B1)mm–Driving shaft pitch(B1)mm				
⑥ Stroke(mm)				
⑦ Worm reducer model				
030	040	050	063	
⑧ 감속비(Deceleration ratio)				
1/25	1/30	1/40	1/50	
1/60	1/80	1/100		



SPB Series

SPB ① 1500 ② F ③ – 1200×600 ④ – 300 ⑤ – 150ST ⑥

① Power base(Miter box type)			
② Model	500	900	1500
③ Rack gear flange			
F	부착(With flange)	무기호(NON)	미부착(Without flange)
④ 축간거리 (Shaft pitch)A×Bmm			
⑤ 구동 Shaft 축간거리(B1)mm –Driving shaft pitch(B1)mm			
⑥ Stroke(mm)			



18. 표준사양 (Standard Specification)

SP Series

Model	Module	Pinion gear 잇수 (Value) Z	최대 stroke (Max stroke)	축간거리조정여유 Shaft Pitch tolerance(mm)	좌우동조오차 (Balance tolerance)	구동원 (Actuator)	Stroke 여유 (Stroke capacity)
SP 100	M1	20	300	±1	0.5mm below	Air cylinder	+6mm over
SP 300	M1	24	300				
SP 500	M1.5	18	500			Air spring	+10mm over
SP 900	M2	20	1300	±2			
SP 1500	M2	22	1300				
SP 3000	M2.5	18	1500	±2.5	1mm below	Screw jack	
SP 5000	M3	17	1500				
SP 10000	M3	20	2000		2mm below	Rack Jack	
SP 20000	M3	22	2200				

SPM Series

Model	Module	Pinion gear 잇수 (Value) Z	Spur gear module	Bevel gear	최대 stroke (Max stroke) (mm)	1회전당 상승거리 (1 rev's lead) (mm)	구동원 (Actuator)
SPM 500F	M1.5	18	M2	M2×20T	500	84.81	Air cylinder
SPM 900F	M2	20	M2	M3×25T	600	125.66	Geared motor
SPM 1500F	M2	22	M2		900	138.22	Servo motor

SPMB Series

Model	Module	Pinion gear 잇수 (Value) Z	Bevel gear	최대 stroke (Max stroke) (mm)	1회전당 상승거리 (1 rev's lead) (mm)	구동원 (Actuator)
SPMB 500F	M1.5	18	M2×20T	500	84.81	Geared motor
SPMB 900F	M2	20	M3×25T	600	125.66	Servo motor
SPMB 1500F	M2	22		900	138.22	

SPMH Series

Model	Module	Pinion gear 잇수 (Value) Z	적용 Worm reducer application	최대 stroke (Max stroke) (mm)	1회전당 상승거리(mm) (1 rev's lead)	구동원 (Actuator)
SPMH 500F	M1.5	18	040	500	84.81 / 웜 감속비 (worm reducer ratio)	Handle Motor
SPMH 900F	M2	20	050, 063	600	125.66 / 웜 감속비 (worm reducer ratio)	
SPMH 1500F	M2	22	050, 063	900	138.22 / 웜 감속비 (worm reducer ratio)	

◈ 표준사양 (Standard Specification)

SPH Series

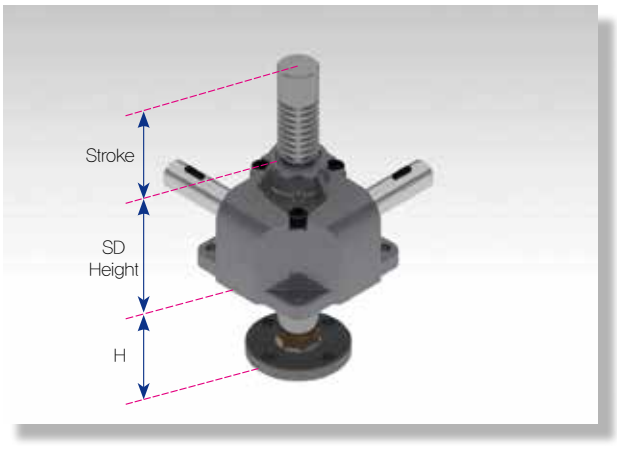
Model	Module	Pinion gear 잇수 (Value) Z	적용 Worm reducer application	최대 stroke (Max stroke) (mm)	1회전당 상승거리(mm) (1 rev's lead)	구동원 (Actuator)
SPH 300F	M1	24	030	300	75.38	Handle Motor
SPH 500F	M1.5	18	040	500	84.81	
SPH 900F	M2	20	050, 063	600	125.66	
SPH 1500F	M2	22	050, 063	900	138.22	

SPB Series

Model	Module	Pinion gear 잇수 (Value) Z	Bevel gear	최대 stroke (Max stroke) (mm)	1회전당 상승거리 (1 rev's lead) (mm)	구동원 (Actuator)
SPB 500F	M1.5	18	M2×20T	500	84.81 / 웜 감속비 (worm reducer ratio)	Motor
SPB 900F	M2	20	M3×25T	600	125.66 / 웜 감속비 (worm reducer ratio)	
SPB 1500F	M2	22		900	138.22 / 웜 감속비 (worm reducer ratio)	

19. 응용방법 (Application method)

거꾸로 사용(upside down use)– SP Series



Power base를 거꾸로 사용하고자 할때 에는 좌측 도면의 H값과 Stroke를 결정하여 주문하며, rack gear flange는 나사식으로 조립이 되어 있어 frame이나 plate에 power base를 조립시에는 flange를 분해한 후 조립한다.

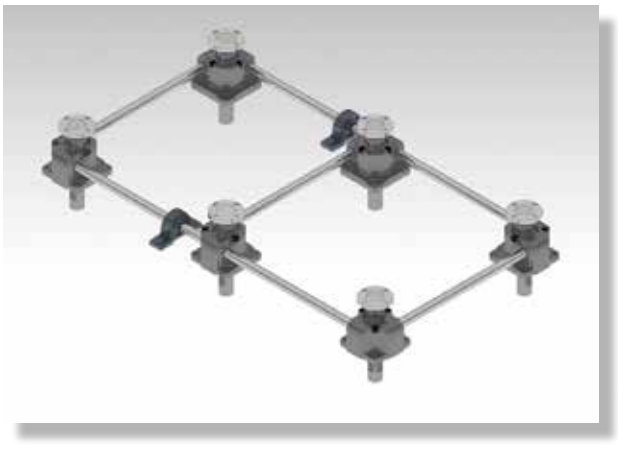
If the power base is used in reversed direction, order it after making a decision of H value on left table and stroke and rack gear flange is assembled with screws so when assembling frame or power base, connect it after disport of flange.

2set만 사용(Gear box 2set use)–SP Series

기본적으로 4개의 gear box가 사각으로 구성이 되나 공간의 제약을 받을때나 pusher용 cylinder 의 guide용으로 사용시 적용한다.

Basically 4 gear boxes formed by rectangular shape but if there are limit of room or cylinder of pusher is used as guide, it is adapted.

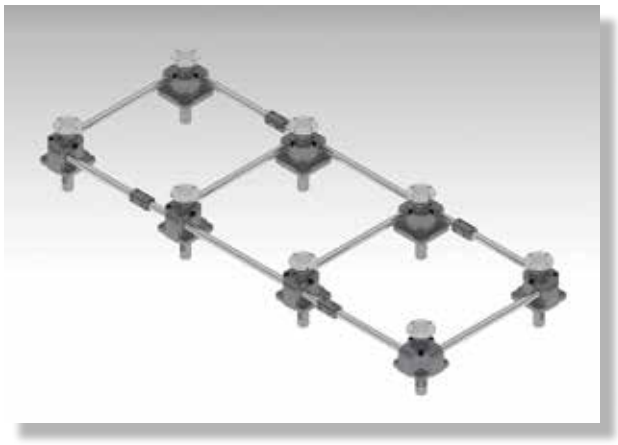
Gear box 6set 사용(Gear box 6set use)–SP Series



Lift frame 길이에 따라 6EA의 gear box를 연결 구성할 수 있다.

Gear box of 6EA can be connected by the length of lift frame.

Gear box 8set 사용(Gear box 8set use)–SP Series

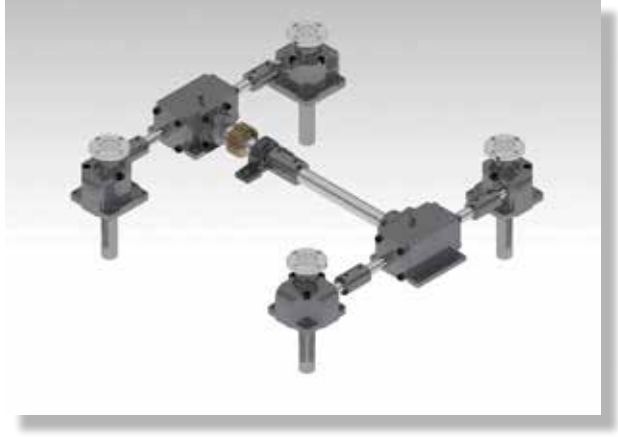


Lift frame 길이에 따라 8EA의 gear box를 연결 구성할 수 있다.

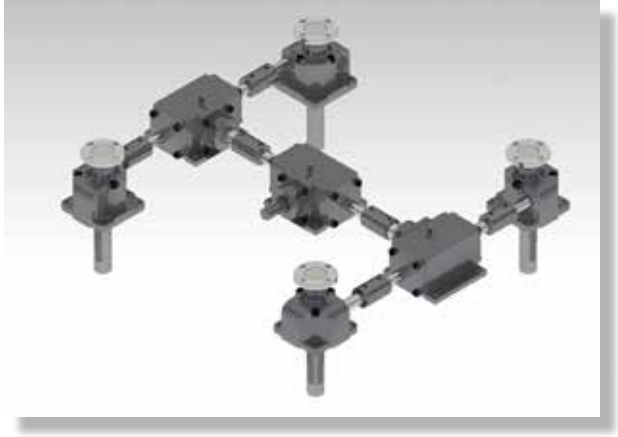
Gear box of 8EA can be connected by the length of lift frame.

▣ Coupling 연결 type (Coupling type)

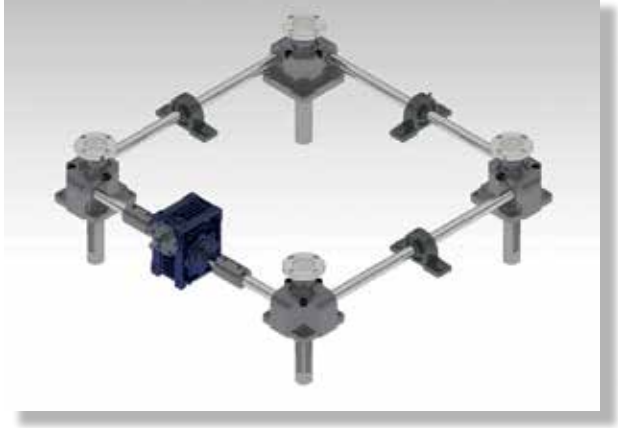
SPM Series



SPMB, SPMH Series



SPH, SPB Series

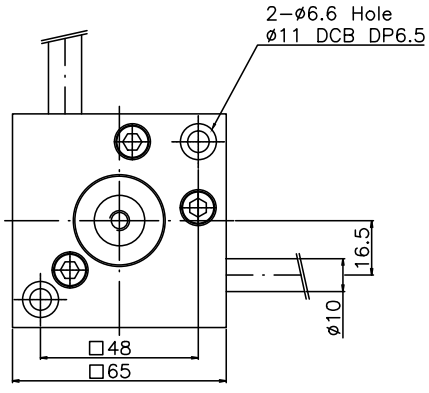


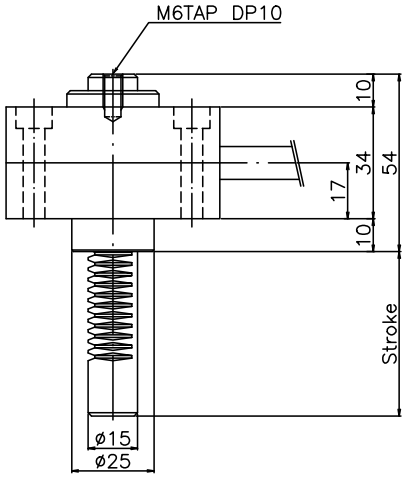
※ 하자보수 및 예방정비의 용이함을 위해 coupling으로 연결 구성할 수 있다.
SPH, SPB model의 경우 power base 4개의 연결축 중 한개의 축으로 구동을 시켜 반대측의 축으로 동력을 전달시키는 구조이므로 축간거리가 500mm이상 사용시는 unit bearing으로 지지를 하여 사용하면 축의 이탈 방지나 gear box의 파손을 방지할 수 있다.

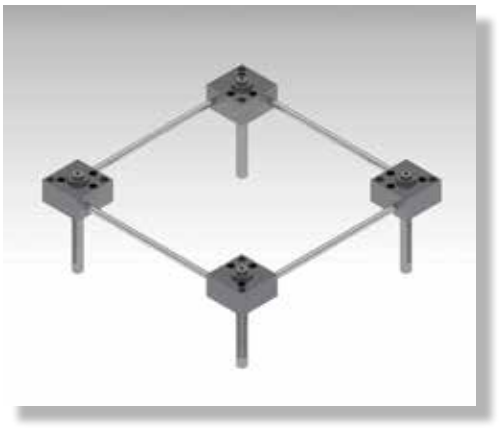
※ To make maintenance easier, coupling can be connected to it.
The structure of SPH, SPB makes one of shafts connected to power base work and the work moves to opposite side of the shaft so to avoid move away from the base or damage of gear box, unit bearing is recommended to sustain the base if the distance between shafts is more than 500mm.

20. Dimension–일반형 (General Type)

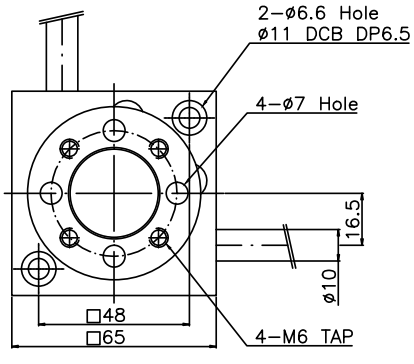
SP 100

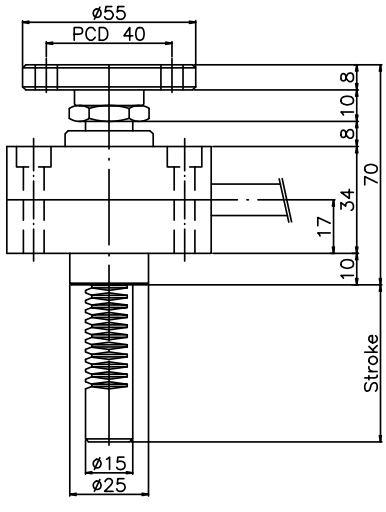


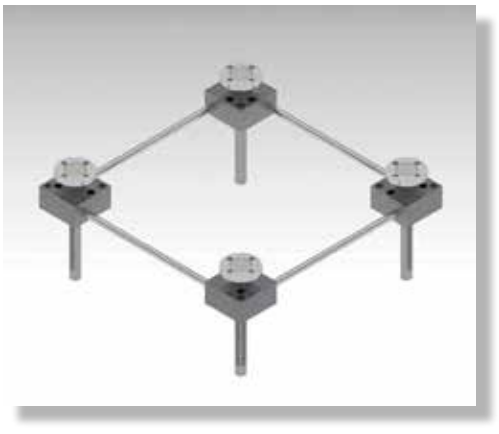




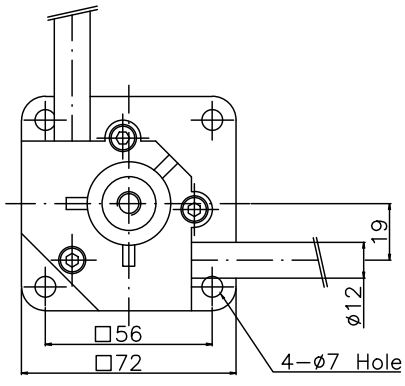
SP 100F

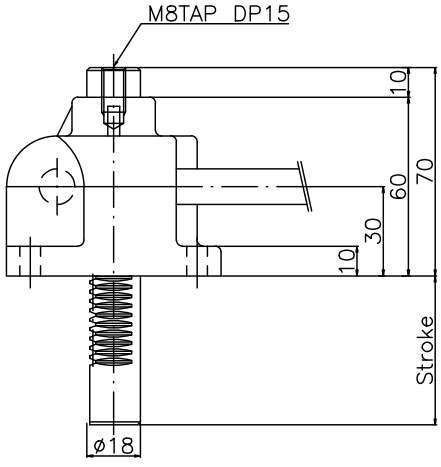


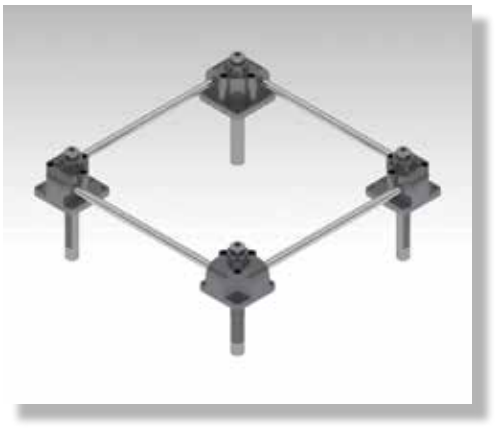




SP 300

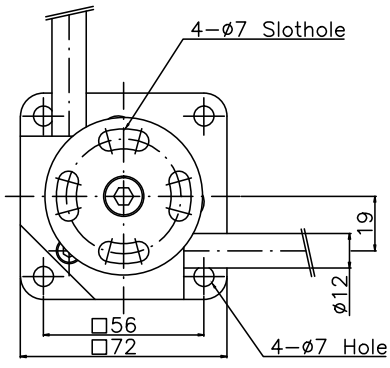


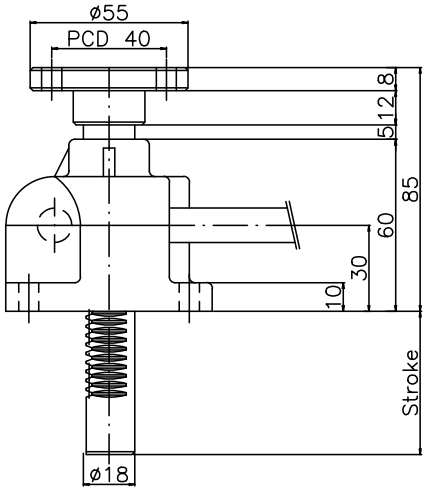


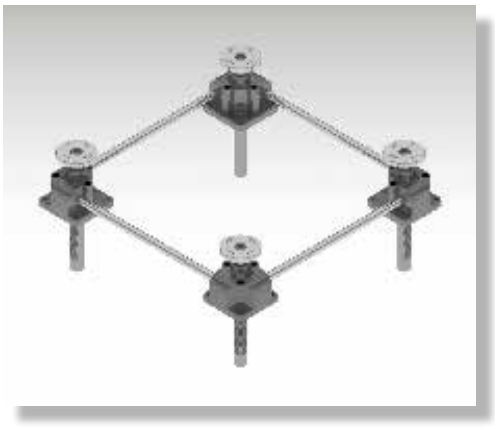


◈ Dimension–일반형 (General Type)

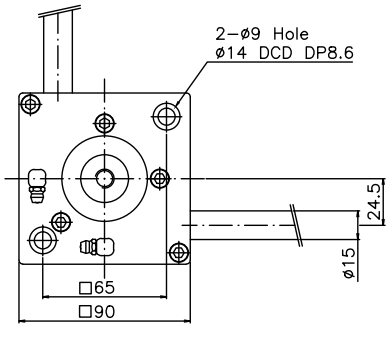
SP 300F

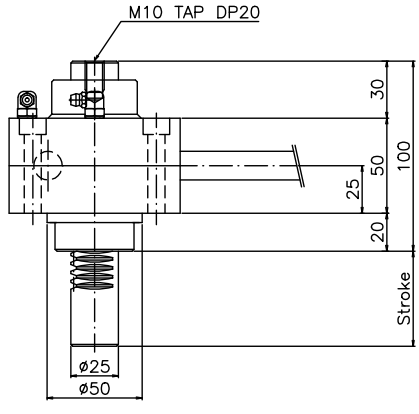


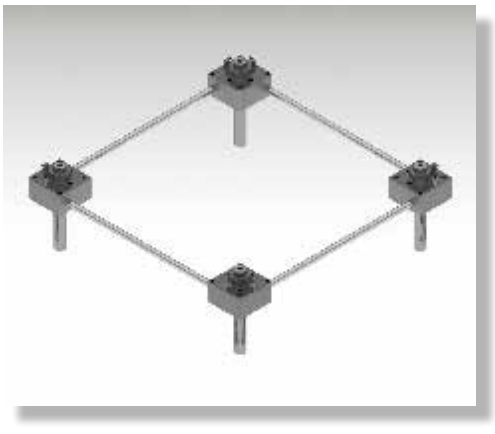




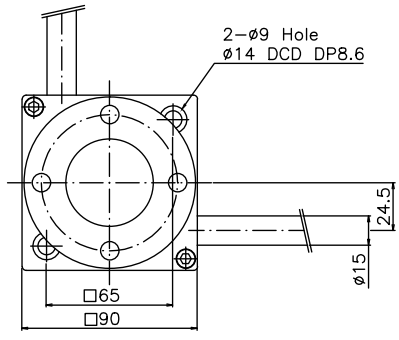
SP 500

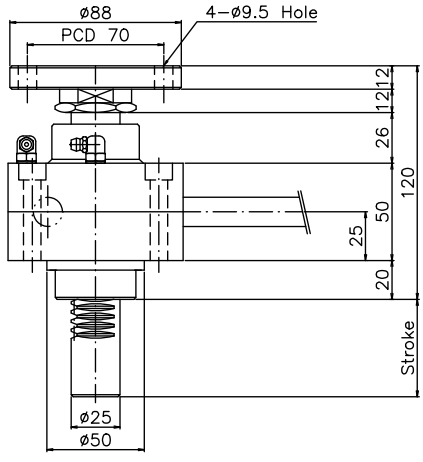


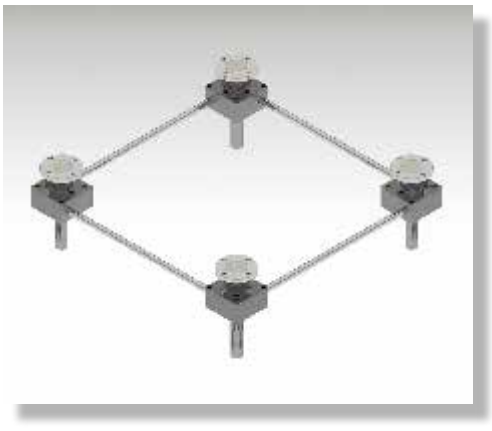




SP 500F

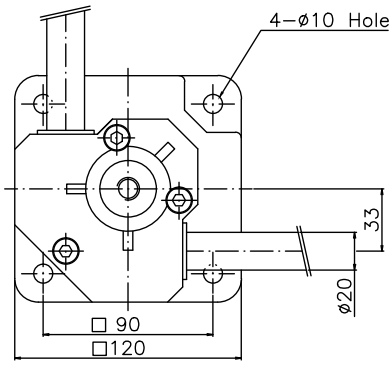


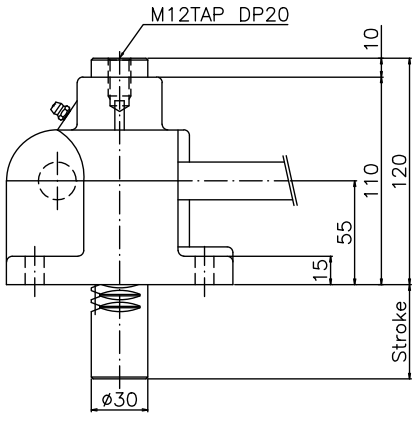


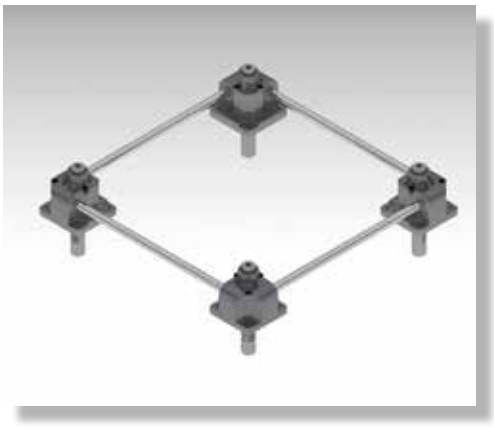


◈ Dimension–일반형 (General Type)

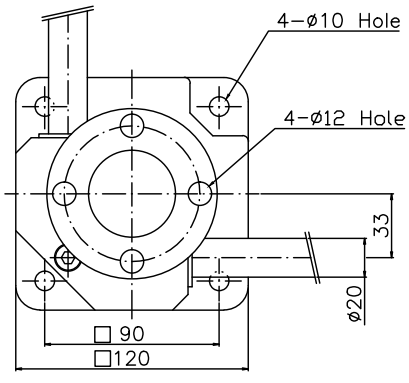
SP 900

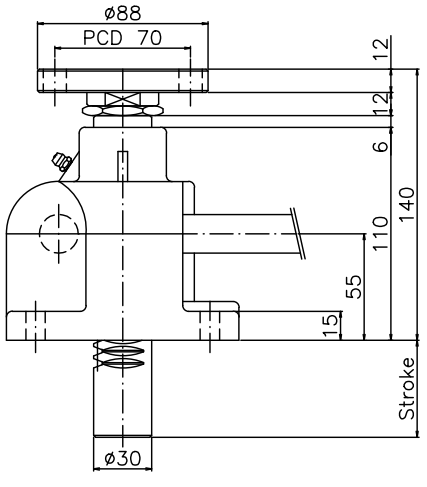


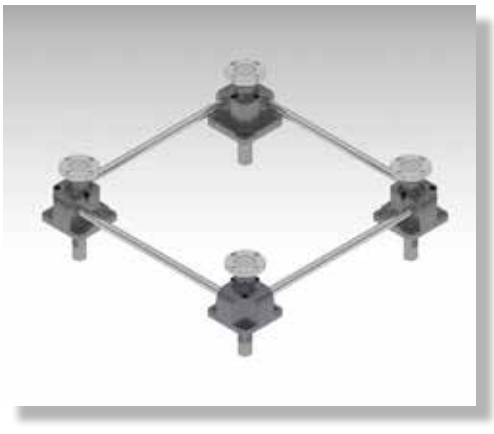




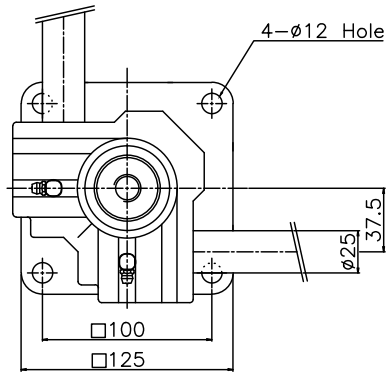
SP 900F

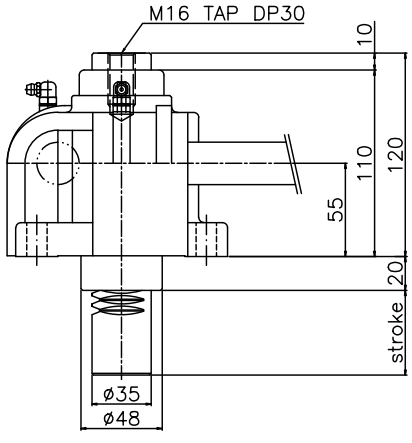






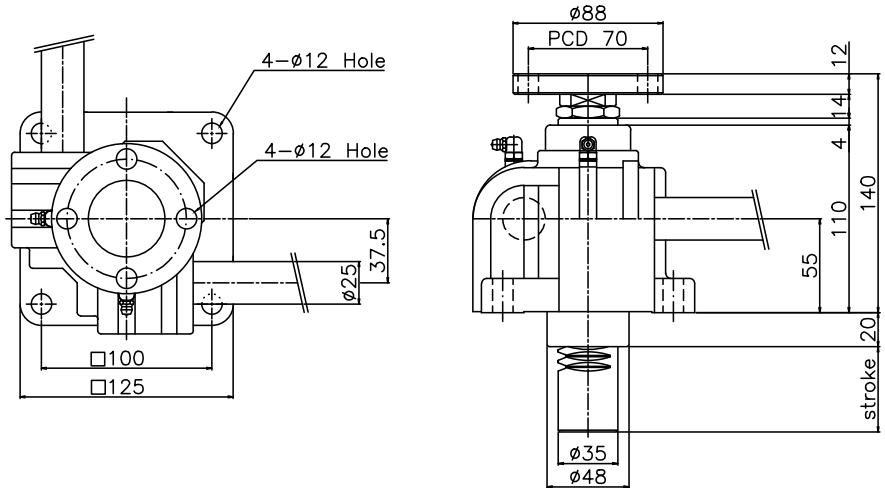
SP1500



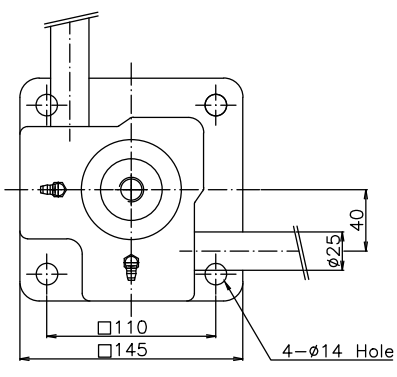


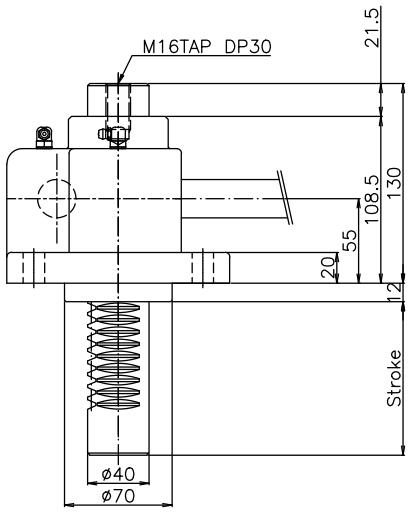
◈ Dimension–일반형 (General Type)

SP 1500F

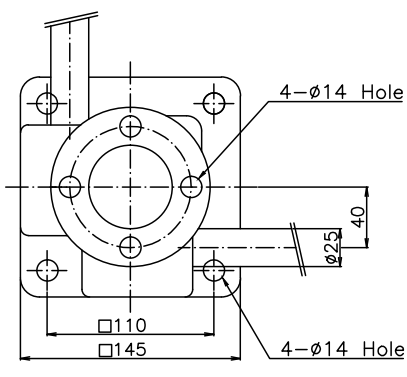


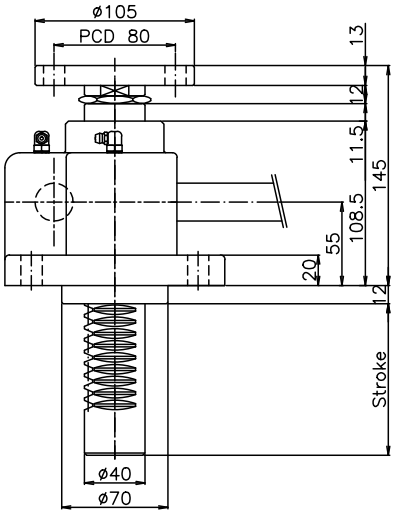
SP 3000

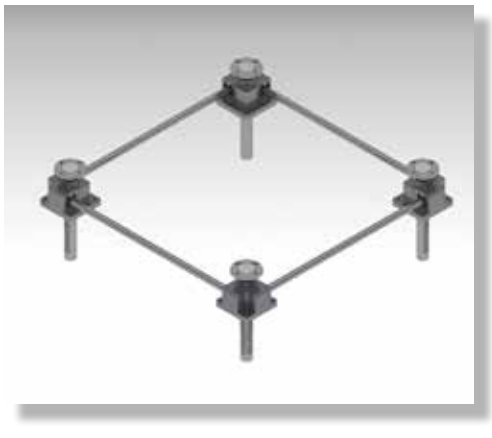




SP 3000F

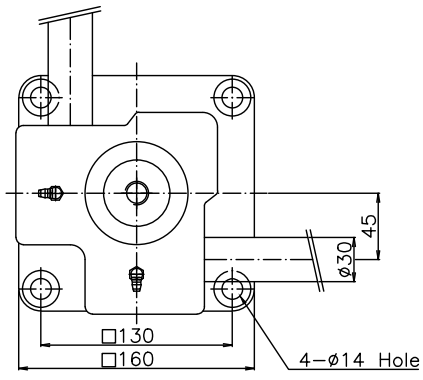


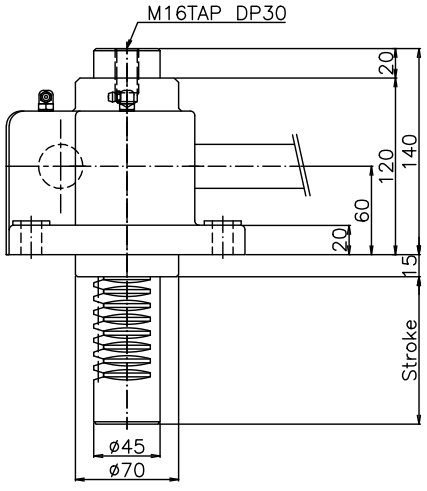


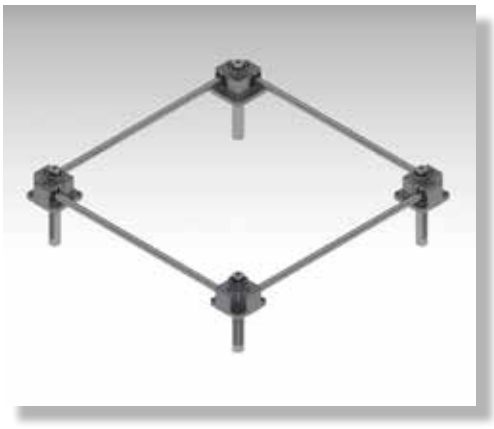


◈ Dimension–일반형 (General Type)

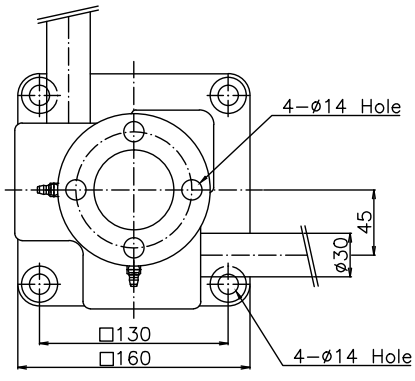
SP 5000

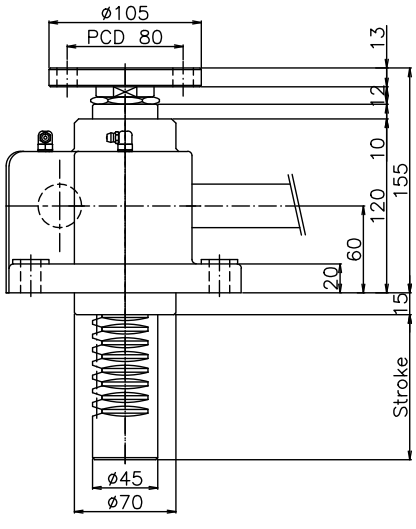


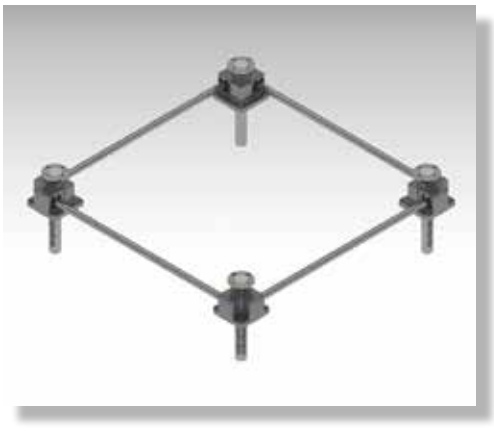




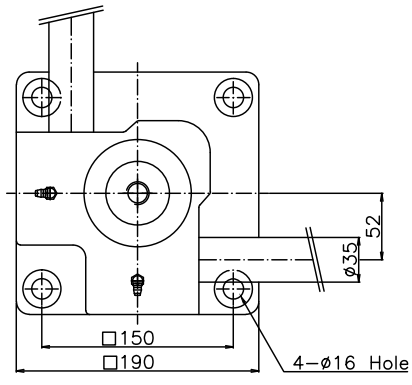
SP 5000F

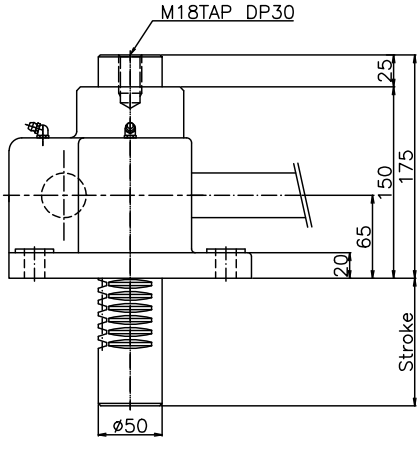


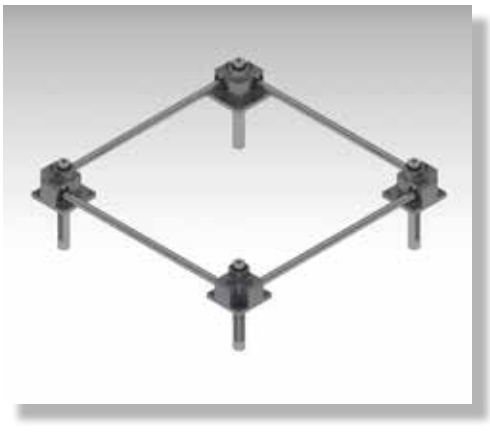




SP 10000

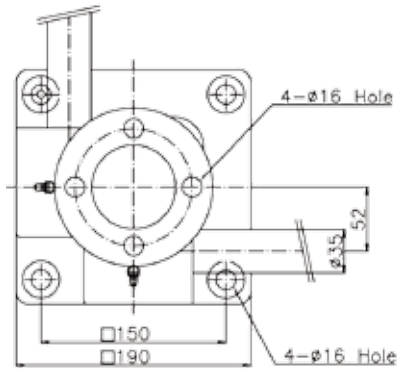


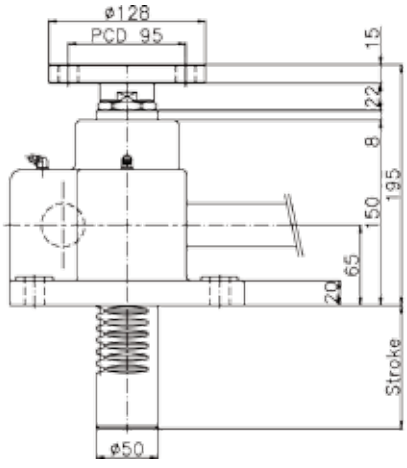


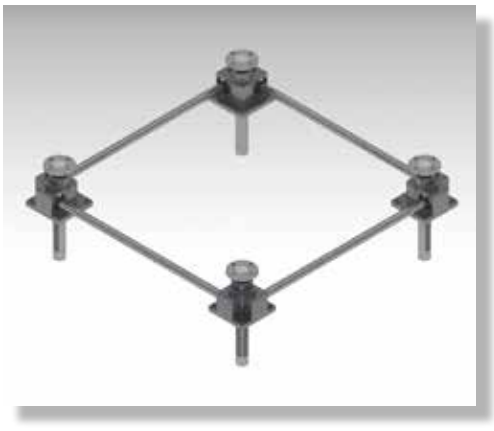


◈ Dimension–일반형 (General Type)

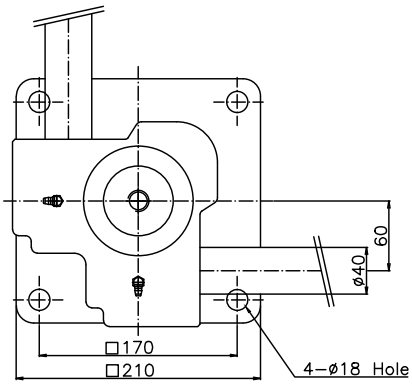
SP 10000F

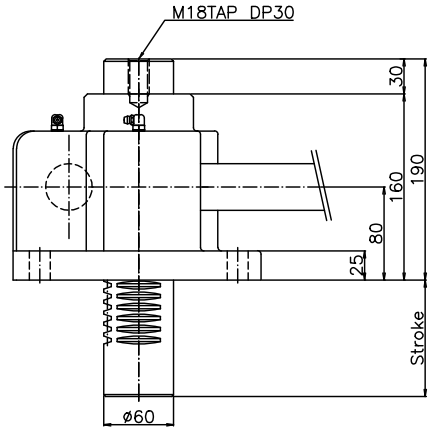


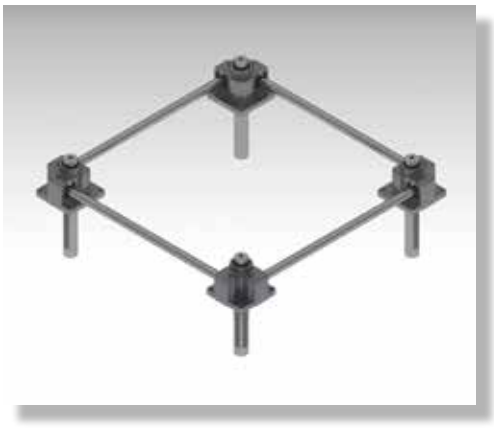




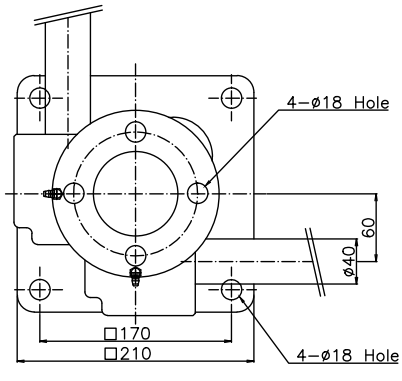
SP 20000

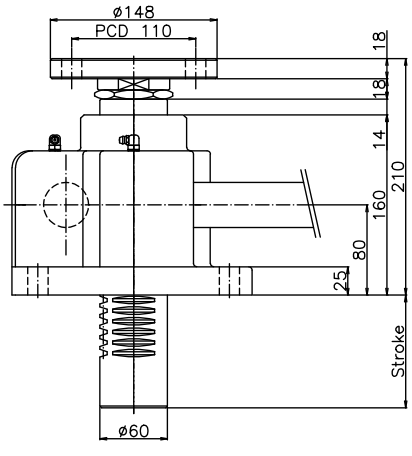


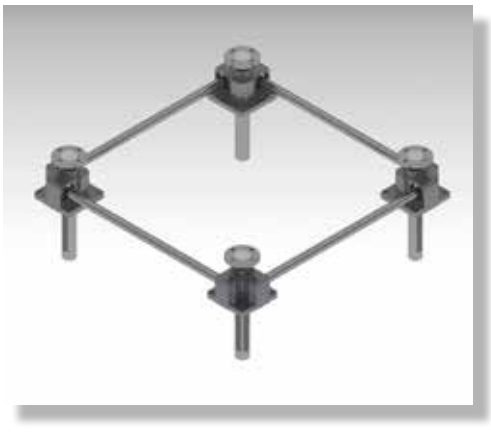




SP 20000F

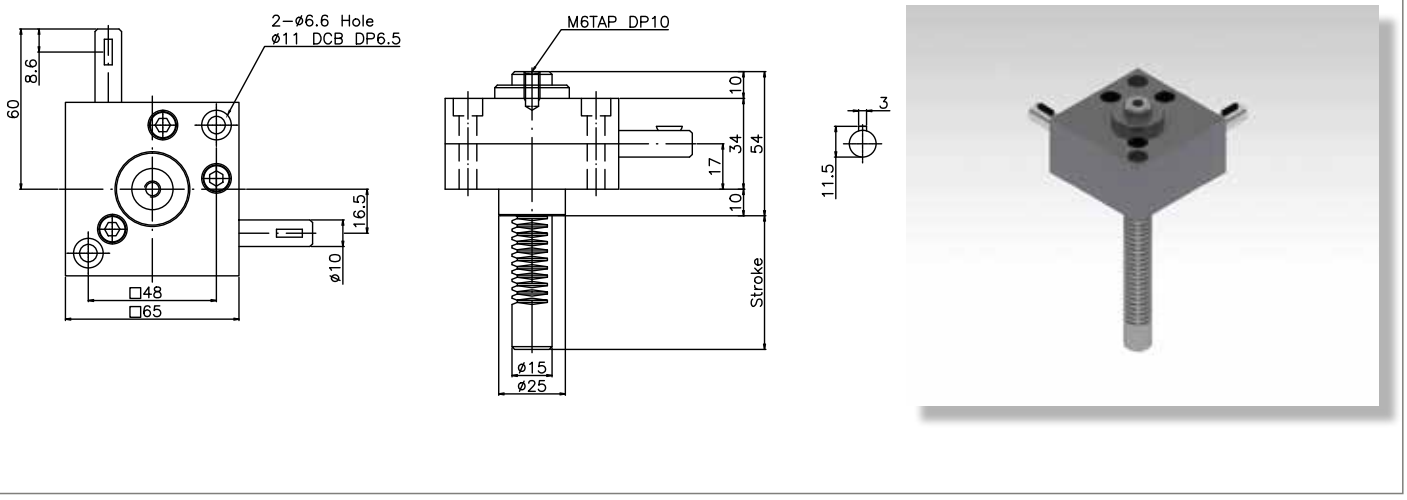




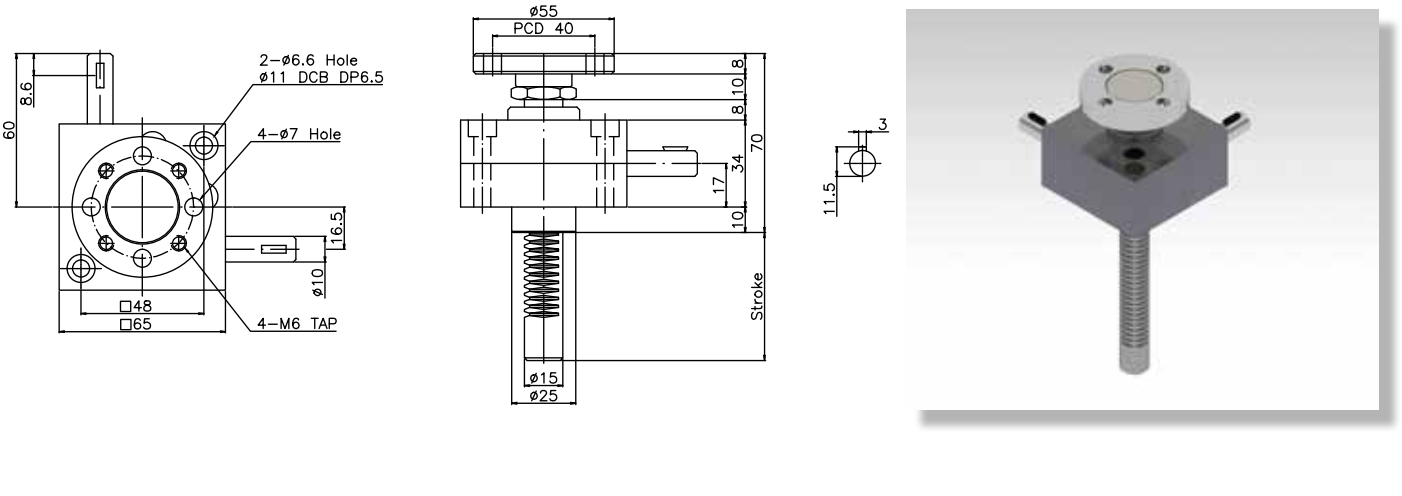


◈ Dimension–일반형 (General Type)

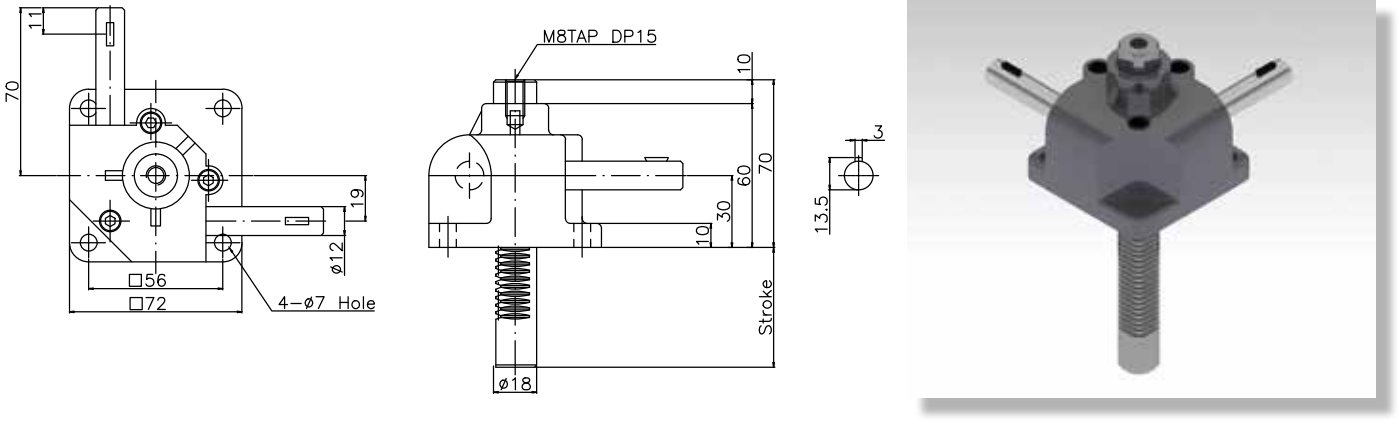
SP1–100



SP1–100F

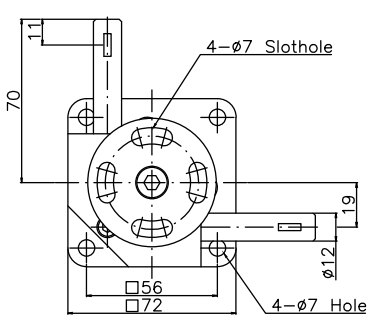


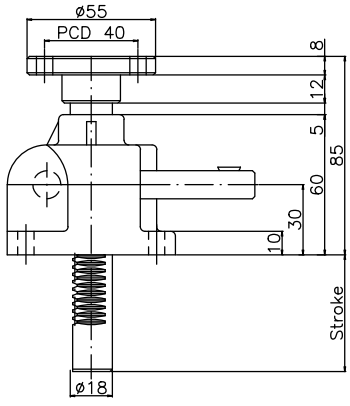
SP1–300

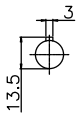


◈ Dimension–일반형 (General Type)

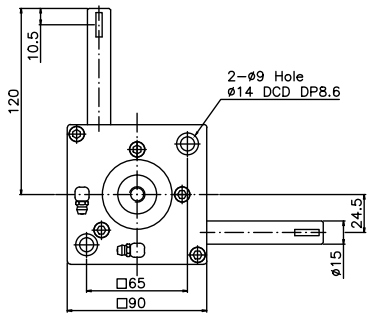
SP1–300F

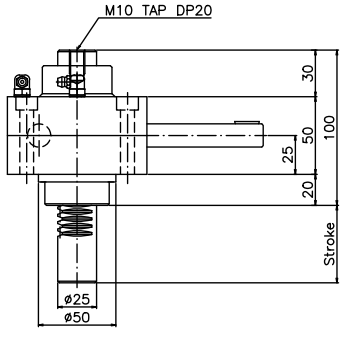


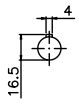


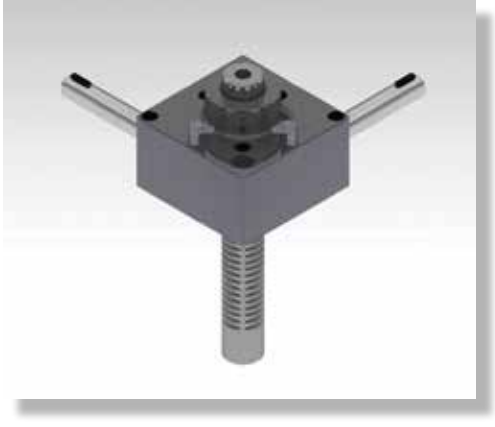


SP1–500

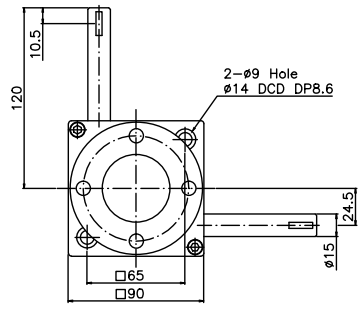


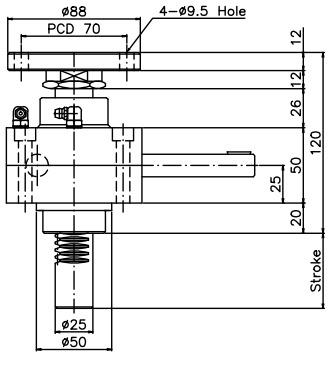


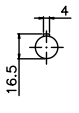


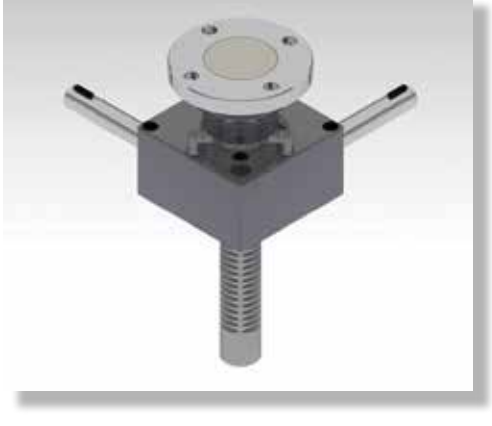


SP1–500F



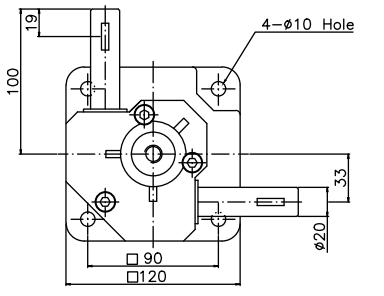


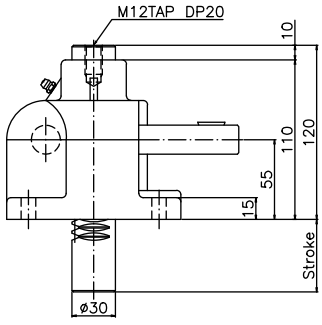




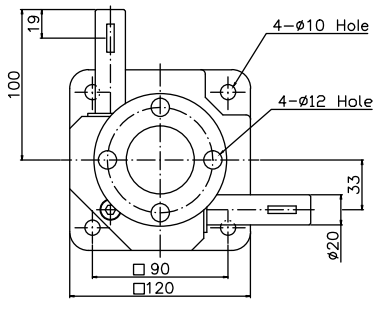
◈ Dimension–일반형 (General Type)

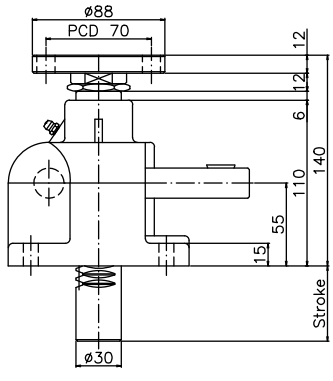
SP1–900



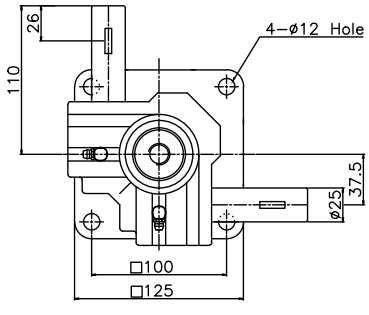


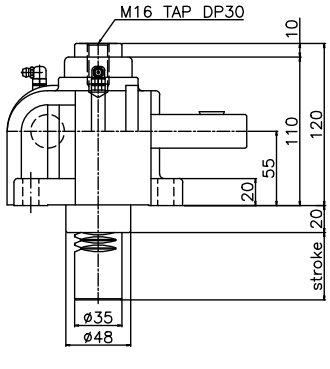
SP1–900F

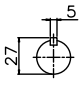




SP1–1500

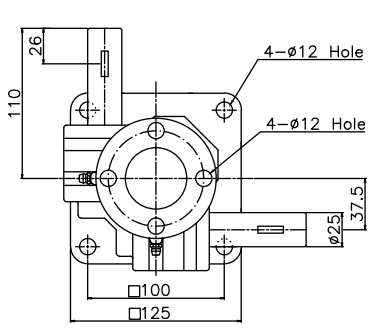


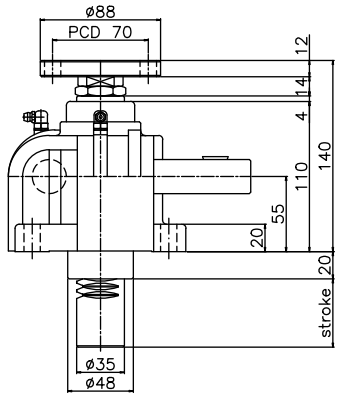




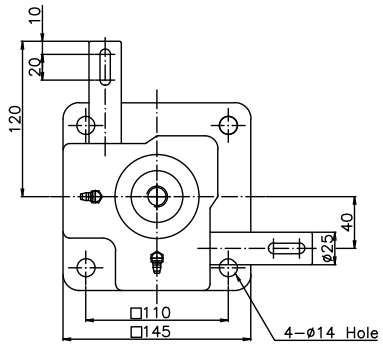
◈ Dimension–일반형 (General Type)

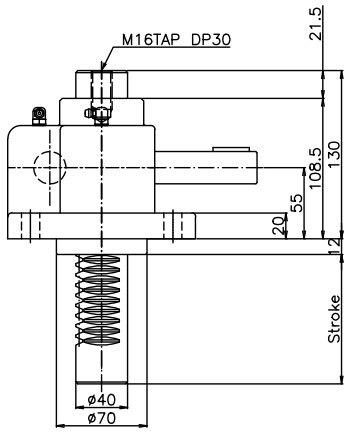
SP1–1500F



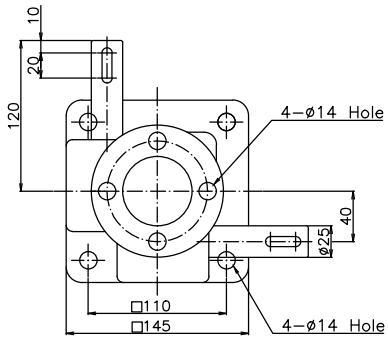


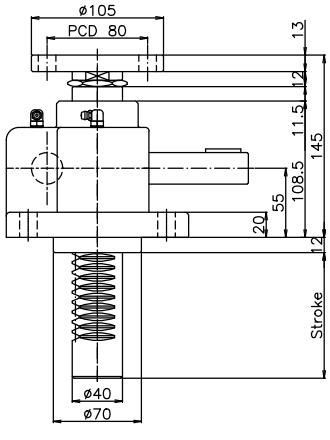
SP1–3000

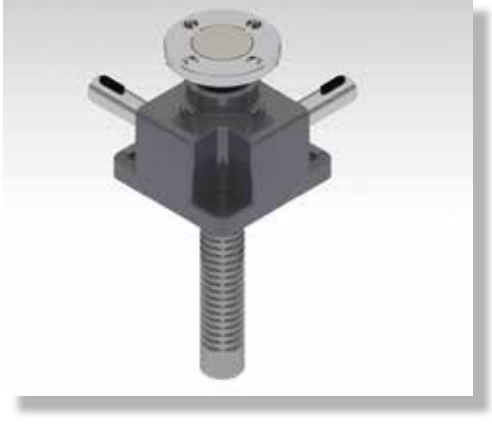




SP1–3000F

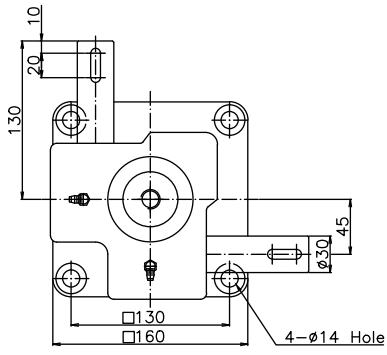


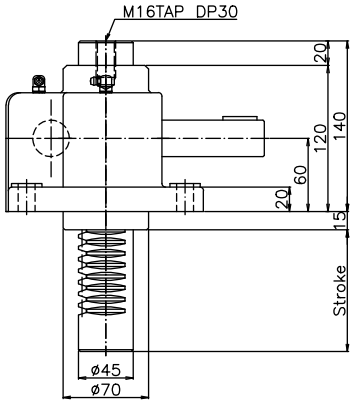




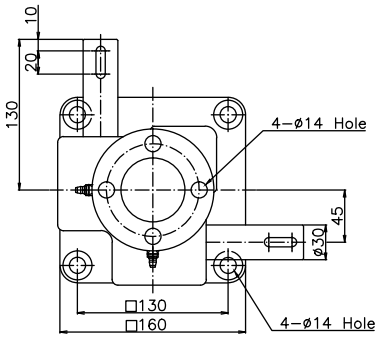
◈ Dimension–일반형 (General Type)

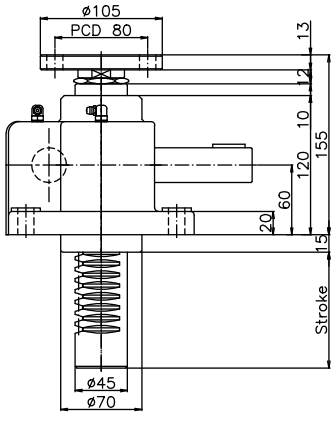
SP1–5000



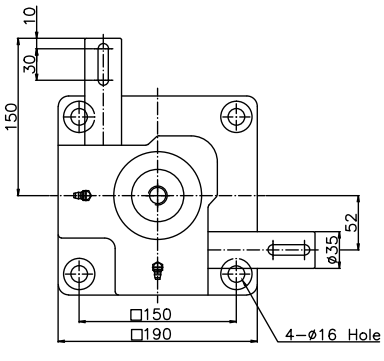


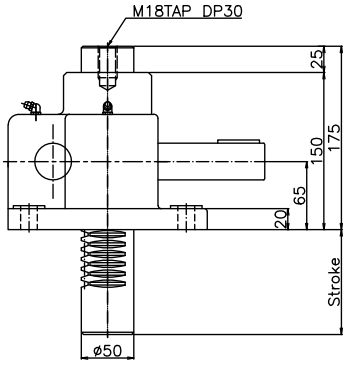
SP1–5000F





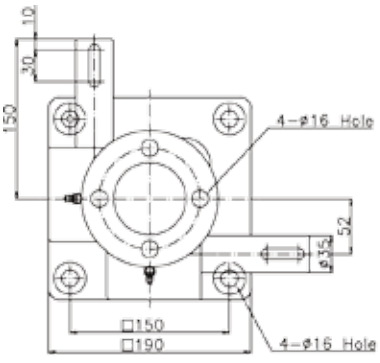
SP1–10000

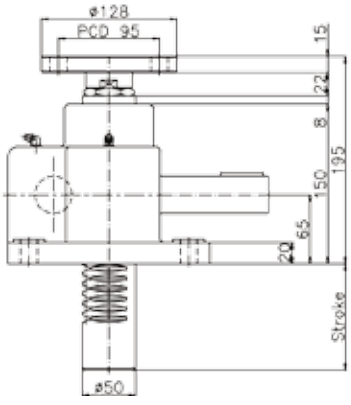




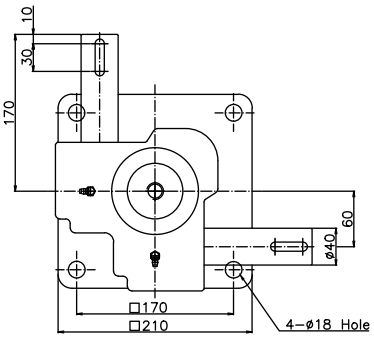
◈ Dimension–일반형 (General Type)

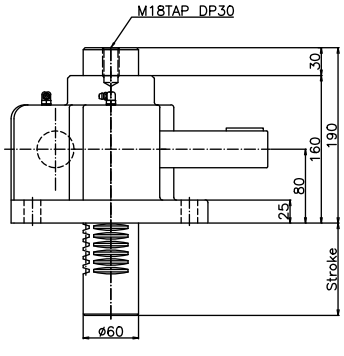
SP1–10000F



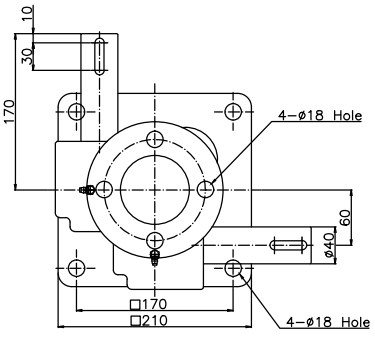


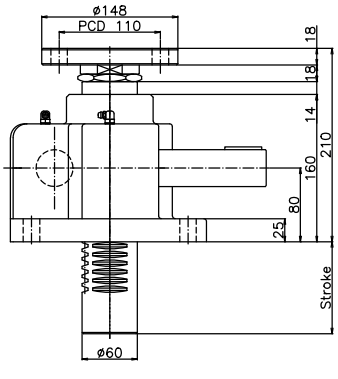
SP1–20000





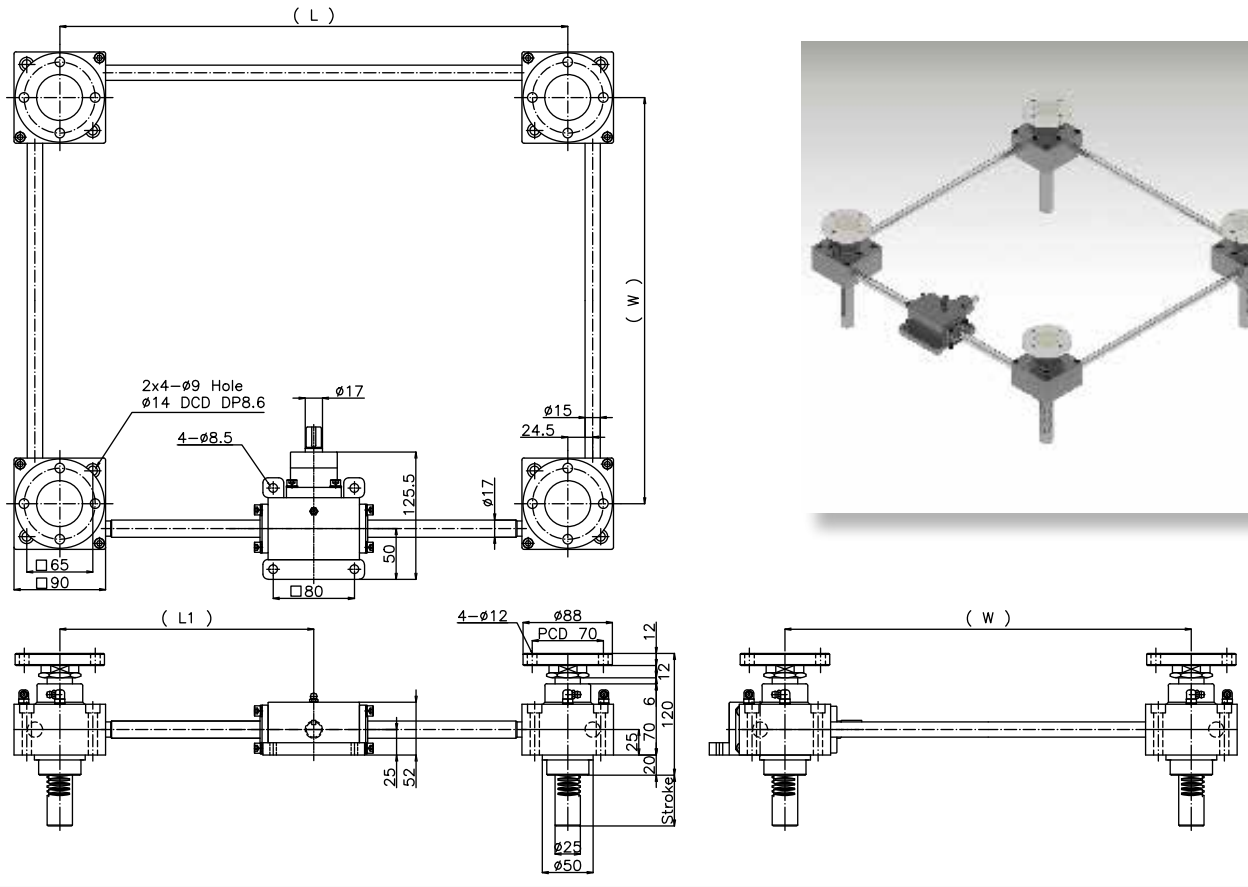
SP1–20000F



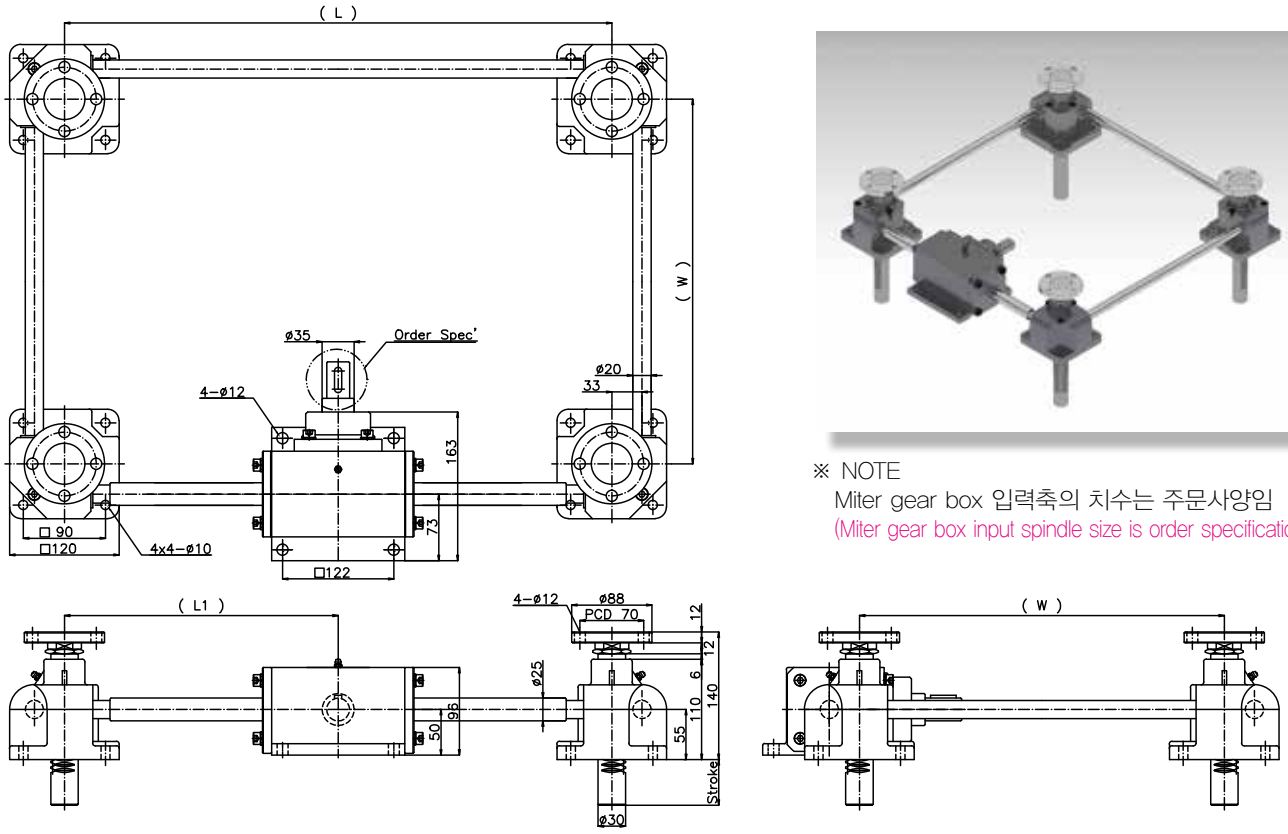


◈ Dimension–일반형 (General Type)

SPB 500F



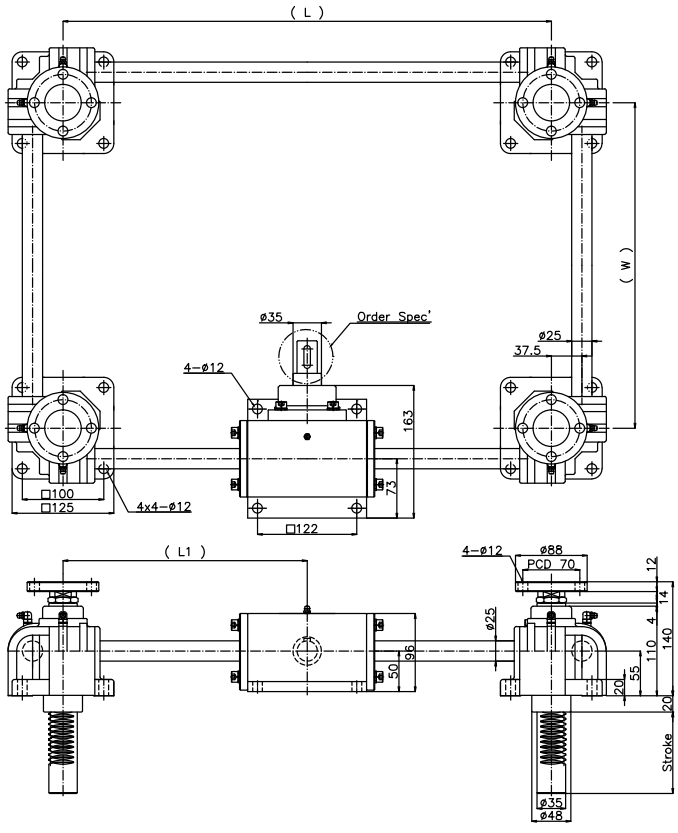
SPB 900F

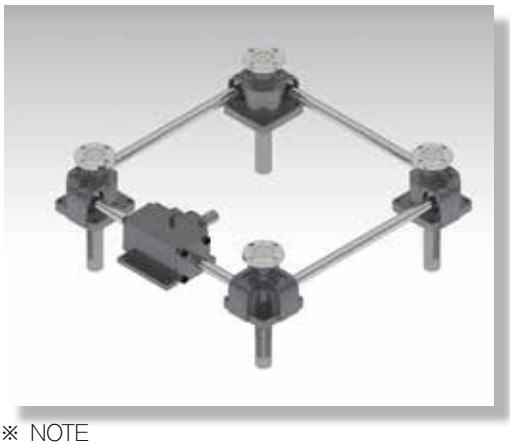


※ NOTE
Miter gear box 입력축의 치수는 주문사양임
(Miter gear box input spindle size is order specification)

◈ Dimension–일반형 (General Type)

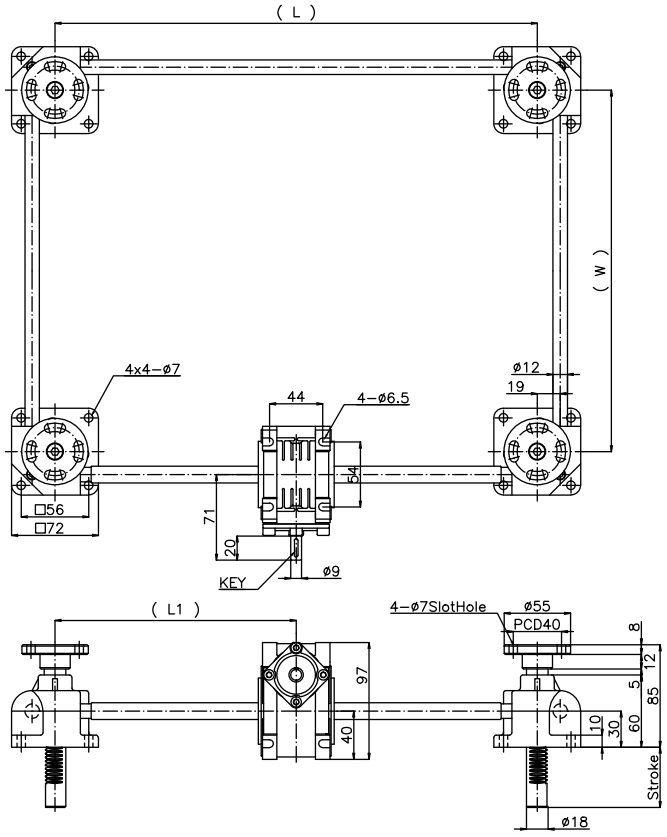
SPB 1500F

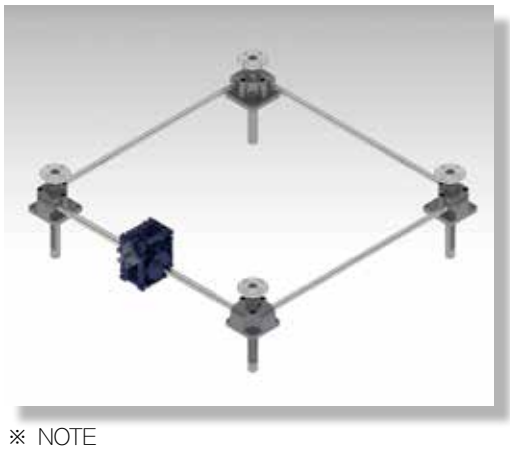




※ NOTE
Miter gear box 입력축의 치수는 주문사양임
(Miter gear box input spindle size is order specification)

SPH300F–030

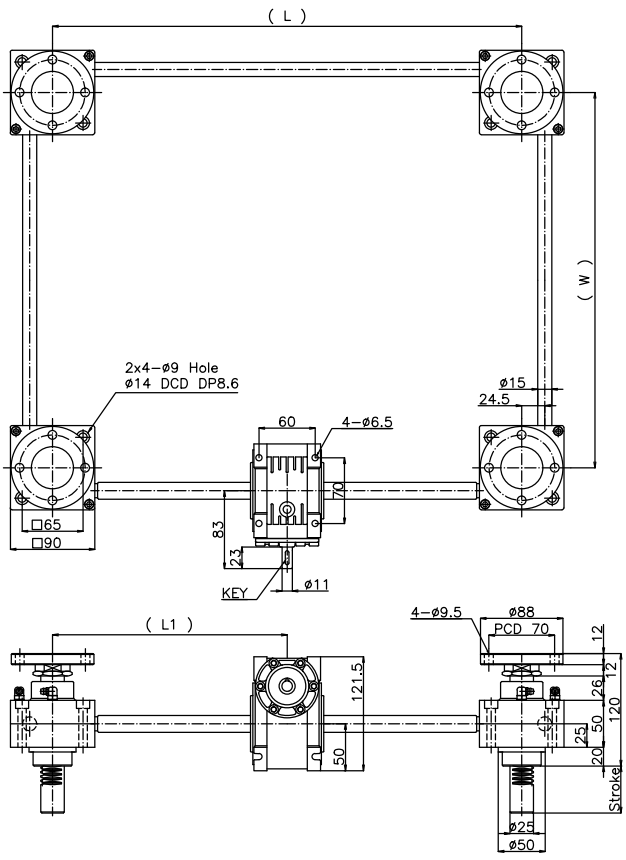


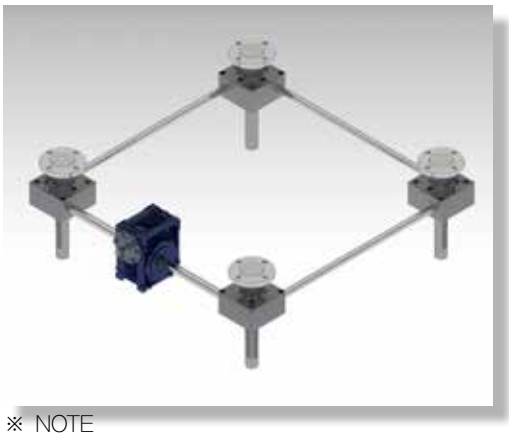


※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

◈ Dimension–일반형 (General Type)

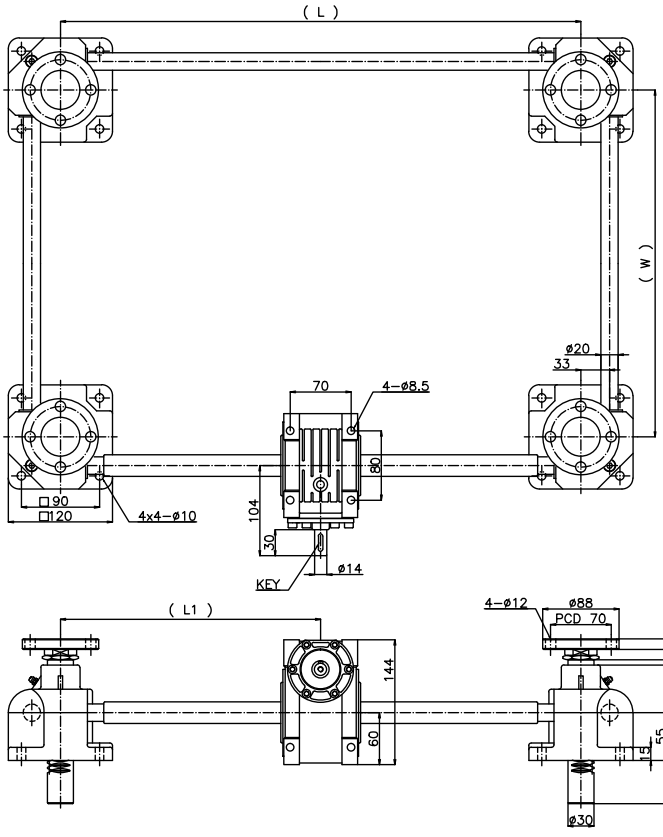
SPH500F–040

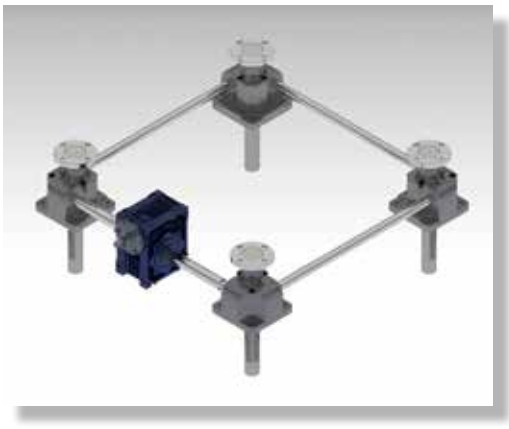




※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

SPH900F–050

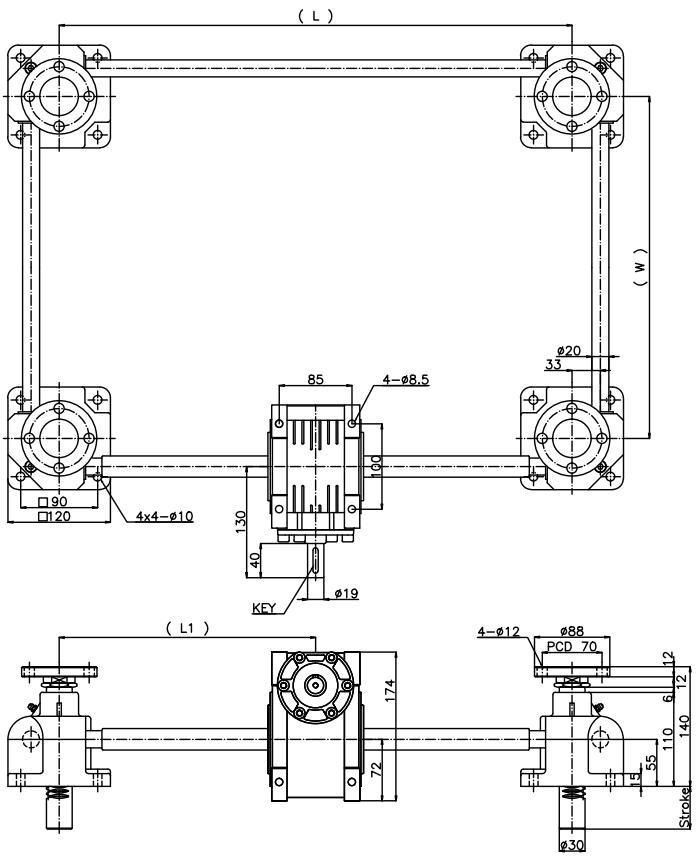


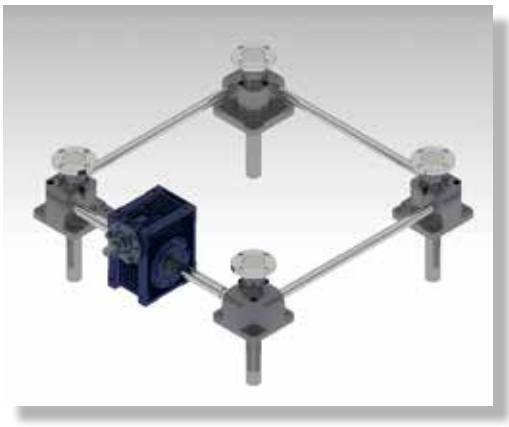


※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

◈ Dimension–일반형 (General Type)

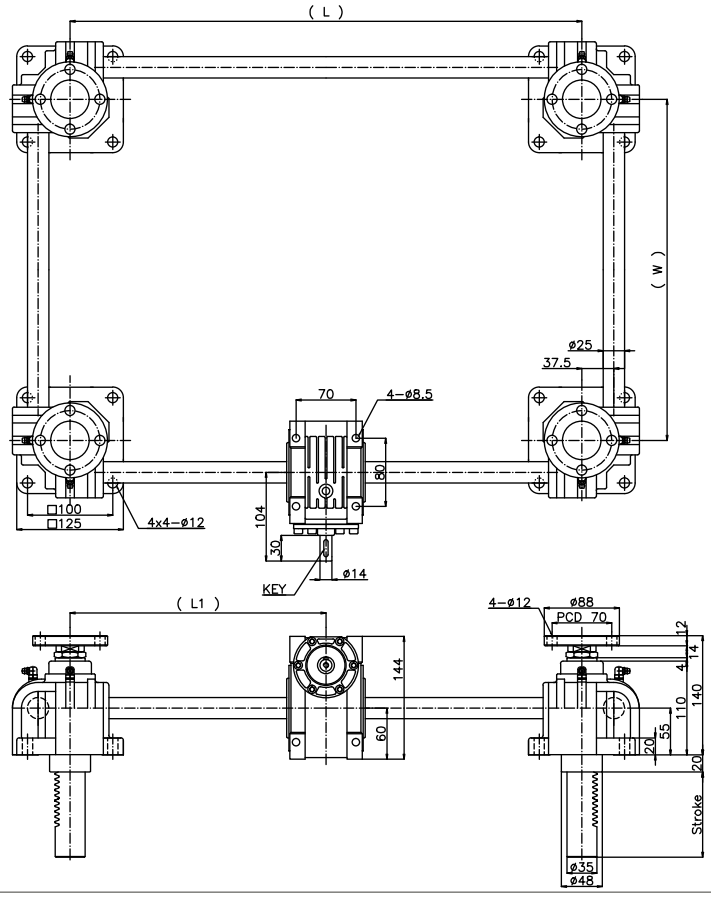
SPH900F–063

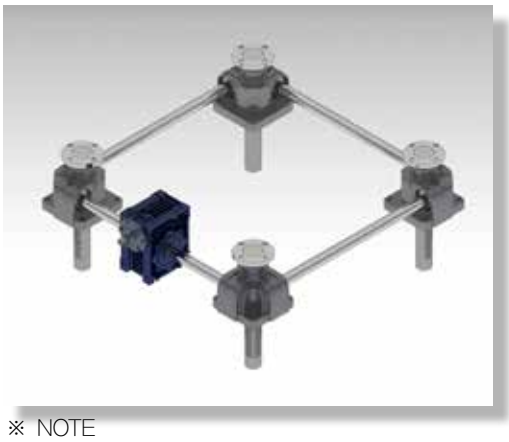




※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

SPH1500F–050

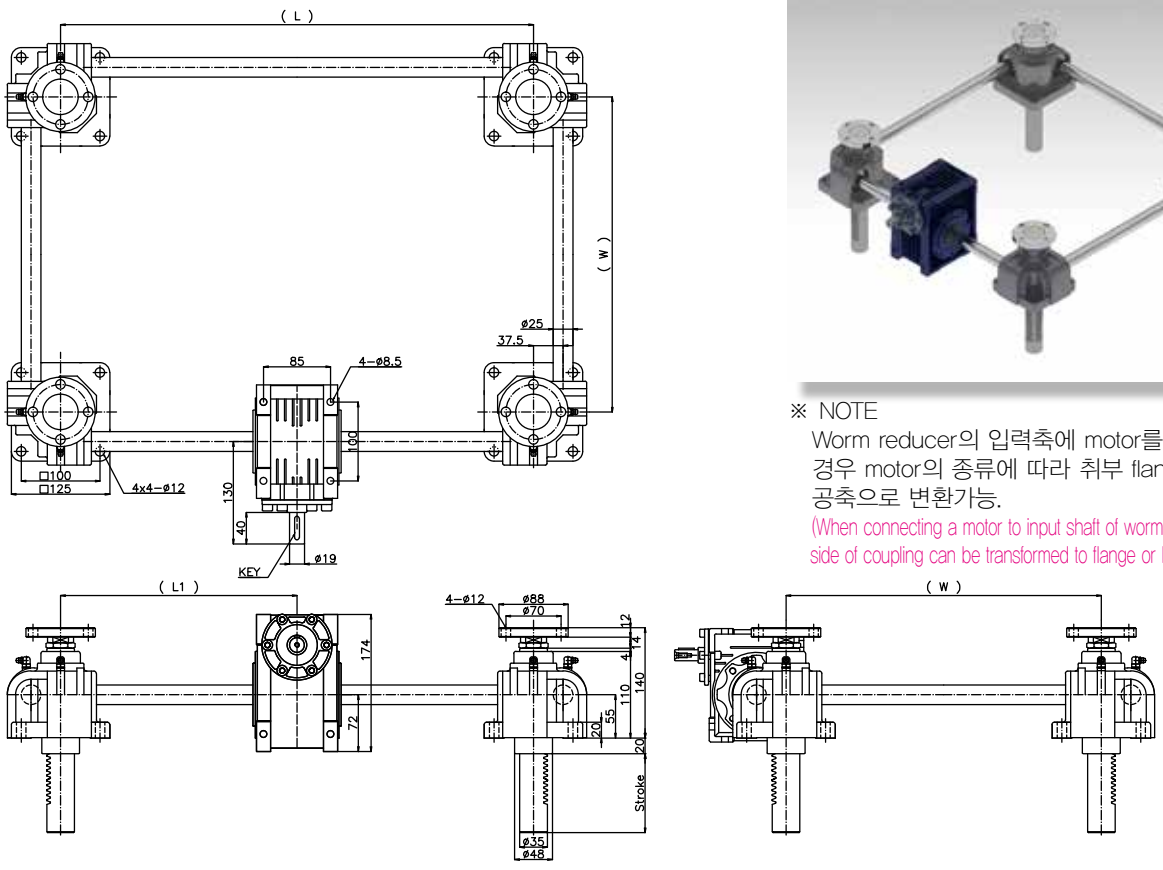




※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

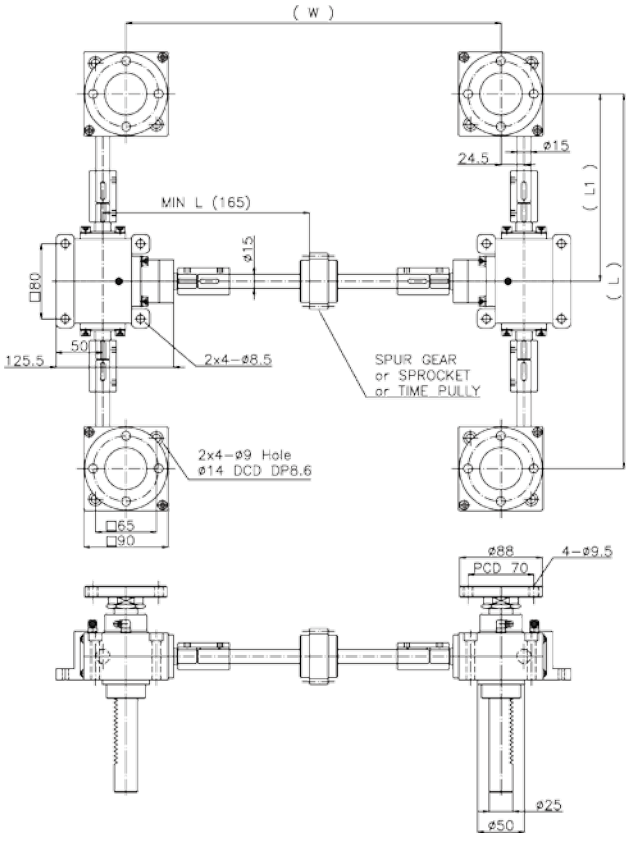
◈ Dimension–일반형 (General Type)

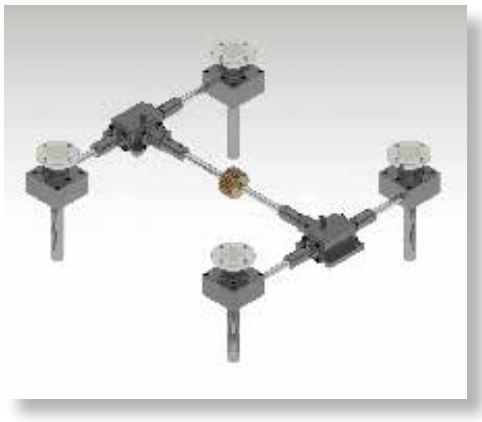
SPH1500F–063



※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

SPM 500F

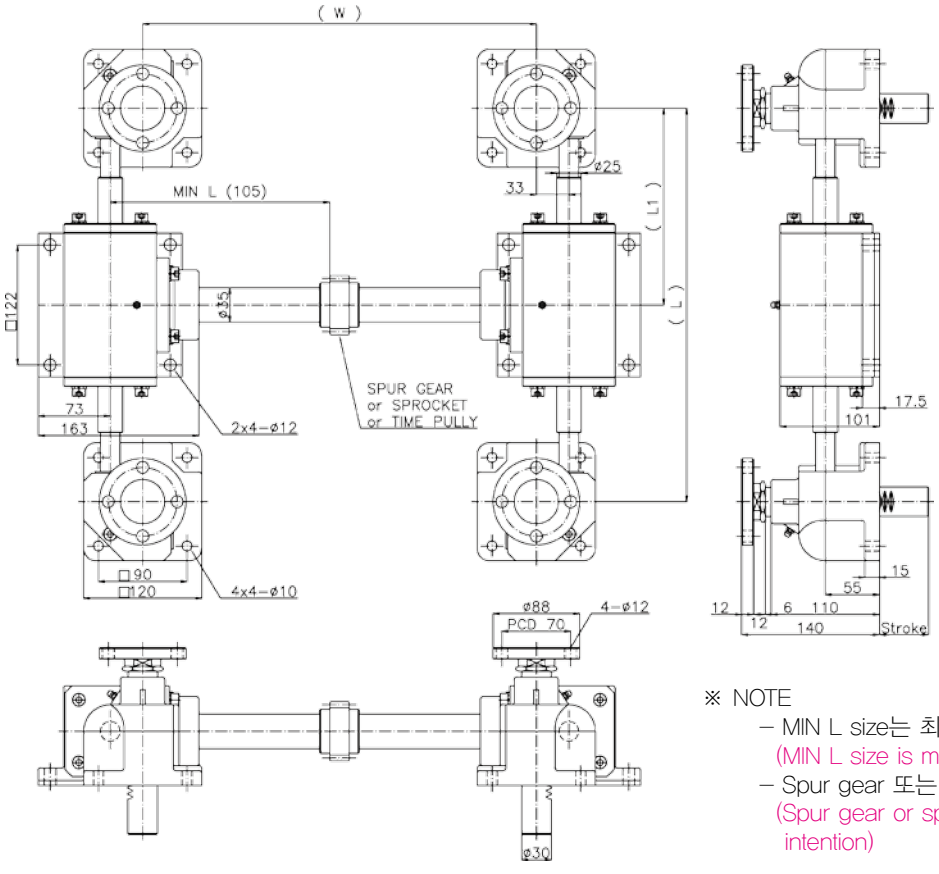


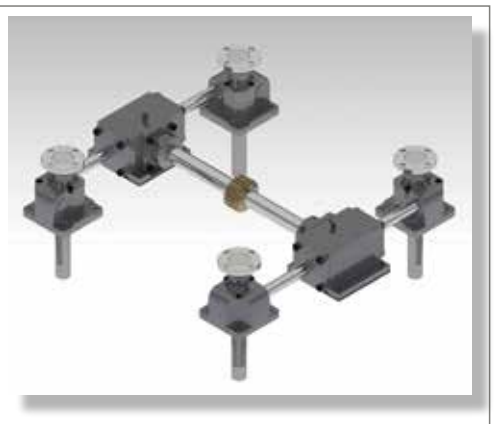


※ NOTE
– MIN L size는 최소 치수이며 설계자의 임의로 변경가능
(MIN L size is minimum and can be tuned by the designer)
– Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
(Spur gear or sprocket can be selected by the designer's intention)

◈ Dimension–일반형 (General Type)

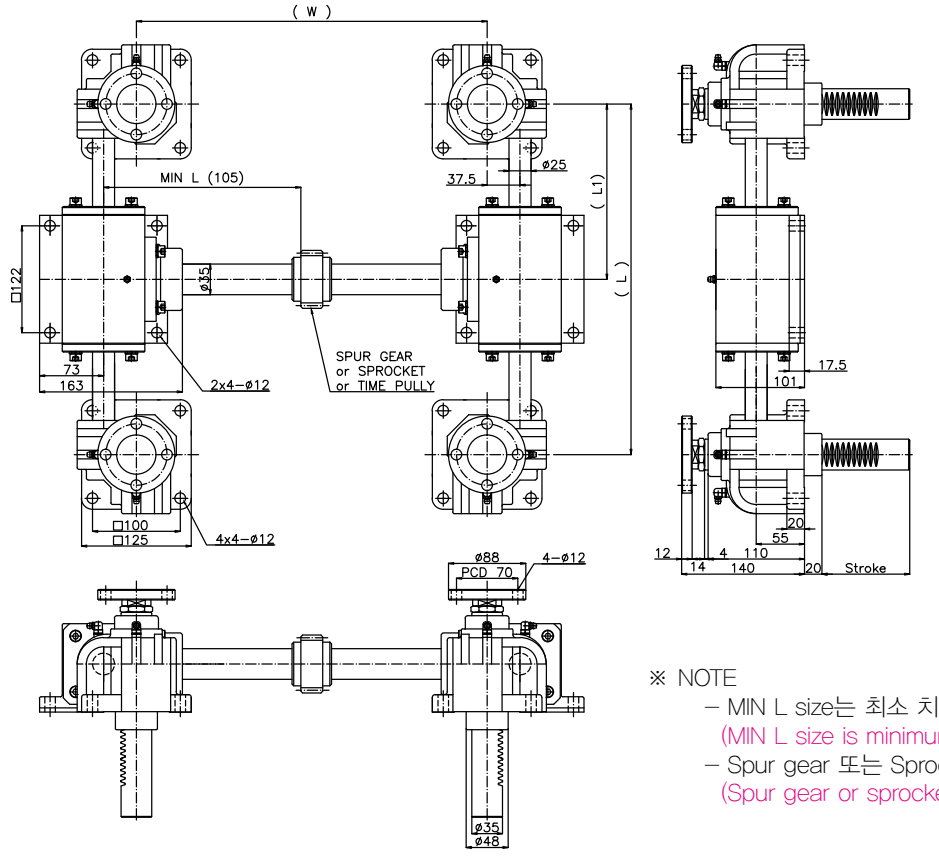
SPM 900F

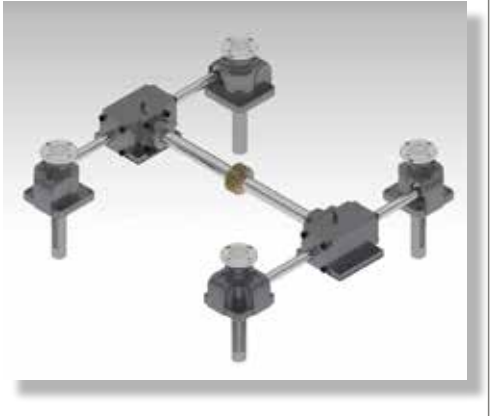




※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
  (Spur gear or sprocket can be selected by the designer's intention)

SPM 1500F

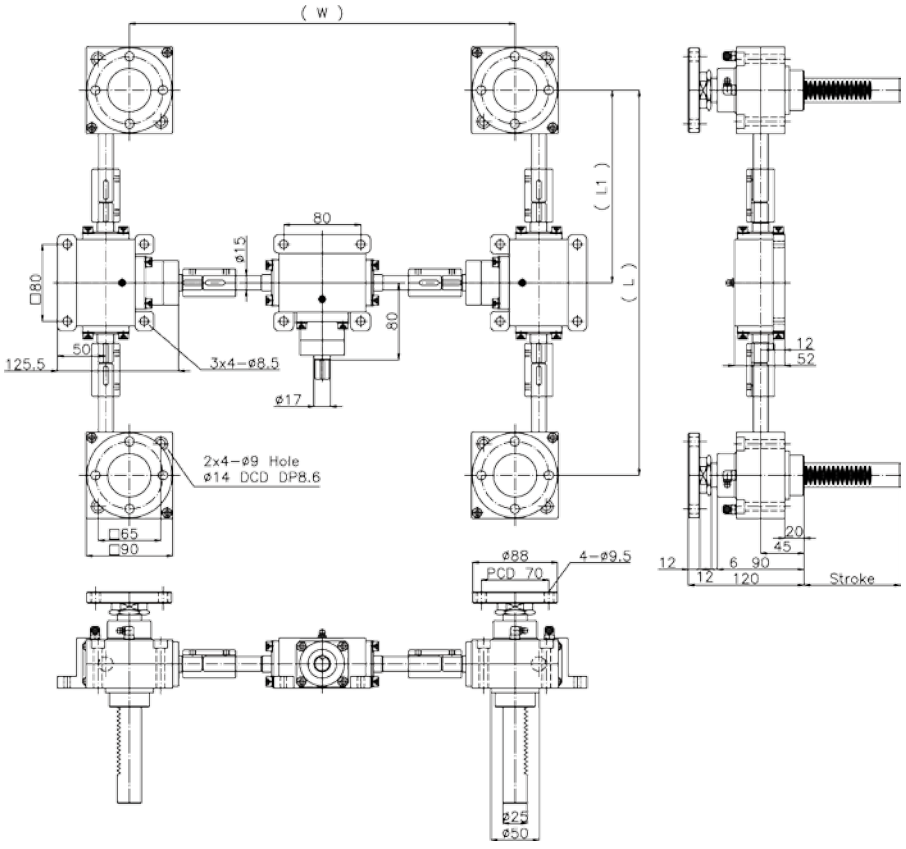


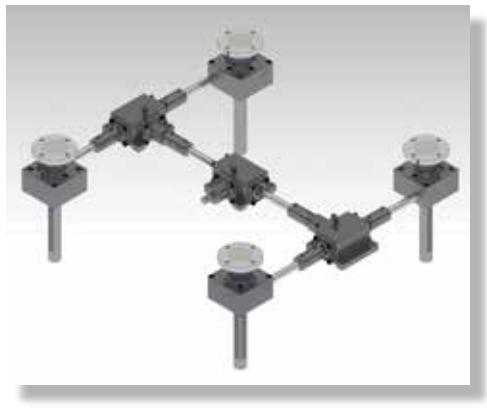


※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
  (Spur gear or sprocket can be selected by the designer's intention)

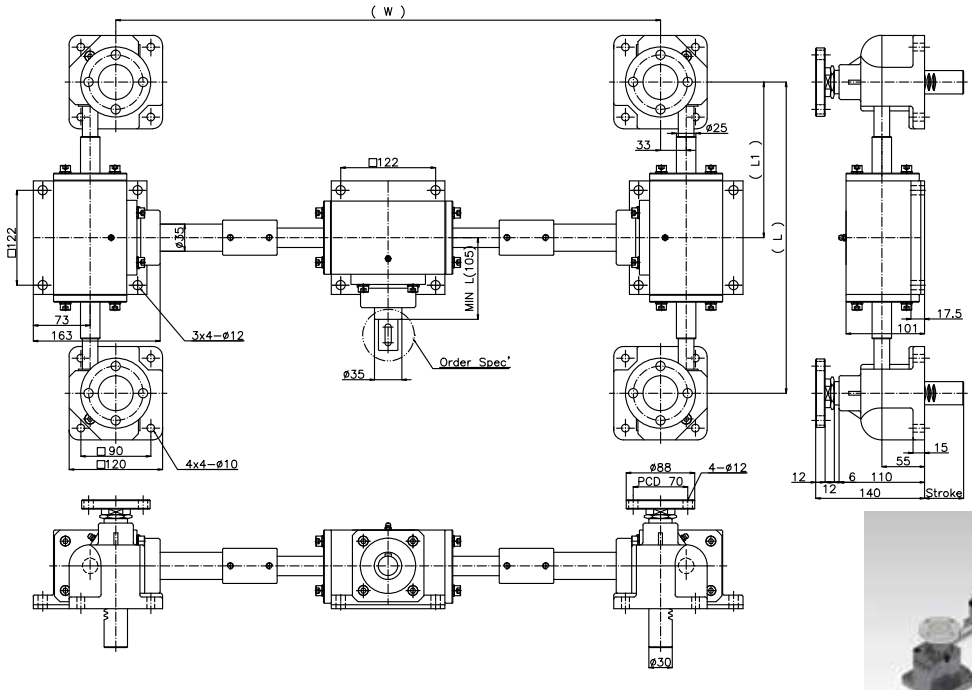
◈ Dimension–일반형 (General Type)

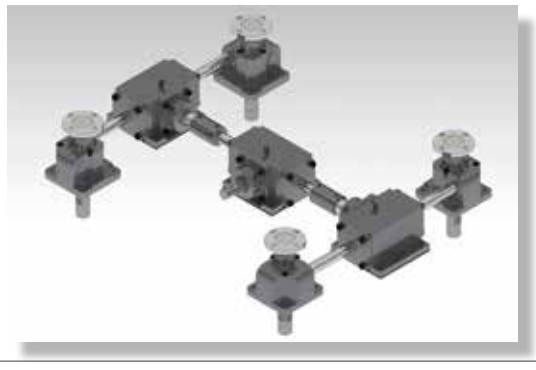
SPMB 500F





SPMB 900F

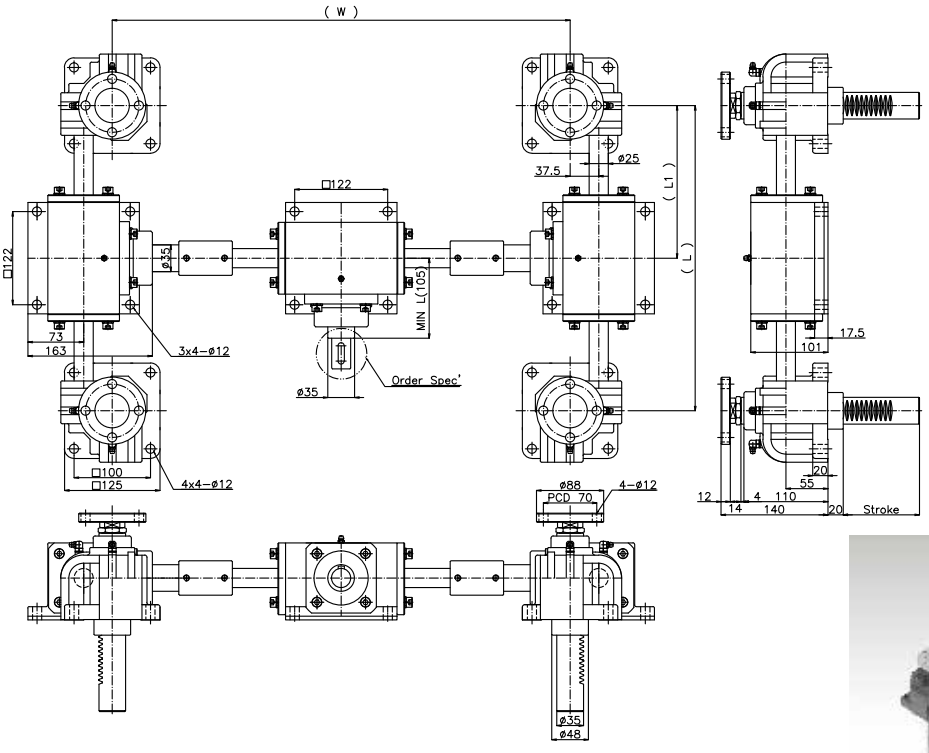


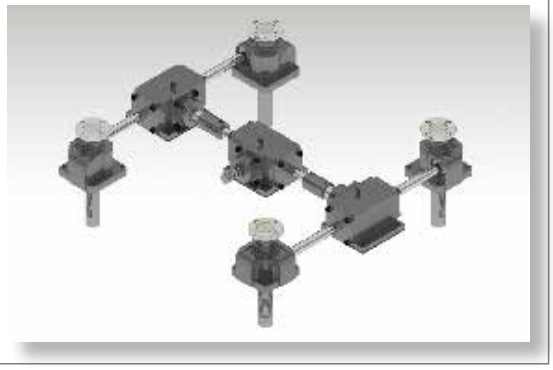


※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Miter gear box 입력축의 치수는 주문 사양임
  (Miter gear box input spindle size is order specification)

◈ Dimension–일반형 (General Type)

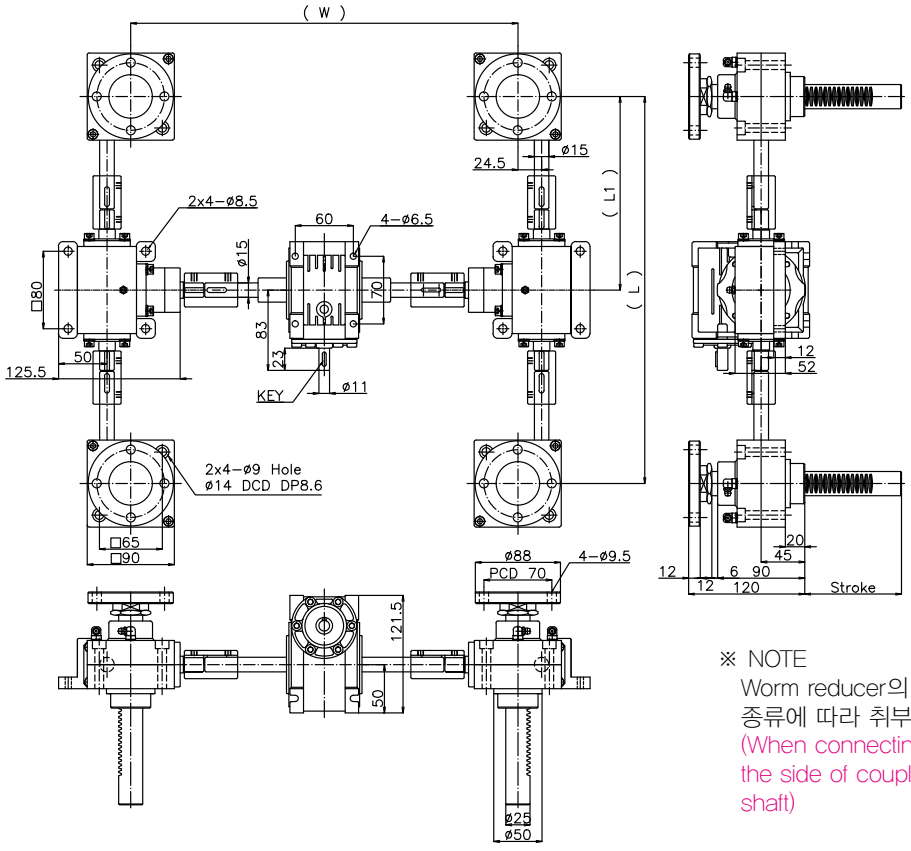
SPMB 1500F

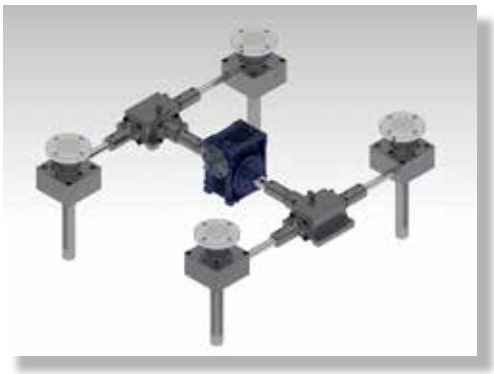




※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Miter gear box 입력축의 치수는 주문 사양임
  (Miter gear box input spindle size is order specification)

SPMH 500F–040

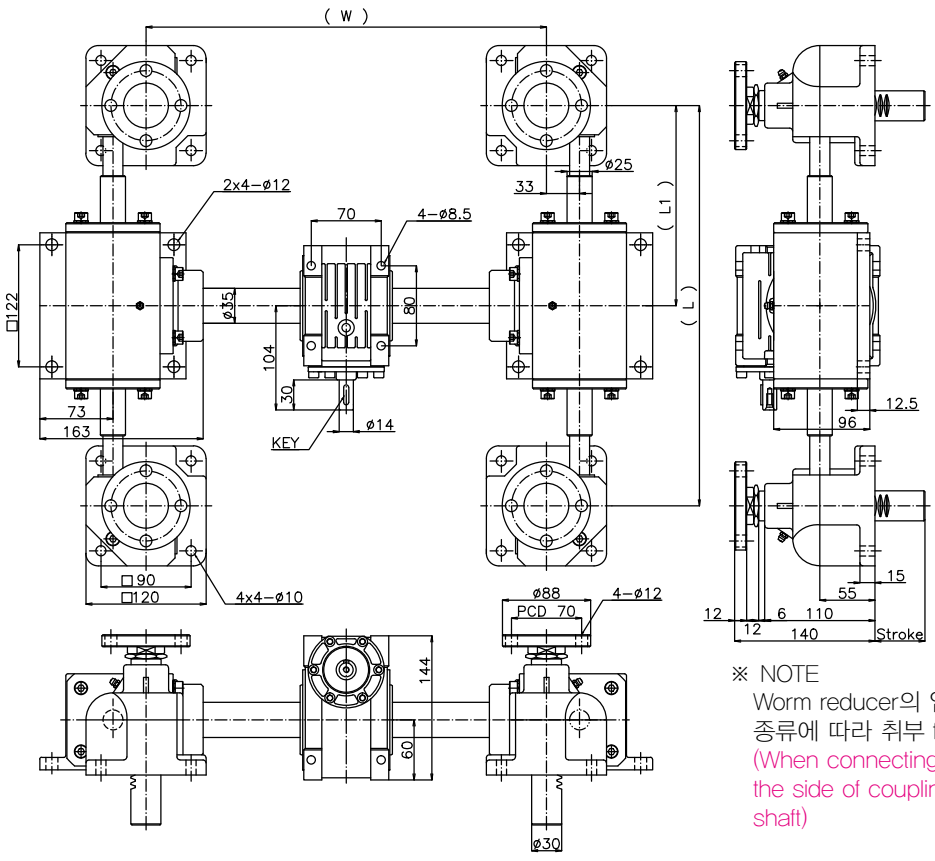


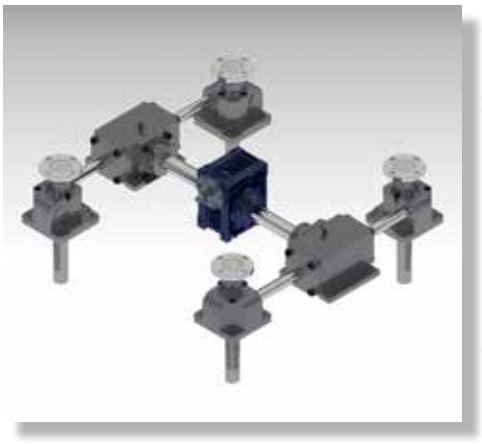


※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

◈ Dimension–일반형 (General Type)

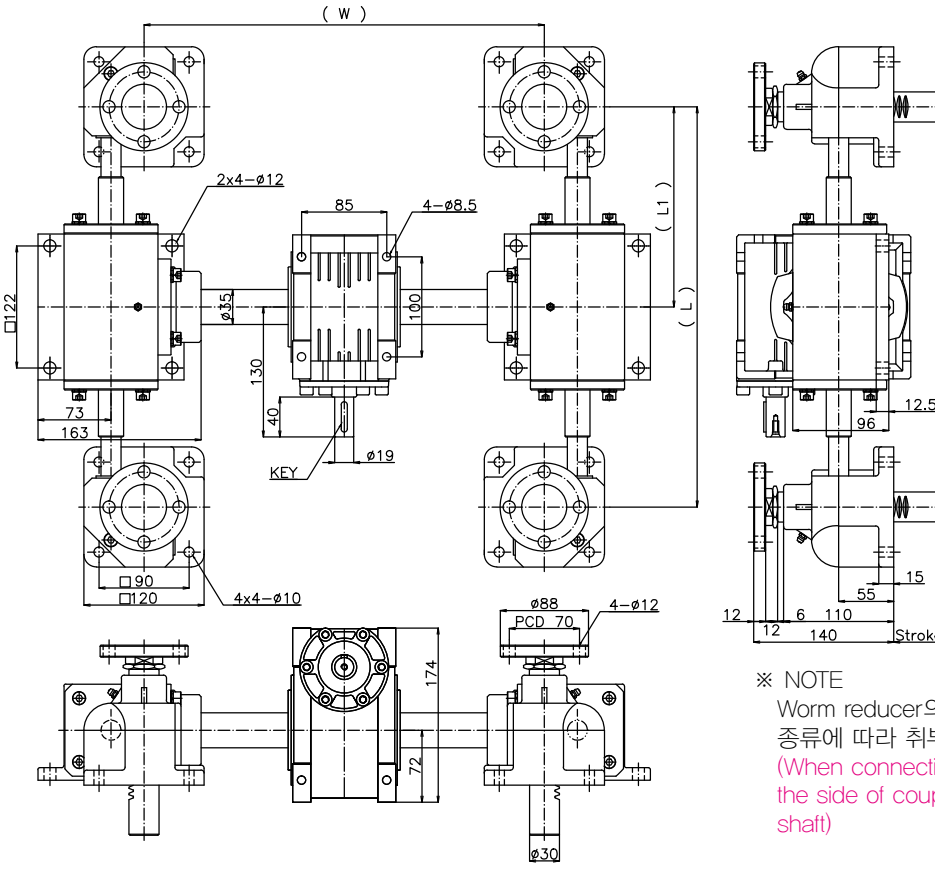
SPMH 900F–050

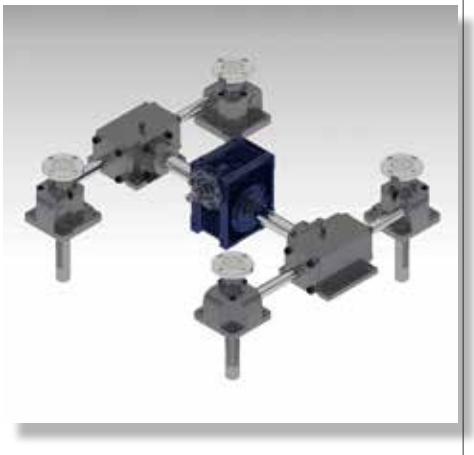




※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

SPMH 900F–063

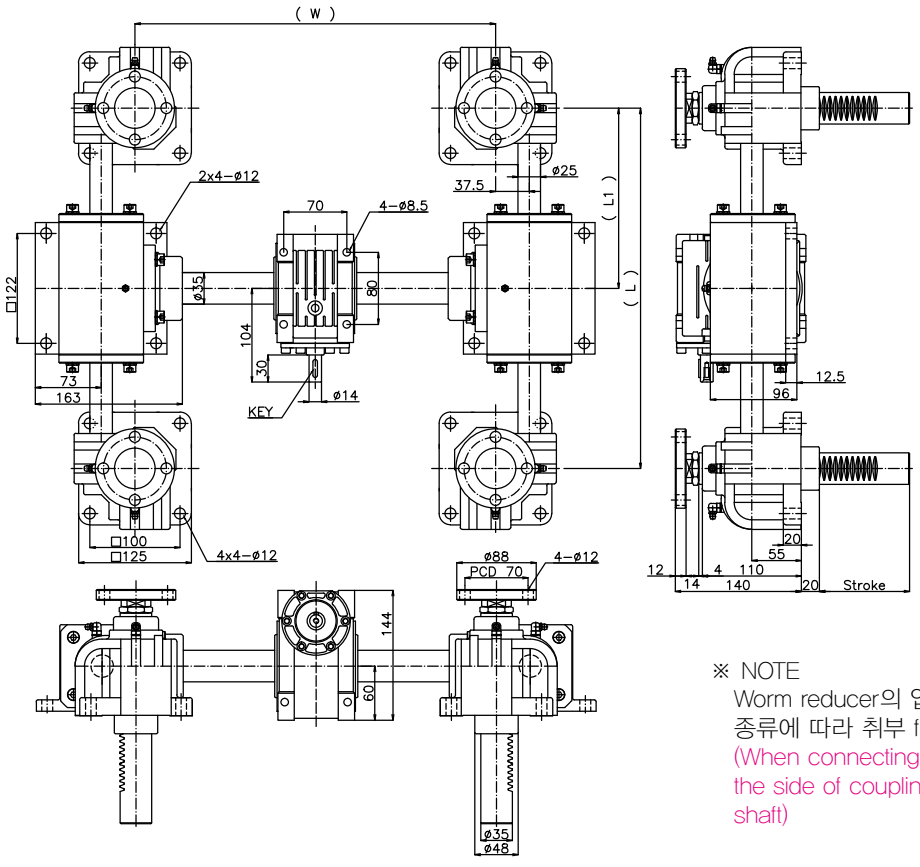


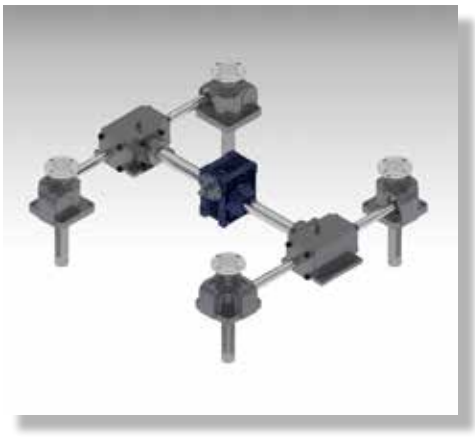


※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

◈ Dimension–일반형 (General Type)

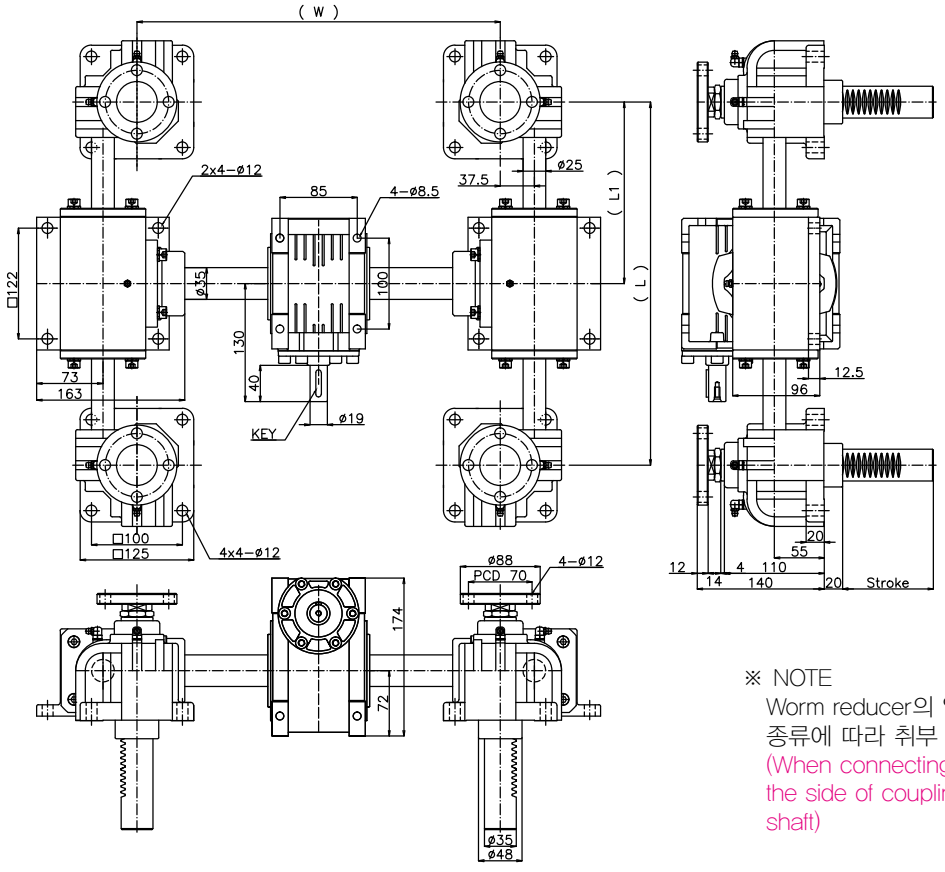
SPMH 1500F–050

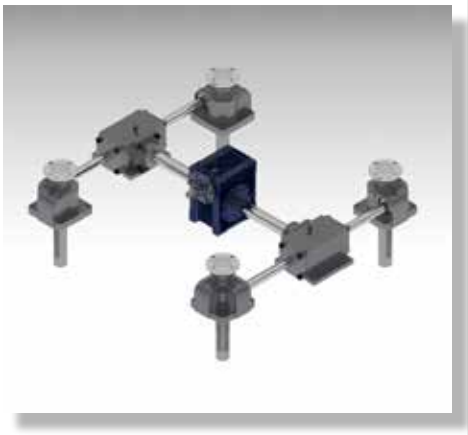




※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

SPMH 1500F–063





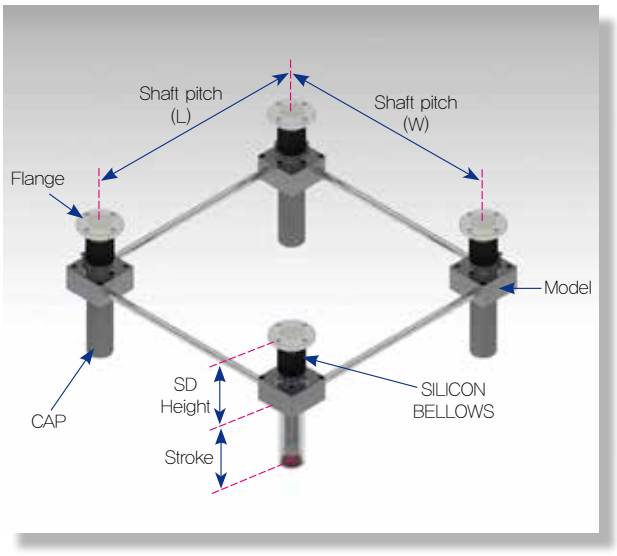
※ NOTE
Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(When connecting a motor to input shaft of worm reducer, the side of coupling can be transformed to flange or hollow shaft)

21. 형식표시방법-클린Type (Product Serial No-Clean type)

SP Series

SP ① 500 ② F ③ C ④ J ⑤ R ⑥ – 1000×800 ⑦ – 100ST ⑧ / CAP ⑨

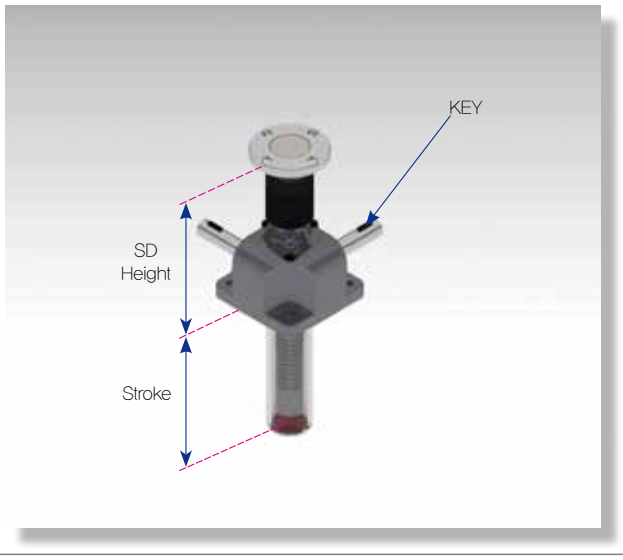
① Power base (Guide type)					
② Model	100	300	500	900	1500
	3000	5000	10000	20000	
③ Rack gear flange					
F	부착(With flange)	무기호(NON)	미부착(Without flange)		
④ C	Clean type	NON	일반(GENERAL Type)		
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)		
⑥ R	Gear Raydent coatting	NON	크롬도금(Chrom Plating)		
⑦ 축간거리(Shaft pitch)–mm		⑧ Stroke(mm)			
⑨ CAP	하부 Cover 부착 (With lower cover)				
무기호(NON)	하부 Cover 미부착 (Without lower cover)				



SP1 Series

SP1 – 100 ① F ② C ③ J ④ R ⑤ – 50ST ⑥ / CAP ⑦

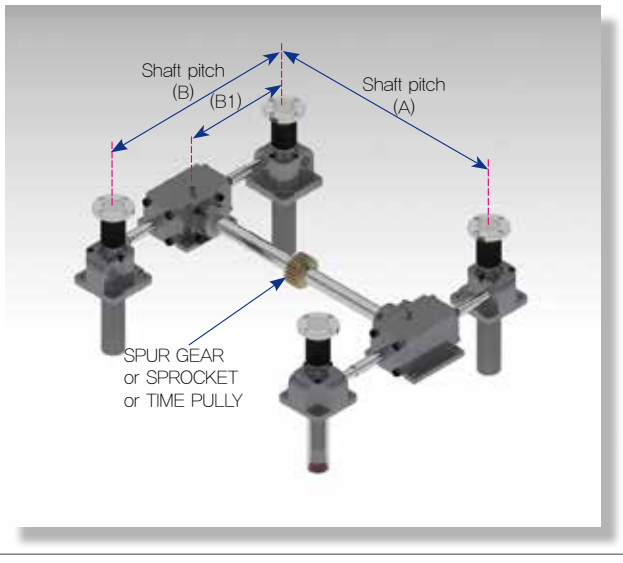
① Power base 분리형(Separation)					
② Model	100	300	500	900	1500
	3000	5000	10000	20000	
③ Rack gear flange					
F	부착(With flange)	무기호(NON)	미부착(Without flange)		
④ C	Clean type	NON	일반(GENERAL Type)		
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)		
⑥ R	Gear Raydent coatting	NON	크롬도금(Chrom Plating)		
⑦ Stroke(mm)					
⑧ CAP	하부 Cover 부착 (With lower cover)				
무기호(NON)	하부 Cover 미부착 (Without lower cover)				



SPM Series

SPM ① 900 ② F ③ C ④ J ⑤ R ⑥ – 800 ⑦ × 600 ⑧ – 300 ⑨ – 250ST ⑩ / CAP ⑪

① Power base 구동 Type (Actuator Type)			
② Model	500	900	1500
③ Rack gear flange			
F	부착(With flange)	무기호(NON)	미부착(Without flange)
④ C	Clean type	NON	일반(GENERAL Type)
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)
⑥ R	Gear Raydent coatting	NON	크롬도금(Chrom Plating)
⑦ Shaft A 축간거리(Shaft A Pitch)mm			
⑧ Shaft B 축간거리(Shaft B Pitch)mm			
⑨ 구동Shaft 축간거리 (B1) – Drive shaft pitch (B1) mm		⑩ Stroke(mm)	
⑪ CAP	하부 Cover 부착 (With lower cover)		
무기호(NON)	하부 Cover 미부착 (Without lower cover)		

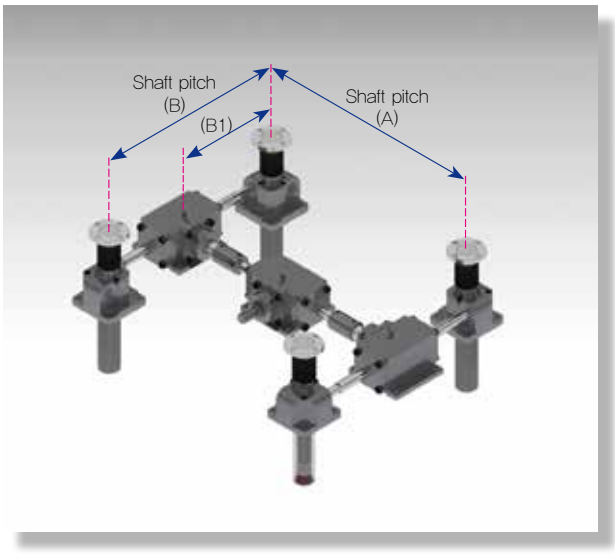


◈ 형식표시방법-클린Type (Product Serial No-Clean type)

SPMB Series

SPMB ① 900 ② F C J R ③④⑤⑥ – 800 × 600 ⑦ – 300 ⑧ – 300ST ⑨ / CAP ⑩

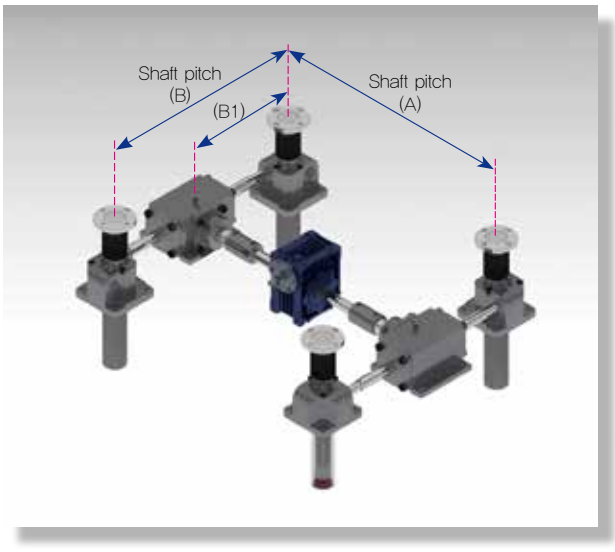
① Power base (Miter box type)			
② Model	500	900	1500
③ Rack gear flange			
F	부착(With flange)	무기호(NON)	미부착(Without flange)
④ C	Clean type	NON	일반(GENERAL Type)
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)
⑥ R	Gear Raydent coatting	NON	크롬도금(Chrom Plating)
⑦ 축간거리(Shaft Pitch)A×Bmm			
⑧ 구동Shaft 축간거리 (B1) – Drive shaft pitch (B1) mm		⑨ Stroke(mm)	
⑩ CAP	하부 Cover 부착 (With lower cover)		
무기호(NON)	하부 Cover 미부착 (Without lower cover)		



SPMH Series

SPMH ① 900 ② F C J R ③④⑤⑥ – 1000×750 ⑦ – 300 ⑧ – 270ST/CAP ⑨⑩ – 050 ⑪ – 1/50 ⑫

① Power base (Actuator type)						
② Model	500	900	1500			
③ Rack gear flange						
F	부착(With flange)	무기호(NON)	미부착(Without flange)			
④ C	Clean type	NON	일반(GENERAL Type)			
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)			
⑥ R	Gear Raydent coatting	NON	크롬도금(Chrom Plating)			
⑦ 축간거리(Shaft Pitch)A×Bmm						
⑧ 구동Shaft 축간거리 (B1) – Drive shaft pitch (B1) mm			⑨ Stroke(mm)			
⑩ CAP	하부 Cover 부착 (With lower cover)					
무기호(NON)	하부 Cover 미부착 (Without lower cover)					
⑪ Worm reducer model	030	040	050	063		
⑫ 감속비 (Deceleration ratio)						
1/25	1/30	1/40	1/50	1/60	1/80	1/100

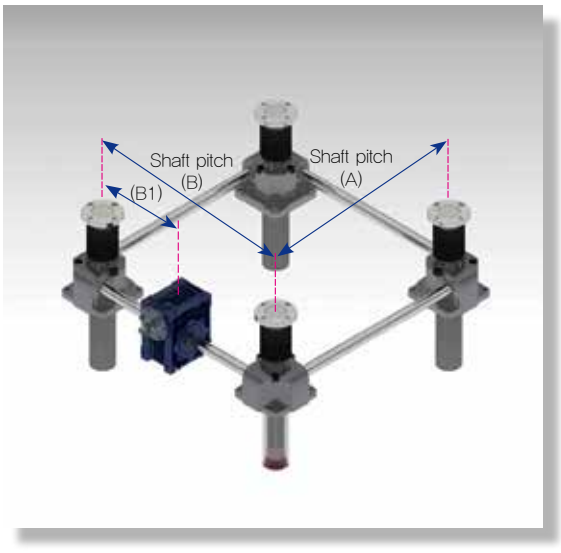


◈ 형식표시방법-클린Type (Product Serial No-Clean type)

SPH Series

SPH ① 1500 ② F ③ C ④ J ⑤ R ⑥ – 1000×500 ⑦ – 300 ⑧ – 170ST ⑨ / CAP ⑩ – 050 ⑪ – 1/80 ⑫

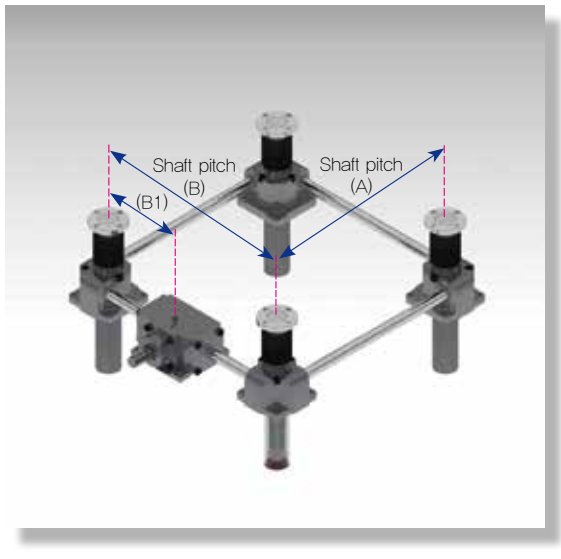
① Power base (Handle type)				
② Model	300	500	900	1500
③ Rack gear flange				
F	부착(With flange)	무기호(NON)	미부착(Without flange)	
④ C	Clean type	NON	일반Type(GENERAL Type)	
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)	
⑥ R	Gear Raydent coatting	NON	크롬도금(Chrom Plating)	
⑦ 축간거리(Shaft Pitch) A×Bmm				
⑧ 구동Shaft 축간거리 (B1) – Drive shaft pitch (B1) mm			⑨ Stroke(mm)	
⑩ CAP	하부 Cover 부착 (With lower cover)			
무기호(NON)	하부 Cover 미부착 (Without lower cover)			
⑪ Worm reducer model	030	040	050	063
⑫ 감속비 (Deceleration ratio)				
1/25	1/30	1/40	1/50	1/60	1/80	1/100



SPB Series

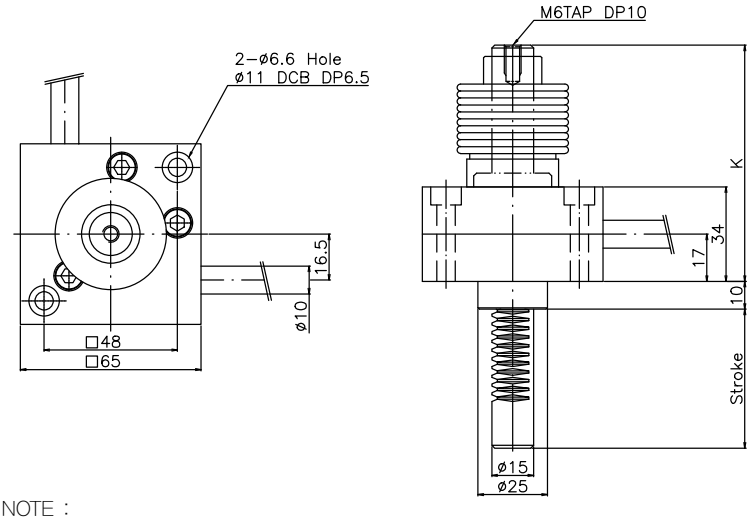
SPB ① 1500 ② F ③ C ④ J ⑤ R ⑥ – 1000 × 700 ⑦ – 350 ⑧ – 200ST ⑨ / CAP ⑩

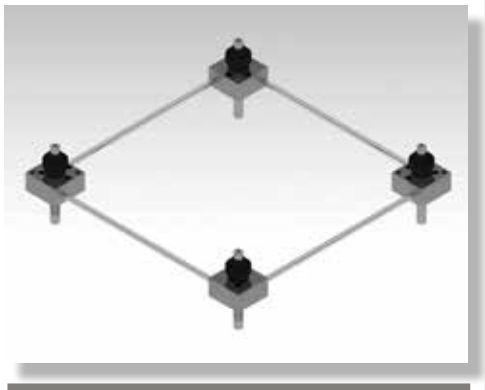
① Power base (Miter box type)			
② Model	500	900	1500
③ Rack gear flange			
F	부착(With flange)	무기호(NON)	미부착(Without flange)
④ C	Clean type	NON	일반Type(GENERAL Type)
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)
⑥ R	Gear Raydent coatting	NON	크롬도금(Chrom Plating)
⑦ 축간거리(Shaft Pitch) A×Bmm			
⑧ 구동Shaft 축간거리 (B1) – Drive shaft pitch (B1) mm			⑨ Stroke(mm)
⑩ CAP	하부 Cover 부착 (With lower cover)		
무기호(NON)	하부 Cover 미부착 (Without lower cover)		



22. Dimension (Clean Type)

SP 100CJ

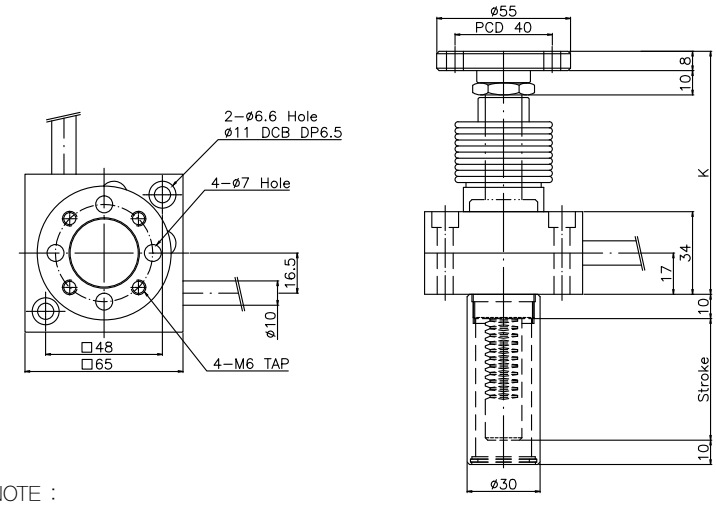


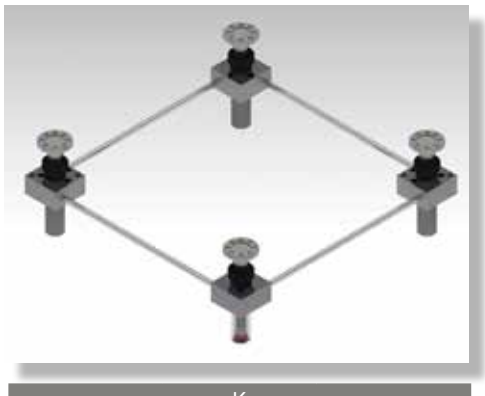


K		
50ST	100ST	150ST
85	85	100
K		
200ST	250ST	300ST
115	130	145

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP 100FCJ

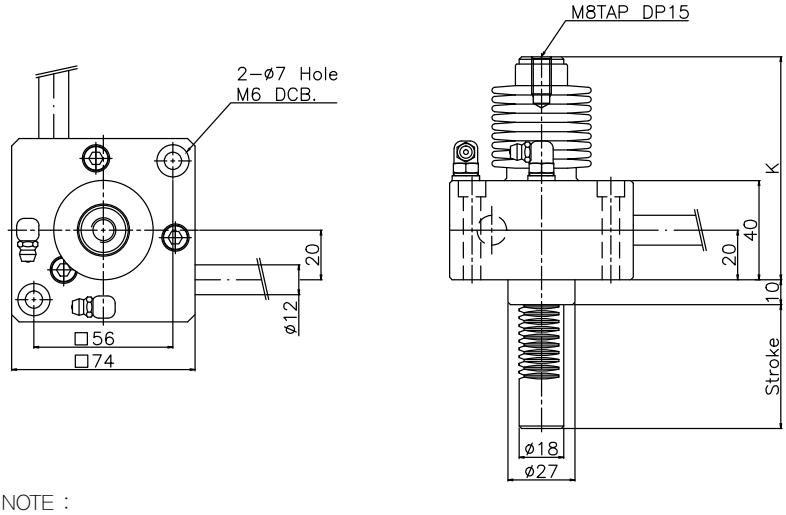


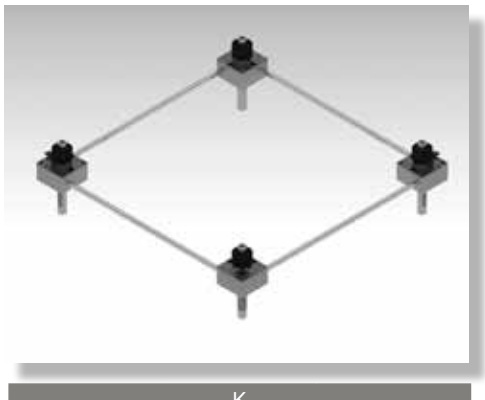


K		
50ST	100ST	150ST
100	100	115
K		
200ST	250ST	300ST
130	145	160

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP 300CJ



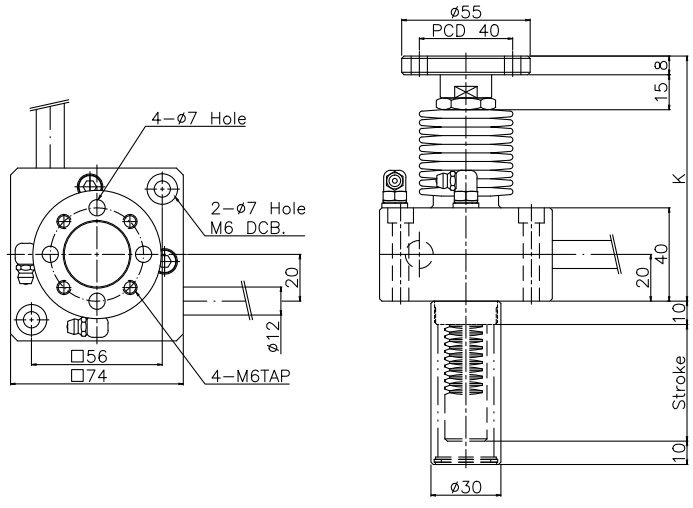


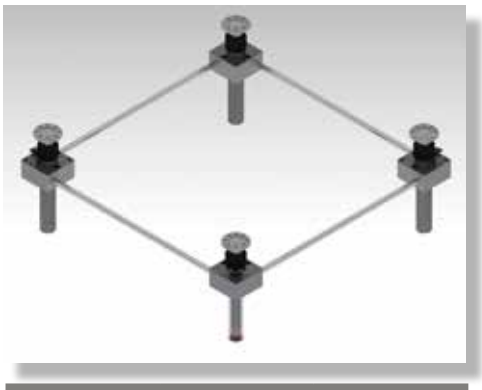
K		
50ST	100ST	150ST
90	90	105
K		
200ST	250ST	300ST
120	135	150

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

SP 300FCJ

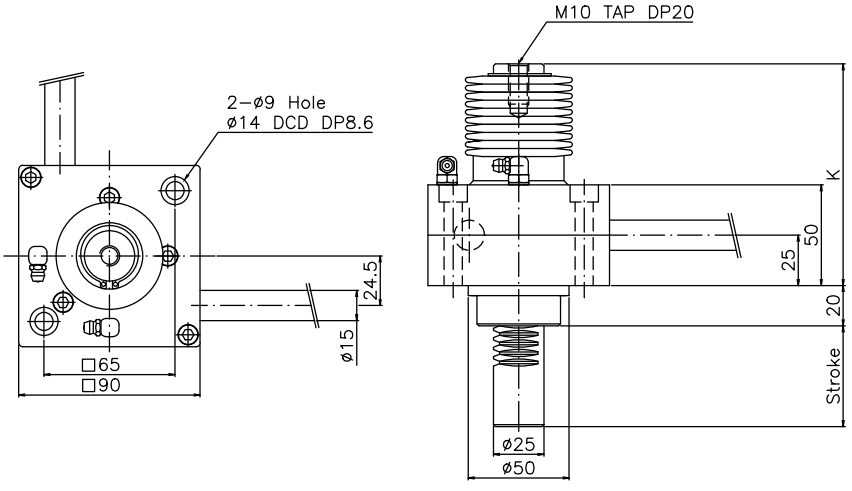


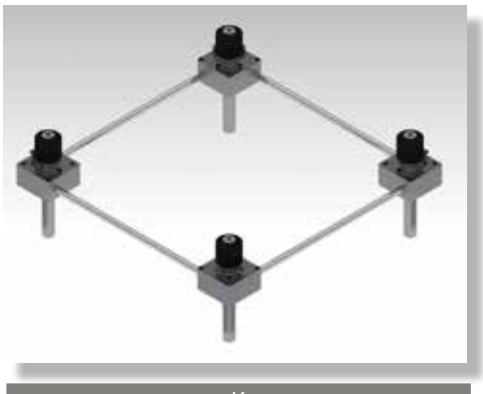


K		
50ST	100ST	150ST
105	105	120
K		
200ST	250ST	300ST
135	150	165

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP 500CJ

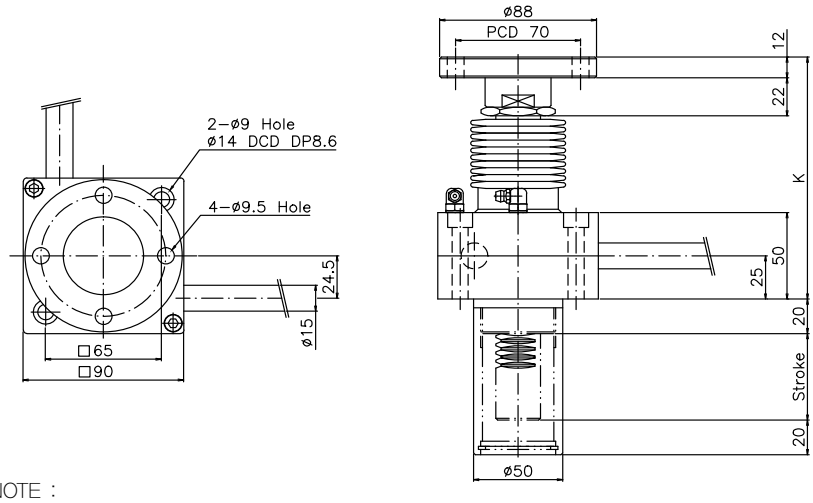


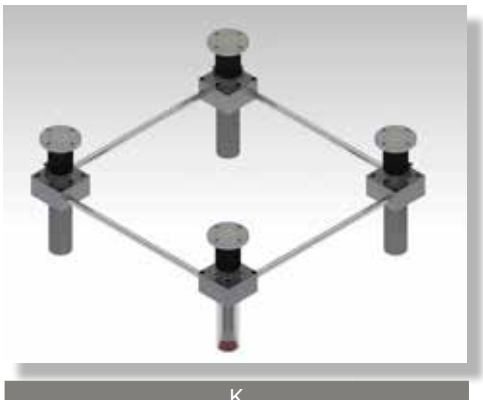


K			
50ST	100ST	150ST	300ST OVER
110	120	120	85 + (STROKE/4)
K			
200ST	250ST	300ST	
135	160	160	

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP 500FCJ



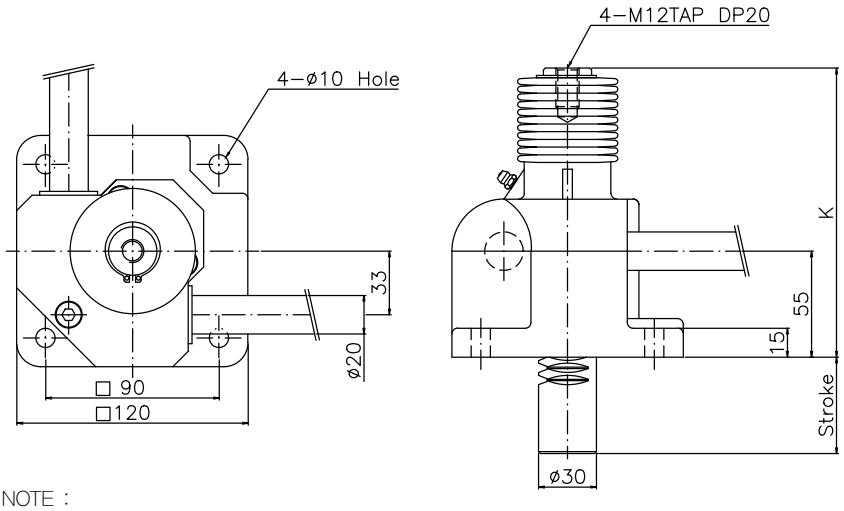


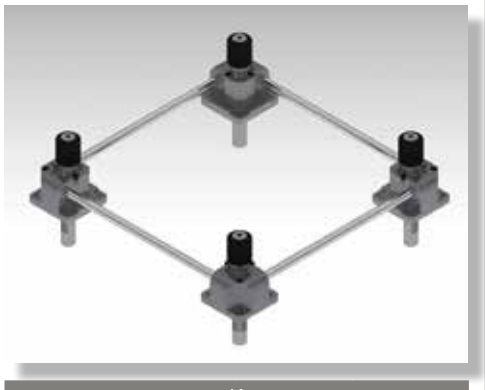
K			
50ST	100ST	150ST	300ST OVER
140	150	150	115 + (STROKE/4)
K			
200ST	250ST	300ST	
165	190	190	

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

SP 900CJ

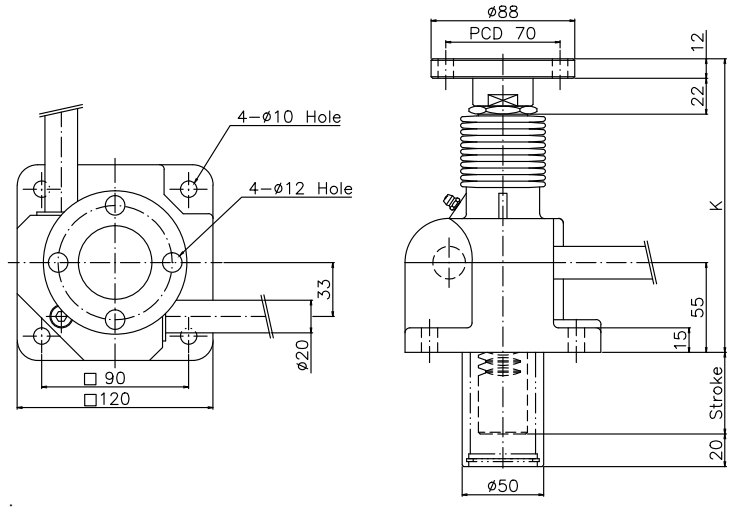




K			
50ST	100ST	150ST	300ST OVER
150	165	165	120 + (STROKE/4)
K			
200ST	250ST	300ST	
175	200	200	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

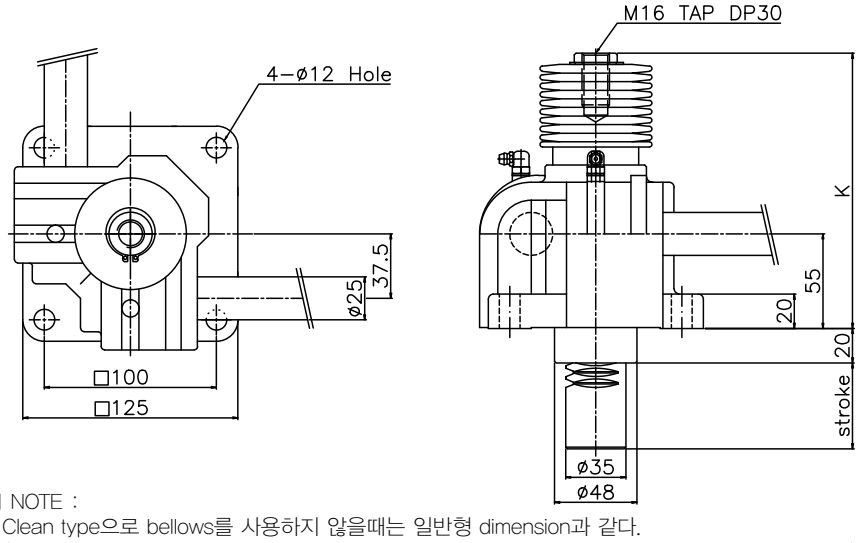
SP 900FCJ

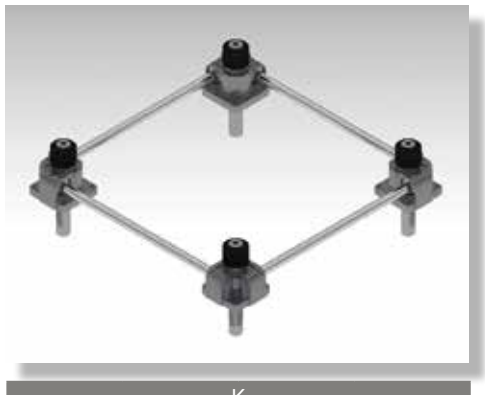


K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP 1500CJ



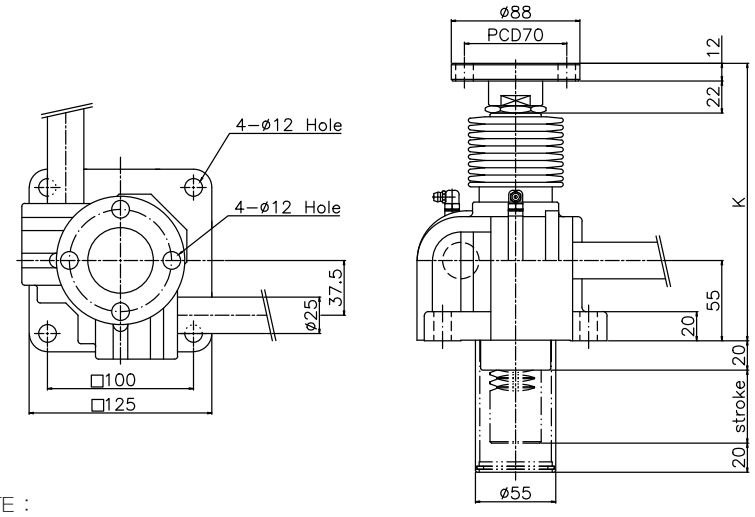


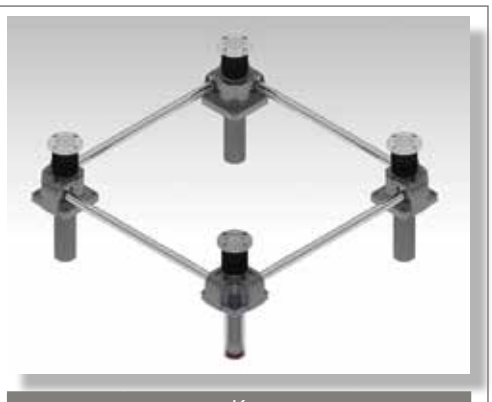
K			
50ST	100ST	150ST	300ST OVER
160	170	180	120 + (STROKE/4)
K			
200ST	250ST	300ST	
180	200	200	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

SP 1500FCJ

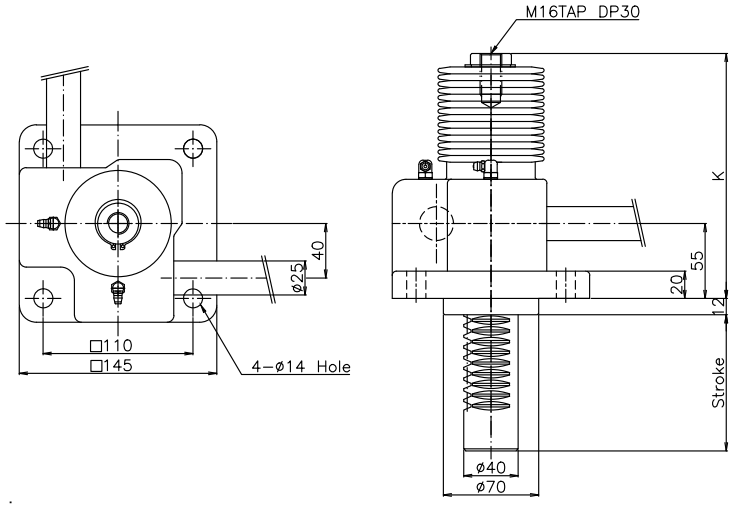


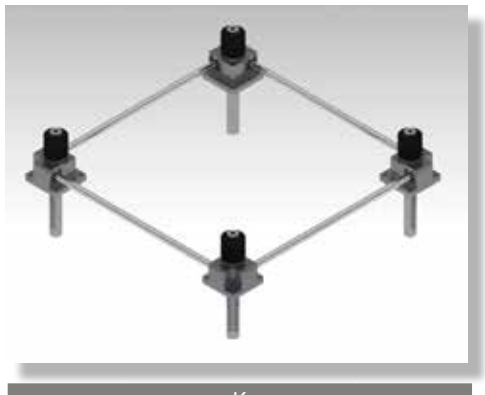


K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP 3000CJ

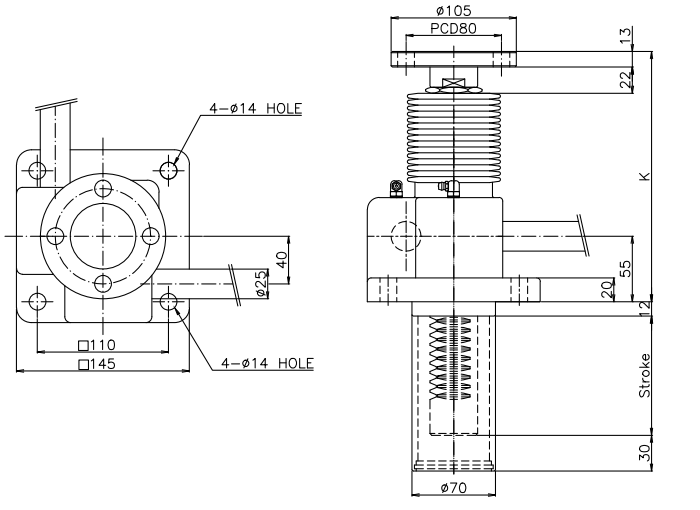


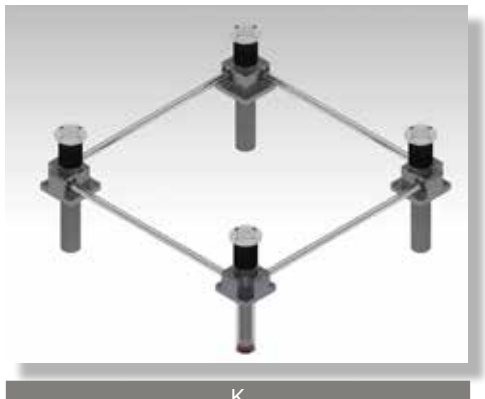


K			
50ST	100ST	150ST	300ST OVER
170	180	190	130 + (STROKE/4)
K			
200ST	250ST	300ST	
190	210	210	

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP 3000FCJ



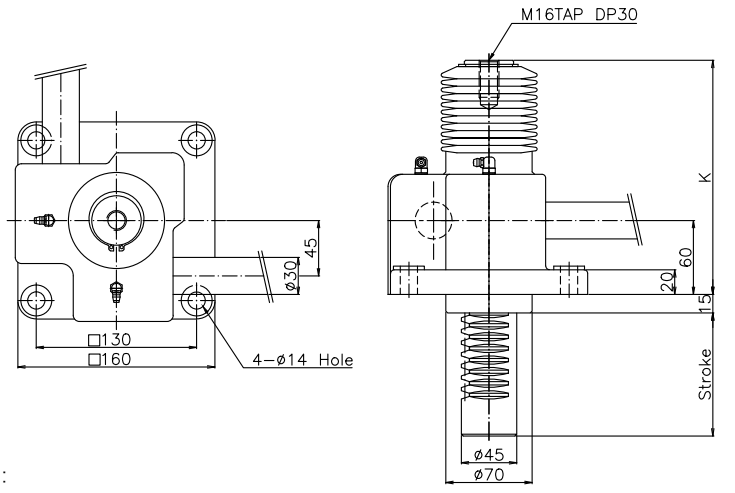


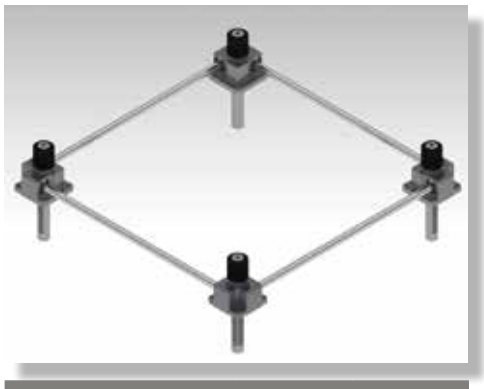
K			
50ST	100ST	150ST	300ST OVER
200	210	220	160 + (STROKE/4)
K			
200ST	250ST	300ST	
220	240	240	

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

SP 5000CJ

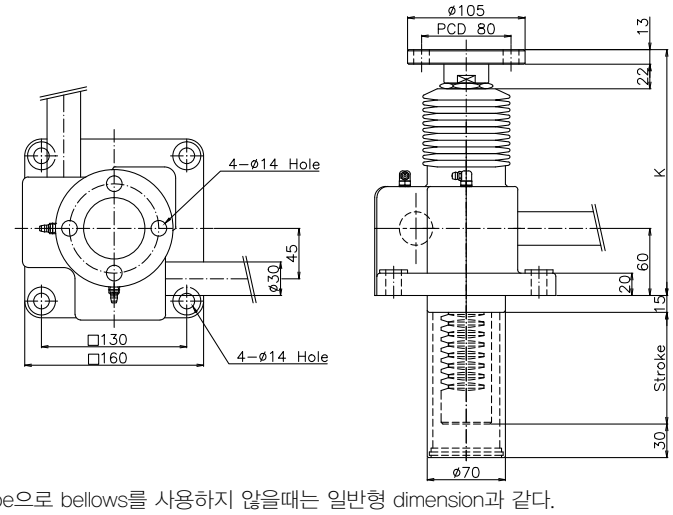


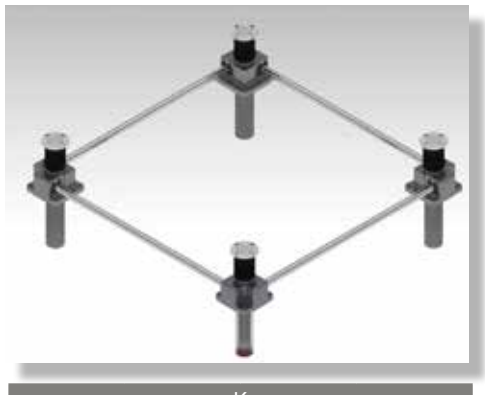


K			
50ST	100ST	150ST	300ST OVER
180	190	200	140 + (STROKE/4)
K			
200ST	250ST	300ST	
200	220	220	

▣ NOTE :
1. Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)
2. SP10000CJ 이상의 model을 사용시는 당사에 문의 (When using the model after SP10000CJ, please ask us)

SP 5000FCJ

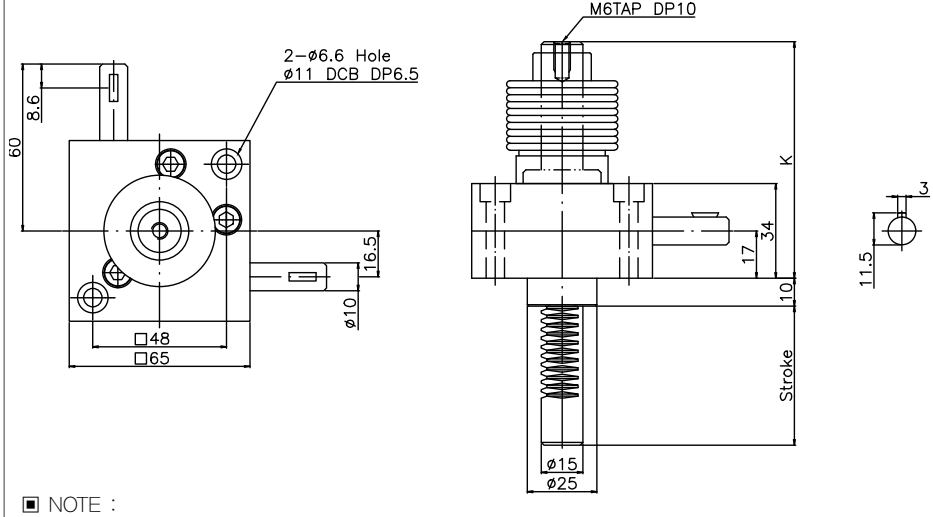


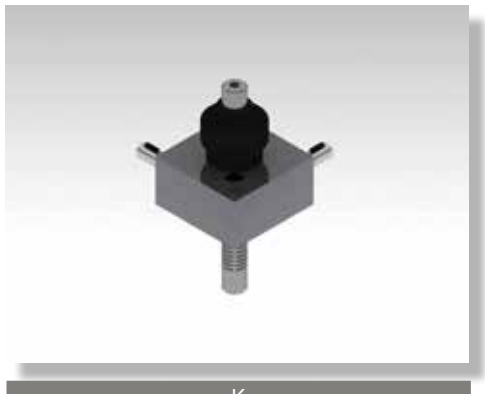


K			
50ST	100ST	150ST	300ST OVER
210	220	230	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

▣ NOTE :
1. Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)
2. SP10000FCJ 이상의 model을 사용시는 당사에 문의 (When using the model after SP10000FCJ, please ask us)

SP1-100CJ



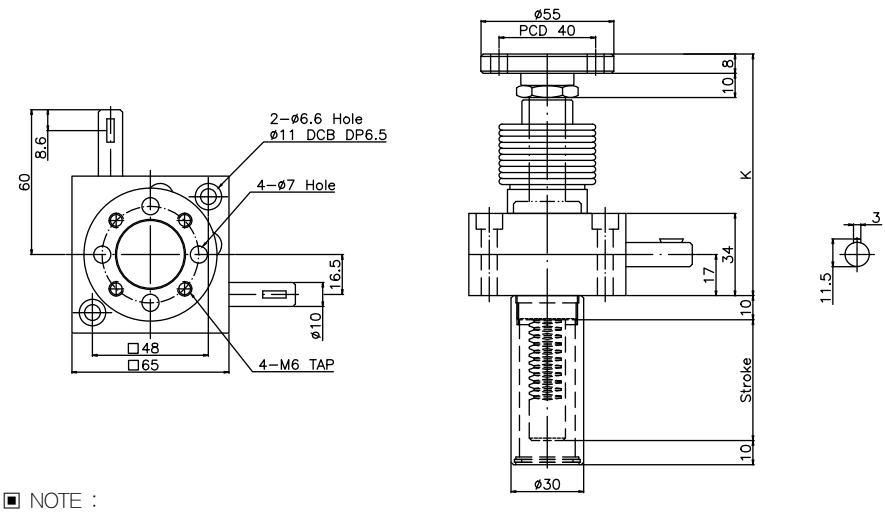


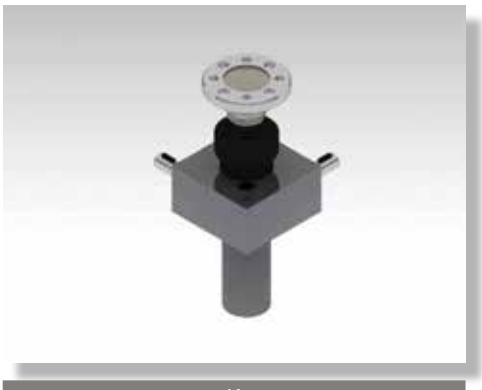
K		
50ST	100ST	150ST
85	85	100
K		
200ST	250ST	300ST
115	130	145

▣ NOTE :
– Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

SP1-100FCJ

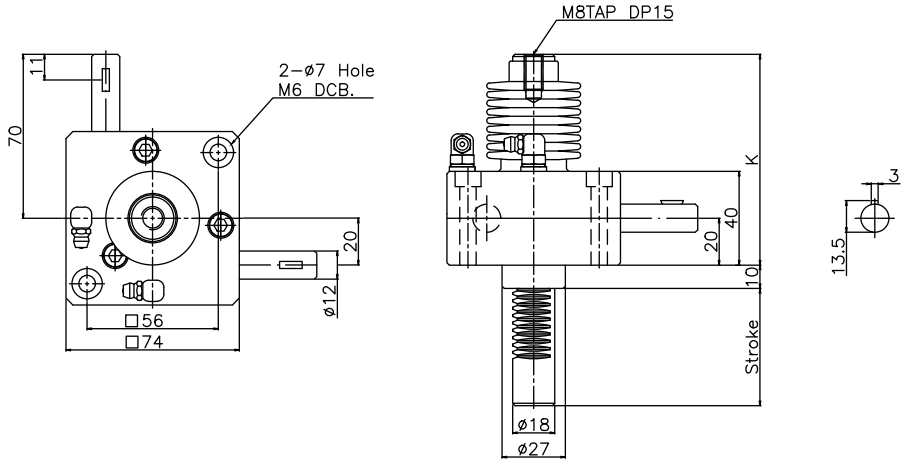


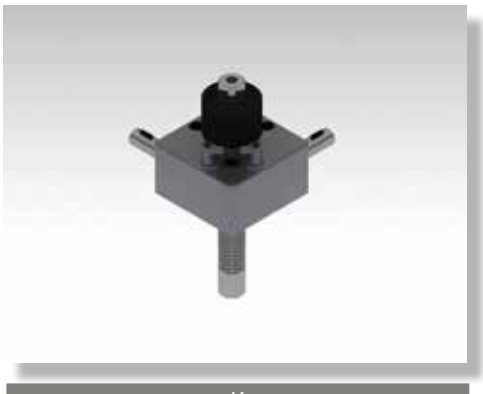


K		
50ST	100ST	150ST
100	100	115
K		
200ST	250ST	300ST
130	145	160

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP1-300CJ

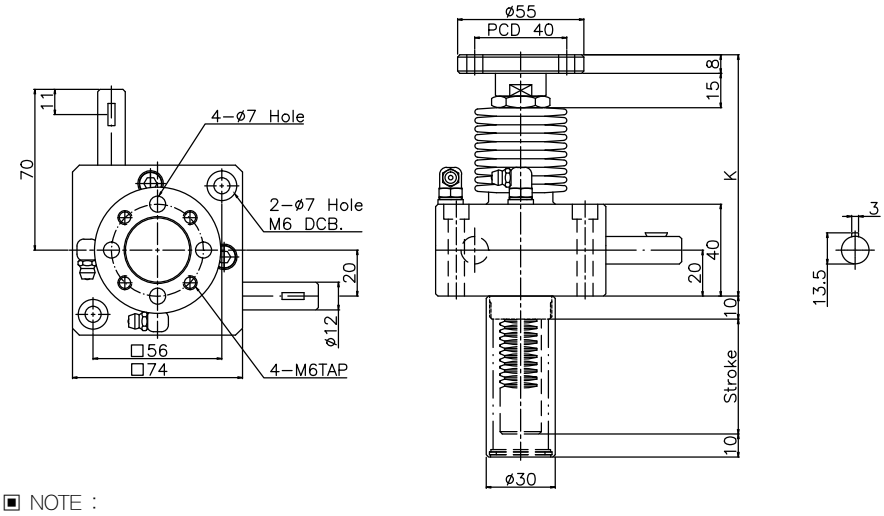


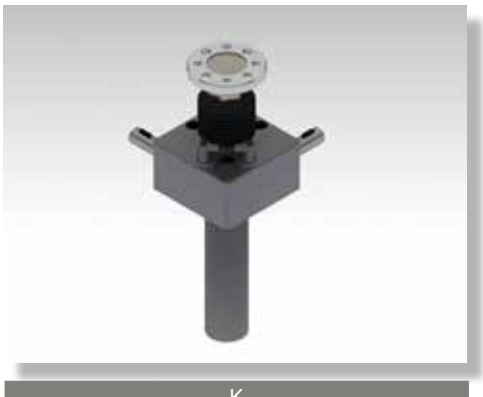


K		
50ST	100ST	150ST
90	90	105
K		
200ST	250ST	300ST
120	135	150

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP1-300FCJ



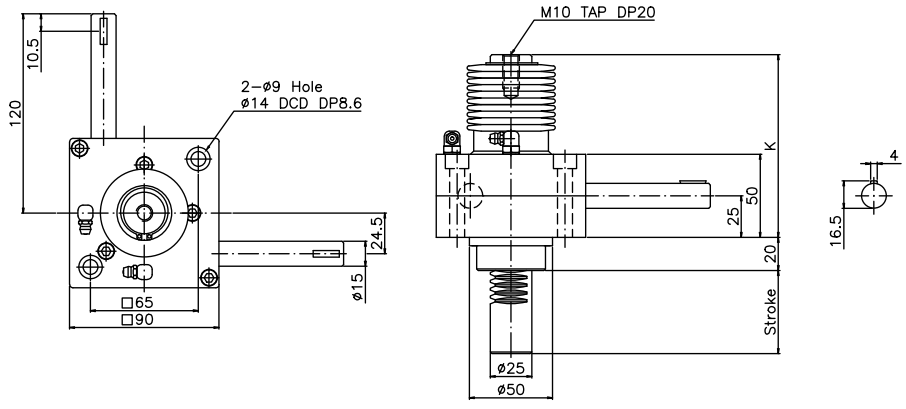


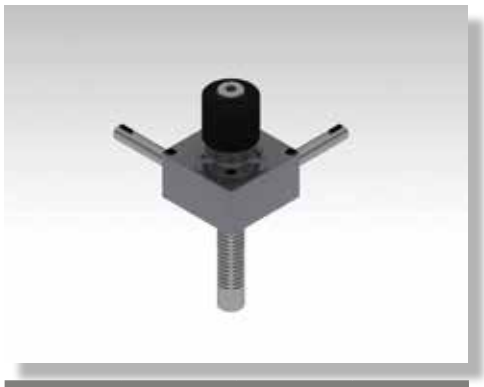
K		
50ST	100ST	150ST
105	105	120
K		
200ST	250ST	300ST
135	150	165

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

SP1-500CJ

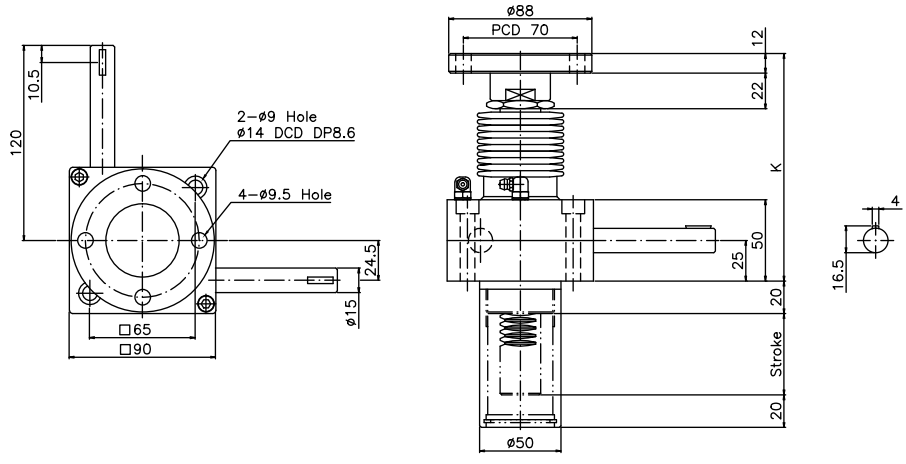


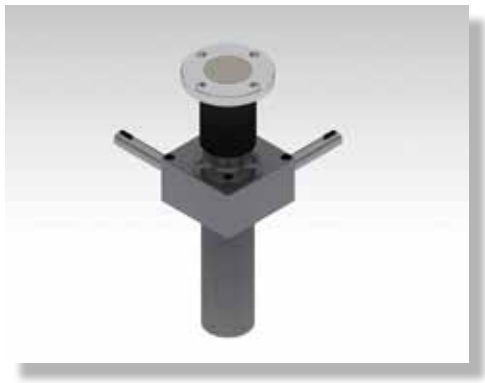


K			
50ST	100ST	150ST	300ST OVER
110	120	120	85 + (STROKE/4)
K			
200ST	250ST	300ST	
135	160	160	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP1-500FCJ

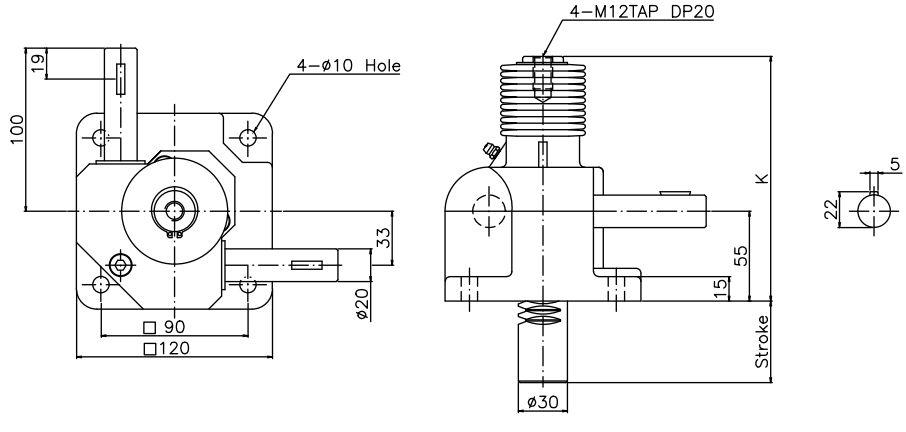




K			
50ST	100ST	150ST	300ST OVER
140	150	150	115 + (STROKE/4)
K			
200ST	250ST	300ST	
165	190	190	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

SP1-900CJ

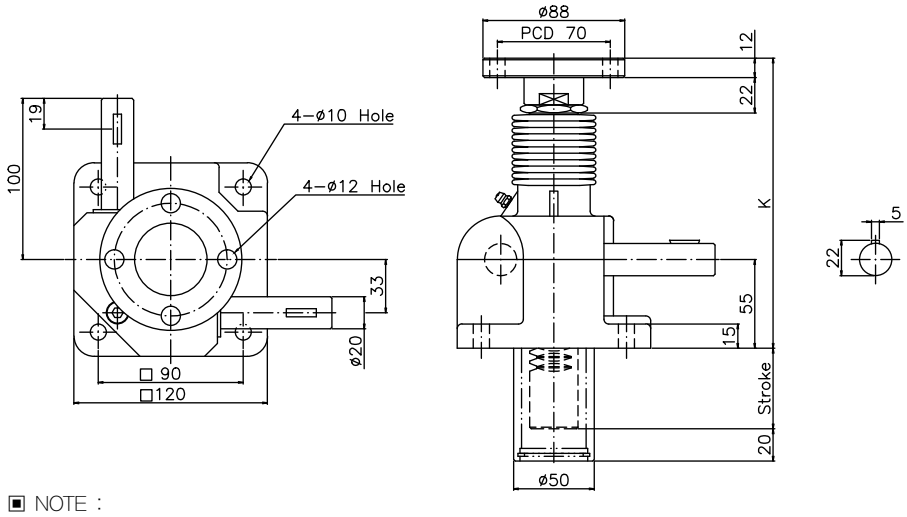


K			
50ST	100ST	150ST	300ST OVER
150	165	165	120 + (STROKE/4)
K			
200ST	250ST	300ST	
175	200	200	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

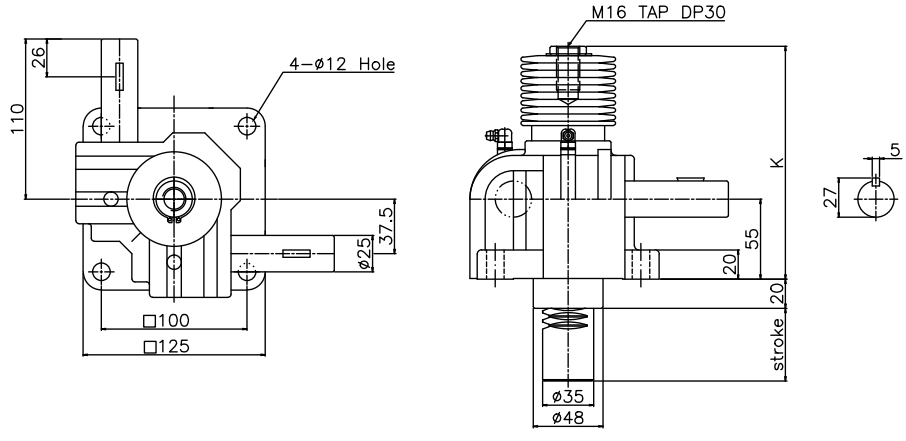
SP1-900FCJ



K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
  (When the bellows is not used in clean type, it work the same job as general type dimension)

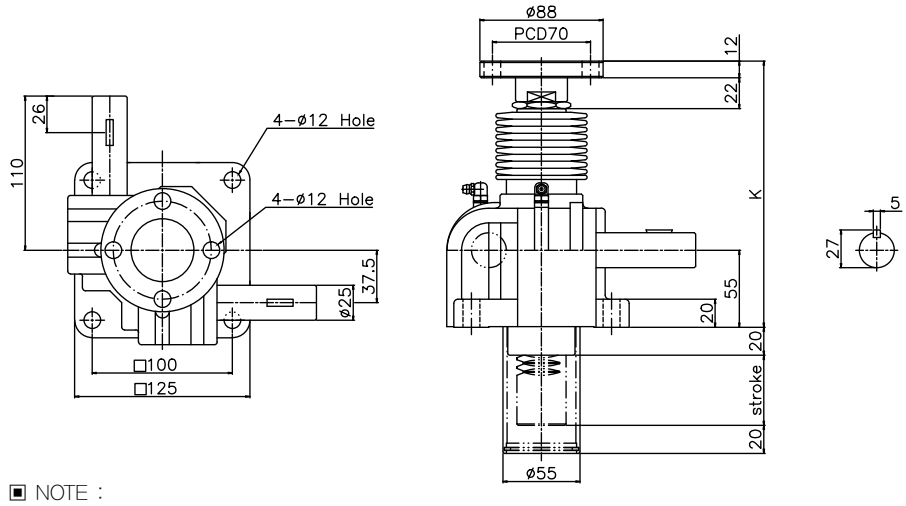
SP1-1500CJ



K			
50ST	100ST	150ST	300ST OVER
160	170	180	120 + (STROKE/4)
K			
200ST	250ST	300ST	
180	200	200	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
  (When the bellows is not used in clean type, it work the same job as general type dimension)

SP1-1500FCJ

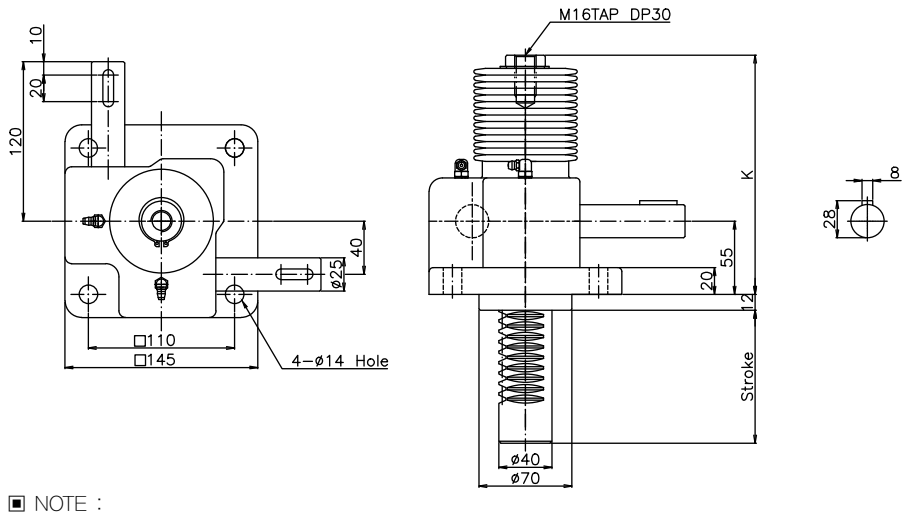


K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
  (When the bellows is not used in clean type, it work the same job as general type dimension)

◈ Dimension (Clean Type)

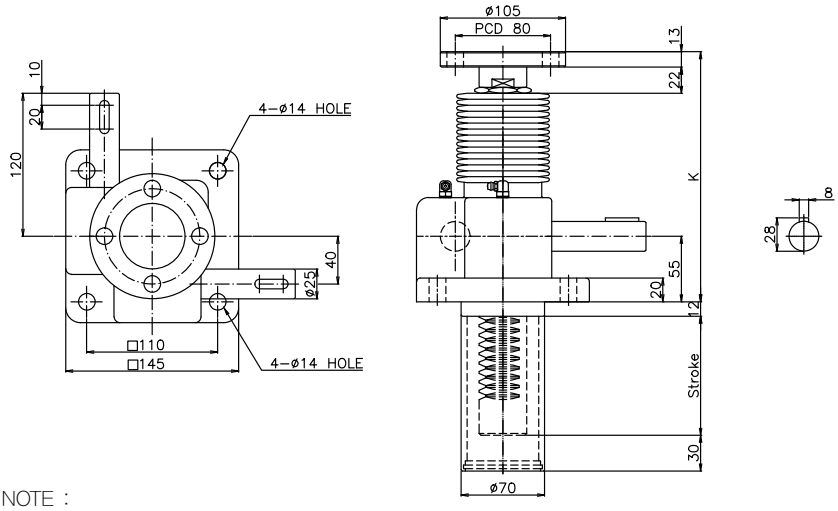
SP1-3000CJ



K			
50ST	100ST	150ST	300ST OVER
170	180	190	130 + (STROKE/4)
K			
200ST	250ST	300ST	
190	210	210	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
  (When the bellows is not used in clean type, it work the same job as general type dimension)

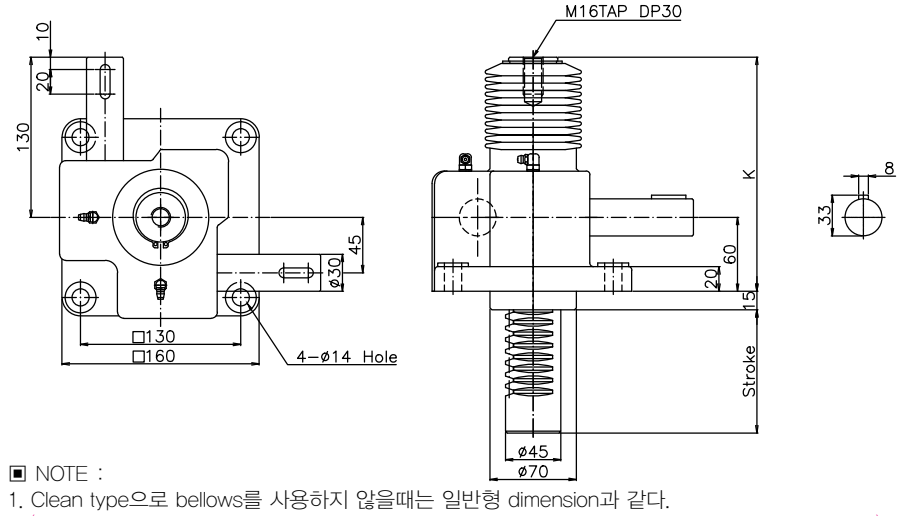
SP1-3000FCJ



K			
50ST	100ST	150ST	300ST OVER
200	210	220	160 + (STROKE/4)
K			
200ST	250ST	300ST	
220	240	240	

▣ NOTE :
- Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
  (When the bellows is not used in clean type, it work the same job as general type dimension)

SP1-5000CJ

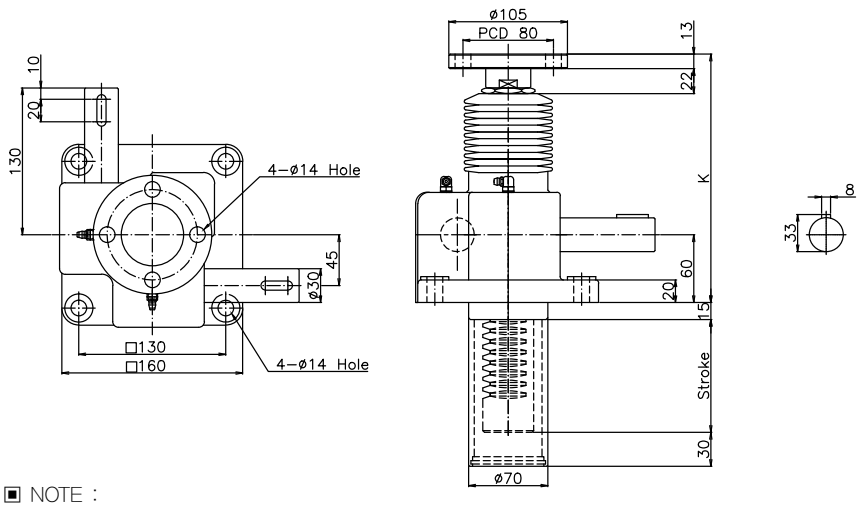


K			
50ST	100ST	150ST	300ST OVER
180	190	200	140 + (STROKE/4)
K			
200ST	250ST	300ST	
200	220	220	

▣ NOTE :
1. Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
   (When the bellows is not used in clean type, it work the same job as general type dimension)
2. SP10000CJ 이상의 model을 사용시는 당사에 문의 (When using the model after SP10000CJ, please ask us)

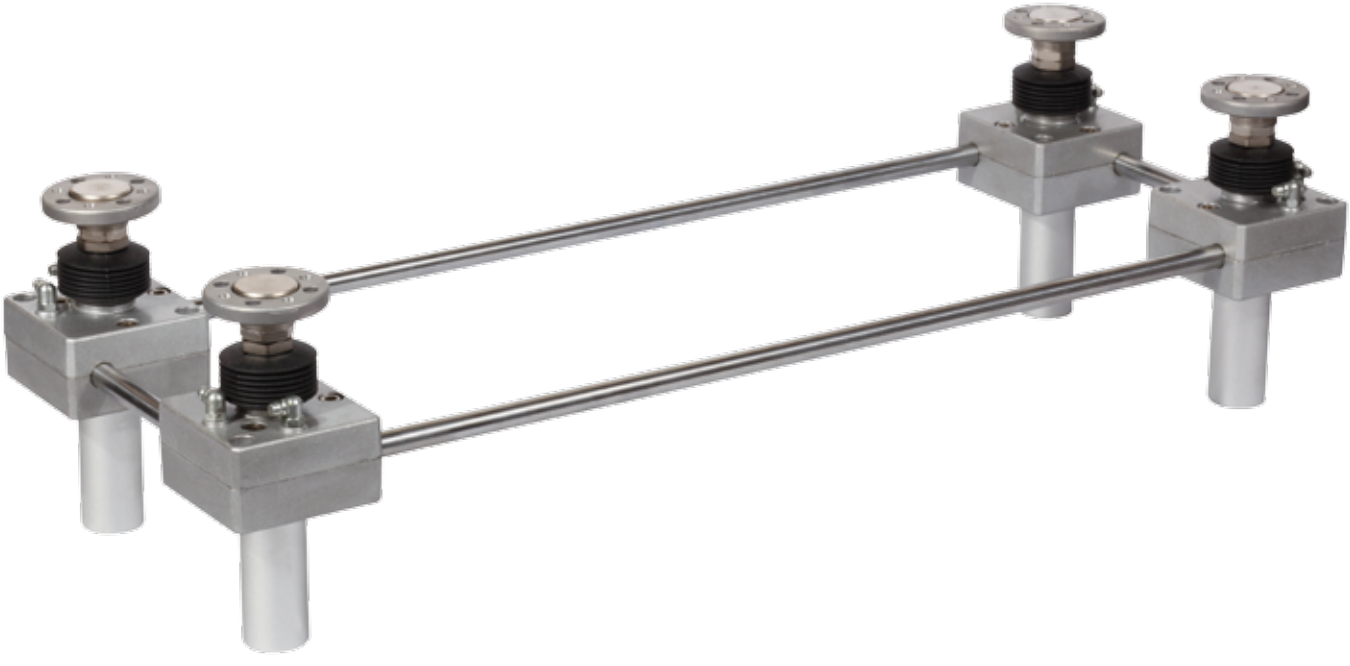
◈ Dimension (Clean Type)

SP1-5000FCJ



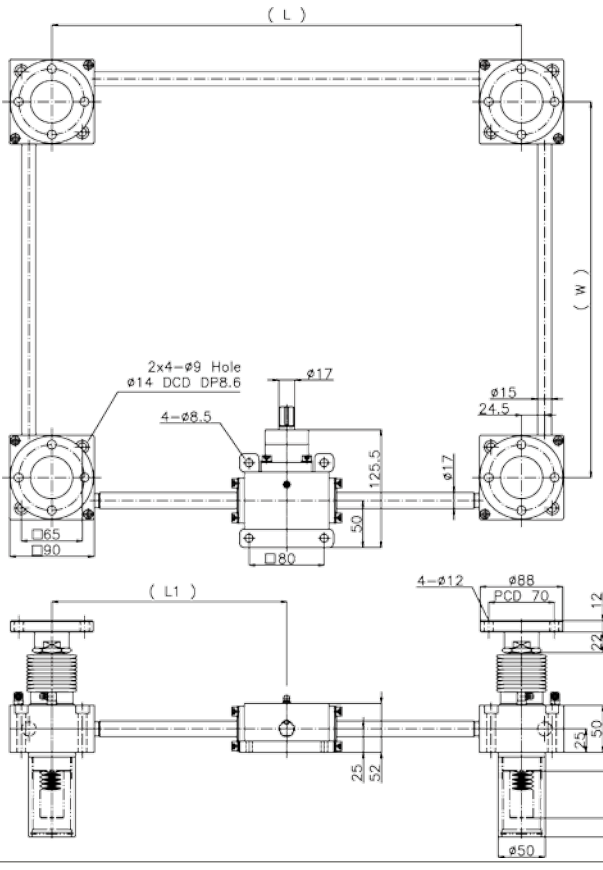
K			
50ST	100ST	150ST	300ST OVER
210	220	230	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

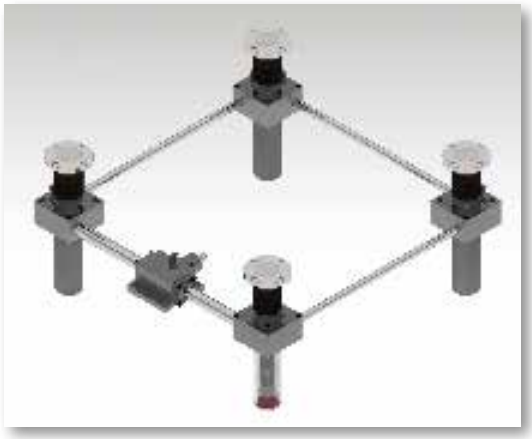
▣ NOTE :
1. Clean type으로 bellows를 사용하지 않을때는 일반형 dimension과 같다.
(When the bellows is not used in clean type, it work the same job as general type dimension)
2. SP10000FCJ 이상의 model을 사용시는 당사에 문의 (When using the model after SP10000FCJ, please ask us)



◈ Dimension (Clean Type)

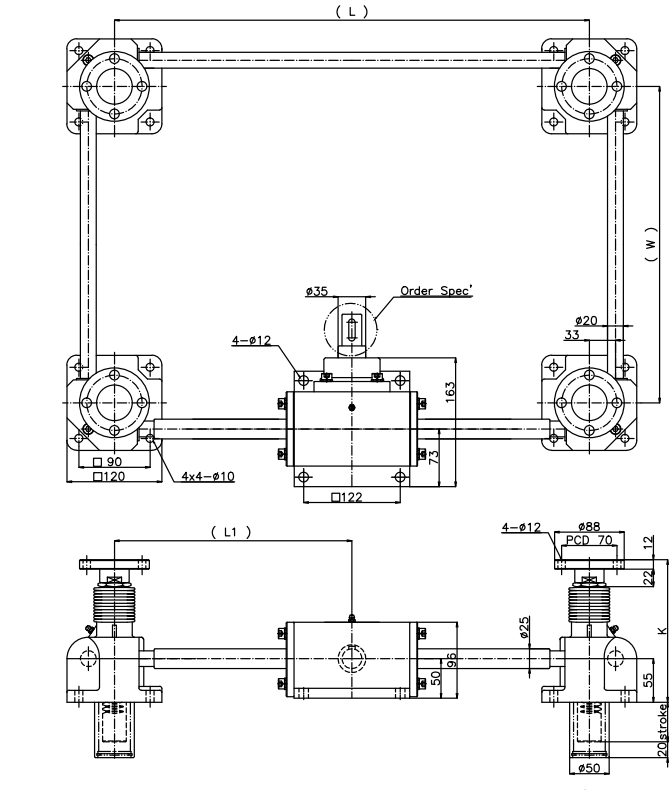
SPB 500FCJ

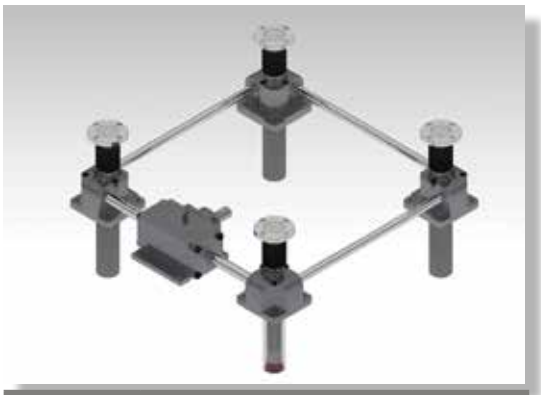




K			
50ST	100ST	150ST	300ST OVER
140	150	150	115 + (STROKE/4)
K			
200ST	250ST	300ST	
165	190	190	

SPB 900FCJ



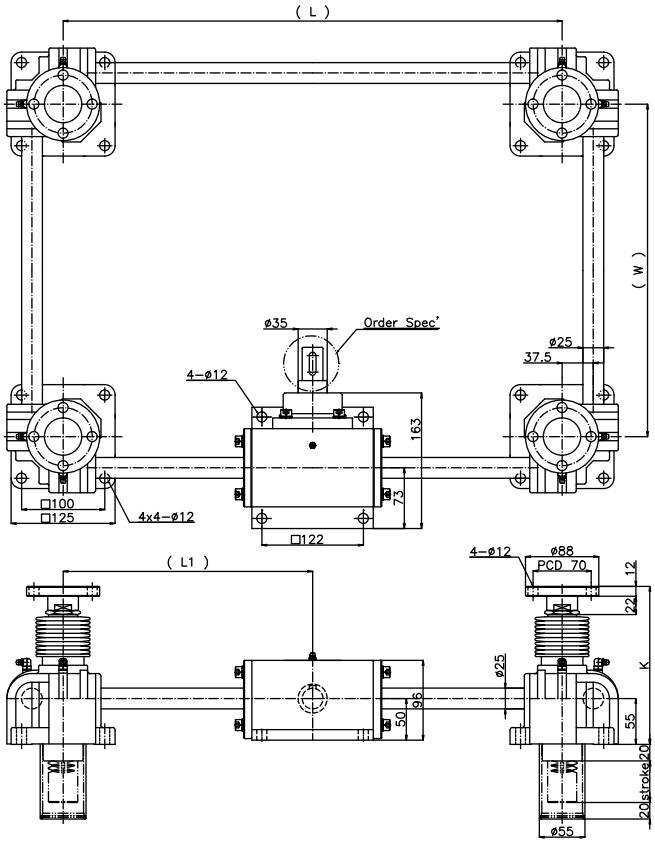


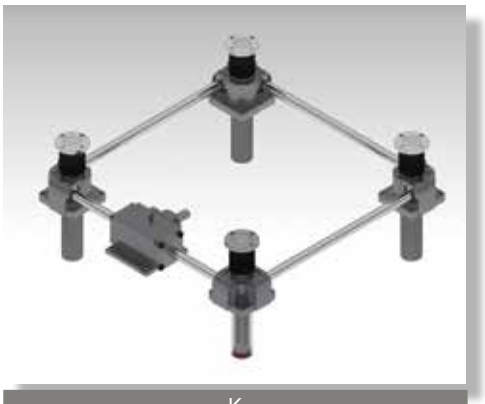
K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

※ NOTE : Miter gear box 입력축의 치수는 주문사양임 (Miter gear box input spindle size is order specification)

◈ Dimension (Clean Type)

SPB 1500FCJ

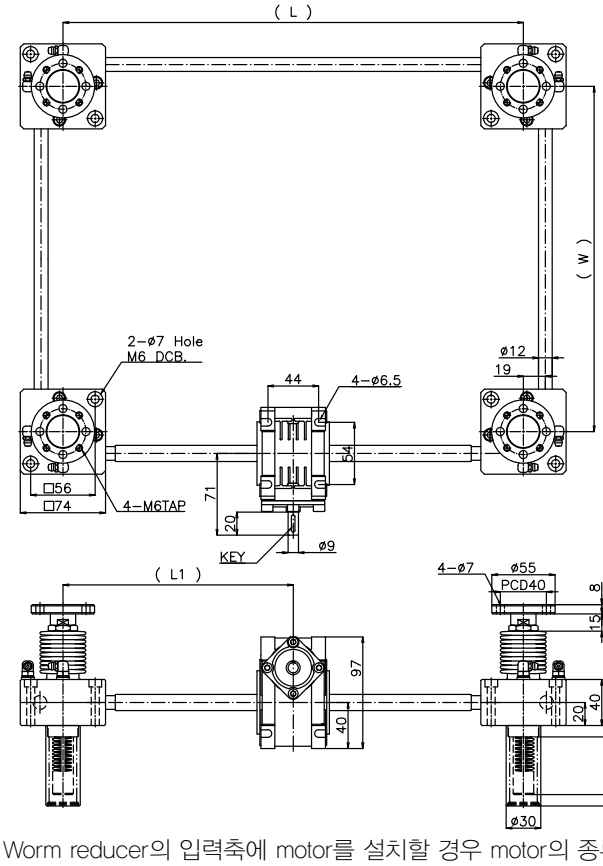


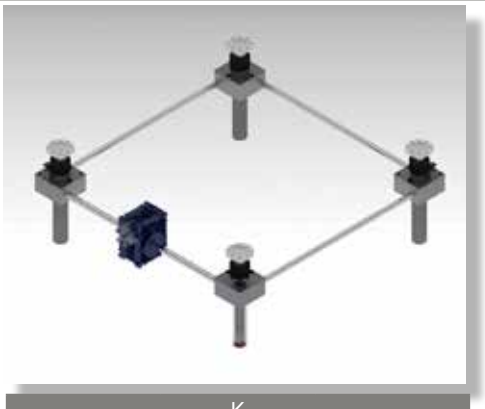


K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE : Miter gear box 입력축의 치수는 주문사양임 (Miter gear box input spindle size is order specification)

SPH300FCJ-030



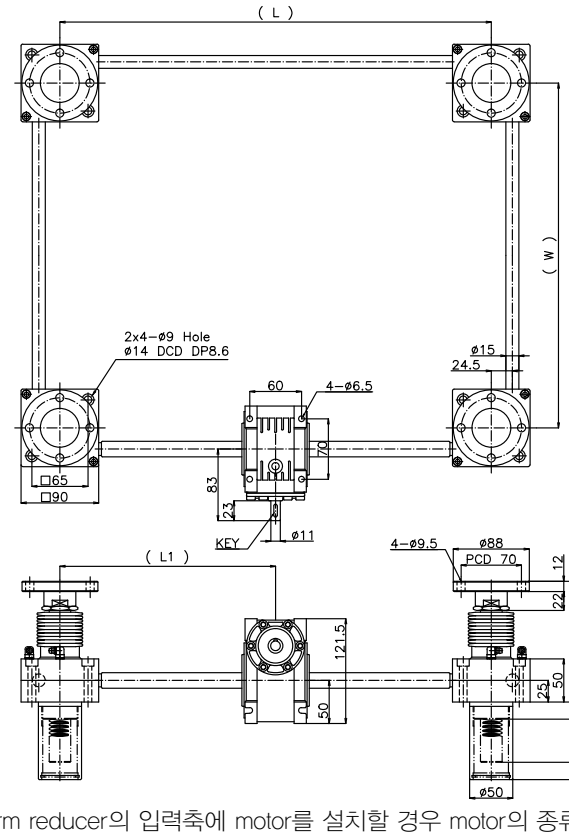


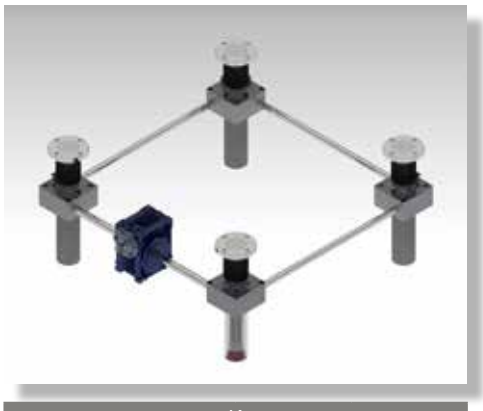
K		
50ST	100ST	150ST
105	105	120
K		
200ST	250ST	300ST
135	150	165

※ NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

◈ Dimension (Clean Type)

SPH500FCJ-040

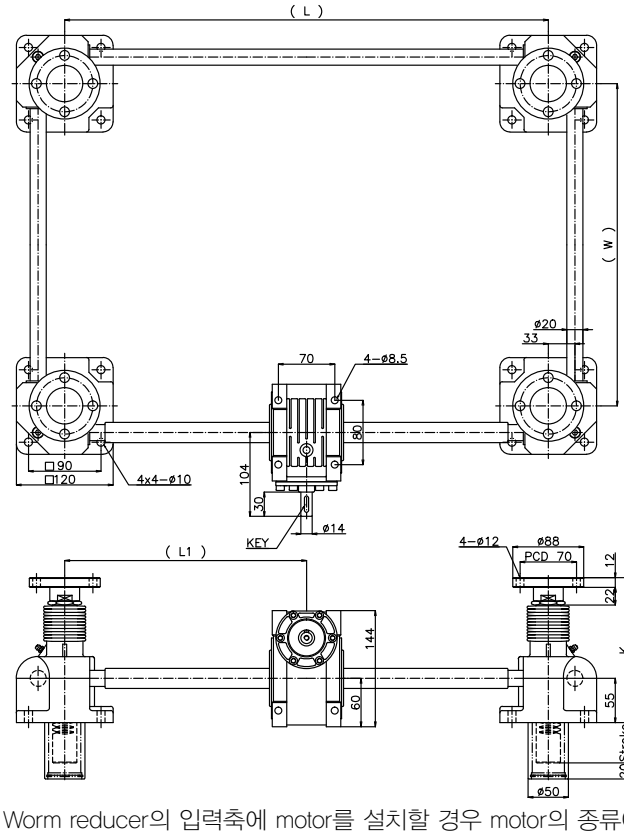


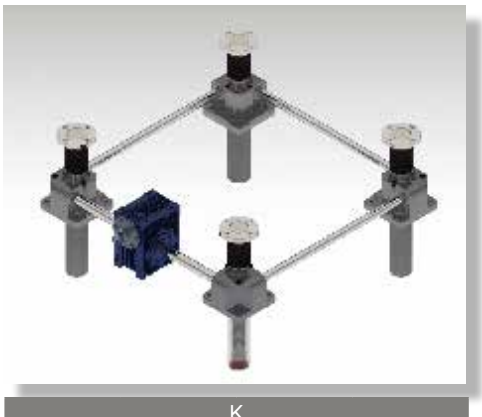


K			
50ST	100ST	150ST	300ST OVER
140	150	150	115 + (STROKE/4)
K			
200ST	250ST	300ST	
165	190	190	

※ NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

SPH900FCJ-050



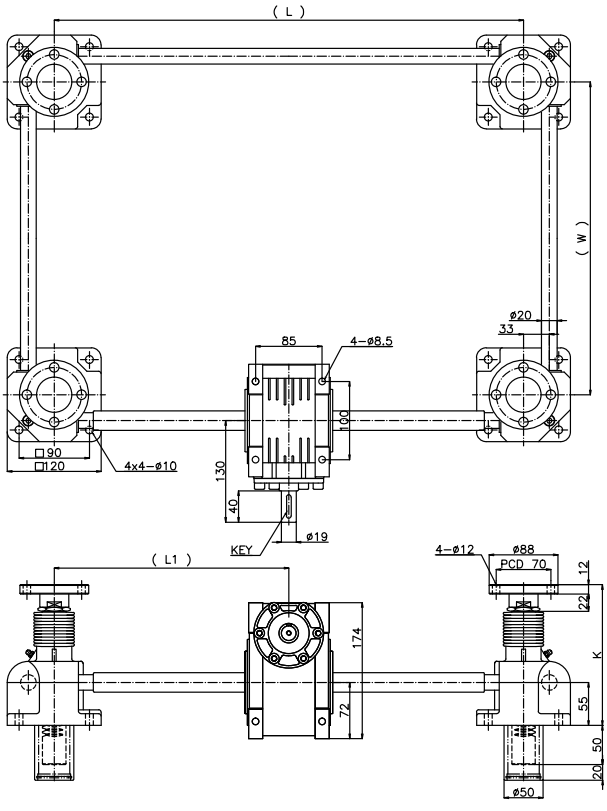


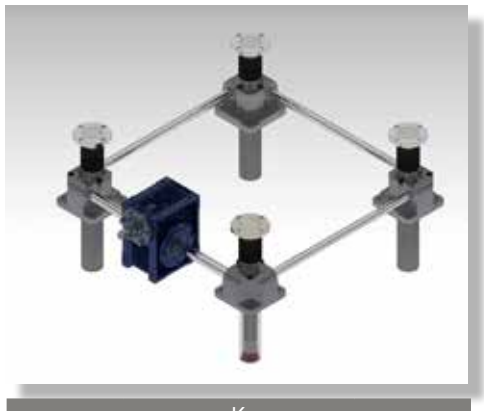
K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

※ NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

◈ Dimension (Clean Type)

SPH900FCJ-063

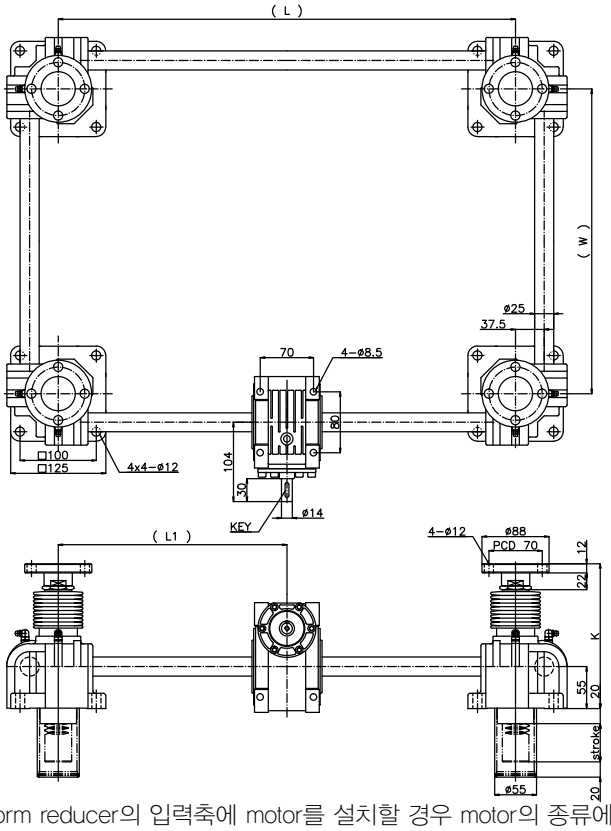


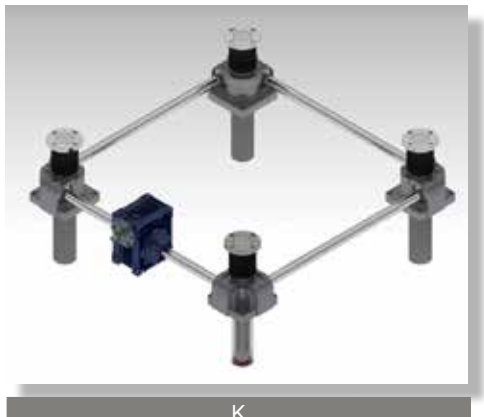


K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

※ NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

SPH1500FCJ-050



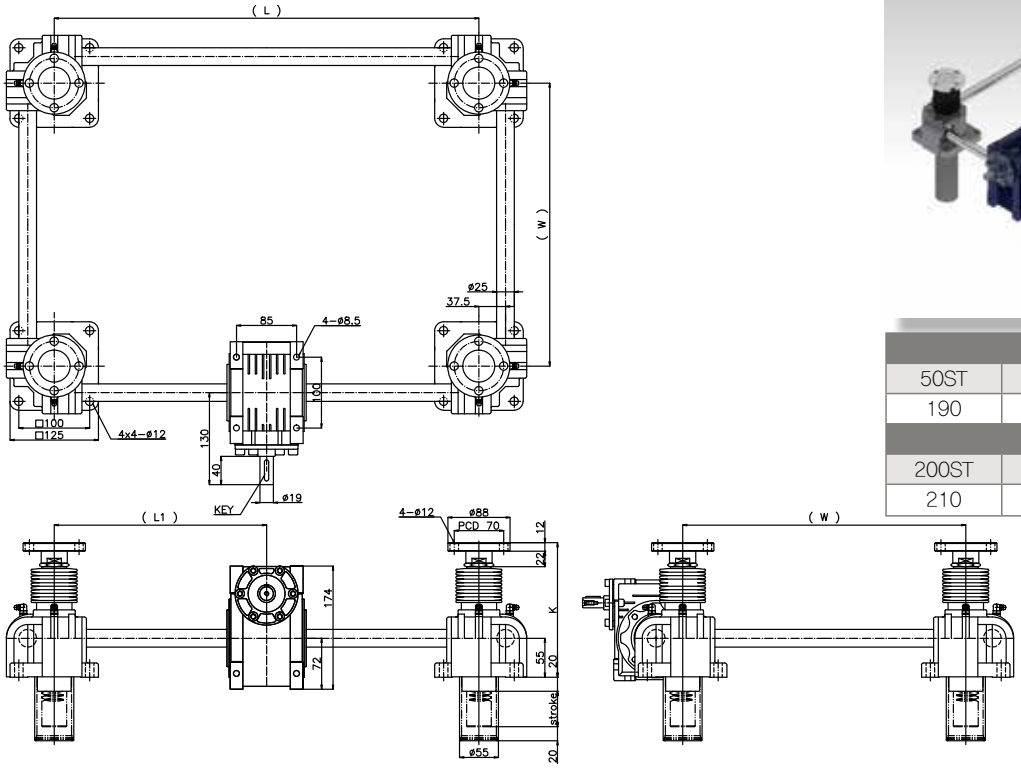


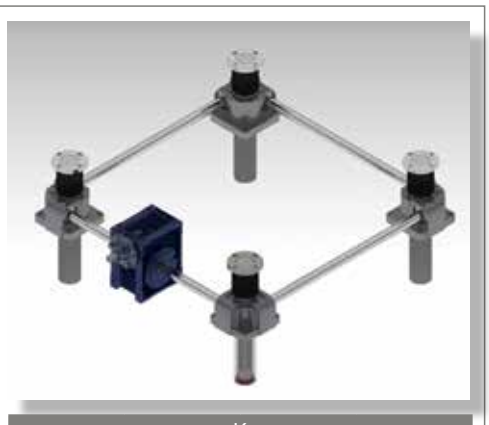
K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

◈ Dimension (Clean Type)

SPH1500FCJ-063

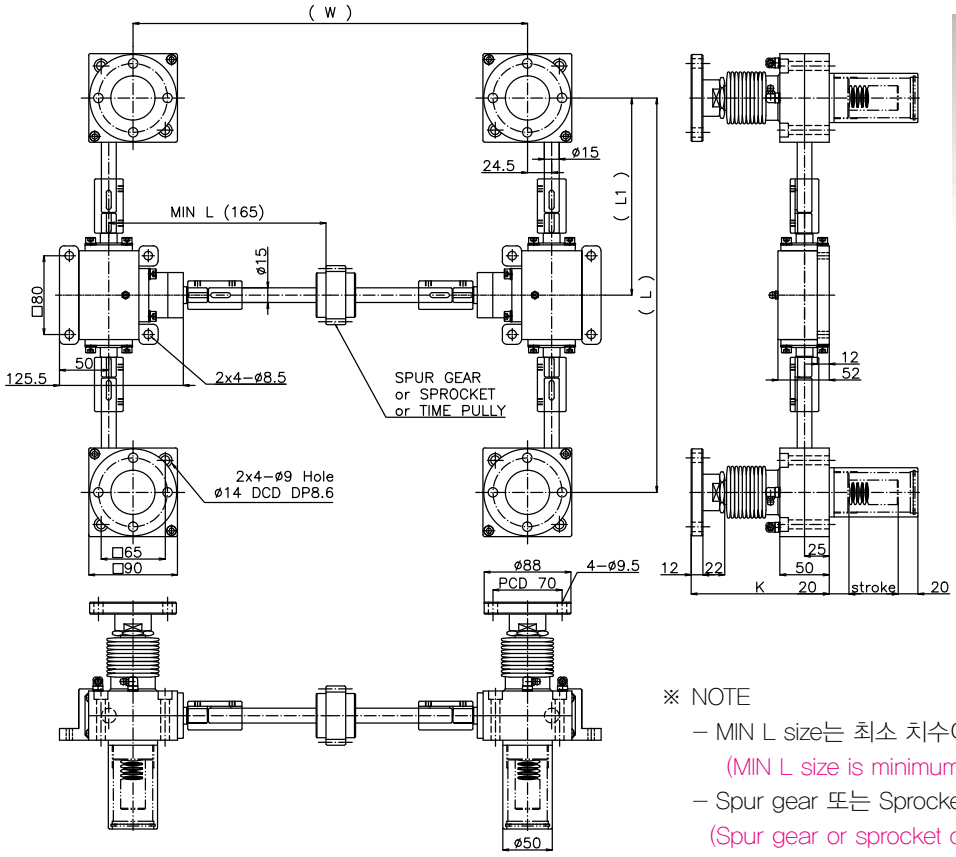


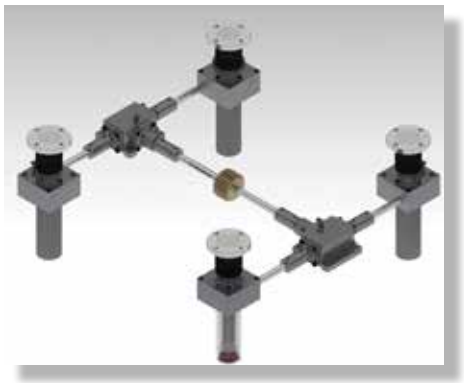


K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

SPM 500FCJ



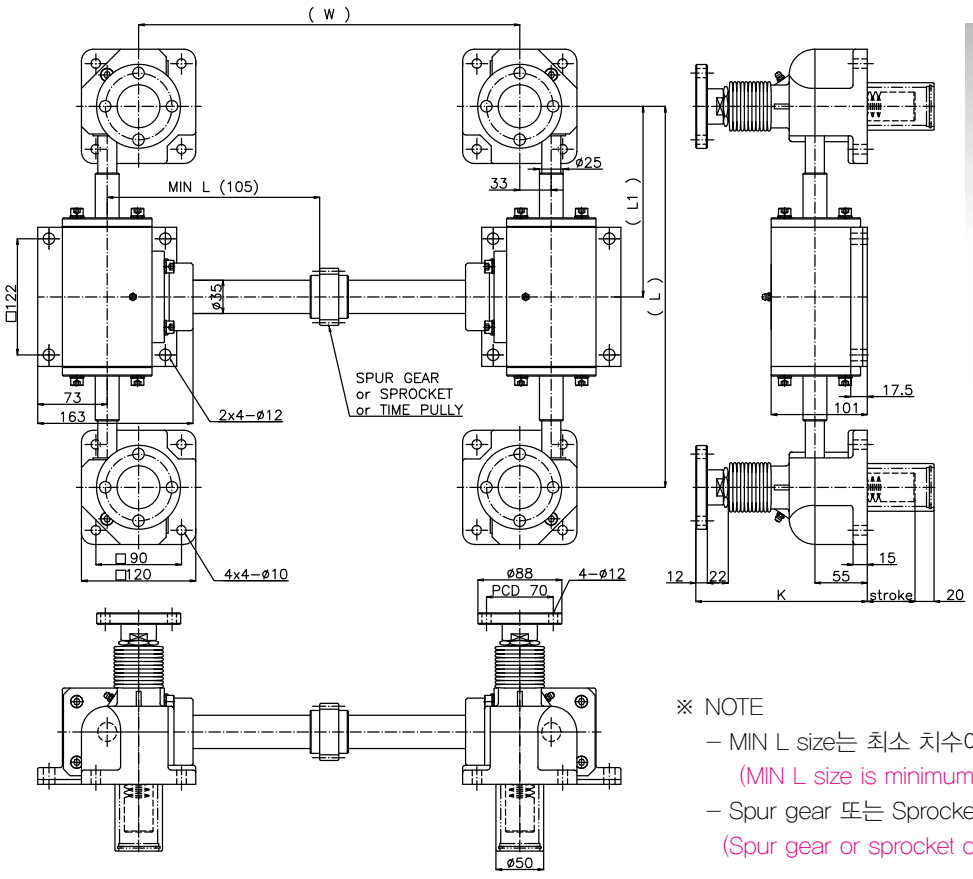


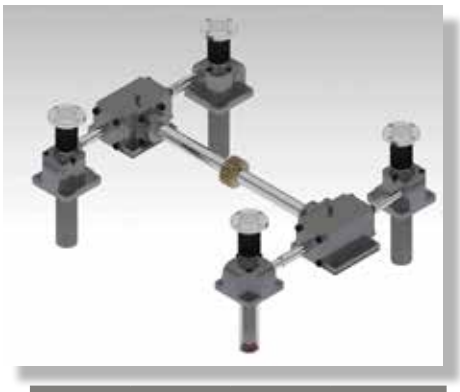
K			
50ST	100ST	150ST	300ST OVER
140	150	150	115 + (STROKE/4)
K			
200ST	250ST	300ST	
165	190	190	

※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
  (Spur gear or sprocket can be selected by the designer's intention)

◈ Dimension (Clean Type)

SPM 900FCJ

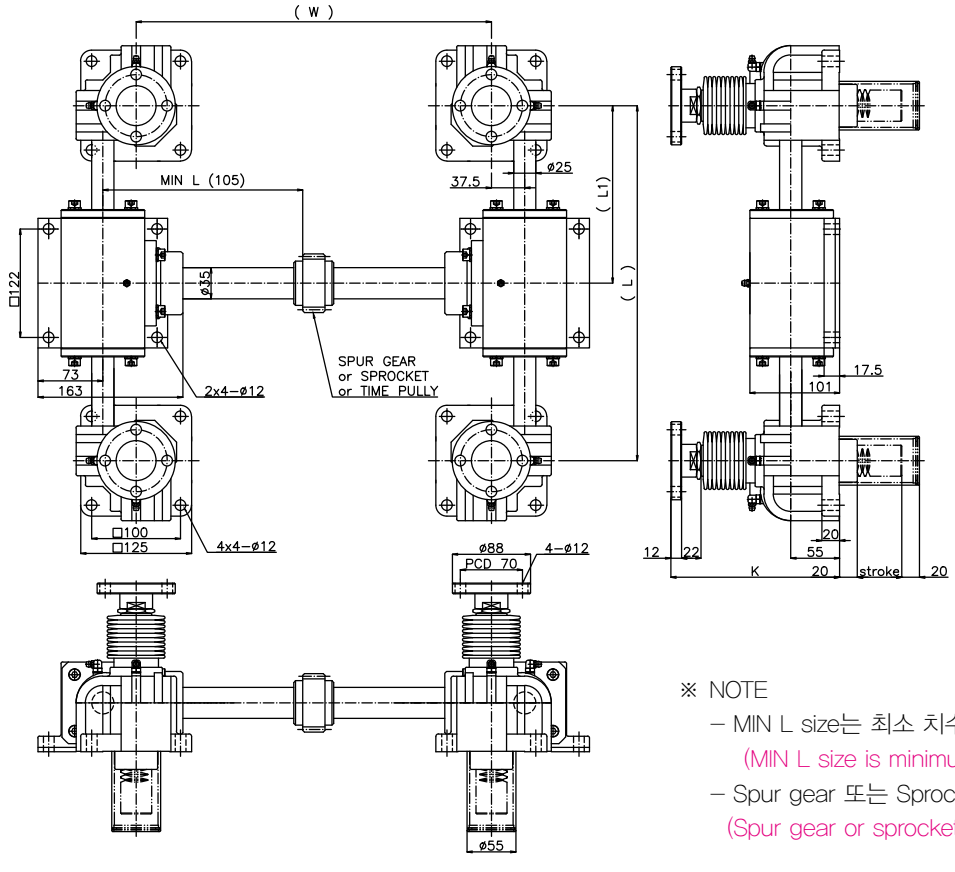


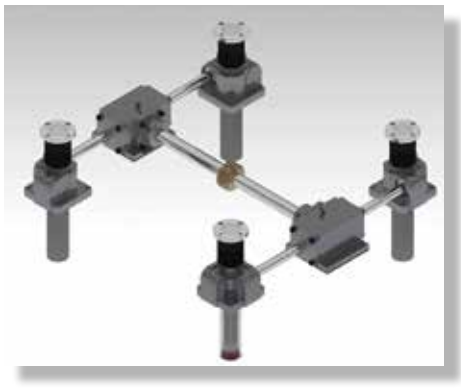


K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
  (Spur gear or sprocket can be selected by the designer's intention)

SPM 1500FCJ



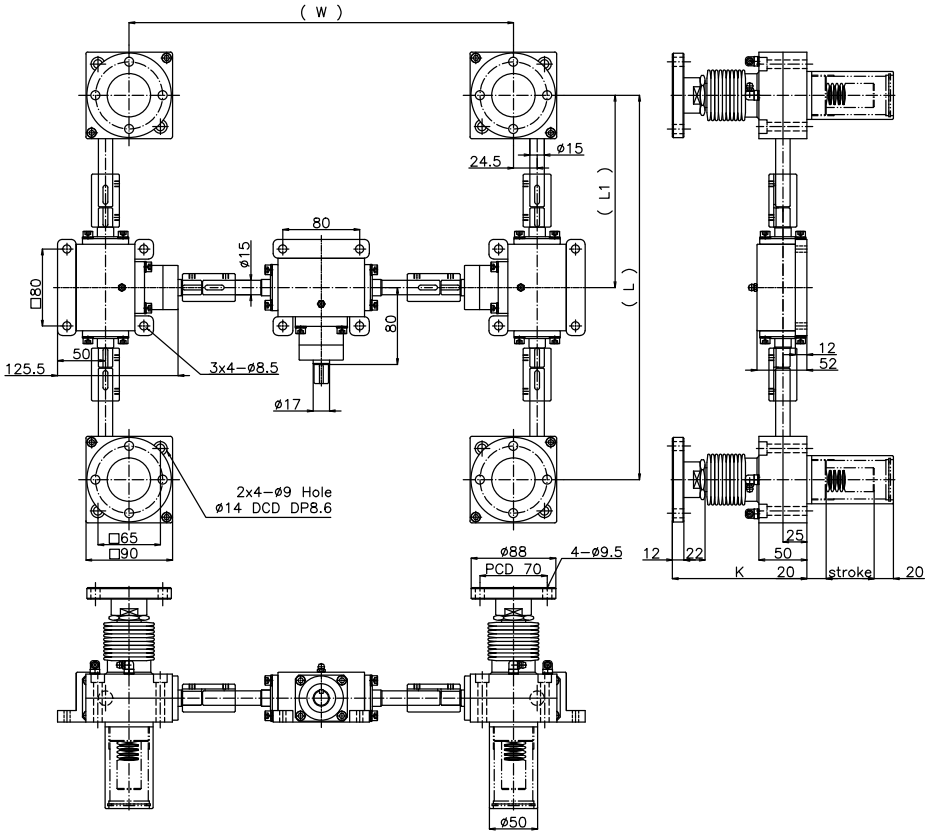


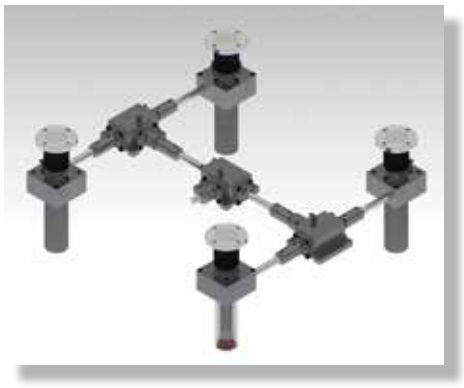
K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
  (Spur gear or sprocket can be selected by the designer's intention)

◈ Dimension (Clean Type)

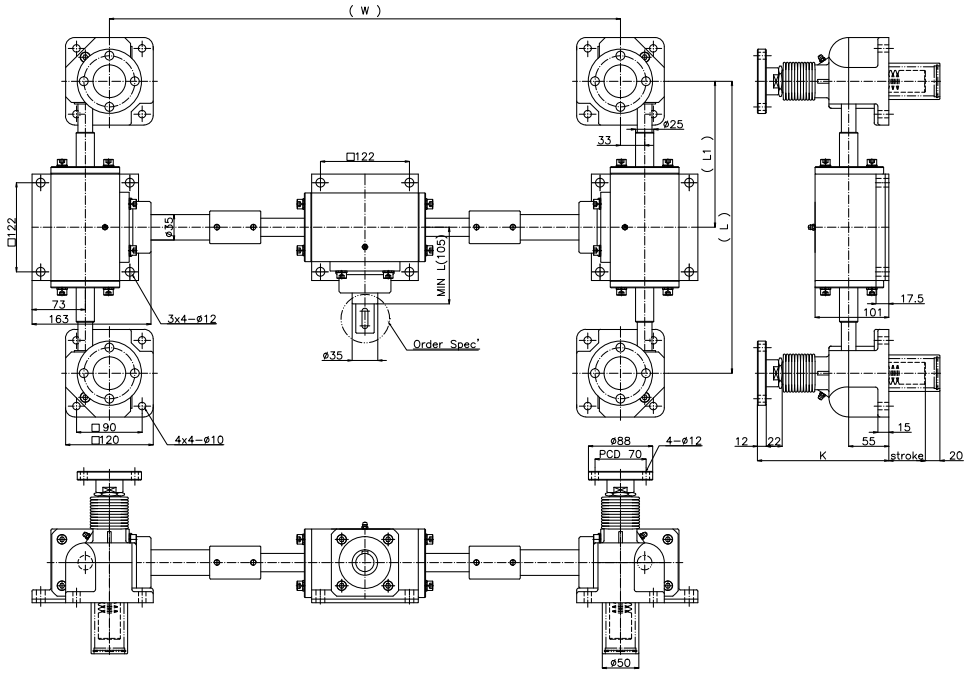
SPMB 500FCJ

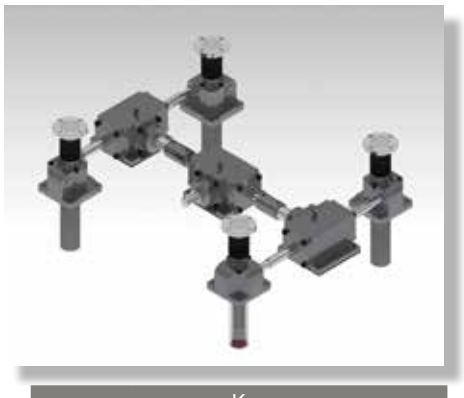




K			
50ST	100ST	150ST	300ST OVER
140	150	150	115 + (STROKE/4)
K			
200ST	250ST	300ST	
165	190	190	

SPMB 900FCJ





K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

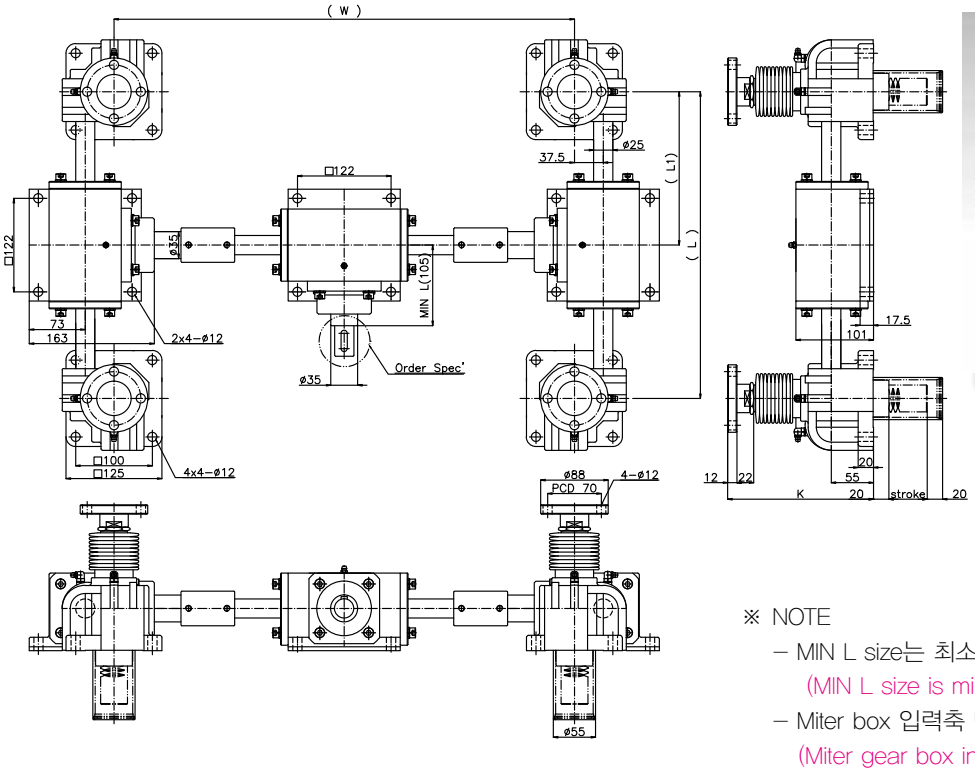
※ NOTE

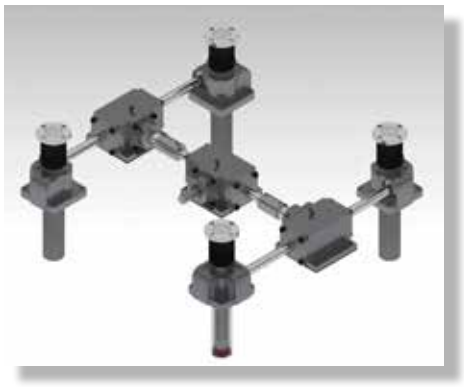
– MIN L size는 최소 치수이며 설계자의 임의로 변경가능 (MIN L size is minimum and can be tuned by the designer)

– Miter box 입력축 방향과 축의 size는 변경가능 (Miter gear box input spindle size is order specification)

◈ Dimension (Clean Type)

SPMB 1500FCJ

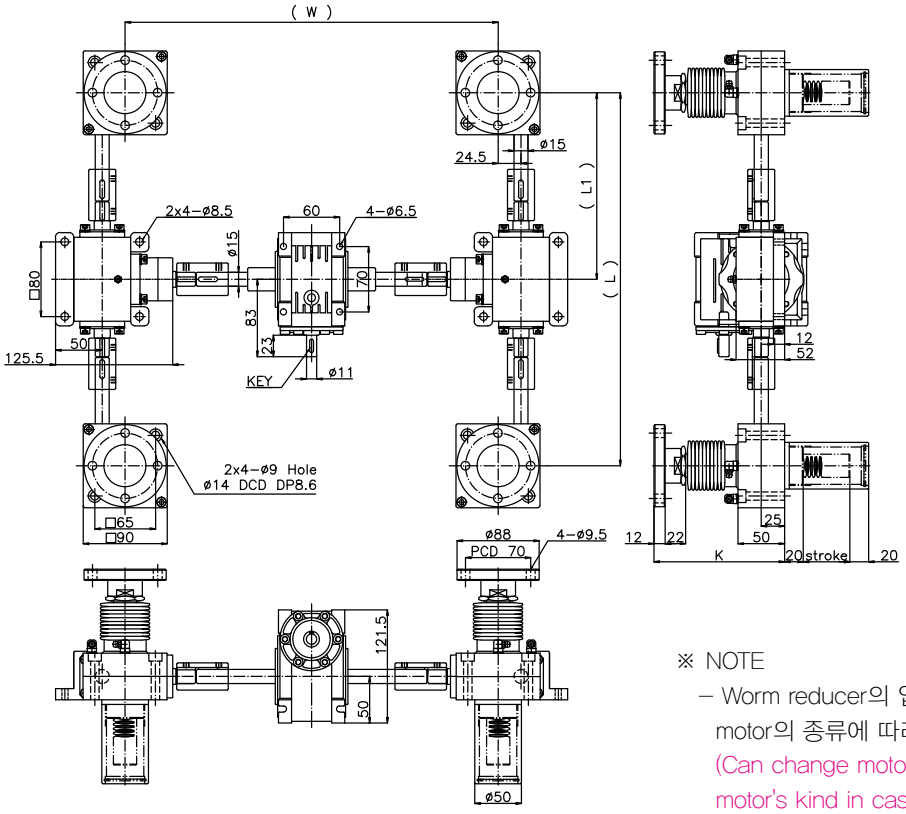


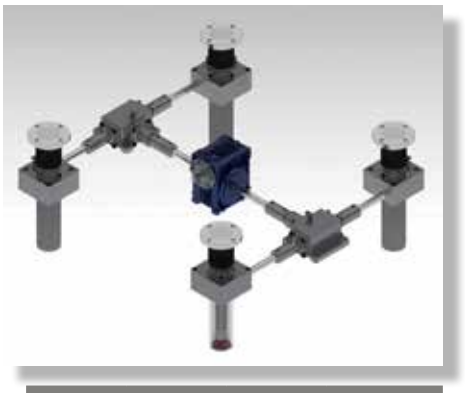


K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE
- MIN L size는 최소 치수이며 설계자의 임의로 변경가능
  (MIN L size is minimum and can be tuned by the designer)
- Miter box 입력축 방향과 축의 size는 변경가능
  (Miter gear box input spindle size is order specification)

SPMH 500FCJ-040



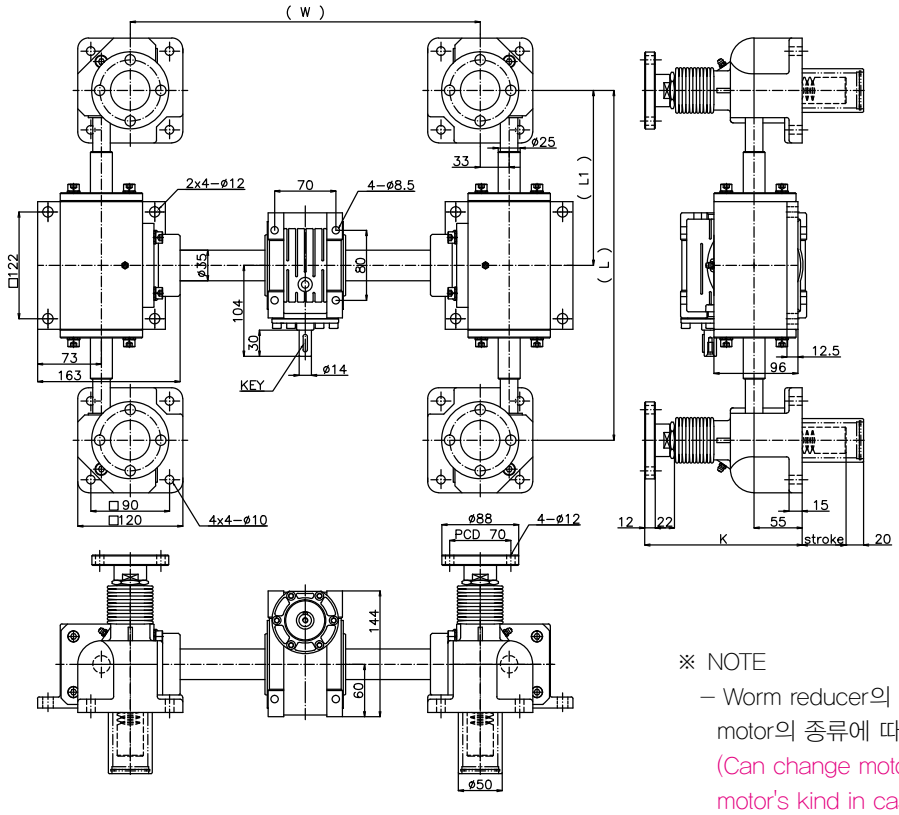


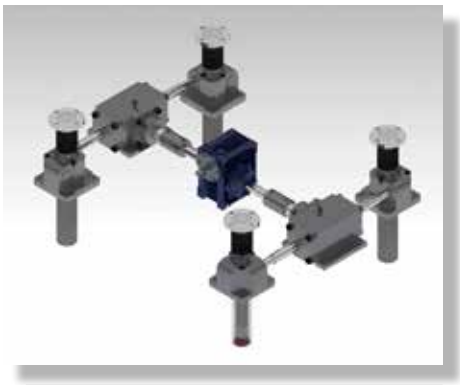
K			
50ST	100ST	150ST	300ST OVER
140	150	150	115 + (STROKE/4)
K			
200ST	250ST	300ST	
165	190	190	

※ NOTE
- Worm reducer의 입력축에 motor를 설치할 경우
  motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
  (Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

◈ Dimension (Clean Type)

SPMH 900FCJ-050



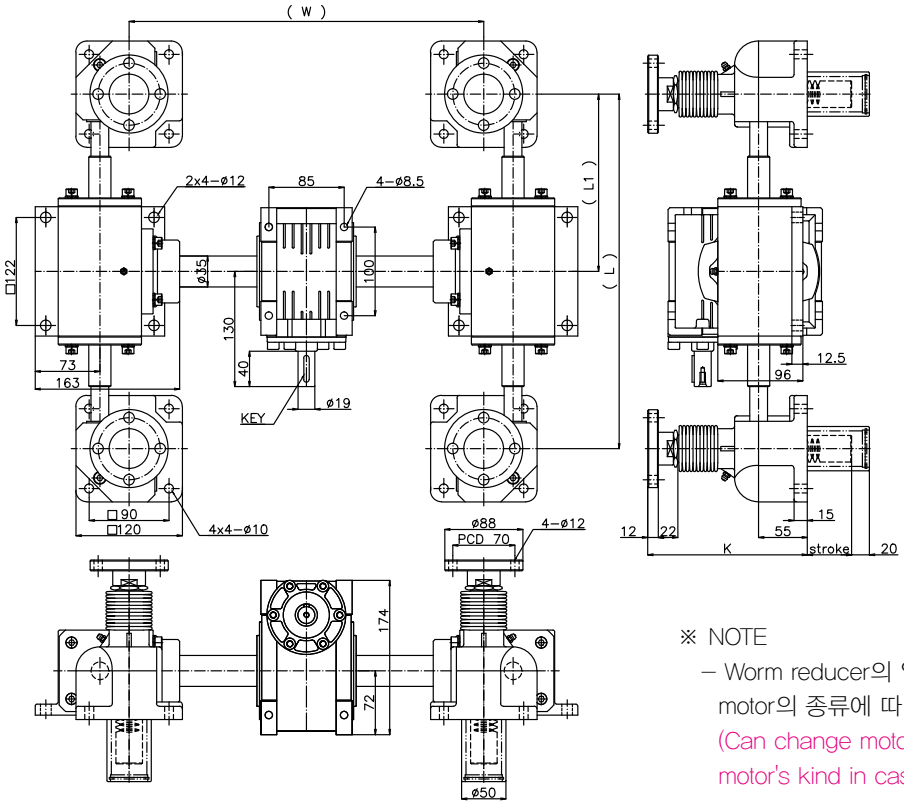


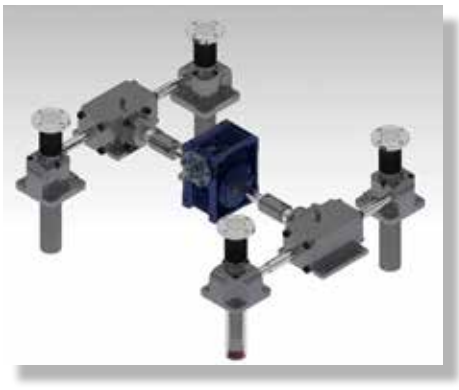
K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

※ NOTE

– Worm reducer의 입력축에 motor를 설치할 경우
motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

SPMH 900FCJ-063





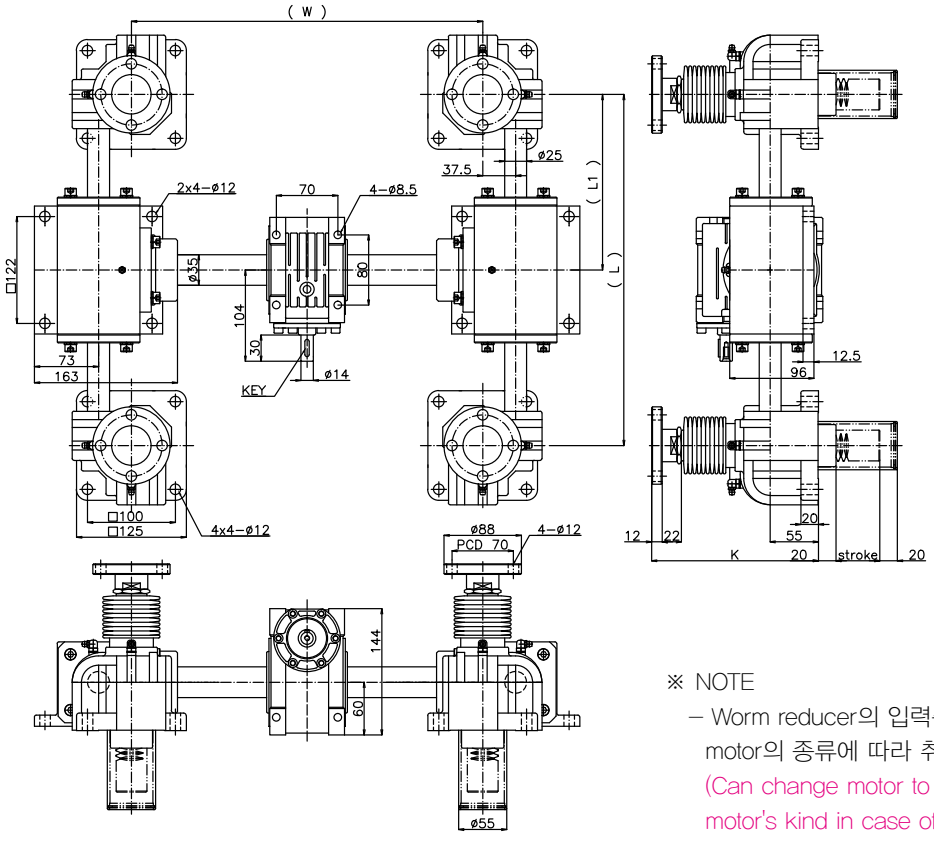
K			
50ST	100ST	150ST	300ST OVER
180	195	195	150 + (STROKE/4)
K			
200ST	250ST	300ST	
205	230	230	

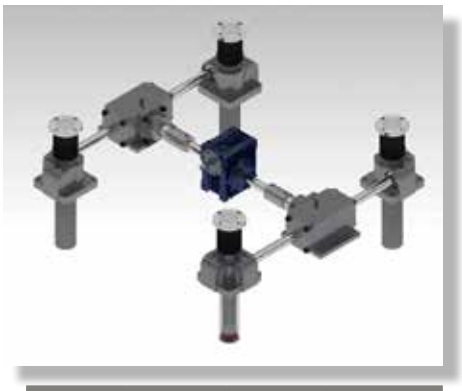
※ NOTE

– Worm reducer의 입력축에 motor를 설치할 경우
motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

◈ Dimension (Clean Type)

SPMH 1500FCJ-050

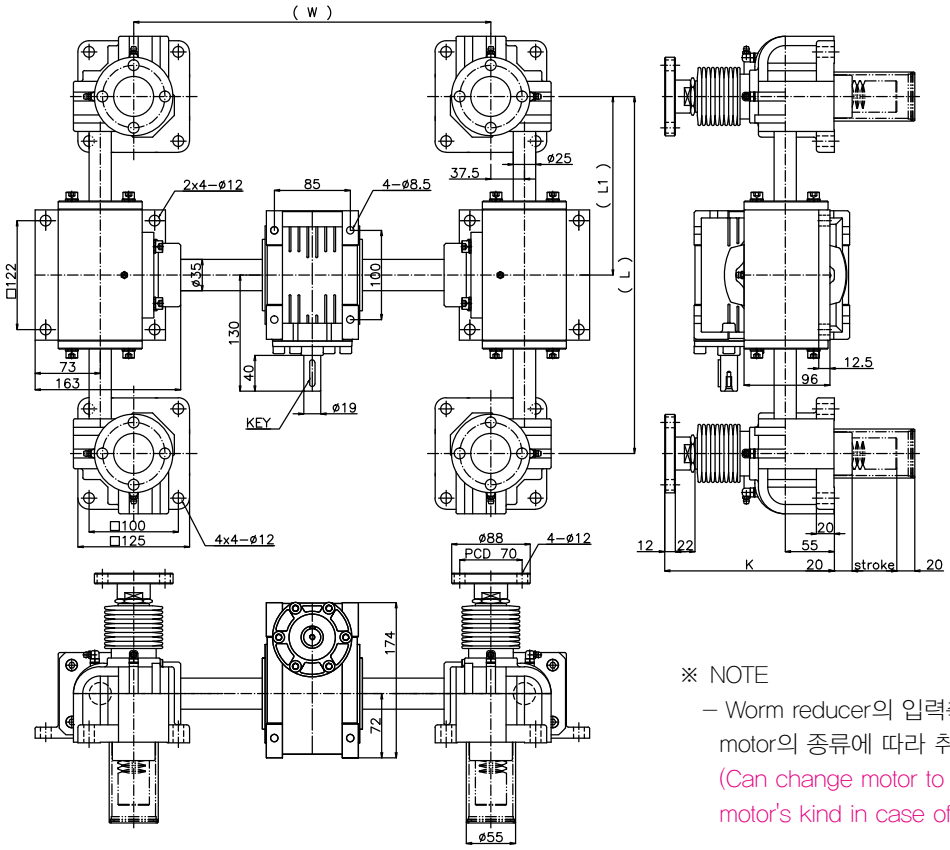


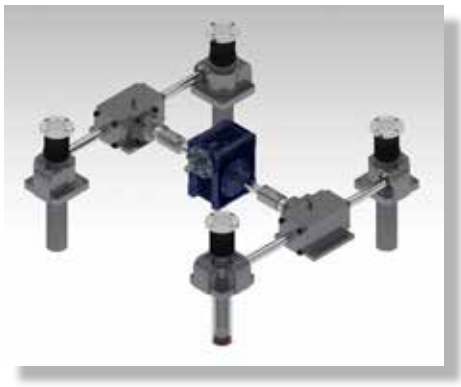


K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE
- Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

SPMH 1500FCJ-063



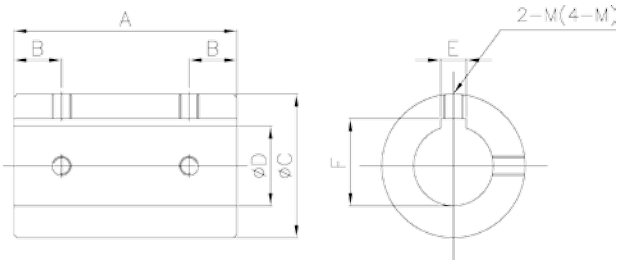


K			
50ST	100ST	150ST	300ST OVER
190	200	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE
- Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange및 중공축으로 변환가능.
(Can change motor to set flange and hollow shaft according to motor's kind in case of do setting to worm reducer's input shaft.)

23. Accessories

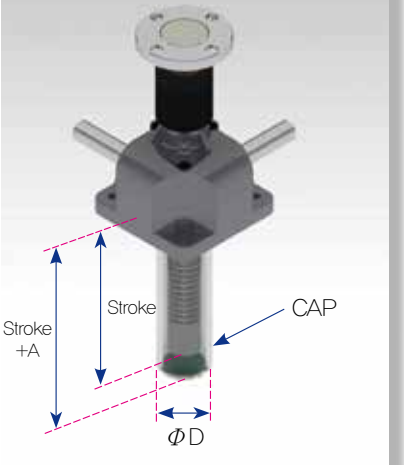
◈ COUPLING



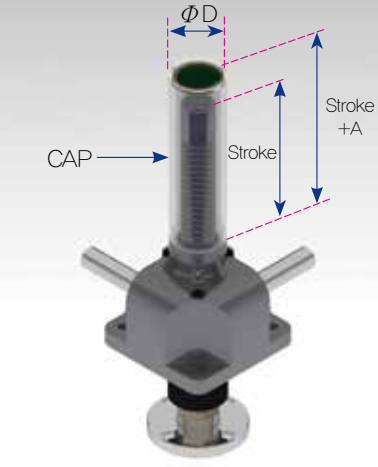
MODEL	A	B	ΦC	ΦD	E	F	M
C1025-3	30	7	Φ25	Φ10	3	11.4	M6 TAP
C1225-3	35	8	Φ25	Φ12	3	13.5	M6 TAP
C1530-4	50	12	Φ30	Φ15	4	16.8	M6 TAP
C2035-5	55	13	Φ35	Φ20	5	22.2	M8 TAP
C2550-5	70	13	Φ50	Φ25	5	27.3	M8 TAP
C2550-8	70	13	Φ50	Φ25	8	28.3	M8 TAP
C3060-8	80	15	Φ60	Φ30	8	33.3	M8 TAP
C3060-10	80	15	Φ60	Φ30	10	33.3	M8 TAP
C3570-10	85	15	Φ68	Φ35	10	38.3	M8 TAP
C4070-10	90	15	Φ68	Φ40	10	43.3	M8 TAP
C5090-14	100	18	Φ90	Φ50	14	54.3	M10 TAP
C60110-16	140	25	Φ108	Φ60	16	64.3	M10 TAP

◈ CAP

[하부부착형 – LOWER PART STICKING]



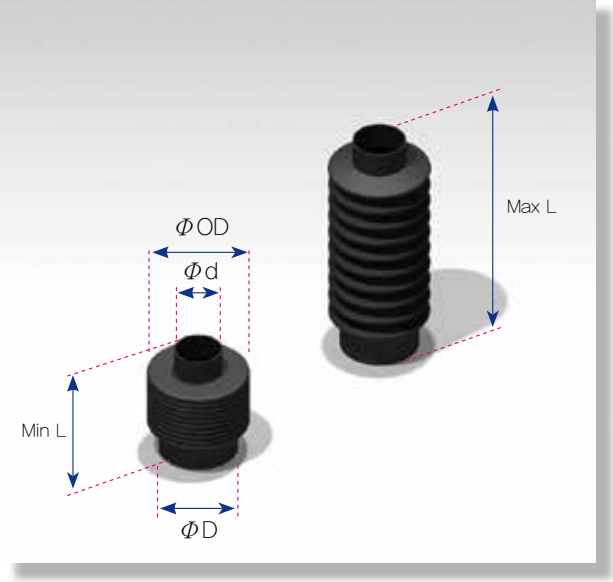
[상부부착형 – UPPER PART STICKING]



MODEL	A	ΦD	재질 (The material)
SP 100FCJ/CAP	10	Φ30	AL PIPE (ANODIZING)
SP 300FCJ/CAP	10	Φ30	
SP 500FCJ/CAP	20	Φ50	
SP 900FCJ/CAP	20	Φ50	
SP 1500FCJ/CAP	20	Φ55	
SP 3000FCJ/CAP	30	Φ70	
SP 5000FCJ/CAP	30	Φ70	

※ NOTE
– Cover 부착 model은 SPM, SPMB, SPMH, SPB, SPH model에도 동일하게 적용된다.
(The model with cover is adapted by the same way to SPM, SPMB, SPMH, SPB and SPH.)

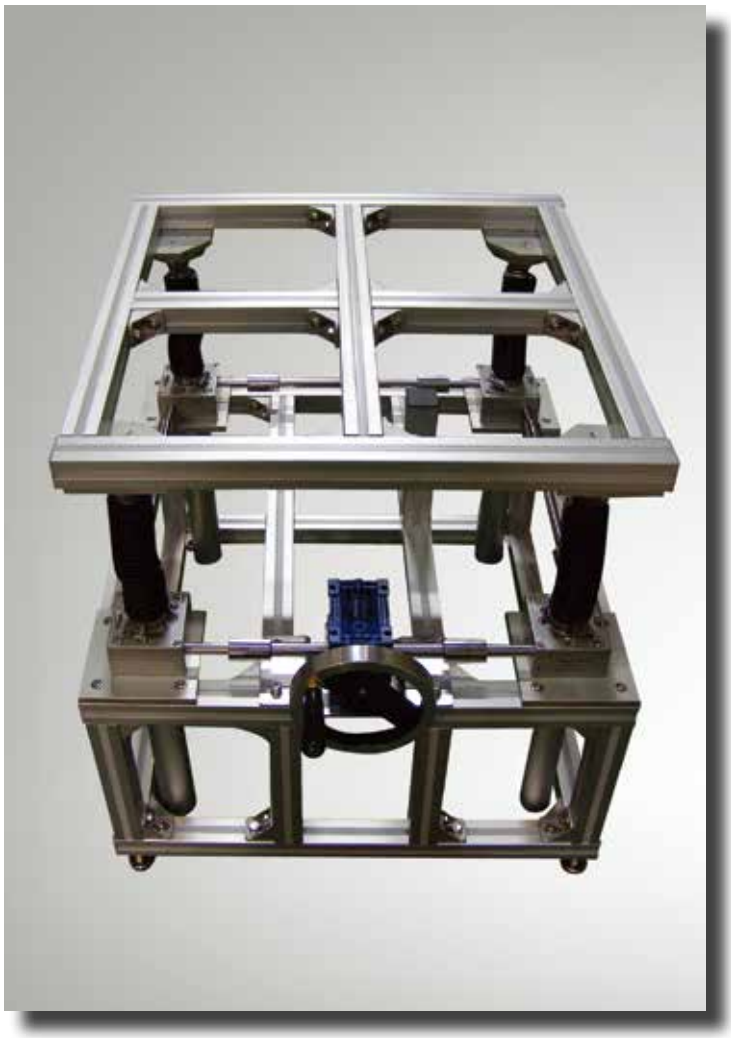
◈ BELLOWS

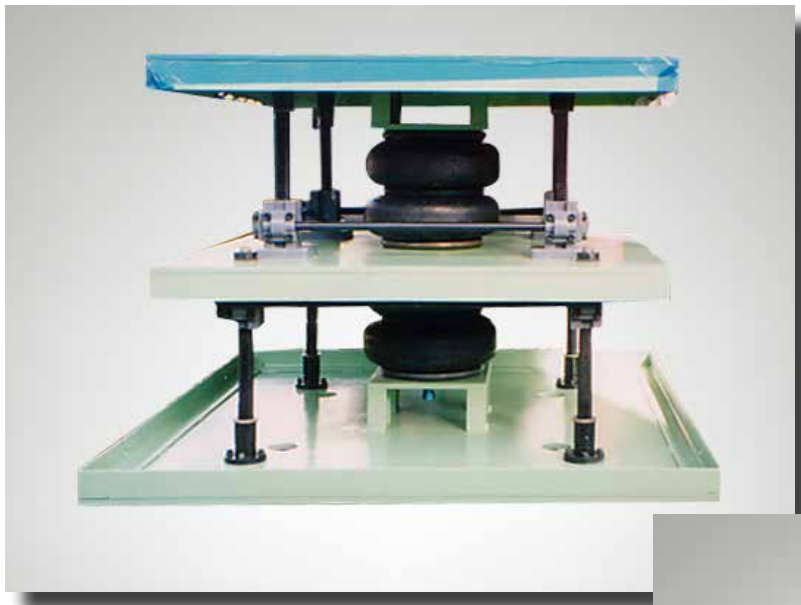


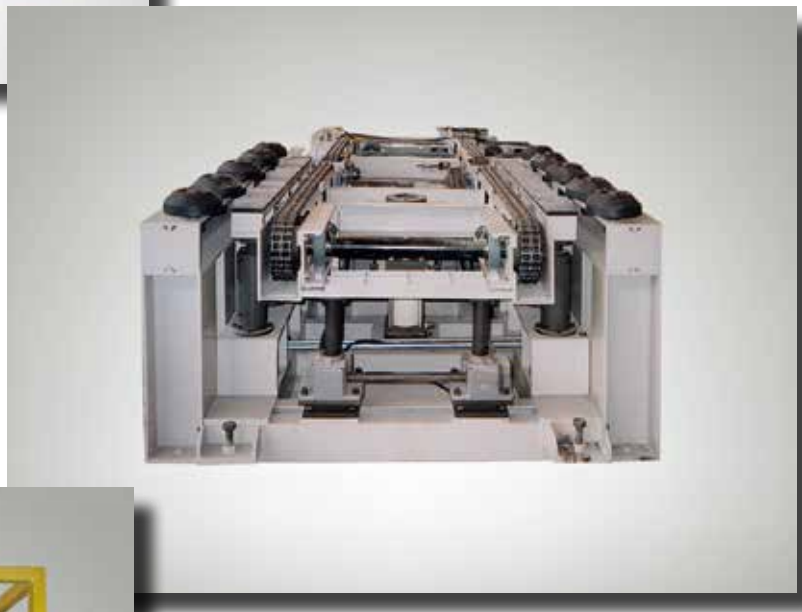
MODEL	COLOR	Φd	ΦD	ΦOD	MIN L	MAX L	APPLICATION
B1528-100	BLACK	Φ15	Φ28	Φ40	45	145	SP 100CJ
W1528-100	WHITE						
B1828-100	BLACK	Φ18	Φ40	Φ40	70	240	SP 300CJ
W1828-100	WHITE						
B3050-80	BLACK	Φ25	Φ45	Φ55	55	135	SP 500CJ
W3050-80	WHITE						
B3050-150	BLACK	Φ30	Φ52	Φ52	70	250	SP 500CJ SP 900CJ
W3050-150	WHITE						
B4065-200	BLACK	Φ42	Φ65	Φ65	90	300	SP 900CJ SP 1500CJ
W4065-200	WHITE						
B4065-400	BLACK	Φ42	Φ65	Φ65	130	650	SP 900CJ SP 1500CJ
W4065-400	WHITE						
B5060-200	BLACK	Φ52	Φ62	Φ78	80	300	SP 3000CJ SP 5000CJ
W5060-200	WHITE						

※ NOTE
1. Bellow의 재질은 silicon이며 검정색과 유백색 두 종류가 있다. (The bellows is made up of silicon and it's colors are black and white.)
2. Bellows의 1개의 기본 stroke보다 길게 사용시는 silicon 전용 접착제로 여러개를 연결하여 사용한다.
(When using more than one stroke, connect them with glue made from Loctite only for silicon.)

24. 사진자료 (Photo data)

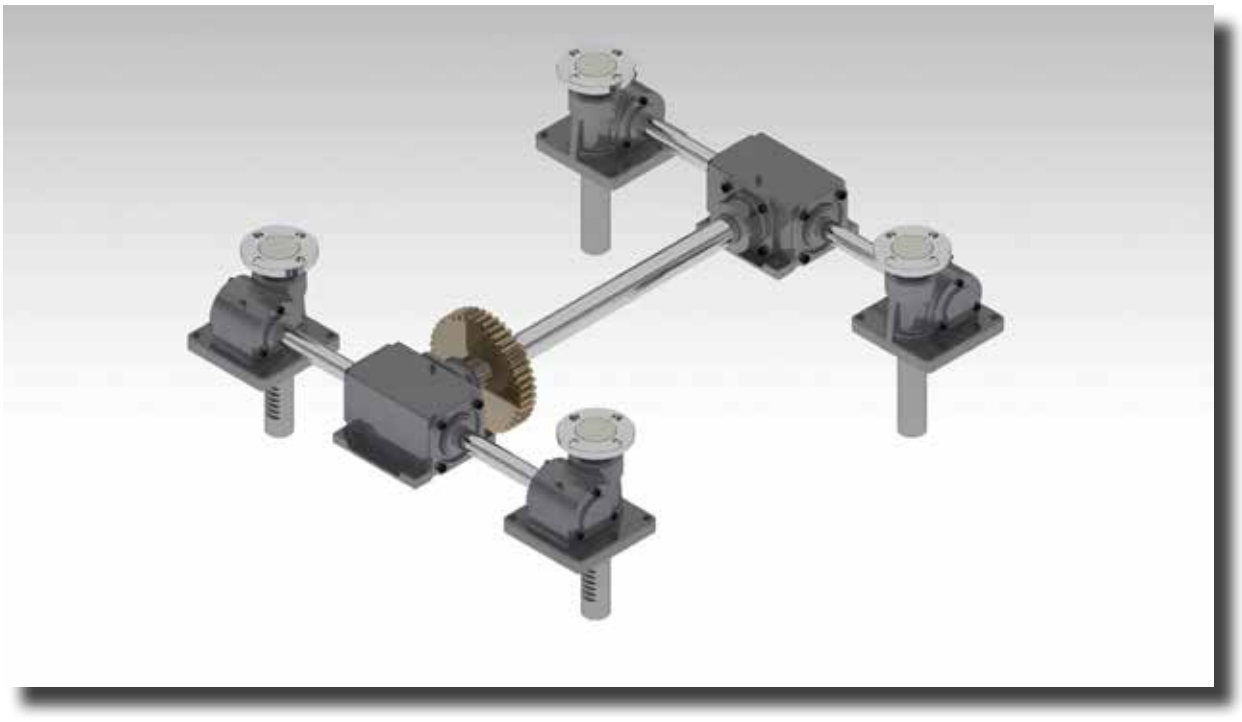


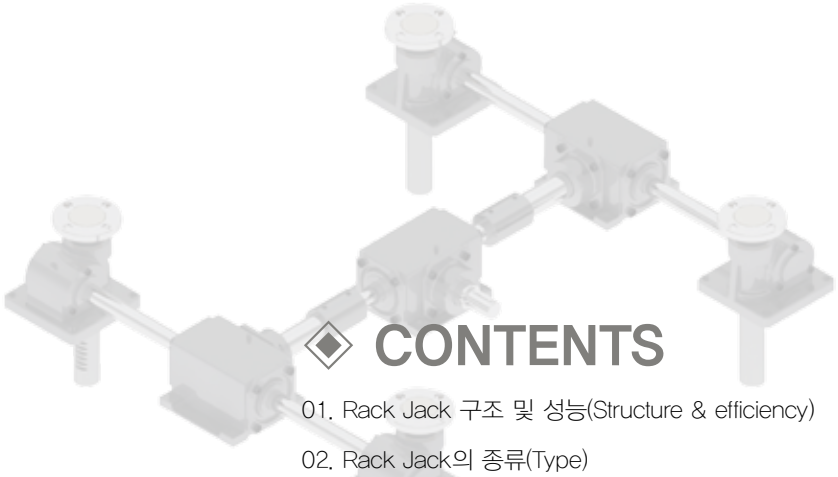




RACK JACK

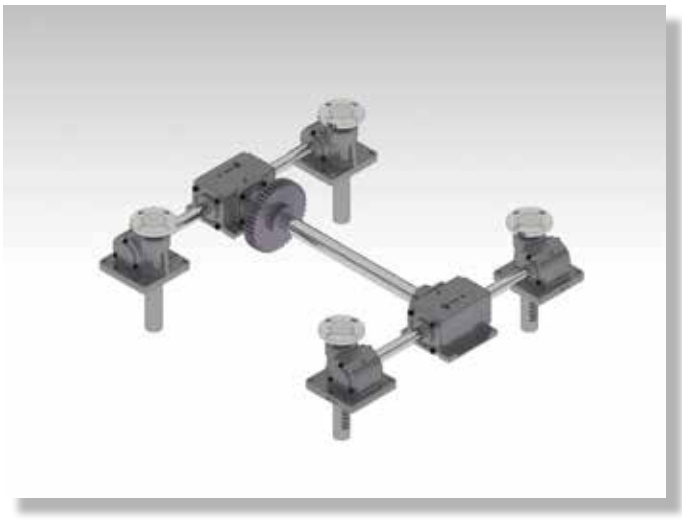
(Motorized Linear Unit)





CONTENTS

1. 구조 및 성능 (Structure & efficiency)



1) Rack Gear와 pinion Gear로 이루어져 있으며, pinion gear를 회전운동 시키면 rack gear가 직선운동을 하는 구조이다.
2) 동력 손실이 거의 없으므로, 높은 기계 효율을 얻을 수 있다.
3) 구조가 간단하며 하자 요인이 적고, 하자 보수가 용이하다.
4) Screw jack은 jack 자체에서 감속이 이루어져 승하강 속도가 늦어 정밀한 중간 제어나 고중량물의 승하강시 적합한 구조인 반면, rack jack은 rack gear 와 pinion gear가 직접 연결되어 고속의 직선 운동을 얻을 수 있으며, Servo motor를 사용하면 정밀한 중간 제어도 가능하다. 또한, screw jack에 비하여 제품 단가가 낮아 경제적이다.

1) It is composed of Rack and pinion gear and how it works is that the pinion gear's rotation makes straight move of rack gear.
2) Most of power from the machine can be used so it's efficiency can be obtained as it's maximum.
3) Simple structure, easy maintenance.
4) Screw jack rotating rate decrease is occurred in itself so up-down velocity is slower therefore it is recommended to use in precise controlling in the middle of process or moving up and down of heavy objects. Rack jack: direct connection between rack and pinion gears makes available to obtain high speed straight work and it also can be used in precise control in the middle of the process with servo motor, besides, the price of screw is lower than screw jack's.

2. Rack jack의 종류 (Type of Rack jack)

▣ Rack jack은 크게 일반 type과 Clean type으로 나눈다
· 일반 type : 일반적인 산업용 설비에 사용되는 model로 외관은 painting 과 흑착색으로 되어있다.
· Clean type : 반도체, LCD, PDP 생산설비, 의료, 식품 생산설비에 사용되는 model로 부품의 다양한 후처리 방법이 있으며 Clean room의 조건에 따라 다양한 model이 있다.

1) RJ Series : 기본적인 분리형 model로 RJ05 ~ RJ50 까지의 표준 model이 있으며 입력축의 방향에 따라 세가지로 나눈다. cylinder 대용 actuator로 사용하며 자체 감속이 없어 빠른 속도의 이송이 가능하다.

2) RJ-4S Series : 기본적인 조합형 model 로 RJ05-4S ~ RJ50-4S 까지의 표준 model이 있으며 사용조건에 따라 다양한 응용을 할 수 있다. power base의 SPM model 의 허용 하중보다 많은 중량물을 승하강 시킬 때 사용한다.

3) RJ-4SB Series : RJ-4S model의 구동축에 miter box를 설치하여 motor를 직결로 연결하여 사용하는 model로, spur gear 나 sprocket이 사용되지 않으므로 clean room 환경에 적합하다.

4) RJ-4SH Series : RJ-4S model의 구동축에 worm reducer를 부착하여 motor를 직결로 취부하여 사용하는 model로, worm reducer의 감속비가 있으므로 일반 motor나 servo motor의 사용이 가능하다.

▣ Rack jack is divided into two types of model: Clean and General
· General type: the model used in general industry device, is painted with black
· Clean type: the model used in facilities producing semi-conductor, LCD, PDP, medical and edible goods has a variety of disposal and it could be freely adapted by the from of the clean room.

1) RJ Series : Basic separation available model. Already introduced standardized model No. RJ05 ~ RJ50 it is divided into 3 types. available for using as actuator of alternate for cylinder and also available for fast transform without speed reduction.

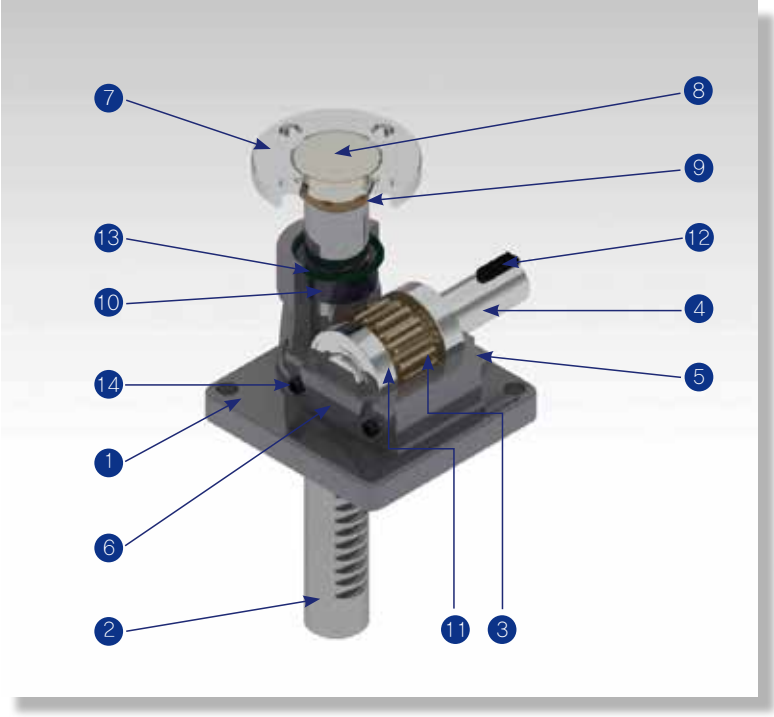
2) RJ-4S Series : Basic assembling model already introduced standardized model No. RJ05-4S ~ RJ50-4S It can be transformed in various ways. It is right for moving heavier one than it's limitation of SPM model of power base.

3) RJ-4SB Series : A model when using the motor in direct way with installation of miter box on drive shaft of RJ-4S model. Suitable for clean room due to the fact that sprocket or spur gear is not used in process.

4) RJ-4SH Series : A model when using the motor in direct way with installation of worm reducer on drive shaft of RJ-4S model. Available for ordinary motor or servo motor can be used due to the fact that there is reducing rate of the worm reducer.

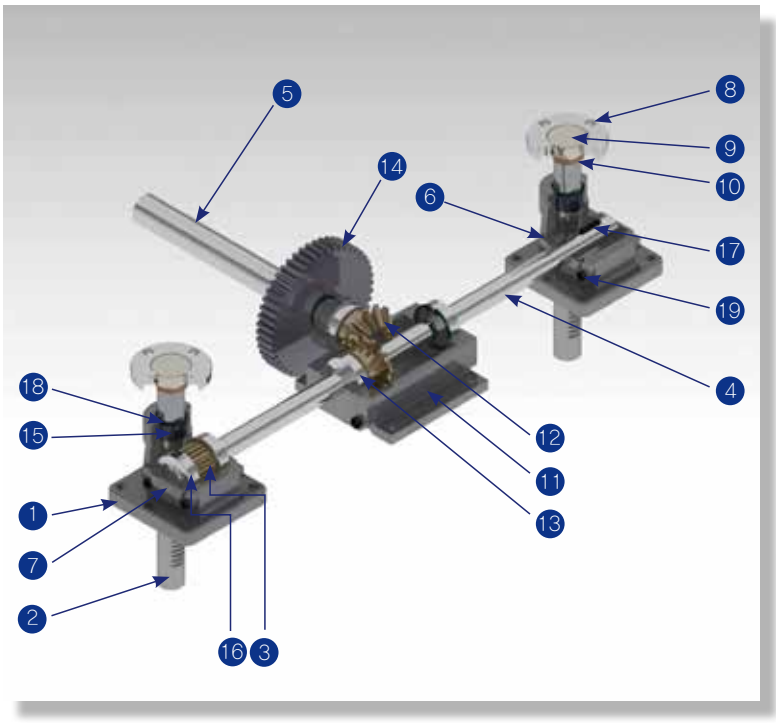
3. 내부구조도 (Inside constructional draw)

(RJOOR (L))



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Gear box	AL/FCD25	1
2	Rack gear	S45C	1
3	Pinion gear	S45C	1
4	Shaft	S45C	1
5	Shaft cover	AL/S45C	1
6	Bearing cover	AL/S45C	1
7	Flange	S45C	1
8	Flange joint	S45C	1
9	Lock nut	S45C	1
10	Oilless bearing/Du bush	#500	2
11	Ball bearing	SUJ	2
12	Key	S45C	2
13	Stop ring	SWP	2
14	Wrench bolt	S45C	6

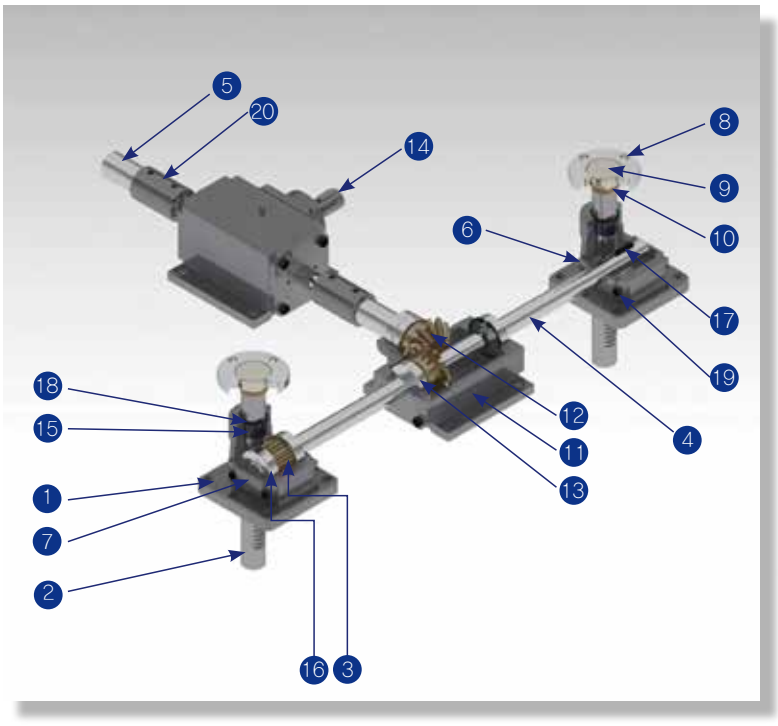
(RJOO-4S)



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Gear box	AL/FCD25	4
2	Rack gear	S45C	4
3	Pinion gear	S45C	4
4	Shaft B	S45C	2
5	Shaft A	S45C	1
6	Shaft cover	AL/S45C	4
7	Bearing cover	AL/S45C	4
8	Flange	S45C	4
9	Flange joint	S45C	4
10	Lock nut	S45C	4
11	Bevel gear box	AL/FCD25	2
12	Bevel gear	S45C/SCM21	4
13	Taper Bearing	SUJ	2
14	Spur gear/sprocket	S45C	1
15	Oilless bearing/DU bush	#500	8
16	Ball bearing	SUJ	14
17	Key	S45C	9
18	Stop ring	SWP	8
19	Wrench bolt	S45C	48

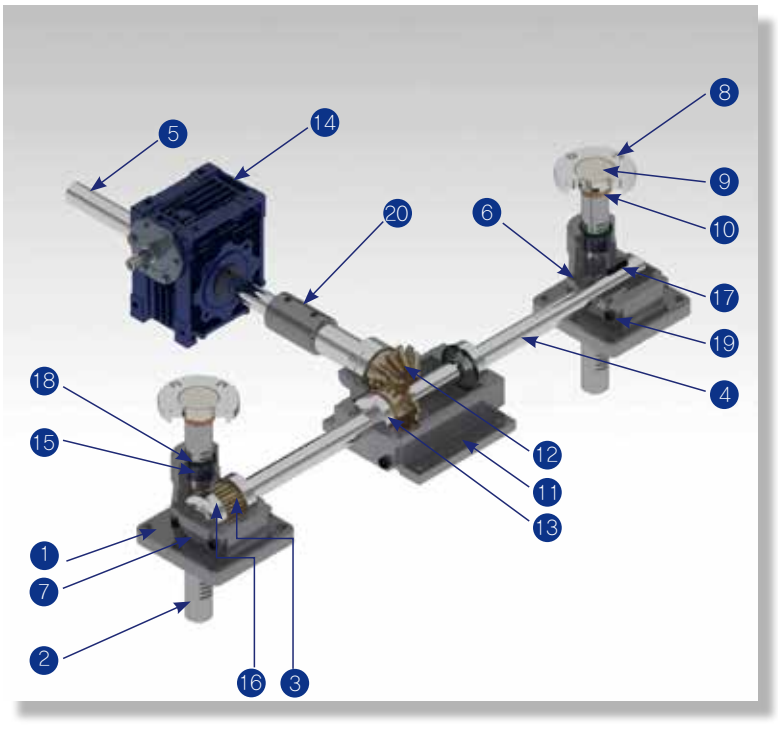
◈ 내부구조도 (Inside constructional draw)

(RJOO-4SB)



No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Gear box	AL/FCD25	4
2	Rack gear	S45C	4
3	Pinion gear	S45C	4
4	Shaft B	S45C	2
5	Shaft A	S45C	1
6	Shaft cover	AL/S45C	4
7	Bearing cover	AL/S45C	4
8	Flange	S45C	4
9	Flange joint	S45C	4
10	Lock nut	S45C	4
11	Bevel gear box	AL/FCD25	3
12	Bevel gear	S45C/SCM21	6
13	Taper Bearing	SUJ	3
14	Input shaft	S45C	1
15	Oilless bering/DU bush	#500	8
16	Ball bearing	SUJ	17
17	Key	S45C	11
18	Stop ring	SWP	8
19	Wrench bolt	S45C	60
20	Coupling	S45C	2

(RJOO-4SH)



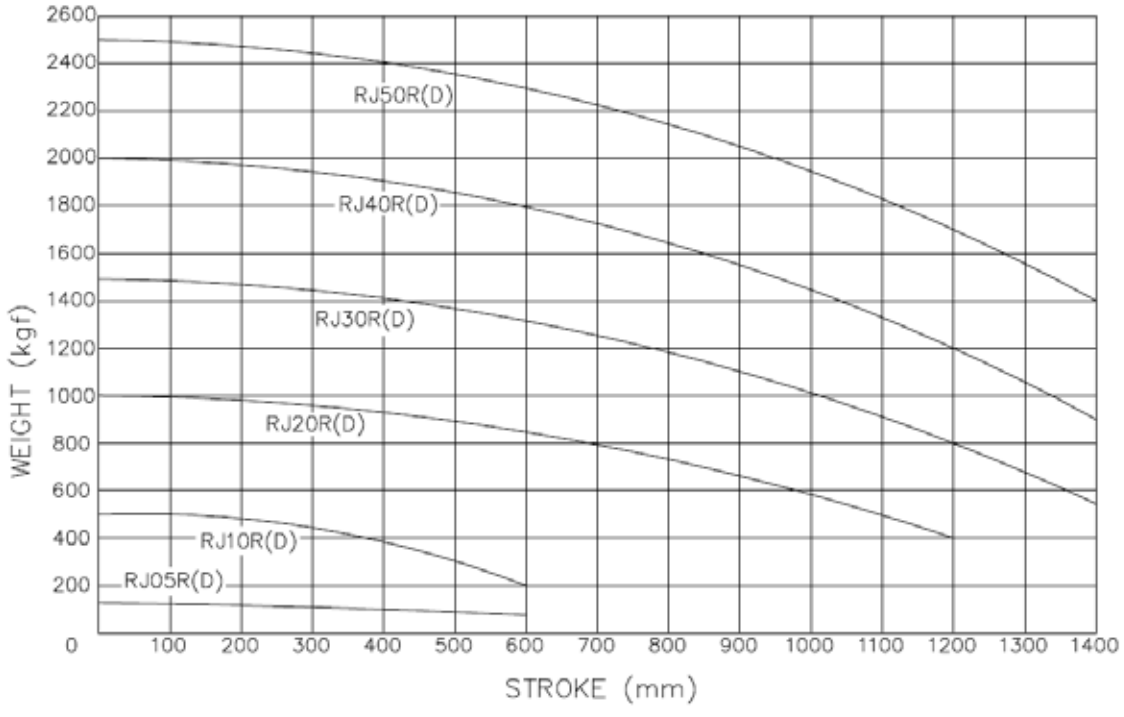
No	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Gear box	AL/FCD25	4
2	Rack gear	S45C	4
3	Pinion gear	S45C	4
4	Shaft B	S45C	2
5	Shaft A	S45C	1
6	Shaft cover	AL/S45C	4
7	Bearing cover	AL/S45C	4
8	Flange	S45C	4
9	Flange joint	S45C	4
10	Lock nut	S45C	4
11	Bevel gear box	AL/FCD25	2
12	Bevel gear	S45C/SCM21	4
13	Taper Bearing	SUJ	2
14	Worm reducer		1
15	Oilless bering/DU bush	#500	8
16	Ball bearing	SUJ	14
17	Key	S45C	11
18	Stop ring	SWP	8
19	Wrench bolt	S45C	48
20	Coupling	S45C	2

4 사용용도 (USE)

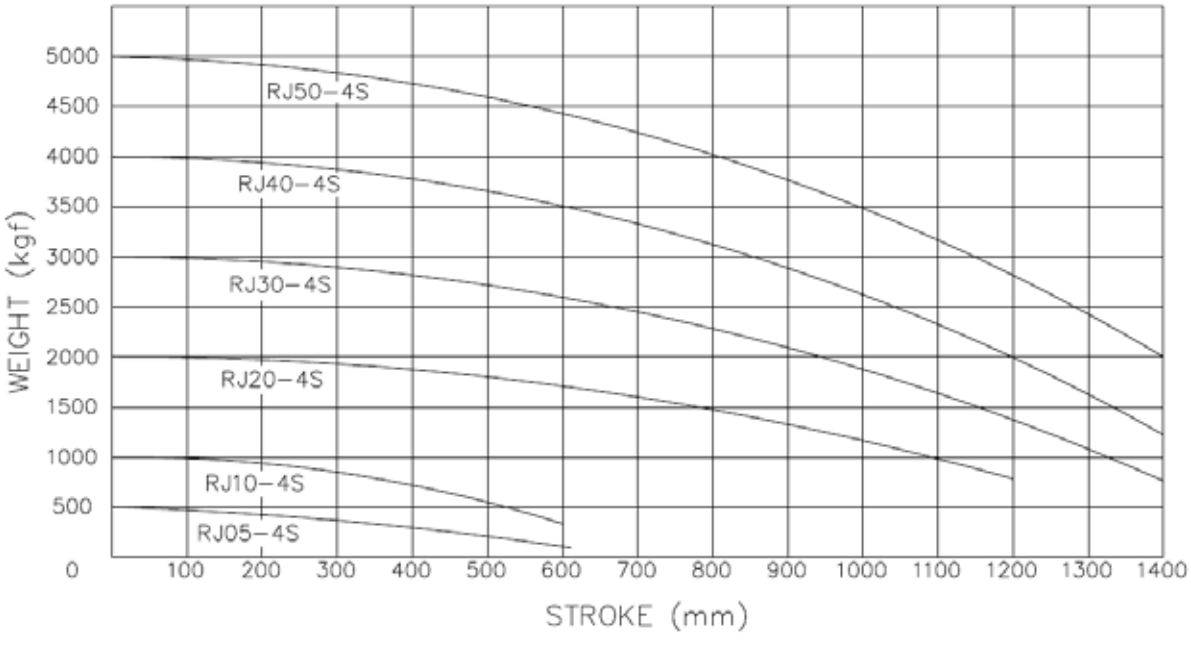
일반 TYPE(GENERAL TYPE)	CLEAN TYPE
1) Conveyor up-down diverter 2) Table lifter 3) 일반(General) up-down lifter 4) 자동창고용 입,출고 home position lifter (in/out home position lifter for automatic cargo) 5) Fork lifter 6) 유압 cylinder 대용 actuator(hydraulic cylinder substitution actuator) 7) 기타산업기기(Etc.. Industrial equipment)	1) FPD conveyor up/down unit 2) Glass pin up/down unit 3) Clean room in up/down unit 4) 의약품 제조설비(Medical supplies making equipment) 5) 식품제조설비(Food supplies making equipment)

5. RJ Series 선정표 (Selecting method)

(1) RJOOR (D) TYPE



(2) RJOO-4S TYPE

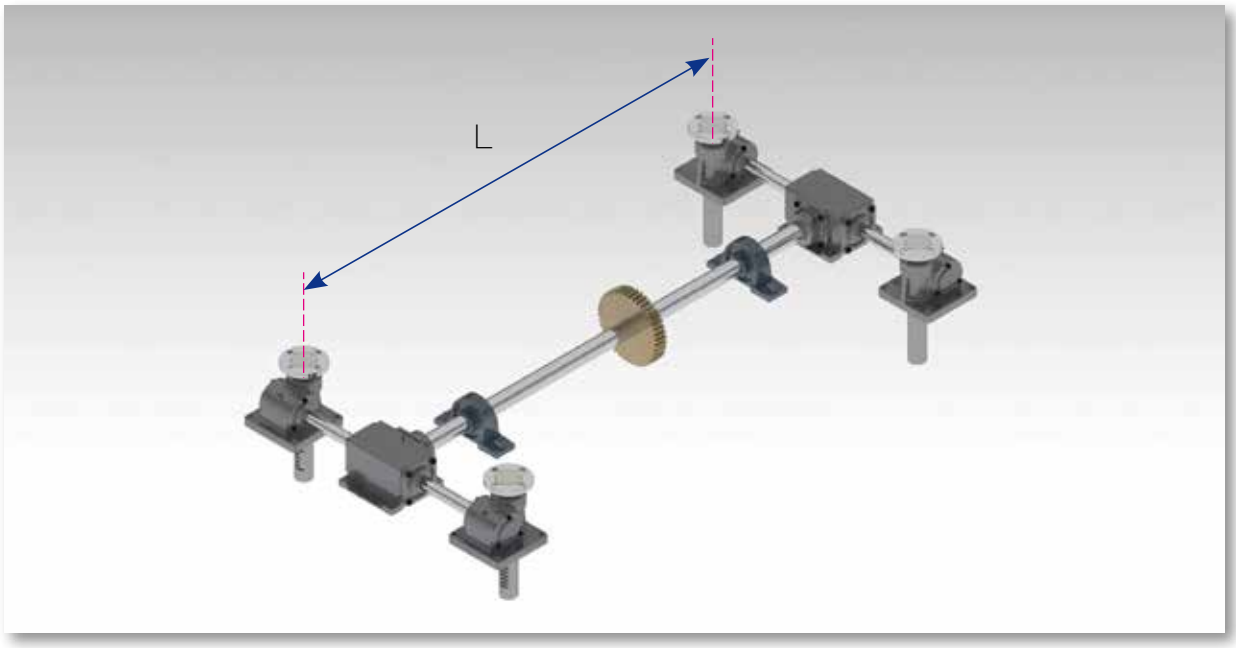


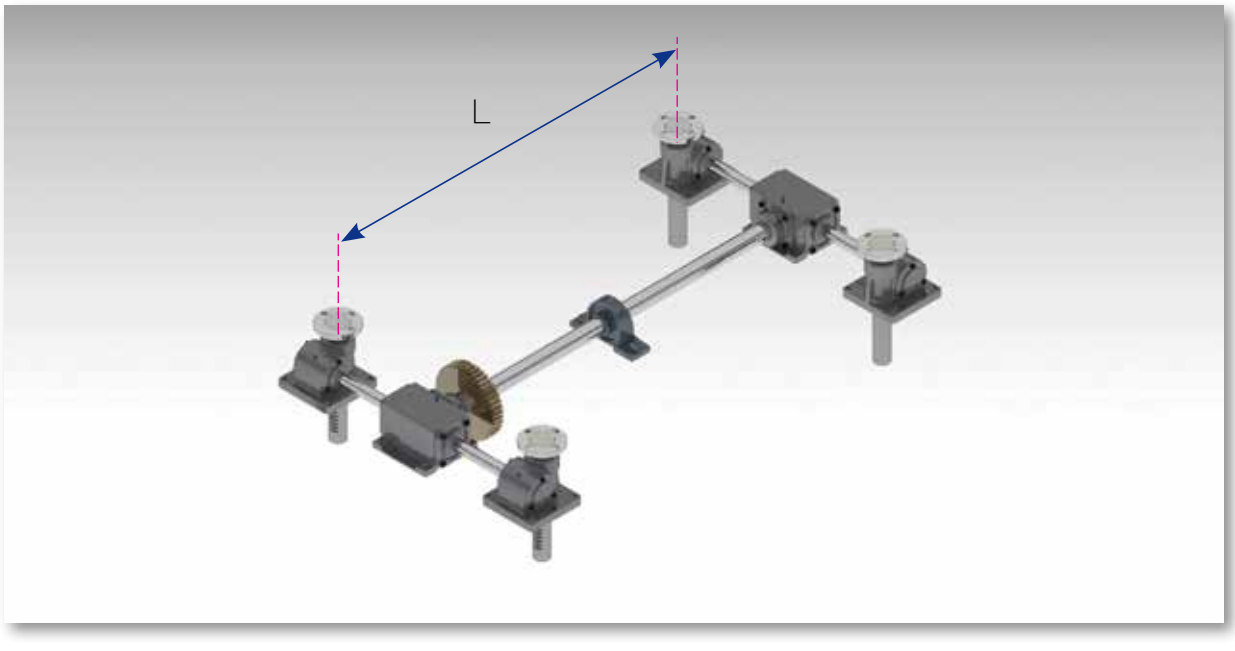
▣ 그래프를 이용한 선정방법(Product Selection Using a Graph)

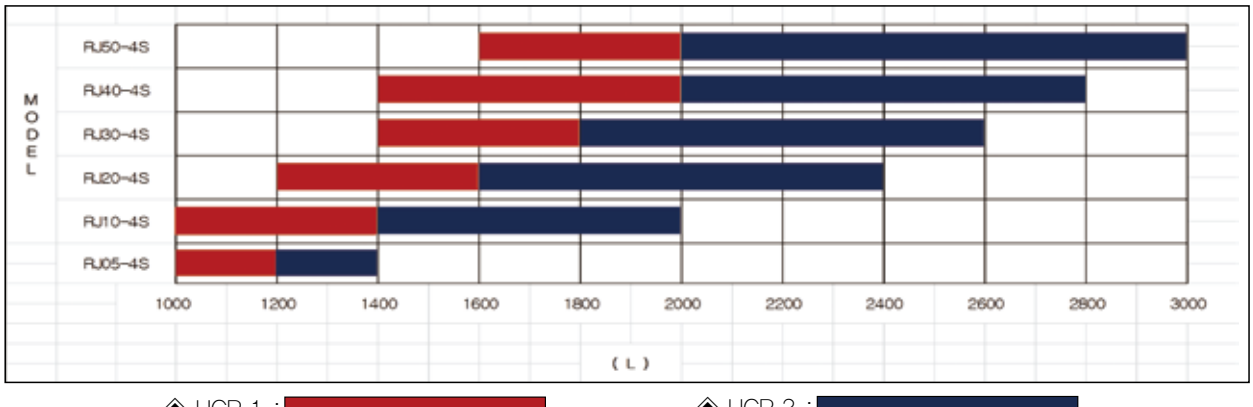
사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 1500 (kgf) 2. Stroke : 280 (mm) 3. 축간거리(Shaft Pitch) (L x W) : 800 x 600 (mm) 4. 속도(Speed) : 4(m/min) 5. RJ00-4S type	RJ00-4S type그래프를 보면 하중 1500kg과 280 stroke의 교차점이그래프 하측에 위치 하므로, RJ20-4S model을 선정한다. Looking at graph of RJ00-4S type, intersection point of 1500kg and 280 strokes is located on the under the graph therefore, RJ20-4S is selected.

◈ RJ Series 선정표 (Selecting method)

(3) 축간거리에 따른 UNIT BEARING의 추가사용





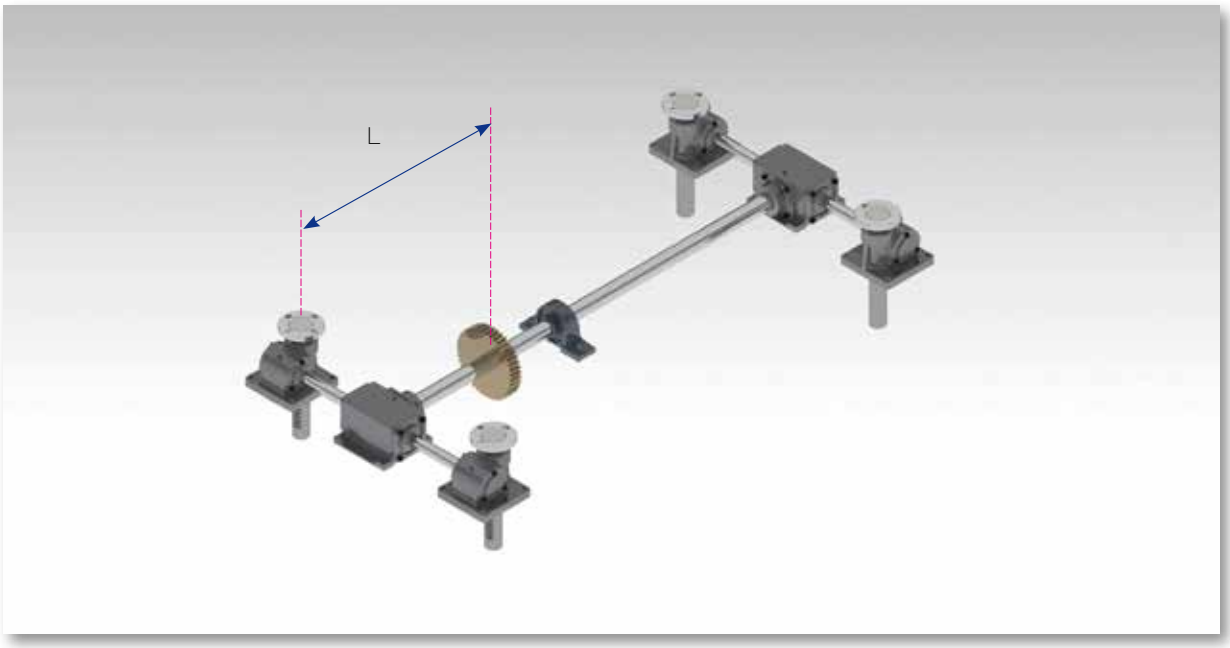


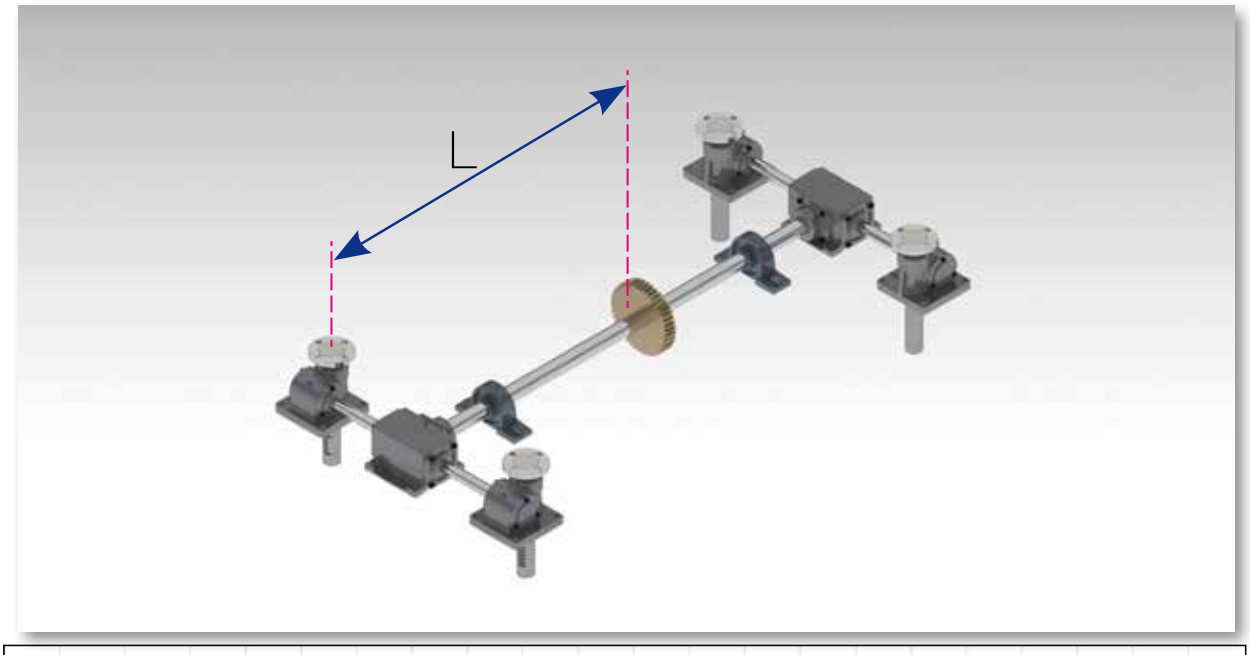
◈ UCP 1 : ◈ UCP 2 :

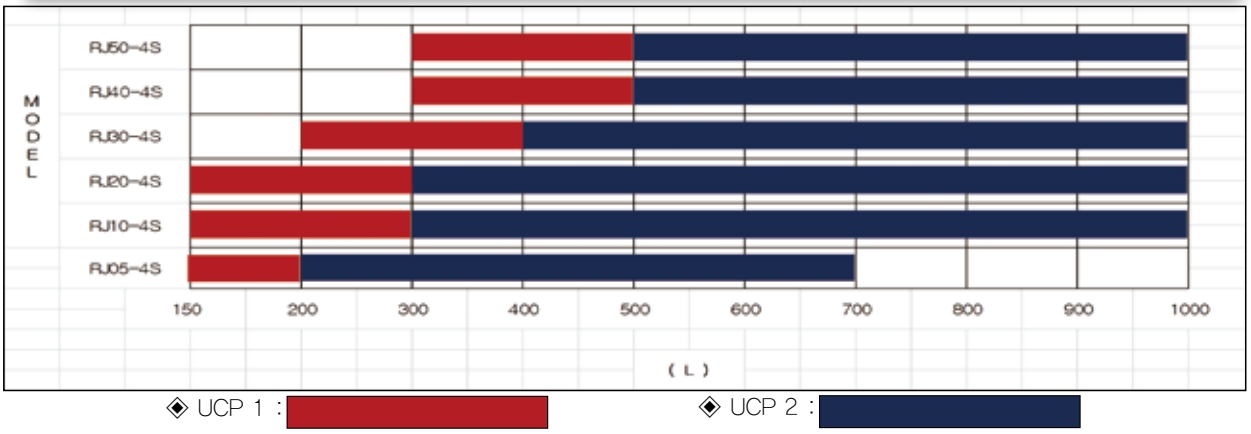
주의) Rack Jack의 축간거리(L)가 길수록 구동 Shaft의 처짐으로 인한 좌우측 Bevel Gear의 정열이 틀어져서 수명 및 손상의 원인이 되므로 위의 그래프를 참조하여 한계거리 내에서는 Unit Bearing을 1ea 또는 2ea를 설치하여 사용한다.

CAUTION) The longer distance between the axis caused drooping of the shaft. It become a reason of shorten the life cycle of the product and demage on the product. So refer to above graph, install one or two unit bearing.

(4) SPUR GEAR or SPROCKET의 위치에 따른 UNIT BEARING의 추가사용





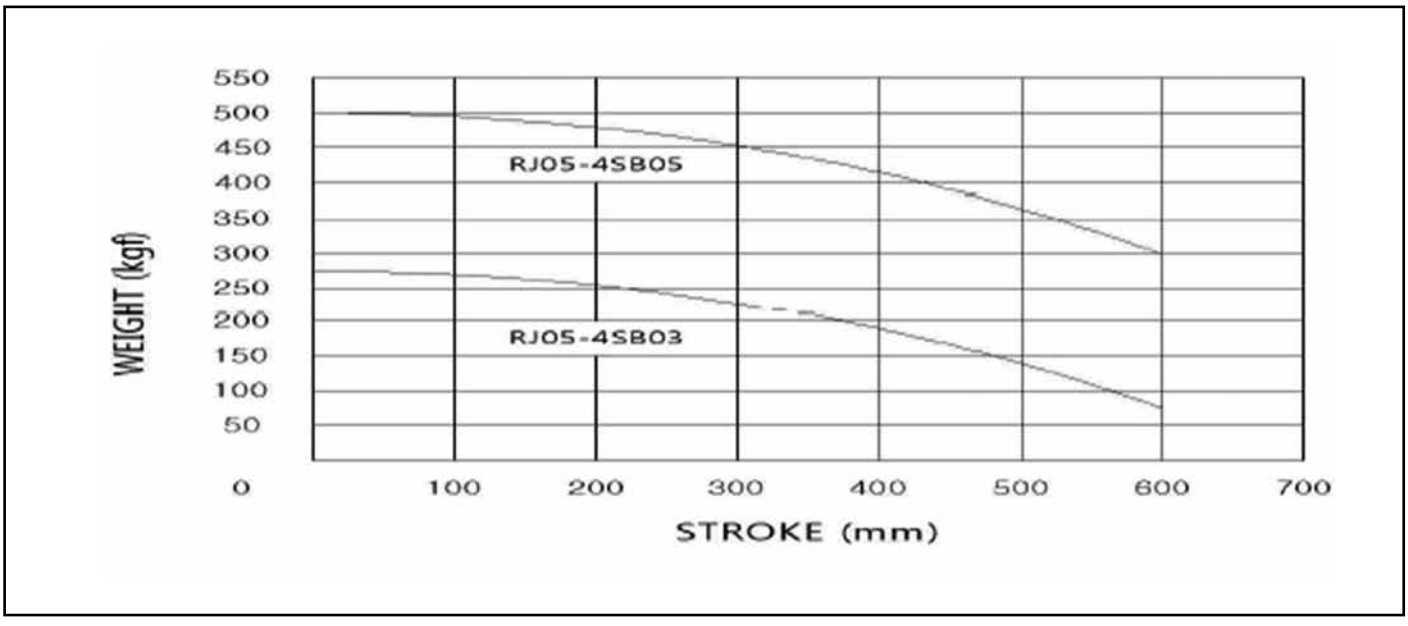


◈ UCP 1 : ◈ UCP 2 :

주의) Rack Jack의 구동 Shaft에 조립되는 Gear or Sprocket의 위치가 Bevel Gear Box와 일정거리이상 떨어진 위치에서 사용하면 구동 Shaft의 변형으로 인하여 Bevel Gear에 손상을 주는 주요원인이 되므로 위의 그래프를 참조하며 한계거리 내에서는 Unit Bearing을 1ea 또는 2ea를 설치하여 사용한다.

CAUTION) When the location of the spur gear or sprocket assembled to drive shaft. Over distance away from the bevel gear box it caused demage on the product. So refer to above graph, install one or two unit bearing.

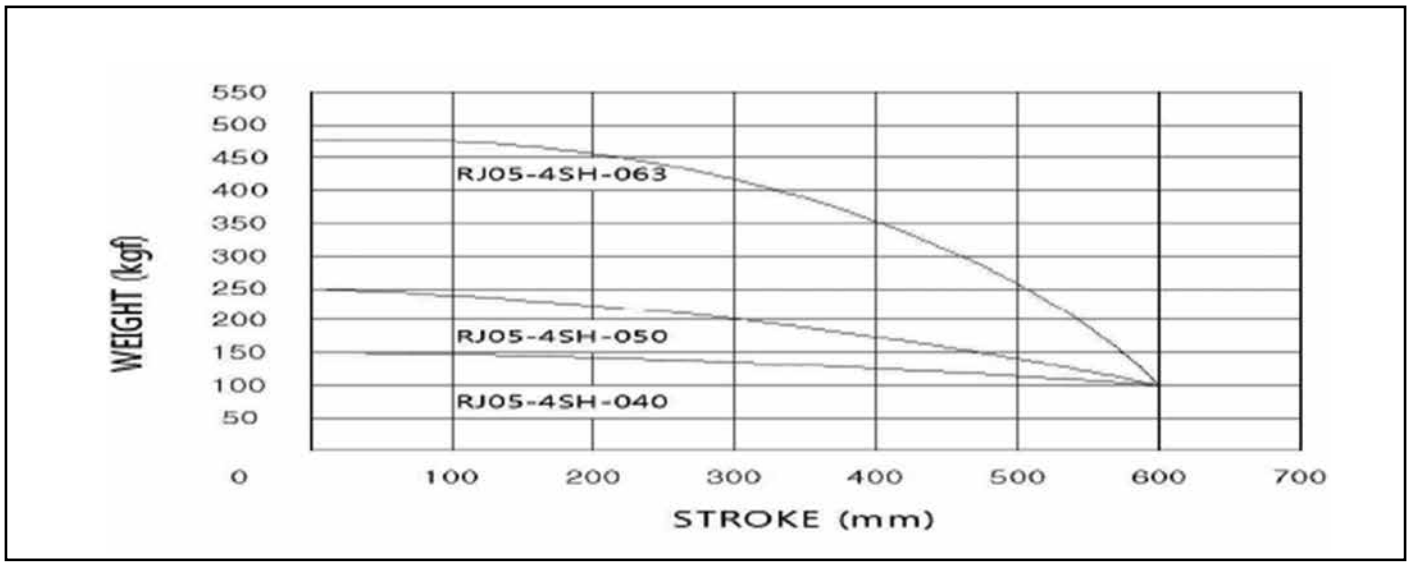
6. RJ05-B Series 선정표 (Selecting method)



▣ 그래프를 이용한 선정방법(Product Selection Using a Graph)

사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 300 (kgf) 2. Stroke : 300 (mm) 3. 축간거리(Shaft Pitch) (L × W) : 500×500 (mm) 4. 속도(Speed) : 3(m/min) 5. RJ-B type	위의 그래프를 보면 300kg과 300 stroke의 교차점이 RJ05-4SB05 model 그래프의 하측에 위치하므로 RJ20-4SB05 model을 선정한다. Looking above, intersection point of 300kg and 300 strokes is located on the under RJ05-4SB05 model graph, therefore, RJ05-4SB05 is selected

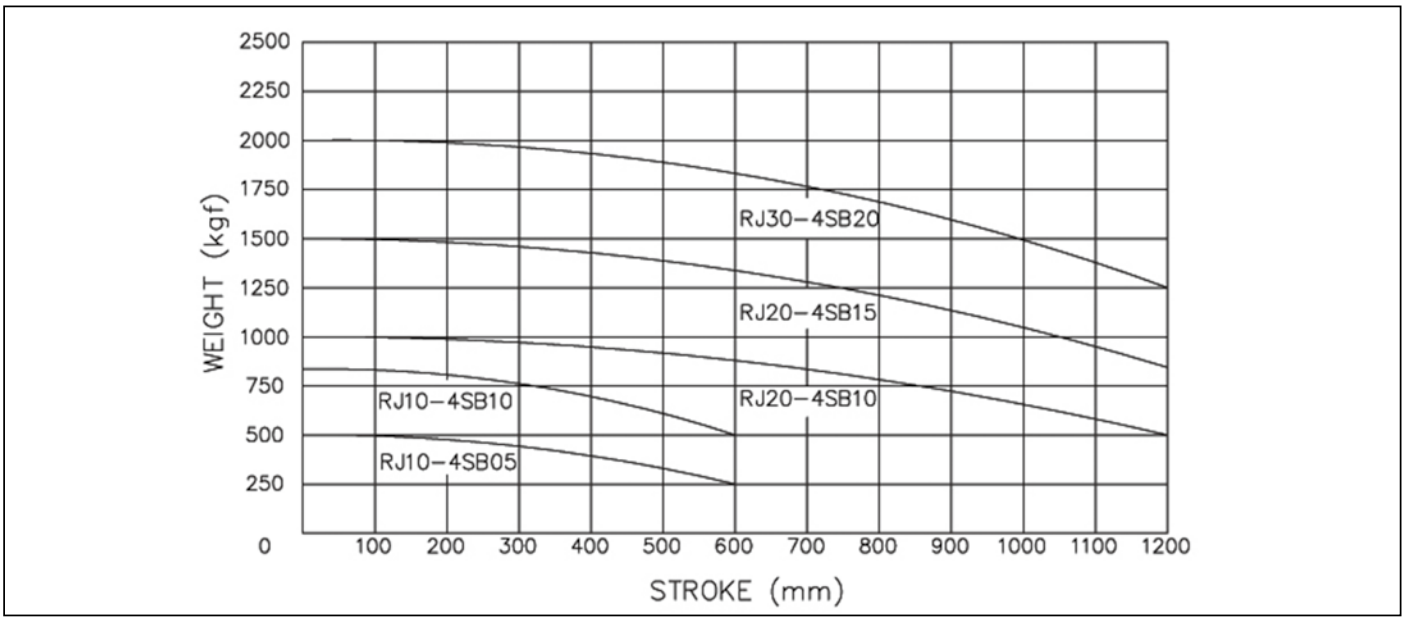
6-1. RJ05H-B Series 선정표 (Selecting method)



▣ 그래프를 이용한 선정방법(Product Selection Using a Graph)

사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 150 (kgf) 2. Stroke : 300 (mm) 3. 축간거리(Shaft Pitch) (L x W) : 500 x 500 (mm) 4. 속도(Speed) : 3(m/min) 5. RJ-B type	위의 그래프를 보면 150kg과 300 stroke의 교차점이 RJ05-4SH-050 model 그래프의 하측에 위치하므로 RJ05-4SH-050 model을 선정한다. Looking above, intersection point of 150kg and 300 strokes is located on the under the graph therefore, RJ05-4SH-050 is selected

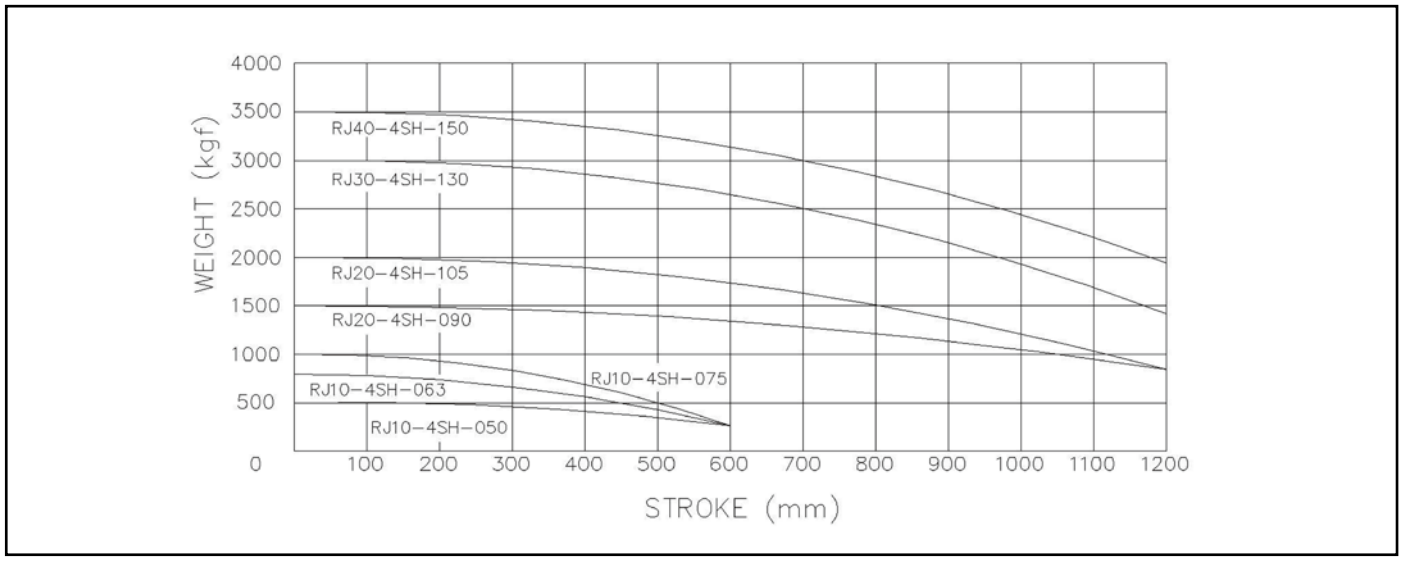
7. RJ-B Series 선정표 (Selecting method)



▣ 그래프를 이용한 선정방법(Product Selection Using a Graph)

사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 900 (kgf) 2. Stroke : 300 (mm) 3. 축간거리(Shaft Pitch) (L x W) : 1300 x 1000 (mm) 4. 속도(Speed) : 3(m/min) 5. RJ-B type	위의 그래프를 보면 900kg과 300 stroke의 교차점이 RJ20-4SB10 model 그래프의 하측에 위치하므로 RJ20-4SB10 model을 선정한다. Looking above, intersection point of 900kg and 300 strokes is located on the under RJ20-4SB10 model graph, therefore, RJ20-4SB10 is selected.

7-1. RJ-H Series 선정표 (Selecting method)



▣ 그래프를 이용한 선정방법(Product Selection Using a Graph)

사 양 (Specification)	선 정 방 법 (Selecting method)
1. 하중(Weight) : 1400 (kgf) 2. Stroke : 200 (mm) 3. 축간거리(Shaft Pitch) (L x W) : 1300 x 1000 (mm) 4. 속도(Speed) : 4(m/min) 5. RJ-H type	위의 그래프를 보면 1400kg과 200 stroke의 교차점이 RJ20-4SH-090 model 그래프의 하측에 위치하므로 RJ20-4SH-090 model을 선정한다. Looking above, intersection point of 1400kg and 200 strokes is located on the under the graph therefore, RJ20-4SH-090 is selected.

8. Geared Motor 선정방법 (Selection mode of Geared Motor)

◈ 사 양 (Spec)

① 하중(Weight) : 1200(kgf)　　② 속도(Speed) : 4(m/min)

P = POWER (kw)	m = 중량(Weight)kgf	V = 속도(Speed)m/sec	n = 효율 (Efficiency)	g = 9.81

$$\text{HOISTING } P = \frac{m \times g \times v}{n \times 1000} \qquad P = \frac{1200 \times 9.81 \times 0.0667}{0.8 \times 1000}$$

P =0.98(kw) 이므로 Geared motor는 그 이상 용량의 break type으로 사용한다.
P =0.98(kw) so break type of geared motor having capability more than 0.98 is used.

9. 속도계산식 (Speed Calculation)

예) RJ20-4S model을 사용하여 속도는 4m/min으로 하고 Geared Motor는 감속비 1/60으로 하고 Spur Gear를 사용한다.
[계 산 식] V=1750 x 1/60 x 39/48 x 0.169 = 4.0m/min 이므로 Rack Jack 구동 shaft의 spur gear는 Z=48로 선정하고,
Motor측 spur gear는 Z=39으로 선정한다(0.169은 shaft 1회전당 상승거리(mm)를 m로 환산한 치수임)

Ex) Assuming that using RJ20-4S, speed is 4m/min and speed reduce rate is 1/60 then use spur gear.
[Calculation] V=1750 x 1/60 x 39/48 x 0.169 = 4.0m/min, so the value (Z) on spur gear of rack jack drive is fixed to 48 and the value (Z) on spur gear of motor is fixed to 39 (0.169 is converted value from rising range(mm) per a rotation to meter.

10. Rack Jack과 Power base의 차이점 (Comparison)

Rack Jack은 직접적인 구동원으로 설계되어있어 Gear의 Size가 Power Base에 비해 크며, Rack Jack의 단품 Model(RJ00R, RJ00L, RJ00D)로도 사용이 가능하다. 또한 Geared Motor나 Servo Motor를 부착하여 사용하는 Motor 구동방식이다. 이에 비해 Power Base는 직접적인 구동원이 아닌 LM Guide나 Ball Bush의 대용품으로 Up/Down의 Guide역할만을 하는 Guide Unit이며 1개의 Gear Box로는 Guide 역할을 하지 못한다. Rack Jack은 최소 용량이 max 500kg(RJ05-4S-100ST)이어서 300kg 미만의 화물을 Motor 방식으로 Up/Down 시키기에는 Over Spec이고 화물 중량에 비해 Lifter의 구성 비용이 많이 들어 이를 보완하기 위해 Power Base의 Up/Down Gear Box를 그대로 사용하고 추가로 Rack Jack의 Bevel Gear Box를 부착하여 만든 Model이 SPM, SPMB Model 이다. 여기에 상승후 자중으로의 낙하 방지를 위해 Bevel gear box가 아닌 Worm Reducer를 부착한 Model이 SPMH Model이다. 결론적으로 구동원을 Air Cylinder나 Hydraulic Cylinder를 사용할경우는 Power Base Model을 사용하고, Motor를 사용할 경우에는 Rack Jack을 사용한다. 하지만 화물중량 300kg 미만의 용도로 사용할경우는 Rack Jack에 비해 상대적으로 저렴한 Power Base의 SPM, SPMB, SPMH Model을 사용한다. 여기서 주의할점은 SPM, SPMB, SPMH Model은 Guide용도로 사용시의 허용하중하고는 많은 차이가 있으므로 선정시 필히 선정 그래프나 선정방법을 확인하고 선정하여한다. 예를들어 Power Base의 SP900F-100ST은 허용하중이 900kg이지만 SPM-900F-100ST은 허용하중이 120kg이다.

Rack Jack is designed as an actuator so the size of gear is bigger than power base's and also it is used in independent way such as RJ00R, RJ00L, RJ00D. And also motor driving system which is patched with geared or servo motor. On the other hands, power base is not an actuator but alternative of LM guide or Ball bush so it plays just a role of guidance to move an object up and down therefore, a gear box can't be fully functioned as a guidance by it's own. The minimum capacity of Rack jack is max 500kg(RJ05-4S-100ST) so objects less than 300kg can't be moved up and down and also the cost to making lifter is much higher. To add up to the flaws, use the up and down gear box on power base unchanged and add bevel gear box to rack jack of SPM, SPMB model. Attaching worm reducer not bevel gear box to the model explained above is SPMH to avoid drop by itself after rising. In other words, when using actuator as air cylinder or hydraulic cylinder, power base model is appropriate and when using motor, rack jack is appropriate.
But when the object weights less than 300kg, SPM, SPMB and SPMH is more helpful for economic aspect than rack jack.
Caution here! When using SPM, SPMB, SPMH as a guide there are huge gap between capable weight limit and limit used as guide so referring graph or selection manual is strongly required. For example, capable weight limit of SP900F-100ST of power base is 900kg but capable weight limit of SP900F-100ST is 120kg.

구 조 (Structure)	 Rack/Pinion Gear 방식으로 Pinion Gear를 회전 운동 시키면 RackGear가 직선운동을 하는 구조이다. Making pinion gear rotate by how Rack/Pinion gear works then rack gear works through straight way.	 Rack/Pinion Gear 방식으로 별도의 구동원(Cylinder, Jack)이 Power Base의 Rack Gear를 Up/Down시키면, Power Base의 Torque Bar가 회전하며 동조를 맞추어주는 구조이다. Extra actuator (Cylinder, Jack) moves rack gear on power base up and down with the way how rack/pinion gear works, and then torque bar balances in between by rotating.
효 율 (Efficient)	동력 손실이 거의 없으므로 높은 기계 효율을 얻을 수 있다. Work loss is hardly occurred so it is very efficient.	LM Guide나 Ball Bush보다 마찰계수가 높아 Actuator의 선정시 이론효율의 70% 이하로 선정한다. Because it's friction coefficient is higher than LM guide or Ball bush when selecting the model, choose the model less than 70% of theoretical efficiency.
SPEED	권장 Speed ; 8 m/min이내(Encouragement Speed ; 8 m/min) Max Speed ; 15 m/min Recommended speed : less than 8m/min Maximum speed : 15m/min It is Rack & Pinion form so the faster the speed the more noisy it is.	
하자보수성 (Maintenance)	구조가 간단하여 분해 조립이 쉽고, 규격품으로 부품은 재고를 항시 보유하고 있어 빠른 대응이 가능하다. Simple structure, Easy to dis/assemble, Parts can be always substituted swiftly because it is standardized.	
장 점 (Merits)	Rack Gear가 수직으로 Up/Down을 하므로 승하강시 하자 발생 요인이 적고 정확한 승하강 및 위치 제어에도 용이하다. 또한 다양한 응용방법으로 Lifter를 구성할 수 있다. Because the rack gear moves up and down in perpendicular way, the possibility of damage is minimized and fixing the location of lifting or loading is easy. And also there are a lot of ways of applications in composing the lifter.	편하중을 받는 조건에서도 좌우 동조가 이루어지며 원활한 Up/Down을 할수있다. Lifter의 구성시 Power Base외에 별도의 Guide 장치물이 필요없어 설계가 쉬우며 Lifter의 구조가 간단해져 보수시에도 용이하다. Even partial weighting on a side, it's balance is never broken so smooth up and down move is available. Composing of the lifter, nothing is necessary but power base so design is much easier and also maintenance is easier.
단 점 (Demerits)	빠른 Speed에는 부적합 하며 자체 높이가 Stroke+기본 높이가 있어야 되므로 공간 차지가 많으며 Rack Gear의 특성상 2.5m 이상의 Stroke에는 적용이 불가능 하다. It not appropriate for fast speed and lots of rooms is needed because of the need for extra room for stroke, in particular, it can't be applied to the rack gear having over 2.5m length.	LM Guide에 비해 부드러운 작동, 진동, 소음면이 떨어진다. Comparing LM guide, smooth driving, but vibration and noise can be more than LM guide.

11. 외관 및 후처리 (Exterior & After treatment)

품 명 Names of goods	표 준 Standard	녹방지용 Blunt prevention	크린룸용 Clean room	반도체장비용 Semiconductor equipment	식품회사용 Food company
Rack gear box Bevel gear box	분체도장(powder painting)		분체도장(powder painting)		
Rack gear	흑착색 (black coloring)	크롬도금 (chrom plating)	경질크롬도금/레이던트 (hard chrom plating/Raydent)		sus
Shaft	흑착색 (black coloring)	크롬도금 (chrom plating)	경질크롬도금(hard chrom plating) 무전해 니켈도금(non-electrolytic nickel plating)		sus
Flange	흑착색 (black coloring)	크롬도금 (chrom plating)	무전해 니켈도금(non-electrolytic nickel plating)		sus
Pinion gear	열처리 (heat treatment)	열처리 (heat treatment)	열처리/레이던트(heat treatment/Raydent)		sus
Bearing	일반(general)	일반(general)	일반(general)	일반/sus(general/sus)	sus
Bolt	일반(general)	도금볼트(plating)	sus bolt	sus bolt	sus bolt

12. 표준사양 (General Specification)

RJ Series

MODEL	RJ05R(D)	RJ10R(D)	RJ20R(D)	RJ30R(D)	RJ40R(D)	RJ50R(D)	RJ05-4S	RJ10-4S	RJ20-4S	RJ30-4S	RJ40-4S	RJ50-4S
구동원(Drive)	MOTOR											
랙축경 및 모듈(mm) (Diameter of rack gear and module)	Φ25×M2	Φ30×M2	Φ40×M3	Φ50×M3.5	Φ60×M4	Φ80 x M5	Φ25×M2	Φ30×M2	Φ40×M3	Φ50×M3.5	Φ60×M4	Φ80 x M5
Pinion gear 잇수(value) (z)	18	21	18	20	20	20	18	21	18	20	20	20
Bevel gear module x 잇수(value)(z)							M2×25T	M3×25T	M3×27T	M4×25T	M5×30T	M8x20T
Spur gear module							M3	M3	M4	M5	M5	M6
효율(Efficiency)	0.90						0.80			0.70		
최대속도(Max speed)	8,000						7,000					
입력축 1회전당 랙축진행(1 rev' lead)	113.1	131.9	169.6	219.9	251.4	314.1	113.1	131.9	169.6	219.9	251.4	314.1
Stroke 여유(Stroke limit) (mm)	+10 over											

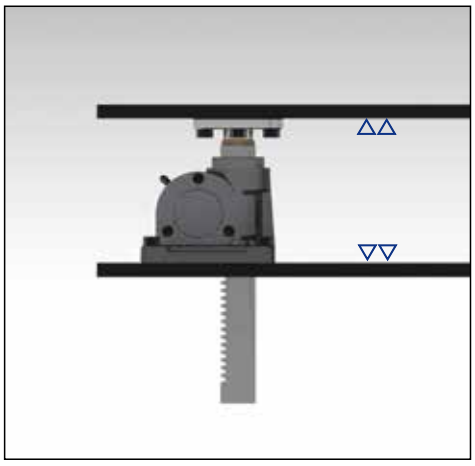
RJOO-4SB Series

MODEL	RJ05-4SB03	RJ05-4SB05	RJ10-4SB05	RJ10-4SB10	RJ20-4SB10	RJ20-4SB15	RJ30-4SB20
구동원(Drive)	MOTOR						
랙축경 및 모듈(mm) (Diameter of rack gear and module)	Φ25×M2	Φ25×M2	Φ30×M2	Φ30×M2	Φ40×M3	Φ40×M3	Φ50×M3.5
Pinion gear 잇수(value) (z)	18	18	21	21	18	18	20
Bevel gear module x 잇수(value)(z)/main	M2×25T	M2×25T	M3×25T	M3×27T	M3×27T	M4×25T	M6×20T
Bevel gear module x 잇수(value)(z)/sub	M2×25T	M3×25T	M3×25T	M3×25T	M3×27T	M3×27T	M4×25T
효율(Efficiency)	0.7					0.6	
최대속도(Max speed)	7,000						
입력축 1회전당 랙축진행(1 rev' lead)	113.1	113.1	131.9	131.9	169.6	169.6	219.9
Stroke limit(여유)(mm)	+10 over						

RJOO-4SH Series

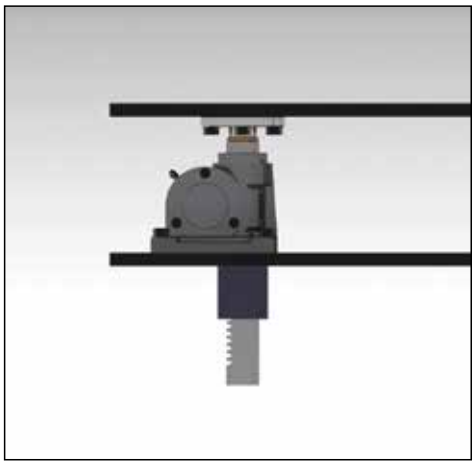
MODEL	RJ05-4SH			RJ10-4SH			RJ20-4SH		RJ30-4SH		RJ40-4SH
Worm reducer model	040	050	063	050	063	075	075	090	105	130	150
구동원(Drive)	MOTOR / HANDLE										
랙축경 및 모듈 (Diameter of rack gear and module)	Φ25×M2			Φ30×M2			Φ40×M3		Φ50×M3.5		Φ60×M4
Pinion gear 잇수(value) (z)	18			21			18		20		20
Bevel gear module x 잇수(value)(z)	M2×25T			M3×25T			M3×27T		M4×25T		M5×30T
효율(Efficiency)	0.6						0.5				
최대속도(Max speed)	7,000										
입력축 1회전당 랙축진행(1 rev' lead)	113.1			131.9			169.6		219.9		251.4
Stroke 여유(Stroke limit) (mm)	+10 over										

13. 조립시 유의사항 (Attention Fact)



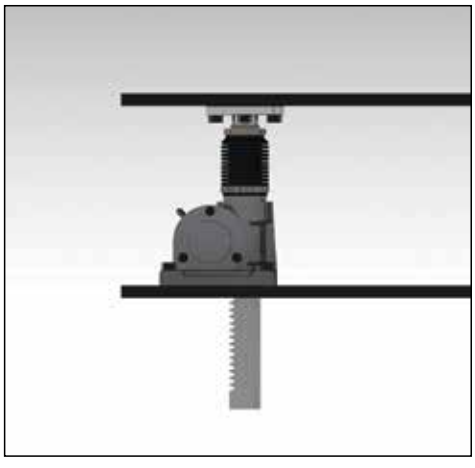
Rack jack의 취부면은 가공을 하는 것이 제품의 수평, 수직을 잘맞출 수 있습니다.

Cutting and grinding on attaching side can fix the product balance in parallel and perpendicular.



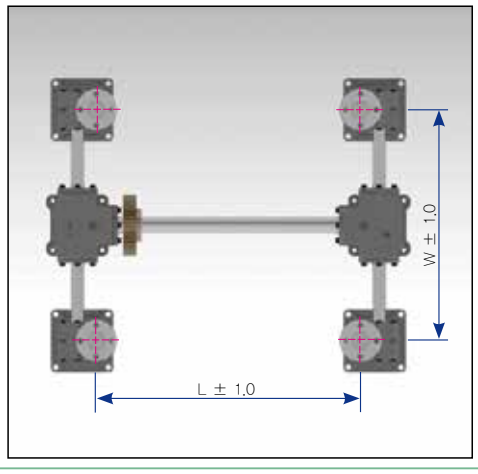
600mm 이상의 stroke를 사용할때에는 그림과 같이 rack jack의 보조 Guide bush를 사용하면, 상승시 rack gear의 흔들림을 최소화 할 수 있습니다.

When using over 600mm stroke, as showing the picture, with sub guide bush of rack jack the shivering of rack gear on the move upward can be minimized.



분진이나 먼지가 많은 사용조건에서는 자바라를 사용하여 gear box 내부로의 유입을 막아줍니다.

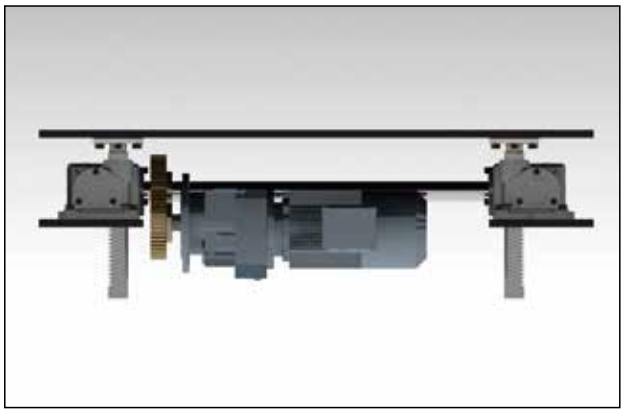
For using bellows, it protects the particle and dust that can flow into gearbox.



Rack Jack간의 축간거리는 model에 따라 차이가 있지만 ±1mm 이상의 조절범위가 있으므로 취부홀간 거리가 맞지 않을시는 shaft 를 고무망치로 벌리거나 줄여서 거리를 맞춘후 조립합니다. 이때 볼트를 강제적으로 조이면 Rack 축의 직진도가 틀어질 수 있으므로 주의하여 조립합니다.

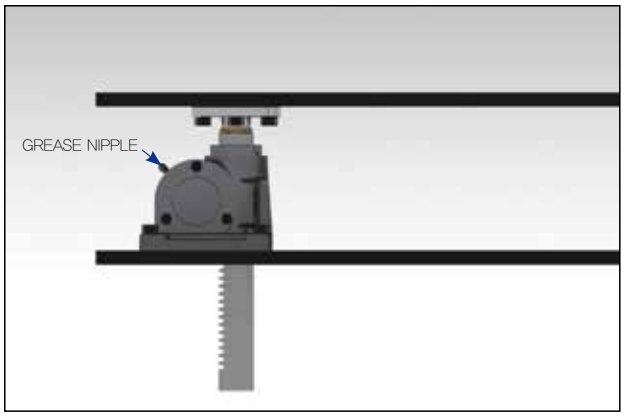
Although differences between shafts of rack jack exists, ±1mm regulating range can be managed by widening or narrowing shaft. At this time, forced tightening the bolt can be damaged to the straightness.

◈ 조립시 유의사항 (Attention Fact)



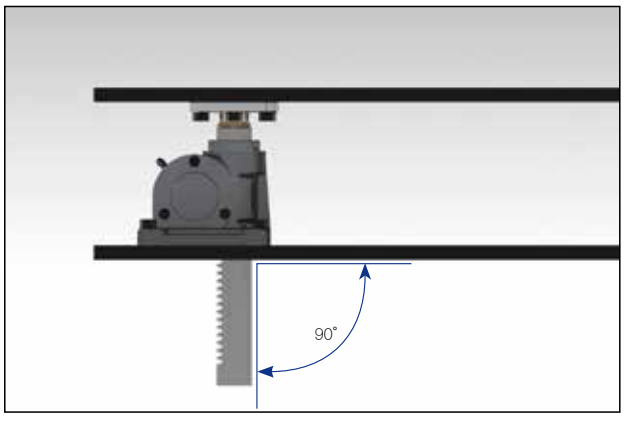
사용횟수가 많거나, 보다 정밀한 중간제어를 원할시는 chain 구동 방법 보다는 gear대 gear방법이 안정적입니다.

If frequent use or precise controlling is required, gear–gear drive is more stable than driven by chain.



Rack Jack의 급유는 grease를 사용하며 일반사양에는 bearing grease를 사용하고 clean사양에는 silicon계 grease를 사용합니다.
급유주기는 사용빈도에 따라 차이가 있으나 기본적으로 3개월에 한번 점검 및 보충하여 줍니다.

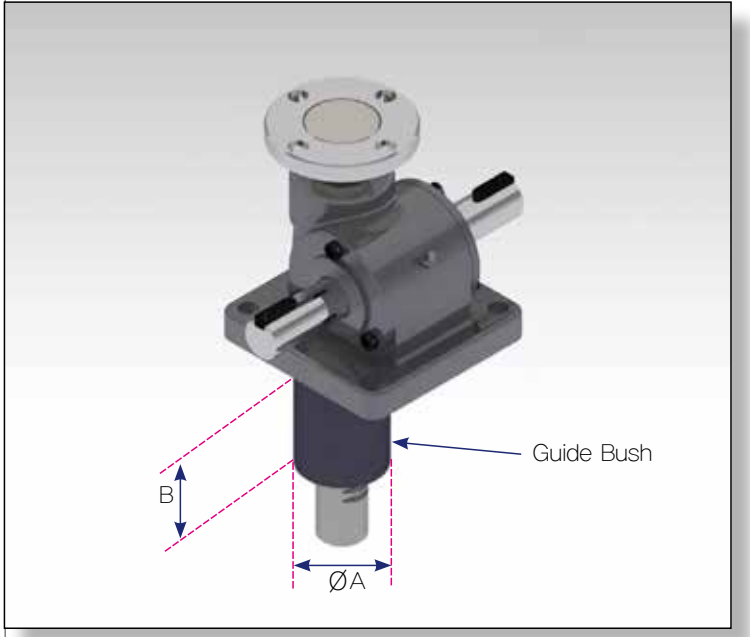
Greasing on rack jack is needed. Bearing grease for General one, grease made up of silicon for clean one Period of greasing is once in 3 months.



Rack jack의 조립시 rack gear 수직이 안맞은 상태로 사용을 하면 rack gear와 pinion gear의 마모가 빨리되어 수명이 단축되며, gear의 마찰계수가 높아져 motor의 효율이 저하 됩니다.
이때에는 상, 하면 flange bolt를 조금 풀어 놓은 상태에서 up–down test를 한 후 취부 bolt를 조여줍니다.

Assembling rack jack, if the perpendicular of rack gear is not fixed, it's durability is getting weaker by abrasion of gears and also the efficiency can be damaged. At this time, tighten the bolts after up–down testing with little loosended the up/down flange bolt.

(보조 Guide Bush 부착 Type) (Sub Guide bush sticking type)



MODEL	ØA	B
RJ10	Ø50	60
RJ20	Ø60	60
RJ30	Ø75	80
RJ40	Ø90	100
RJ50	Ø130	150

※ **NOTE**

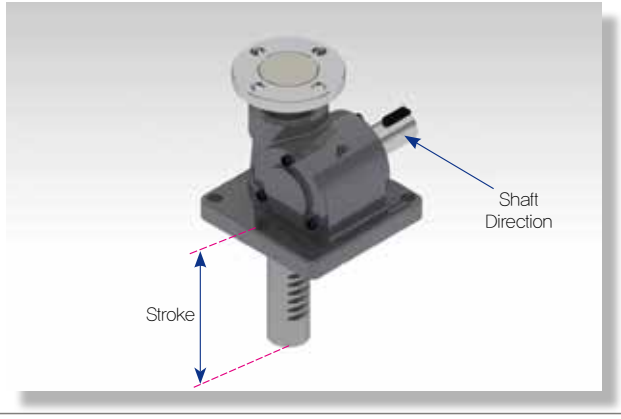
– STROKE를 600mm 이상 사용할때는 보조 Guide bush type을 권장합니다.
(Sub guide bush type is recommended if the length of stroke is over 600mm)

14. 형식표시방법-일반Type (Product Serial No-General Type)

RJOOR TYPE

RJ ① 20 ② R ③ – 200ST ④

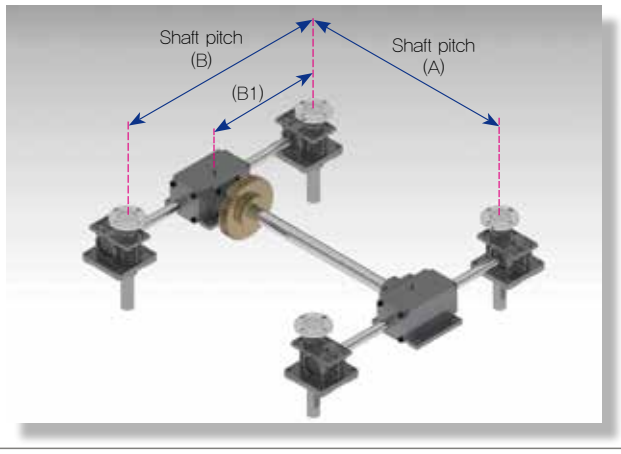
① Rack Jack						
② Model	05	10	20	30	40	50
③ 입력 Shaft 방향(Shaft direction)						
R	Right	L	Left	D	Double	
④ Stroke (mm)						



RJOO-4S TYPE

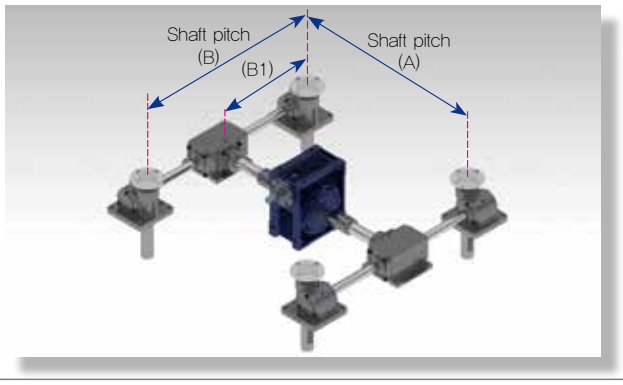
RJ ① 10 ② – 4S ③ – 800 ④ × 600 ⑤ – 300 ⑥ – 350ST ⑦

① Rack Jack (Motor 구동 type) Motor Drive type						
② Model	05	10	20	30	40	50
③ Rack Jack조합(unit)						
2S	2Set 조합(unit)	3S	3Set 조합(unit)	4S	4Set 조합(unit)	
6S	6Set 조합(unit)	8S	8Set 조합(unit)			
④ Shaft A 축간거리 : Shaft A Pitch(mm)						
⑤ Shaft B 축간거리 : Shaft B Pitch(mm)						
⑥ 구동 Shaft 축간거리(B1) mm : Drive Shaft Pitch(B1) mm						
⑦ Stroke(mm)						



RJOO-4SH TYPE

RJ ① 20 ② – 4S ③ H ④ – 1200 ⑤ × 700 ⑥ – 350 ⑦ – 150ST ⑧ – 063 ⑨ – 1/50 ⑩

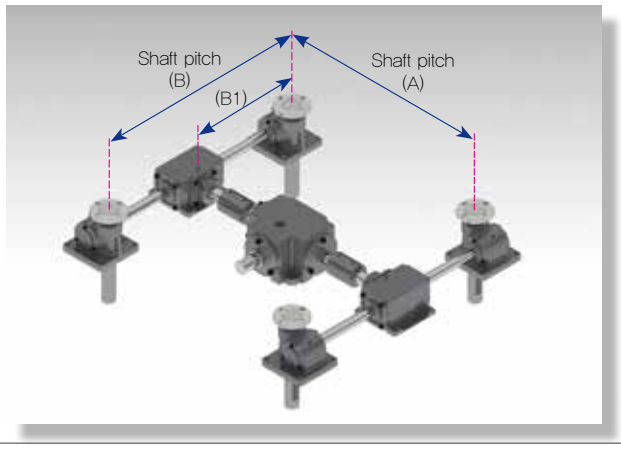


① Rack Jack					
② Model	05	10	20	30	40
③ Rack Jack조합(Rack Jack unit)					
4S	4Set 조합(unit)	6S	6Set 조합(unit)	8S	8Set 조합(unit)
④ Worm reducer 부착형(with worm reducer)					
⑤ Shaft A 축간거리 : Shaft A Pitch(mm)					
⑥ Shaft B 축간거리 : Shaft B Pitch(mm)					
⑦ 구동 Shaft 축간거리(B1) mm:Drive Shaft pitch(B1)mm			⑧ Stroke(mm)		
⑨ Worm reducer model					
040	050	063	075	090	
105	110	130	150		
⑩ 감속비(Deceleration ratio)					
1/10	1/15	1/20	1/25	1/30	
1/40	1/50	1/60	1/80	1/100	

RJOO-4SB TYPE

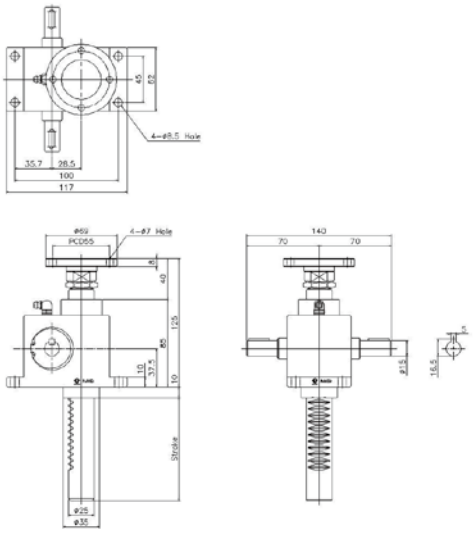
RJ ① 20 ② – 4S ③ B15 ④ – 1000 ⑤ × 500 ⑥ – 300 ⑦ – 250ST ⑧

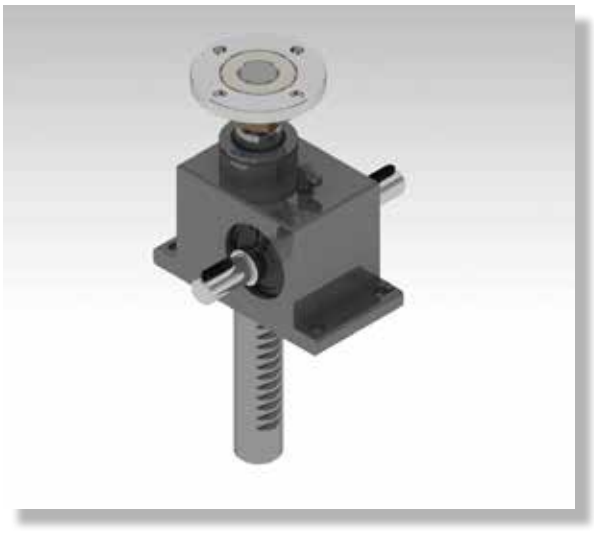
① Rack Jack					
② Model	05	10	20	30	
③ Rack Jack조합(Rack Jack unit)					
4S	4Set 조합(unit)	6S	6Set 조합(unit)	8S	8Set 조합(unit)
④ MITER BOX MODEL	B03	B05	B10	B15	B20
⑤ Shaft A 축간거리 : Shaft A Pitch(mm)					
⑥ Shaft B 축간거리 : Shaft B Pitch(mm)					
⑦ 구동 Shaft 축간거리(B1) mm : Drive Shaft Pitch(B1) mm					
⑧ Stroke(mm)					



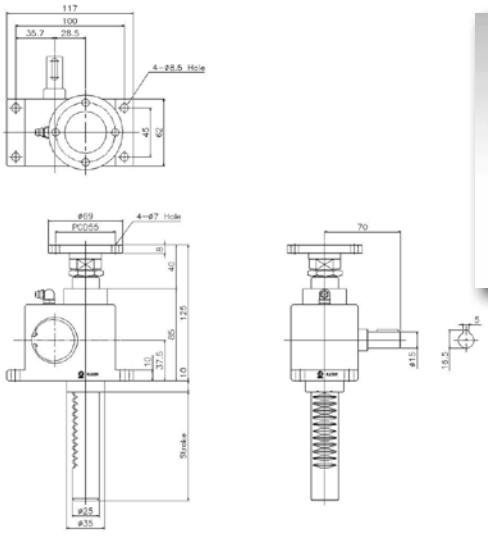
15. Dimension 일반형 (General Type)

RJ 05D

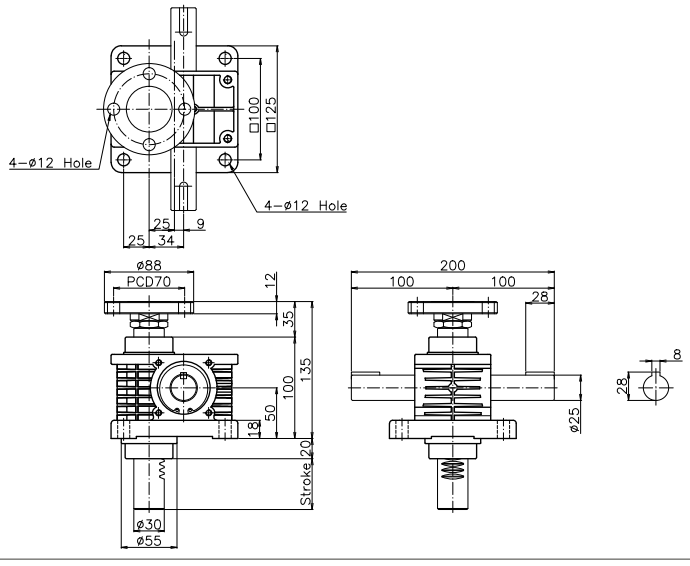




RJ 05L, R

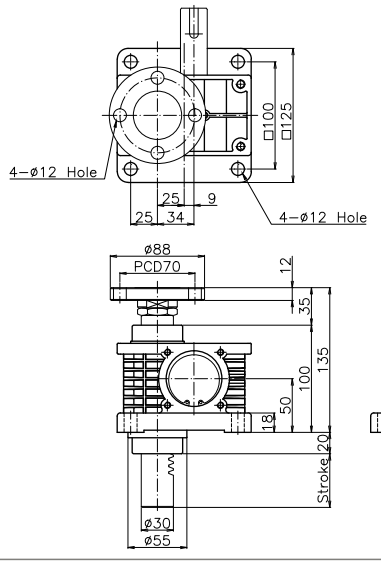


RJ 10D

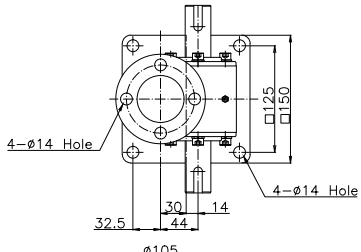


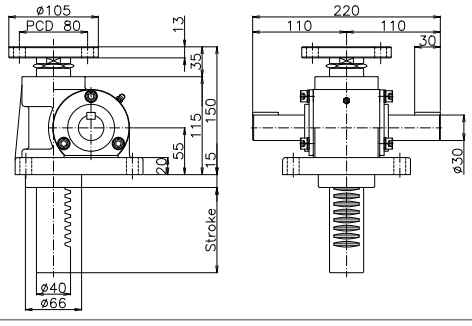
◈ Dimension 일반형 (General Type)

RJ 10L, R

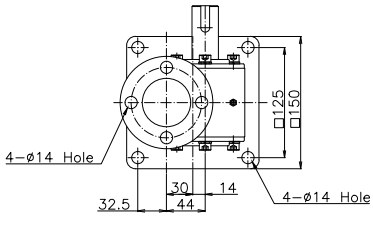


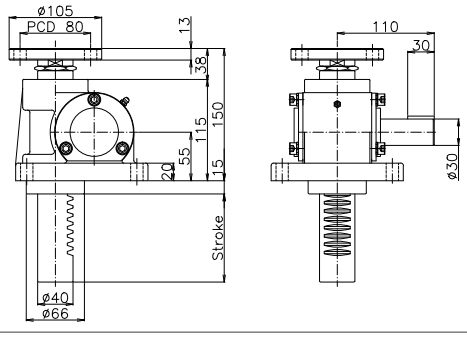
RJ 20D





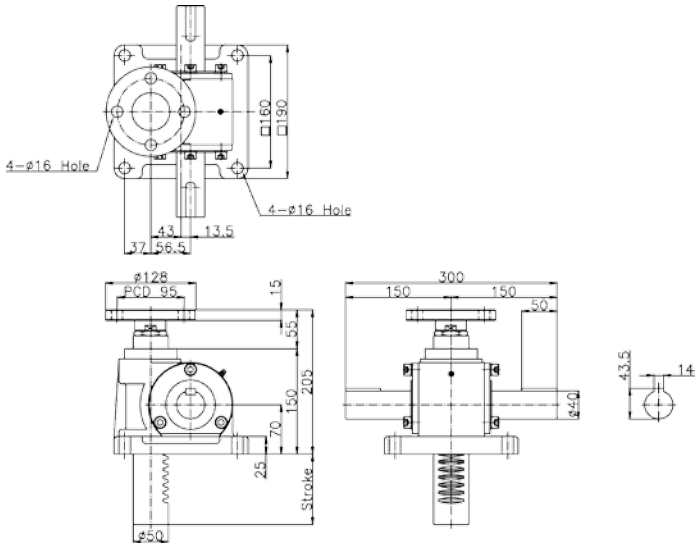
RJ 20L, R



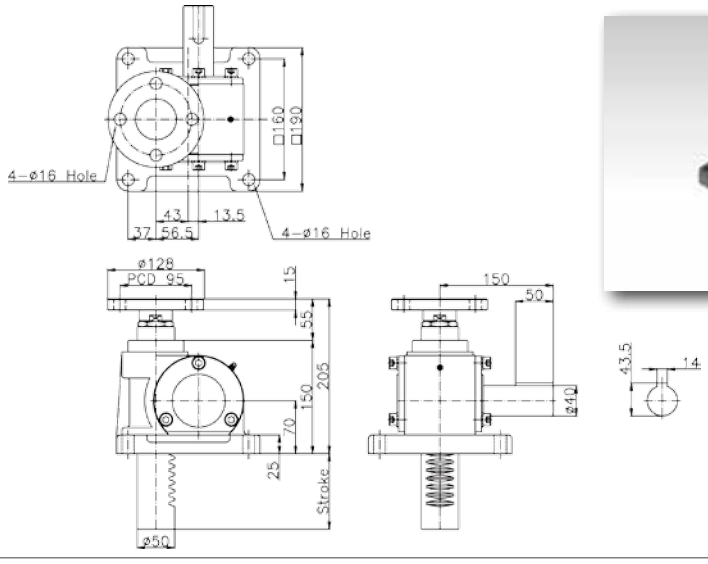


◈ Dimension 일반형 (General Type)

RJ 30D



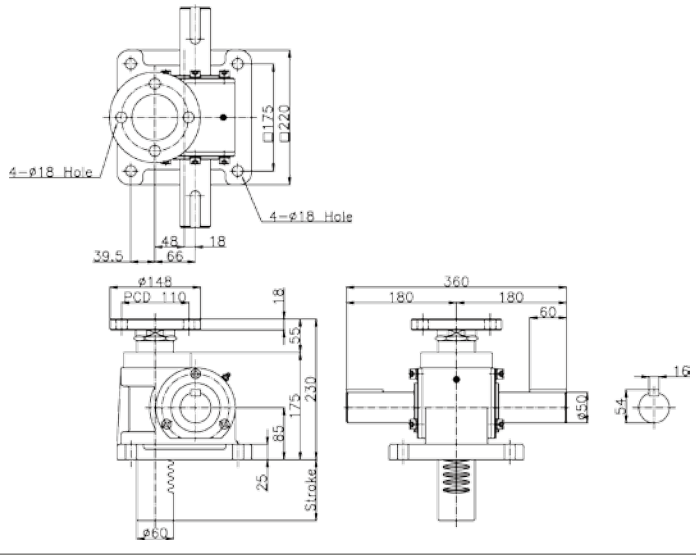
RJ 30L, R



◈ RJ 30L

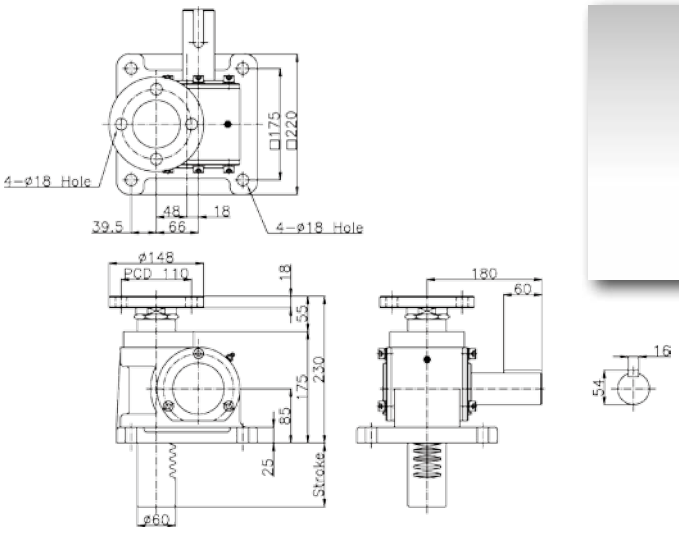
◈ RJ 30R

RJ 40D

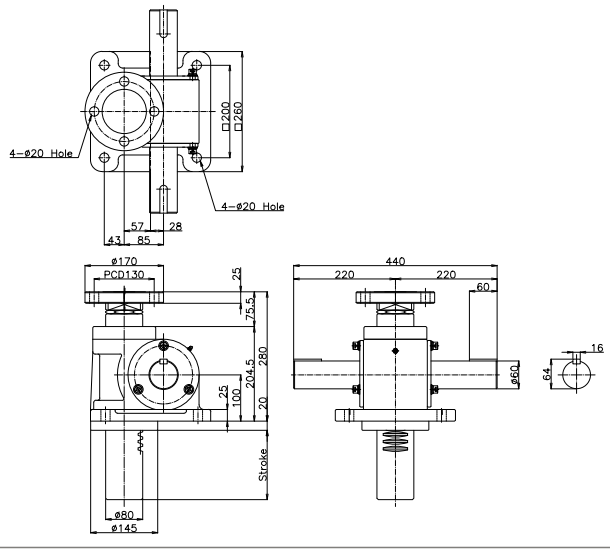


◈ Dimension 일반형 (General Type)

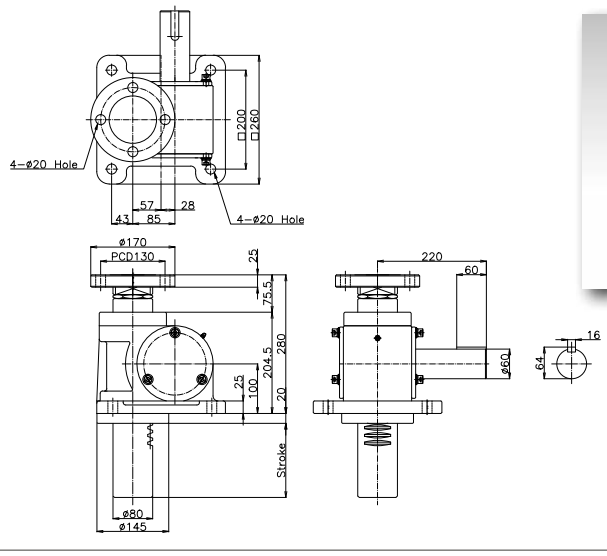
RJ 40L, R



RJ 50D

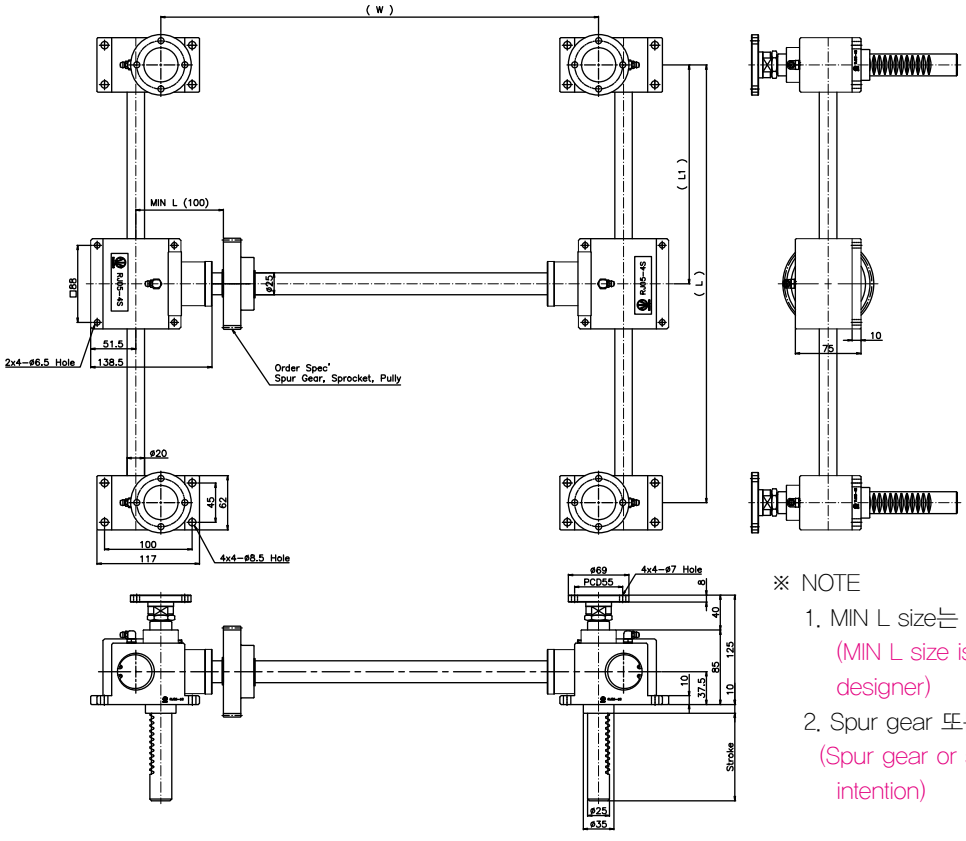


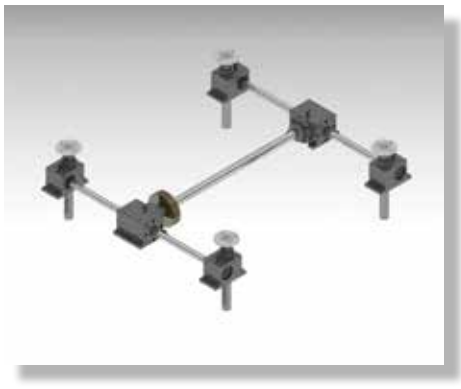
RJ 50L, R



◈ Dimension 일반형 (General Type)

RJ05-4S

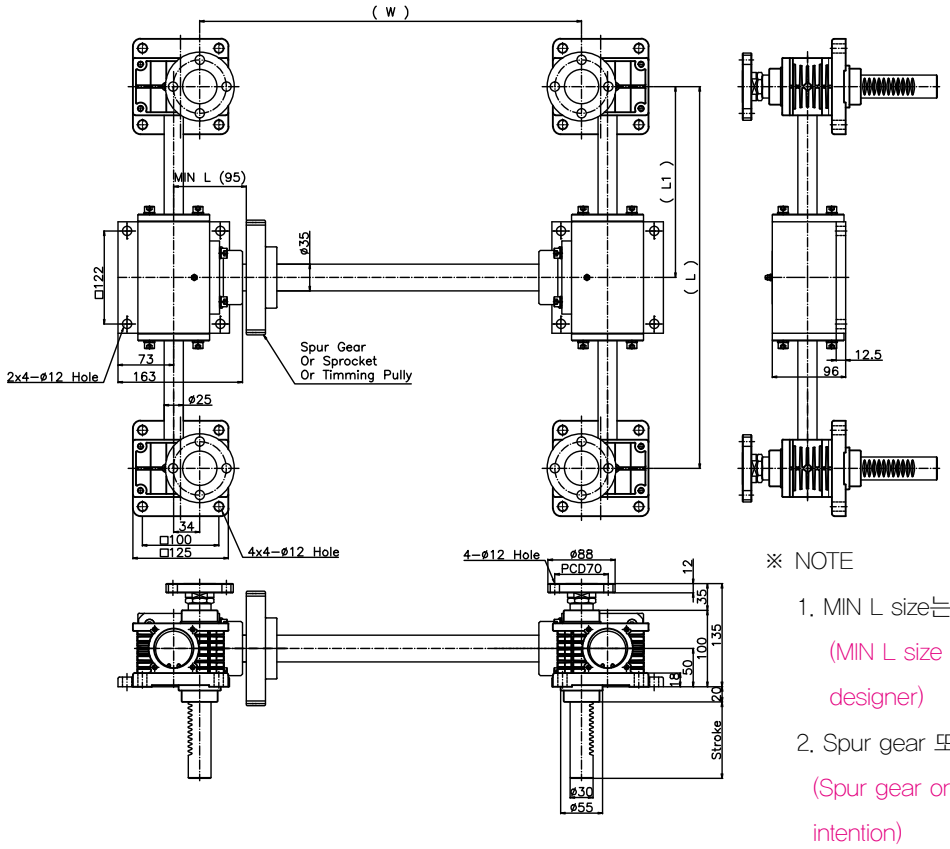


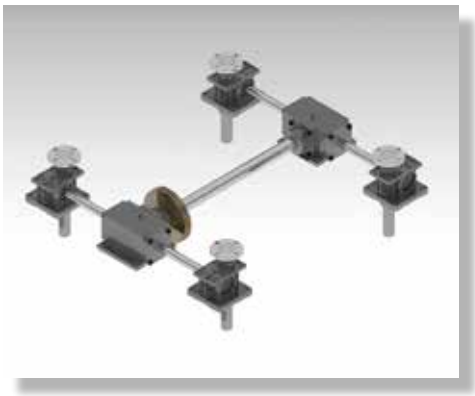


※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
   (Spur gear or sprocket can be selected by the designer's intention)

RJ10-4S



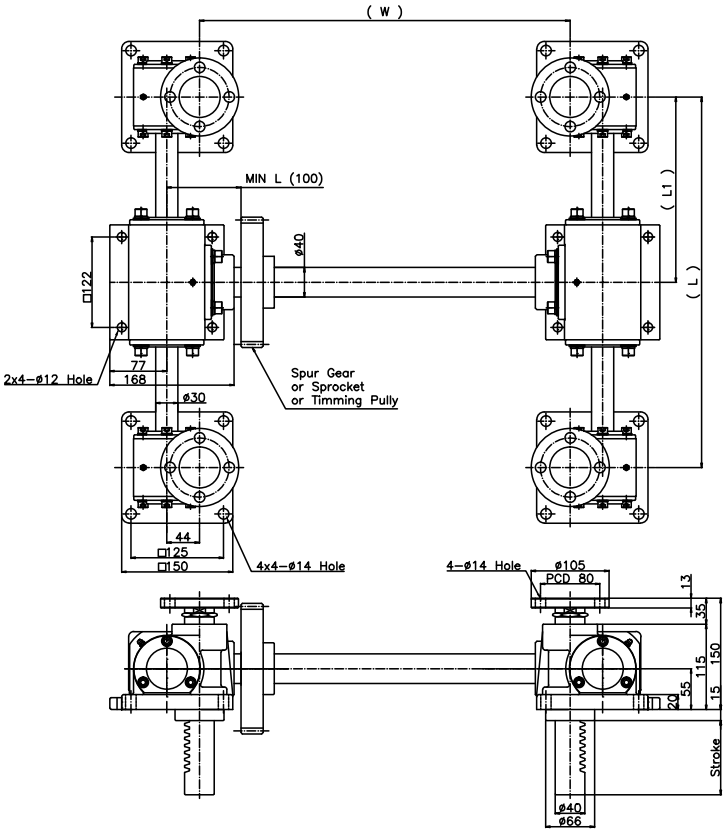


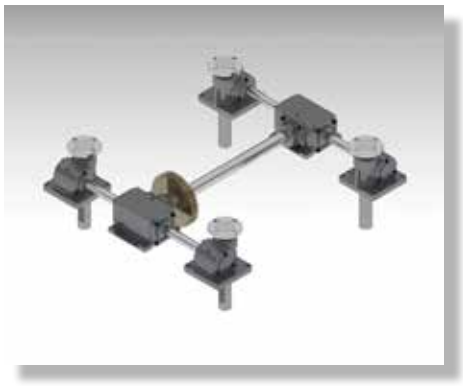
※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
   (Spur gear or sprocket can be selected by the designer's intention)

◈ Dimension 일반형 (General Type)

RJ20-4S

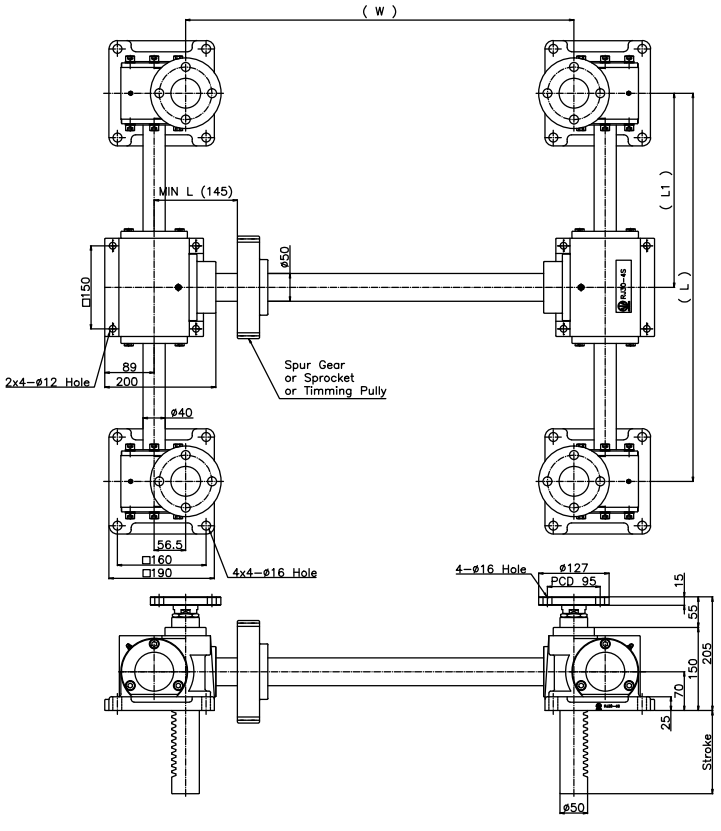


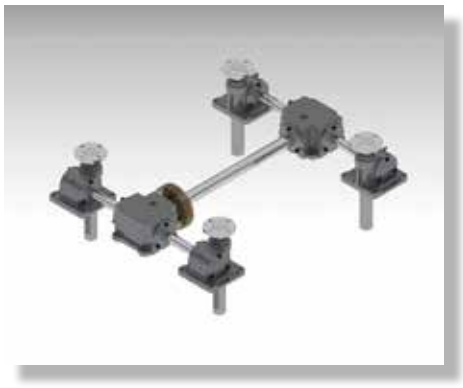


※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
   (Spur gear or sprocket can be selected by the designer's intention)

RJ30-4S



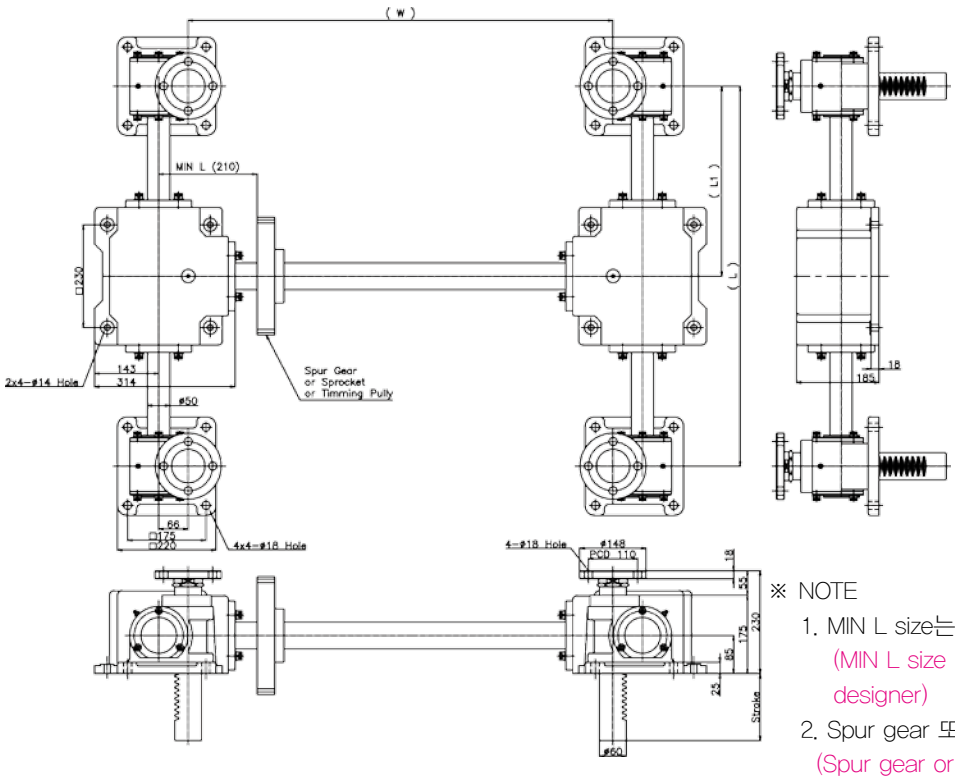


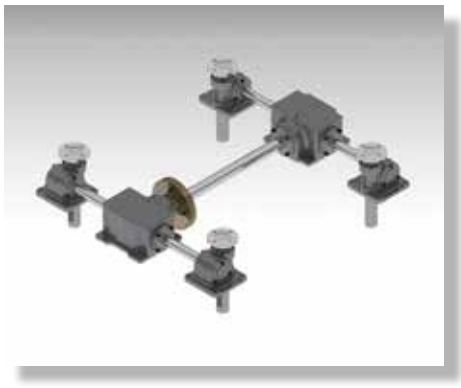
※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
   (Spur gear or sprocket can be selected by the designer's intention)

◈ Dimension 일반형 (General Type)

RJ40-4S

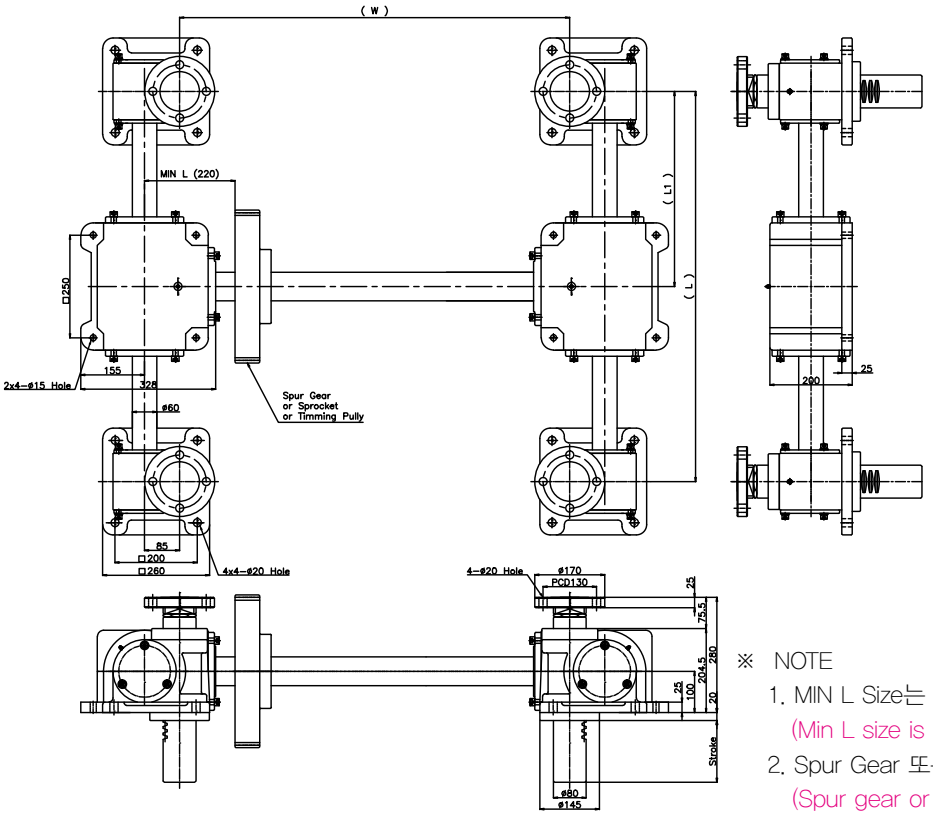


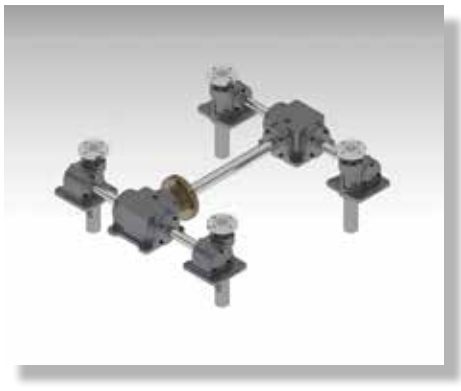


※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Spur gear 또는 Sprocket는 설계자의 임의로 선정 가능
   (Spur gear or sprocket can be selected by the designer's intention)

RJ50-4S



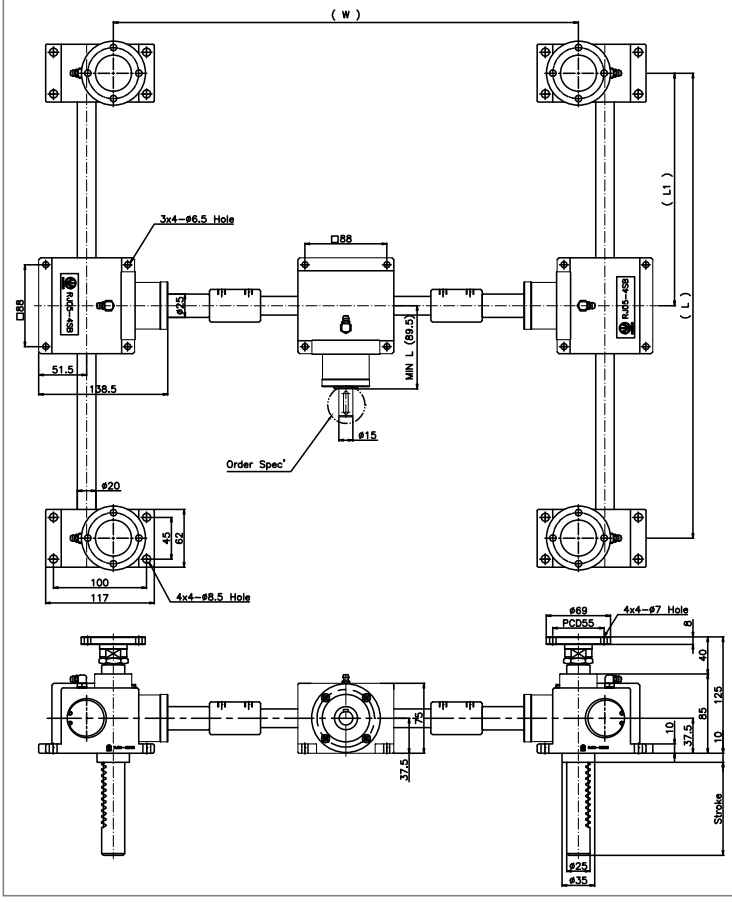


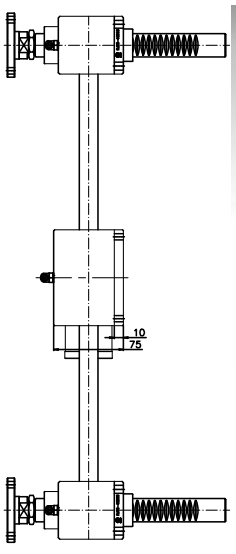
※ NOTE

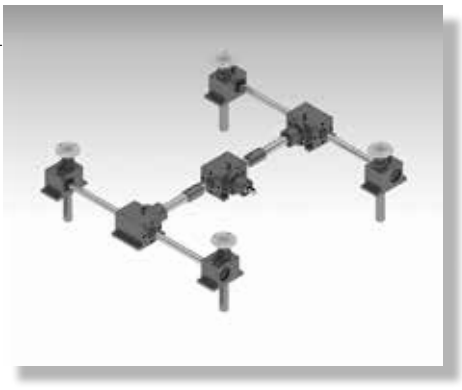
1. MIN L Size는 최소 치수이며 설계자의 임의로 변경가능
   (Min L size is minimum and can be tuned by the designer.)
2. Spur Gear 또는 Sprocket는 설계자의 임의로 선정가능
   (Spur gear or sprocket can be selected by the designer's intention.)

◈ Dimension 일반형 (General Type)

RJ05-4SB03



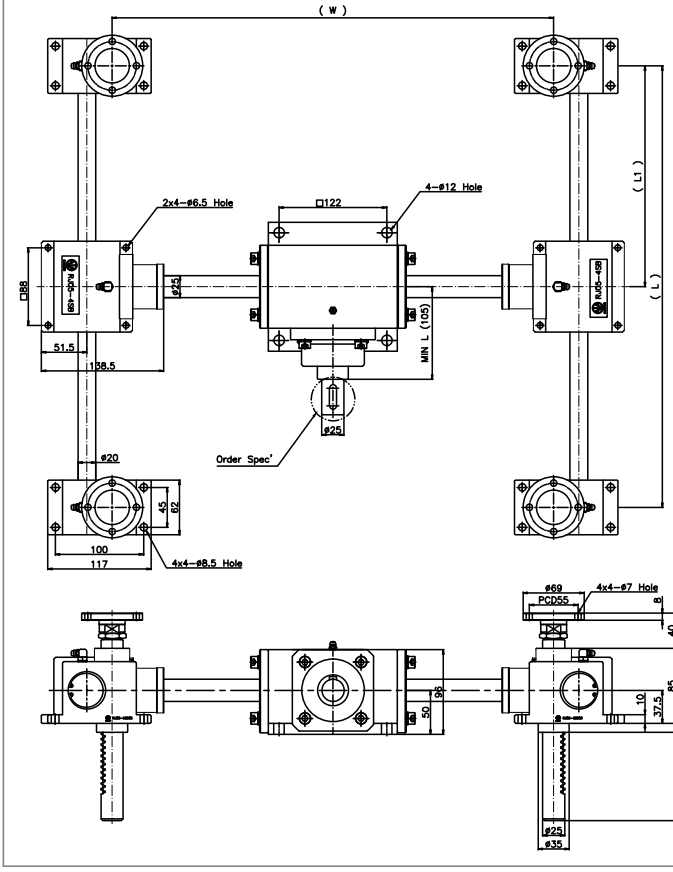


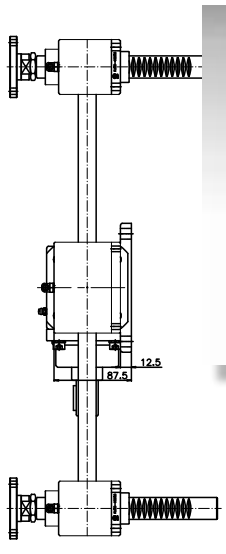


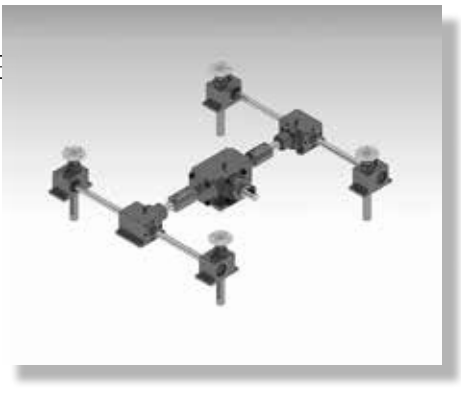
※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Miter gear box 입력축의 치수는 주문사양임.
   (Miter gear box input spindle size is order specification.)

RJ05-4SB05





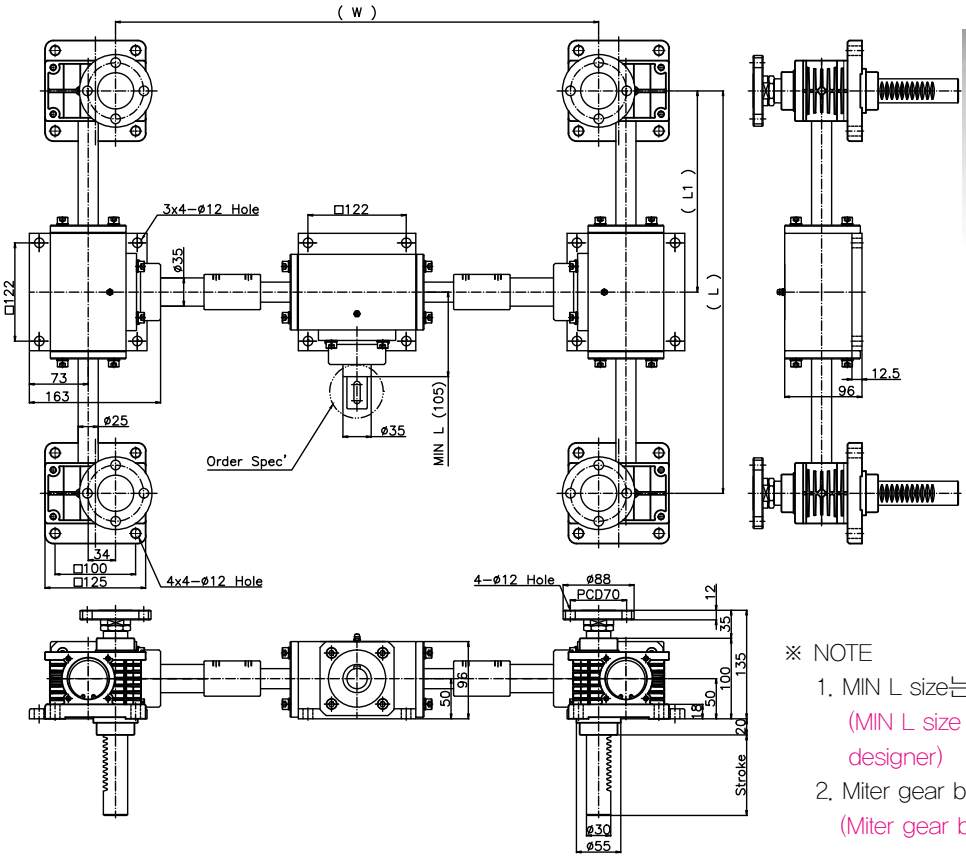


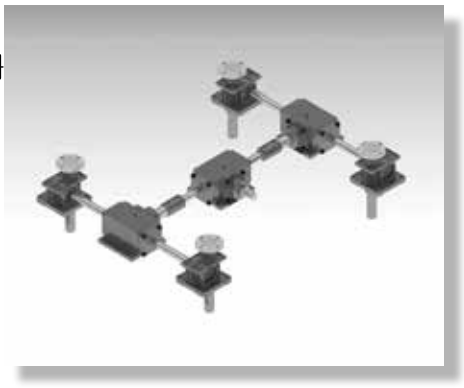
※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Miter gear box 입력축의 치수는 주문사양임.
   (Miter gear box input spindle size is order specification.)

◈ Dimension 일반형 (General Type)

RJ10-4SB05

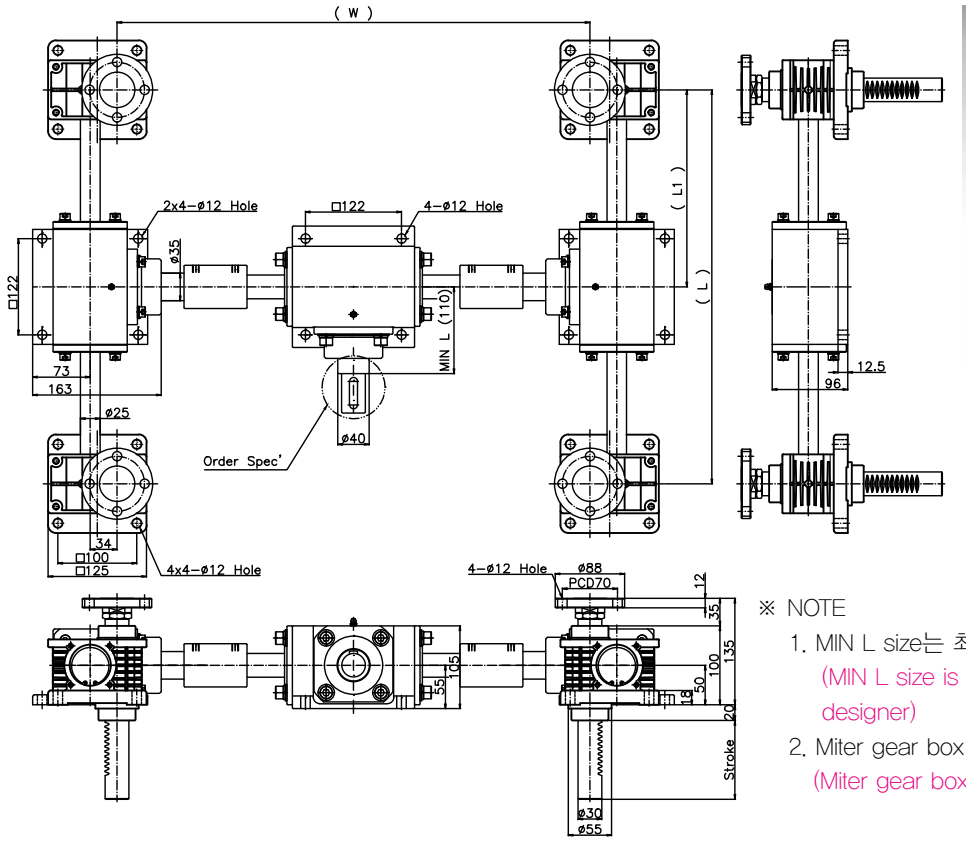




※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Miter gear box 입력축의 치수는 주문사양임.
   (Miter gear box input spindle size is order specification.)

RJ10-4SB10

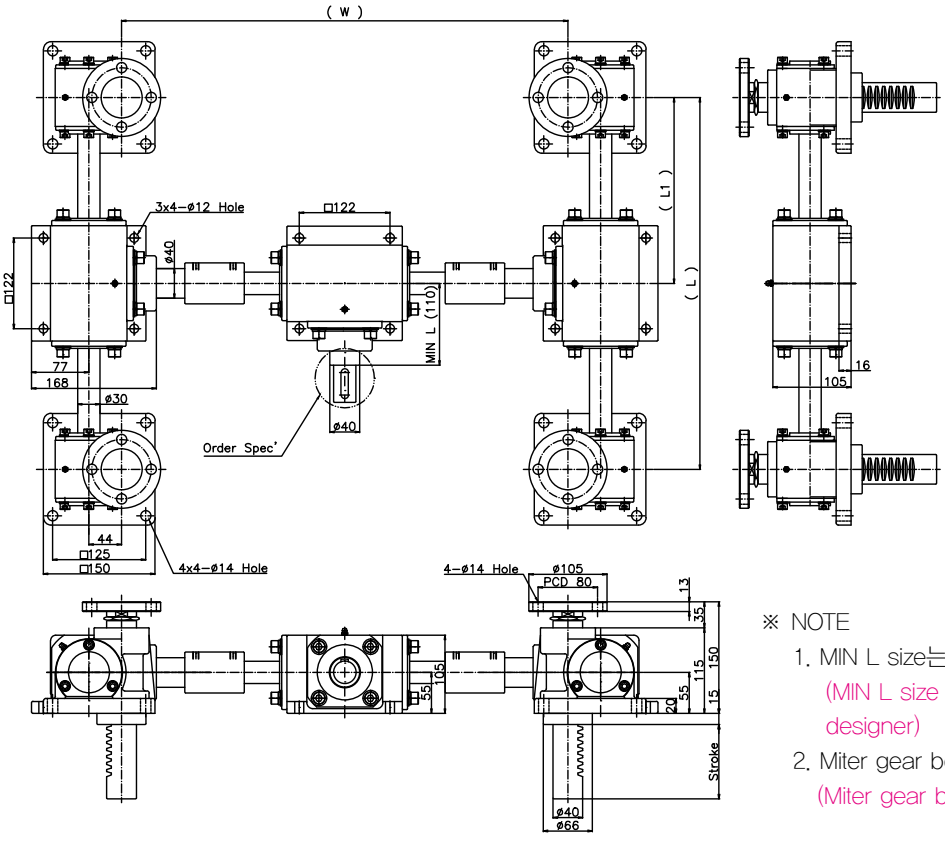


※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Miter gear box 입력축의 치수는 주문사양임.
   (Miter gear box input spindle size is order specification.)

◈ Dimension 일반형 (General Type)

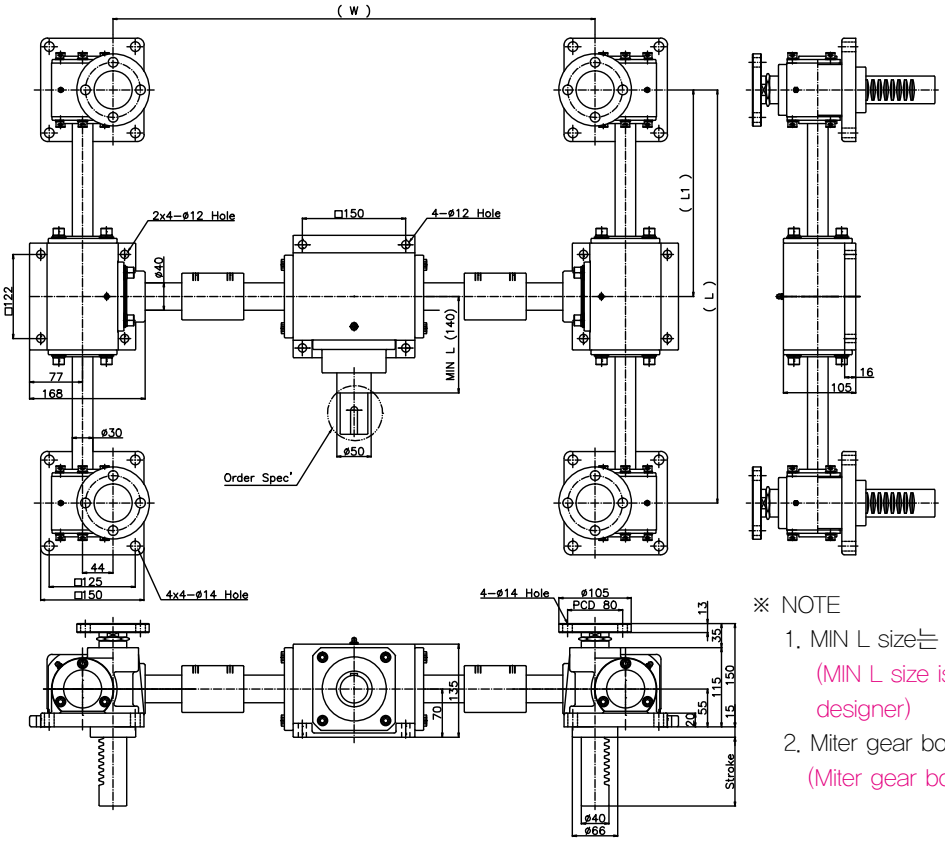
RJ20-4SB10



※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Miter gear box 입력축의 치수는 주문사양임.
   (Miter gear box input spindle size is order specification.)

RJ20-4SB15

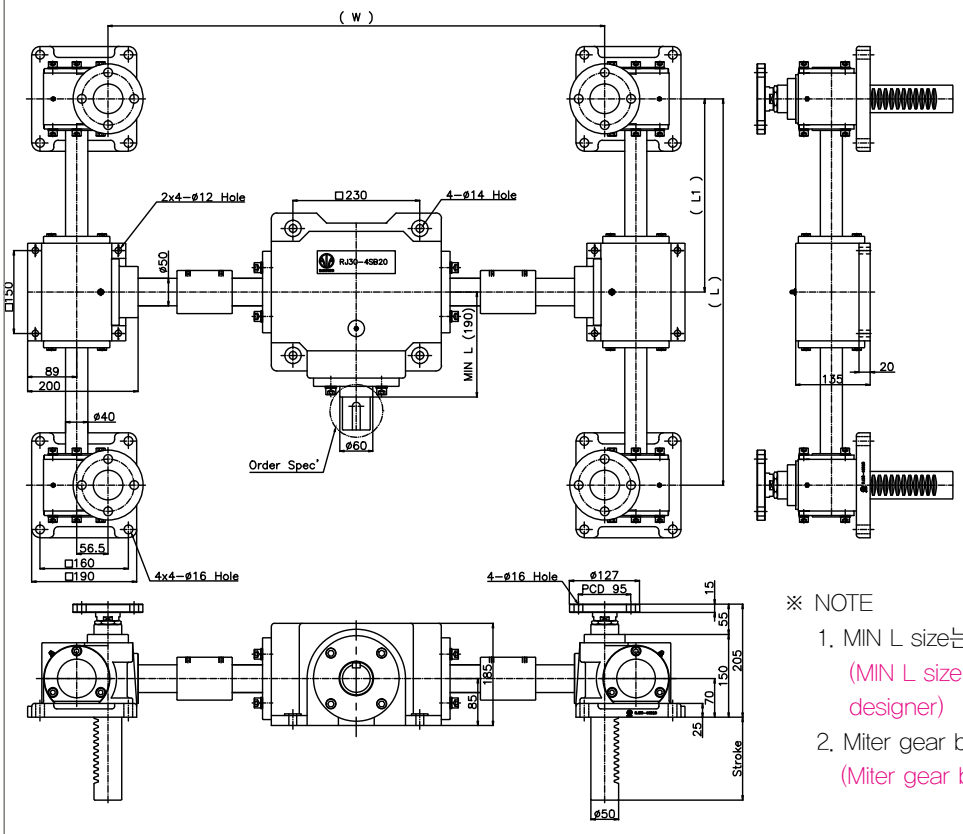


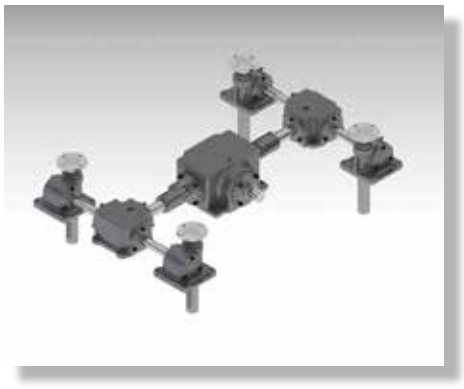
※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Miter gear box 입력축의 치수는 주문사양임.
   (Miter gear box input spindle size is order specification.)

◈ Dimension 일반형 (General Type)

RJ30-4SB20

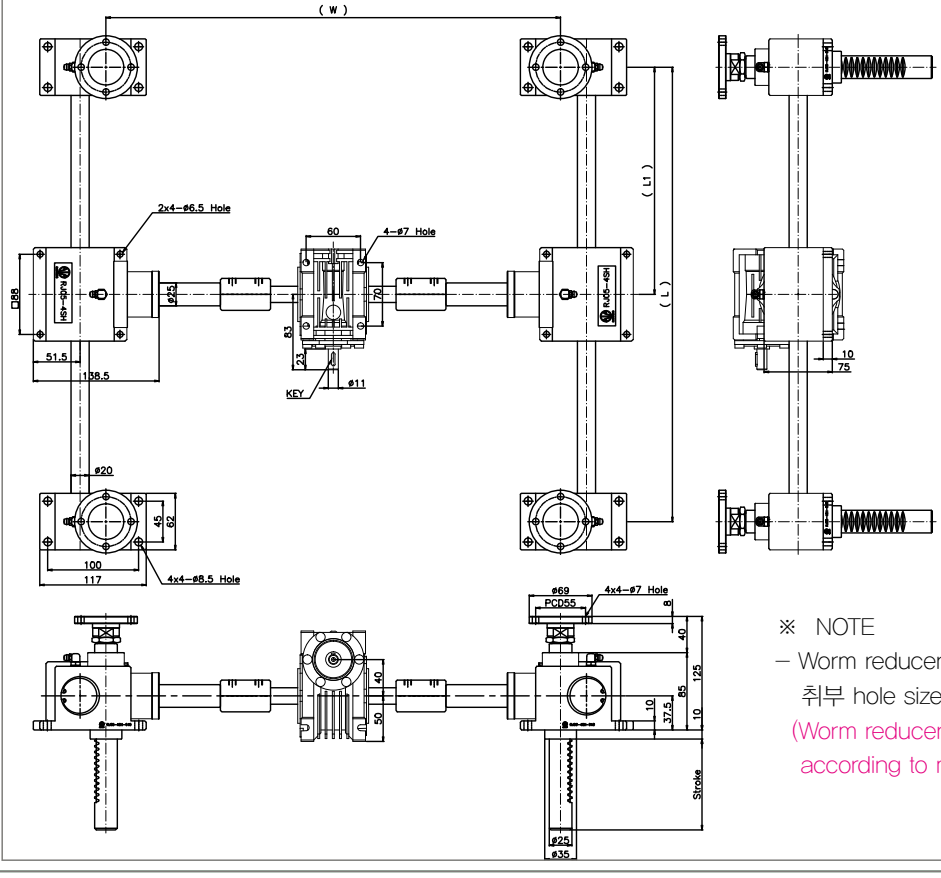


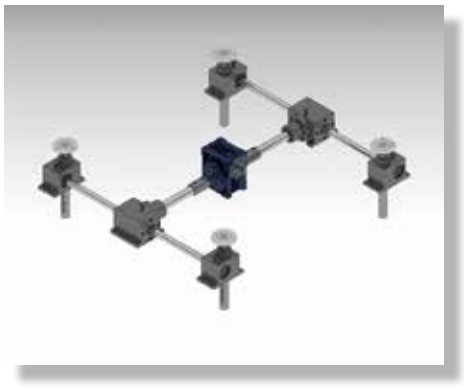


※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size is minimum and can be tuned by the designer)
2. Miter gear box 입력축의 치수는 주문사양임.
   (Miter gear box input spindle size is order specification.)

RJ05-4SH-040



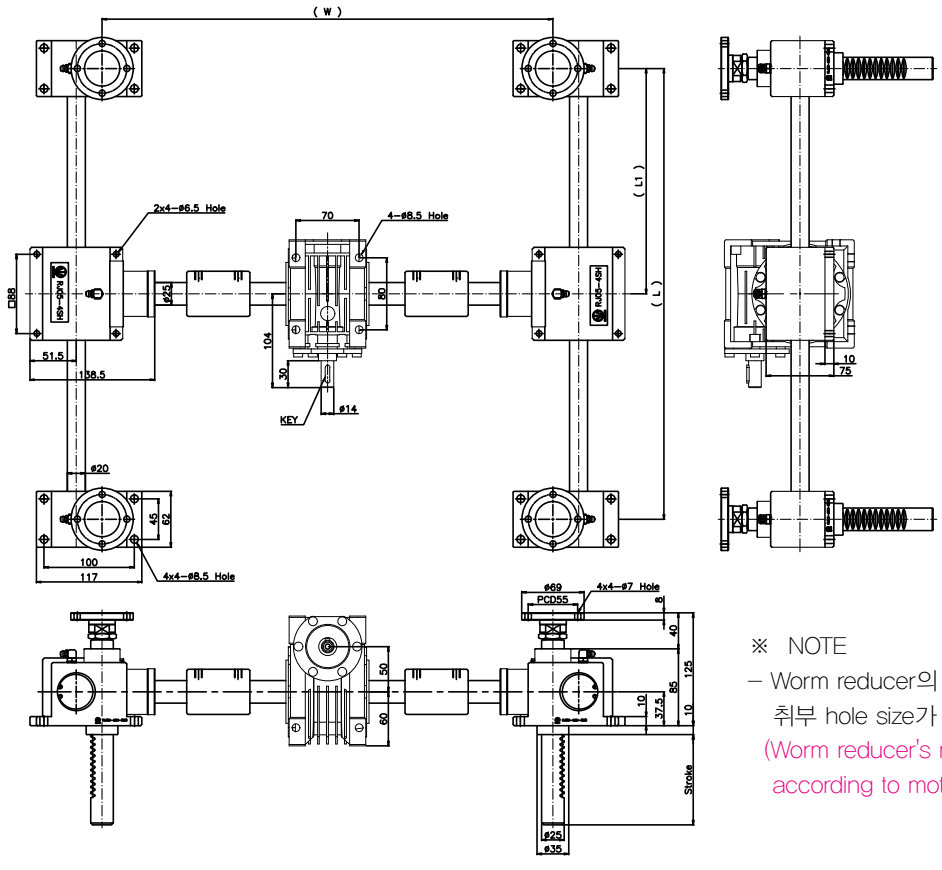


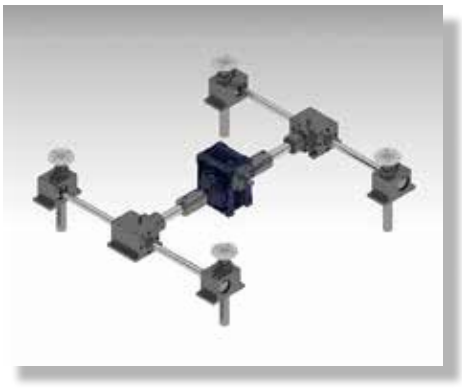
※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension 일반형 (General Type)

RJ05-4SH-050

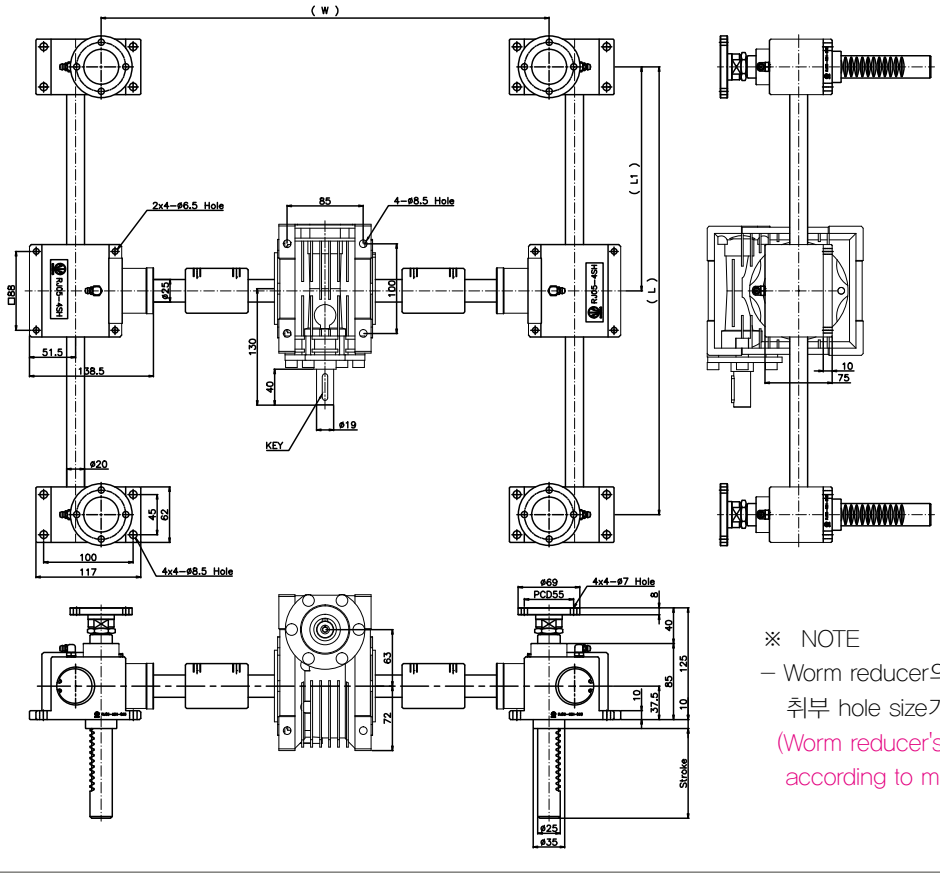


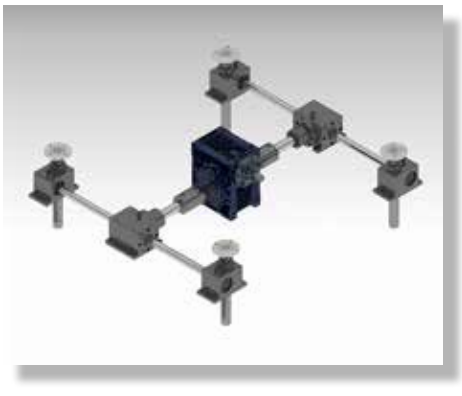


※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ05-4SH-063



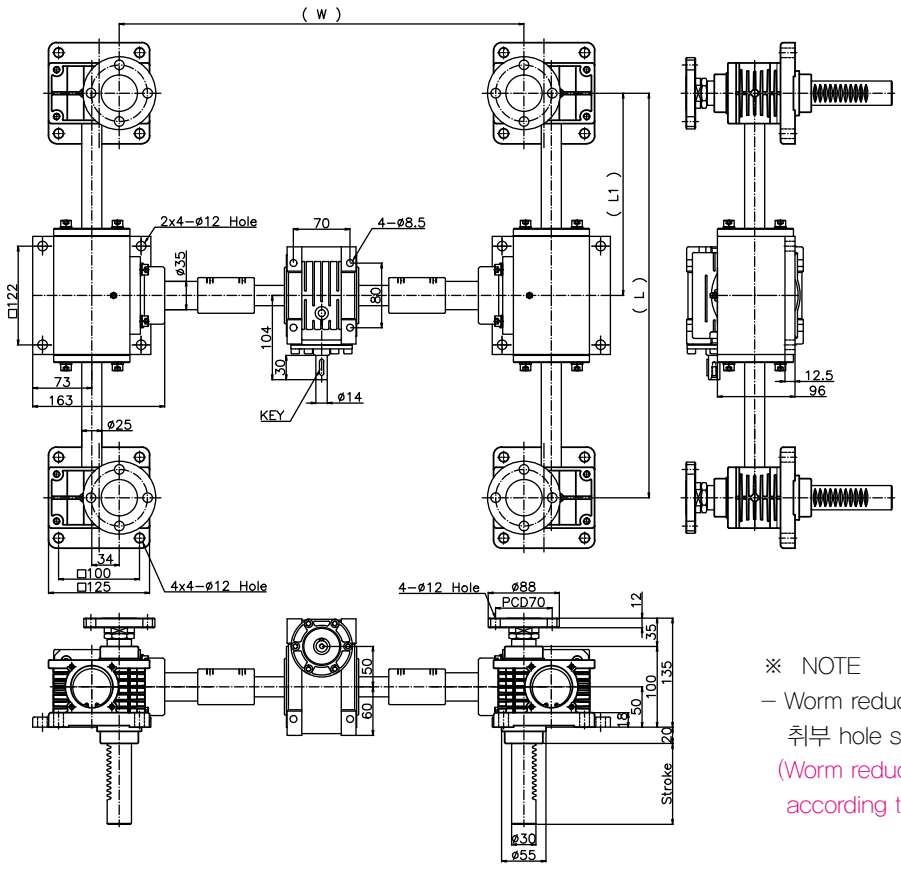


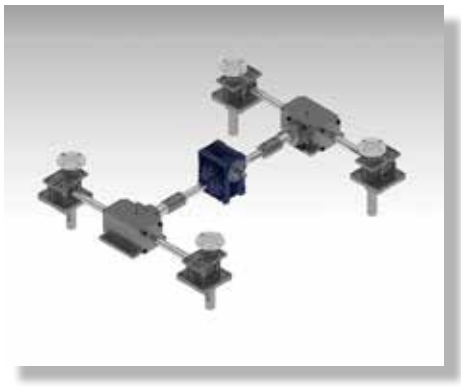
※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension 일반형 (General Type)

RJ10-4SH-050

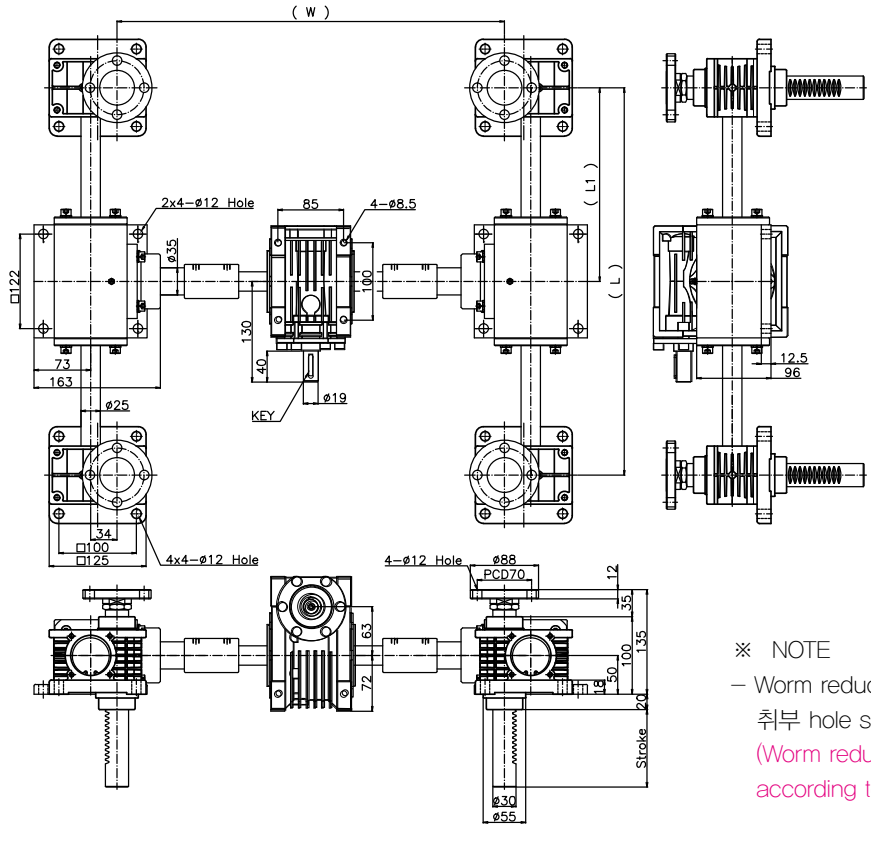


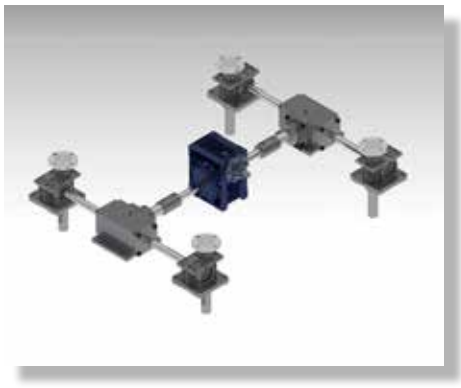


※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ10-4SH-063



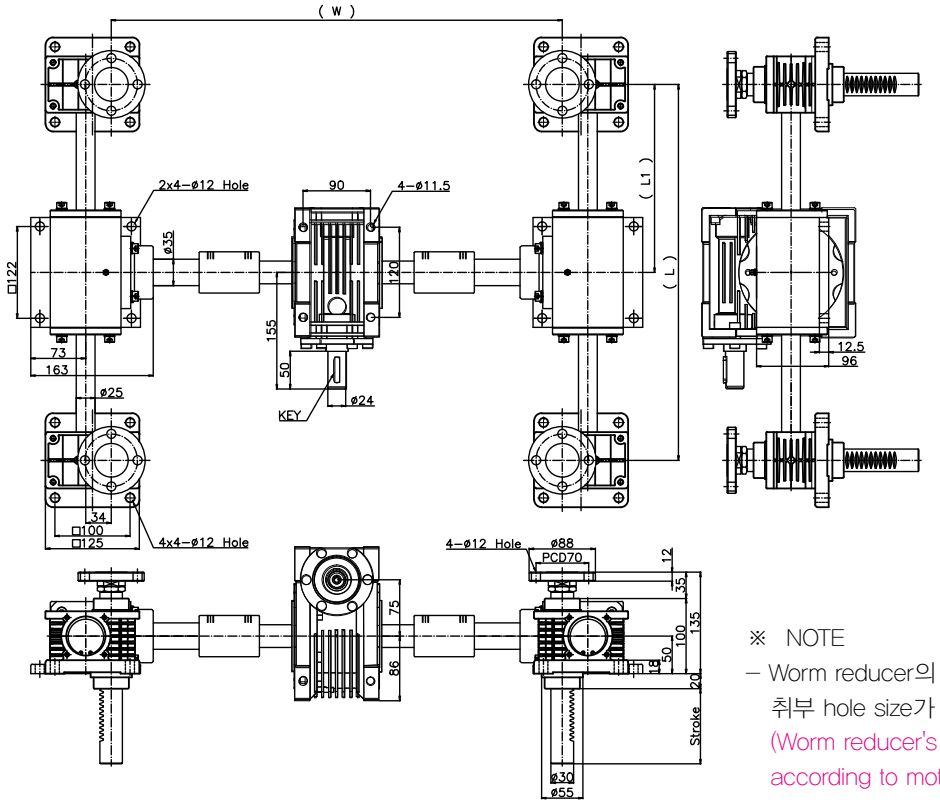


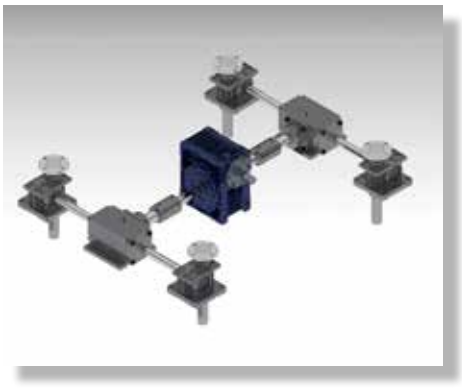
※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension 일반형 (General Type)

RJ10-4SH-075

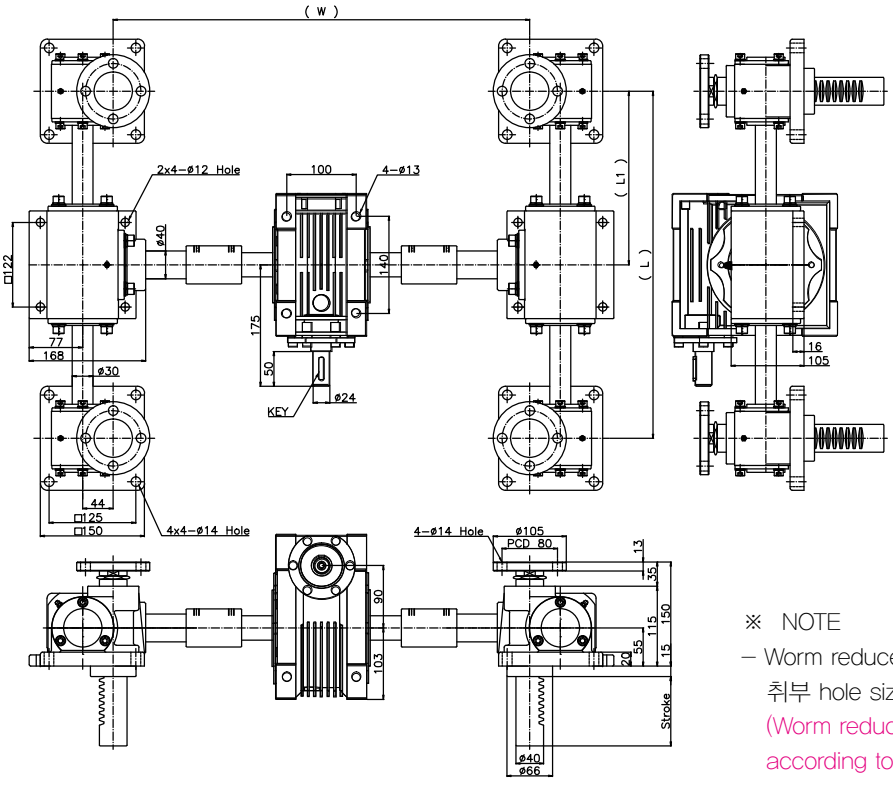


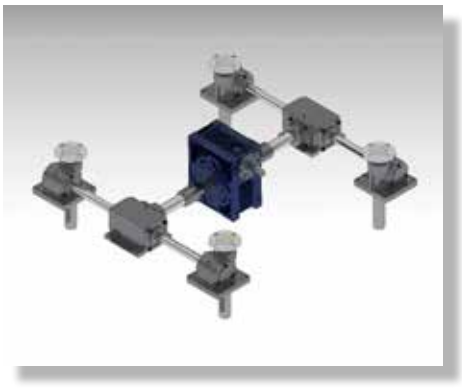


※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ20-4SH-090



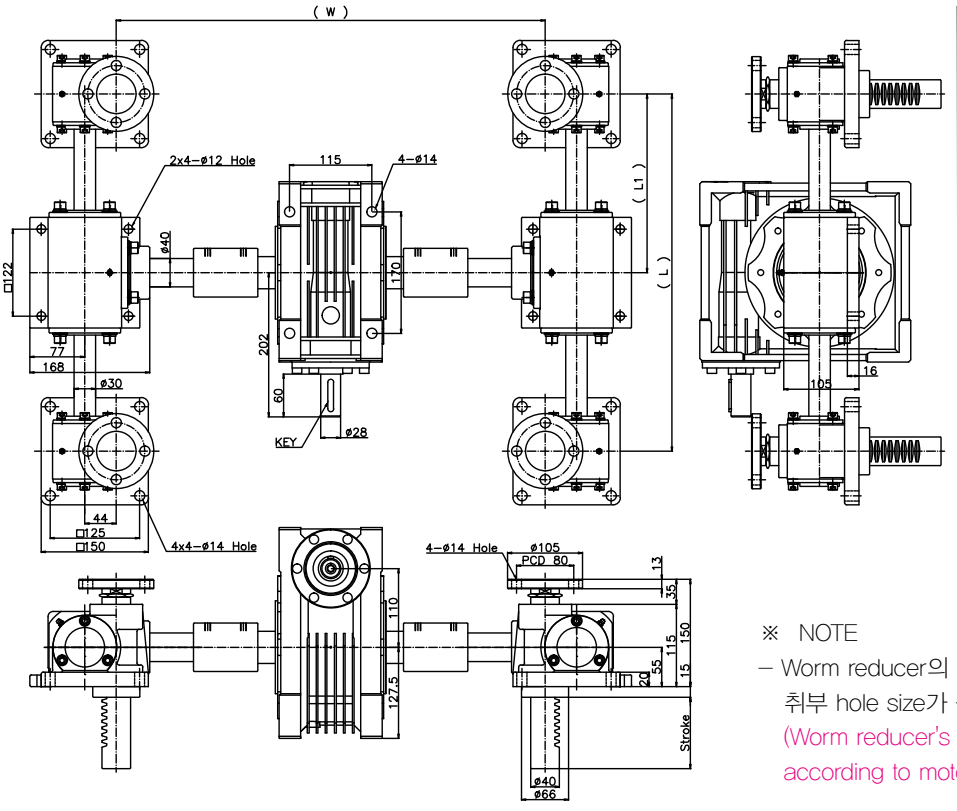


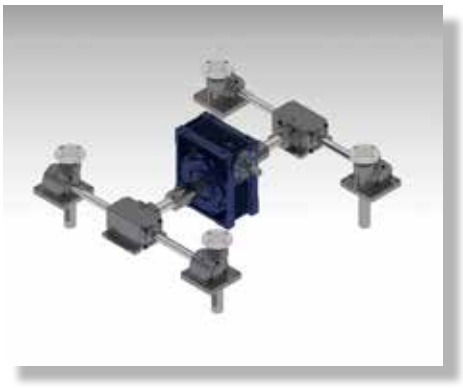
※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension 일반형 (General Type)

RJ20-4SH-105

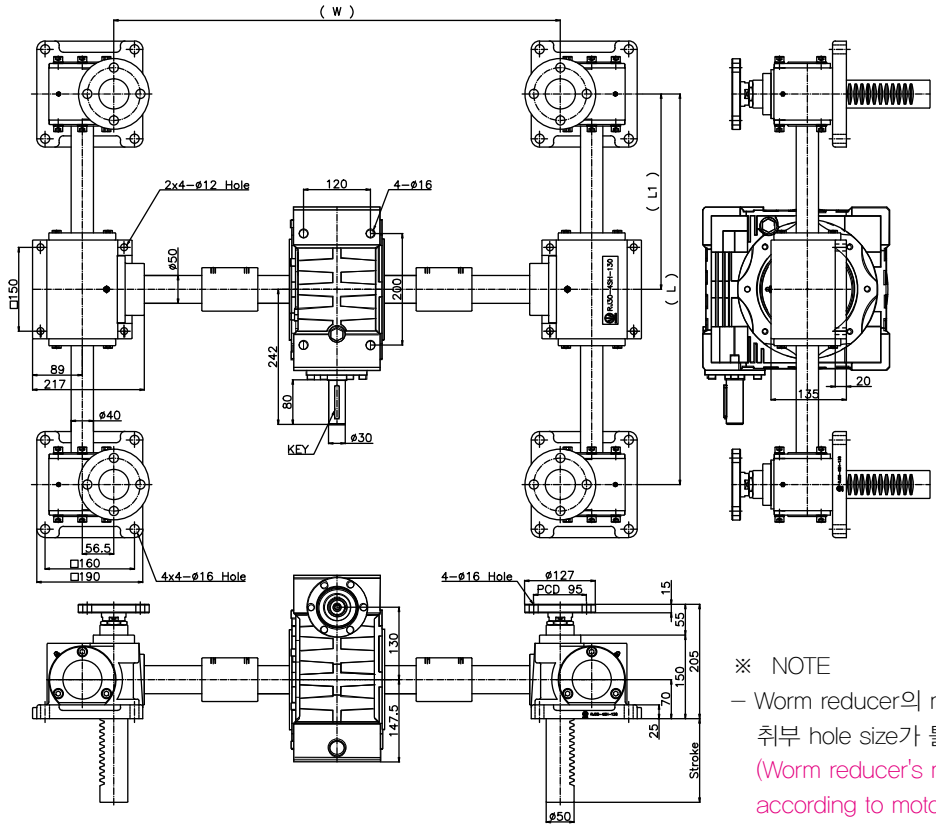


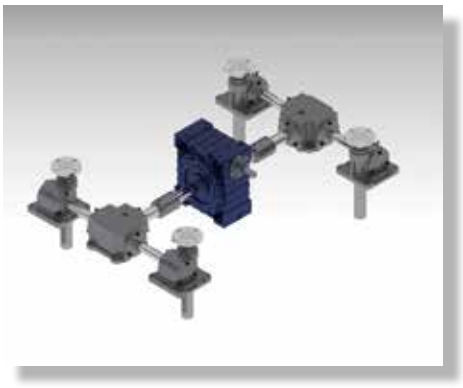


※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ30-4SH-130



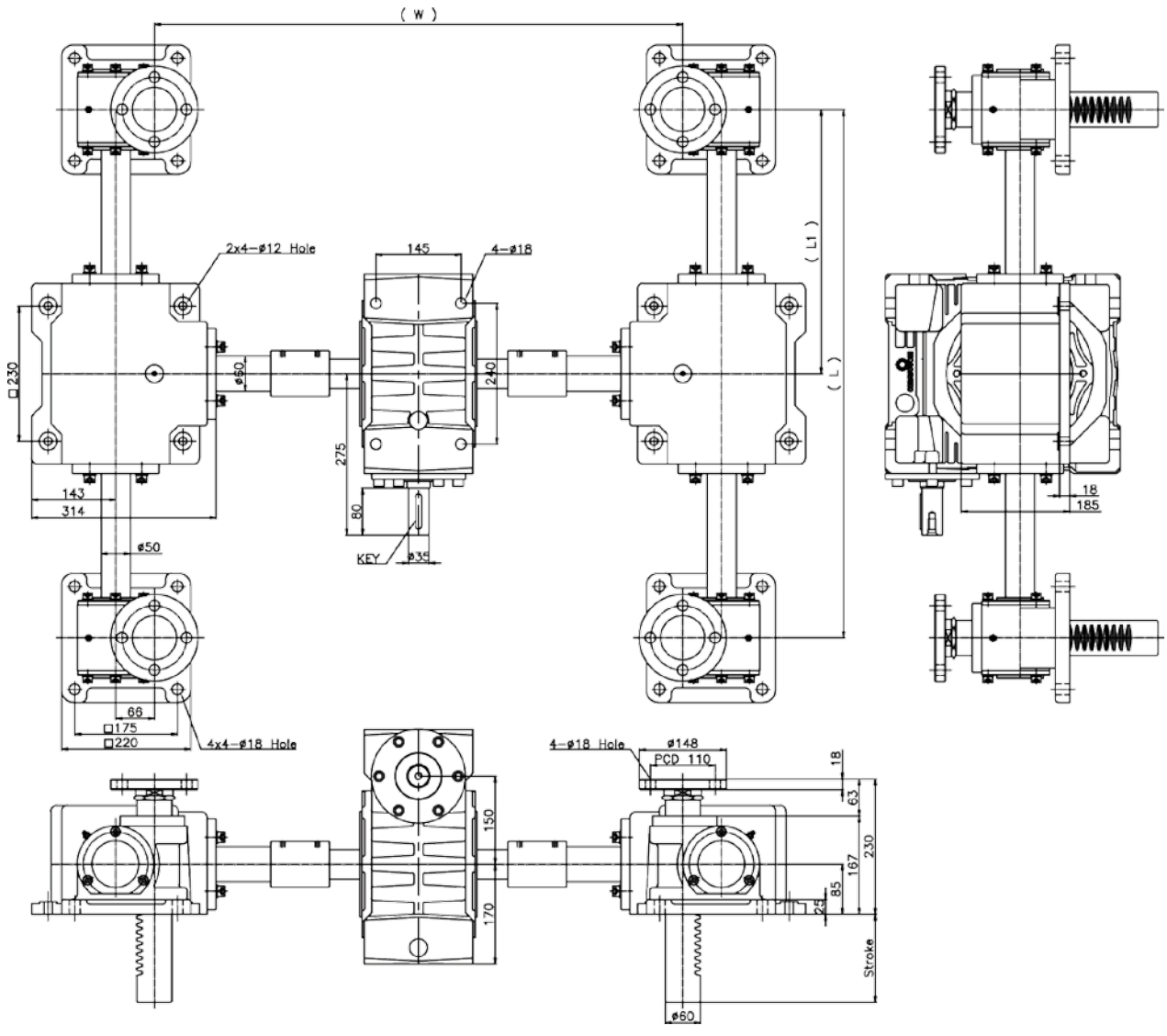


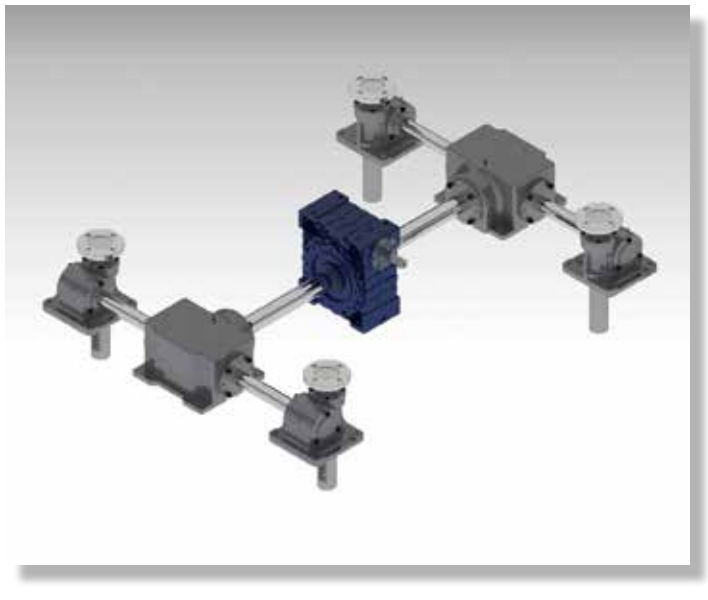
※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension 일반형 (General Type)

RJ40-4SH-150



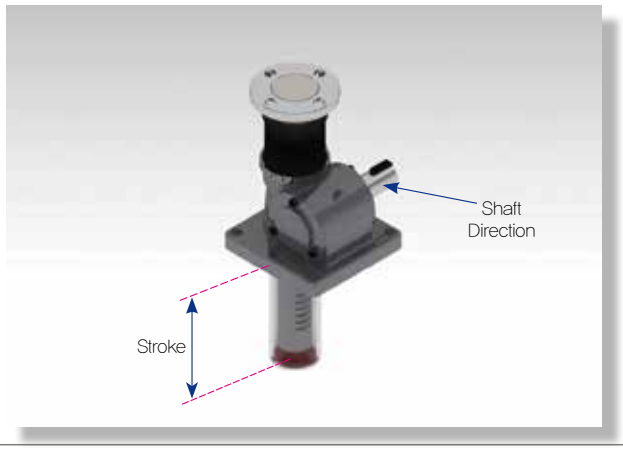


※ NOTE

– Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 hole size가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

16. 형식표시방법-클린Type (Product Serial No-Clean Type)

RJOO-C TYPE

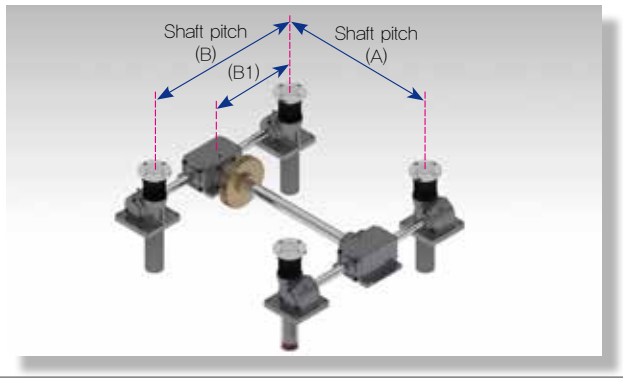


RJ 20 R C J R – 150ST / CAP
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Rack Jack					
② Model	05	10	20	30	40
③ 입력 Shaft 방향(Shaft direction)					
R	Right	L	Left	D	Double
④ C	Clean type	Non	일반(General type)		
⑤ J	Silicon bellows 부착(With silicon bellows)				
Non	Silicon bellows 미부착(Without silicon bellows)				
⑥ R	Gear raydent coatting	Non	크롬도금(Chrom plating)		
⑦ Stroke(mm)					
⑧ CAP	하부 Cover 부착(With lower cover)				
무기호(Non)	하부 Cover 미부착(Without lower cover)				

RJOO-4SC TYPE

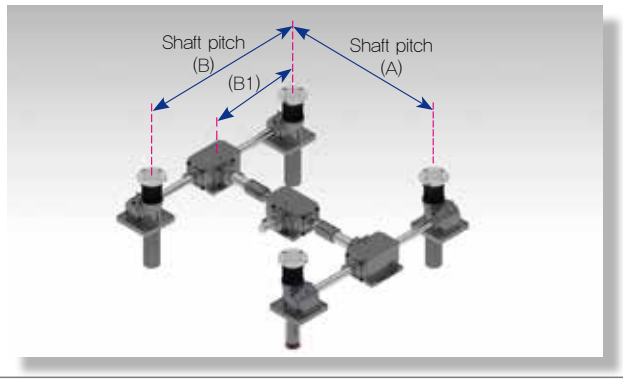
RJ 20 – 4S C J R – 1000 × 600 – 300 – 400ST/ CAP
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪



① Rack Jack (Motor 구동 type) Motor Drive type					
② Model	05	10	20	30	40
③ Rack Jack조합(unit)					
2S	2Set 조합(unit)	3S	3Set 조합(unit)	4S	4Set 조합(unit)
6S	6Set 조합(unit)	8S	8Set 조합(unit)		
④ C	Clean type	Non	일반(General type)		
⑤ J	Silicon bellows 부착(With silicon bellows)				
Non	Silicon bellows 미부착(Without silicon bellows)				
⑥ R	Gear raydent coatting	Non	크롬도금(Chrom plating)		
⑦ Shaft A 축간거리 : Shaft A Pitch(mm)					
⑧ Shaft B 축간거리 : Shaft B Pitch(mm)					
⑨ 구동 Shaft 축간거리(B1) mm : Drive Shaft Pitch(B1) mm			⑩ Stroke(mm)		
⑪ CAP	하부 Cover 부착(With lower cover)				
무기호(Non)	하부 Cover 미부착(Without lower cover)				

RJOO-4SCB TYPE

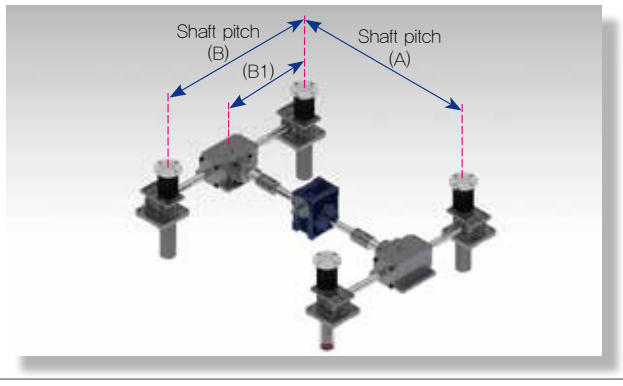
RJ 20 – 4S C J R B10 – 1000 × 600 – 300 – 400ST / CAP
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫



① Rack Jack	② Model	05	10	20	30
③ Rack Jack조합(unit)					
2S	2Set 조합(unit)	3S	3Set 조합(unit)	4S	4Set 조합(unit)
6S	6Set 조합(unit)	8S	8Set 조합(unit)		
④ C	Clean type	Non	일반(General type)		
⑤ J	Silicon bellows 부착(With silicon bellows)				
Non	Silicon bellows 미부착(Without silicon bellows)				
⑥ R	Gear raydent coatting	Non	크롬도금(Chrom plating)		
⑦ Miter box model	B03	B05	B10	B15	B20
⑧ Shaft A 축간거리 : Shaft A Pitch(mm)					
⑨ Shaft B 축간거리 : Shaft B Pitch(mm)					
⑩ 구동 Shaft 축간거리(B1) mm : Drive Shaft Pitch(B1) mm			⑪ Stroke(mm)		
⑫ CAP	하부 Cover 부착(With lower cover)				
무기호(Non)	하부 Cover 미부착(Without lower cover)				

RJOO-4SHC TYPE

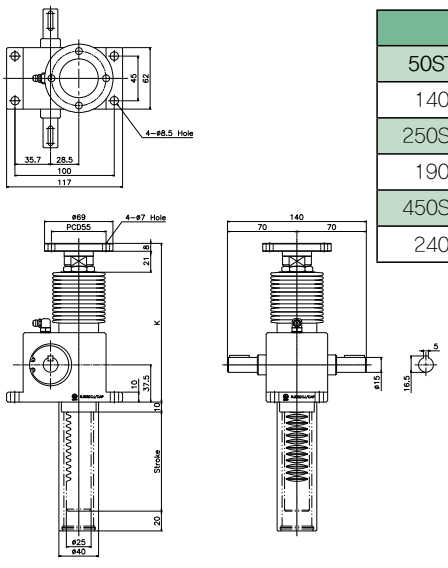
RJ 10 – 4S H C J R – 800 × 800 – 400 – 150ST – 050 – 1/50 – CAP
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭



① Rack Jack	② Model	05	10	20	30	40			
③ Rack Jack조합(unit)									
2S	2Set 조합(unit)	3S	3Set 조합(unit)	4S	4Set 조합(unit)				
6S	6Set 조합(unit)	8S	8Set 조합(unit)						
④ H	Worm reducer 부착형(with worm reducer)								
⑤ C	Clean type	Non	일반(General type)						
⑥ J	Silicon bellows 부착(With silicon bellows)								
Non	Silicon bellows 미부착(Without silicon bellows)								
⑦ R	Gear raydent coatting	Non	크롬도금(Chrom plating)						
⑧ Shaft A 축간거리 : Shaft A Pitch(mm)		⑨ Shaft B 축간거리 : Shaft B Pitch(mm)							
⑩ 구동 Shaft 축간거리(B1) mm : Drive Shaft Pitch(B1) mm			⑪ Stroke(mm)						
⑫ Worm reducer model	040	050	063	075	090	105	110	130	150
⑬ 감속비(Deceleration ratio)	1/10	1/15	1/20	1/25	1/30	1/40	1/50	1/60	1/80	1/100
⑭ CAP	하부 Cover 부착(With lower cover)								
무기호(Non)	하부 Cover 미부착(Without lower cover)								

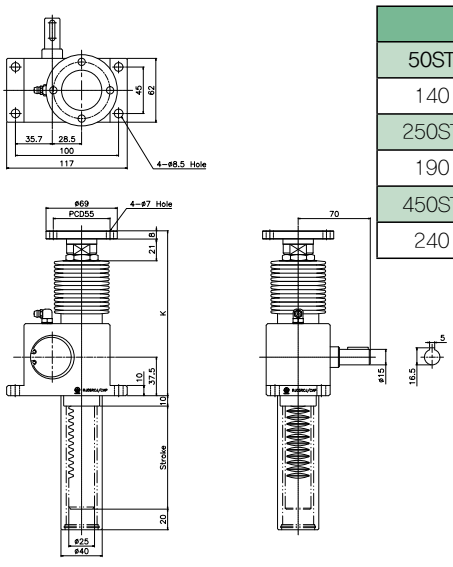
17. Dimension (Clean Type)

RJ 05DCJ/CAP

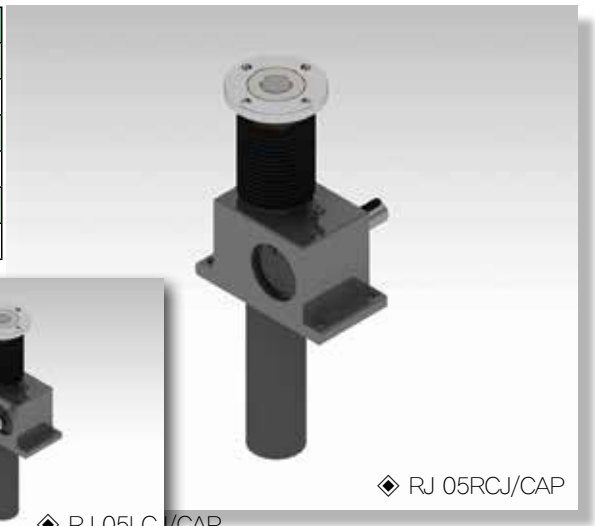


K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280

RJ 05RCJ/CAP



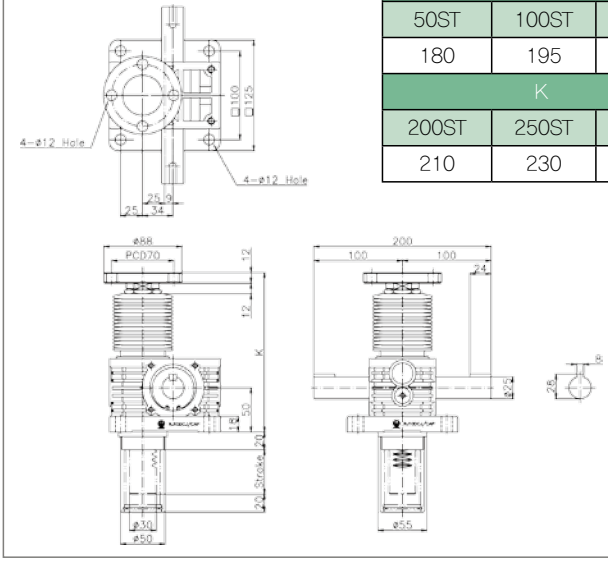
K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280



◈ RJ 05RCJ/CAP

◈ RJ 05LCJ/CAP

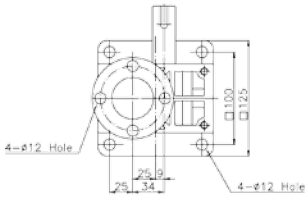
RJ 10DCJ/CAP



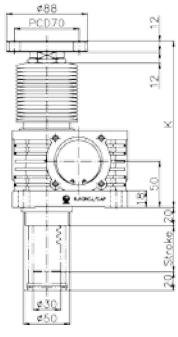
K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

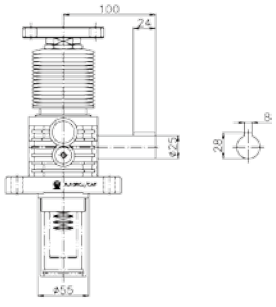
Dimension (Clean Type)

RJ 10RCJ/CAP



K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

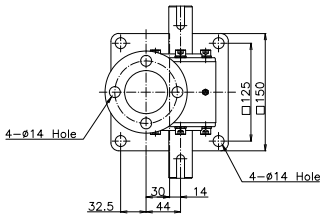




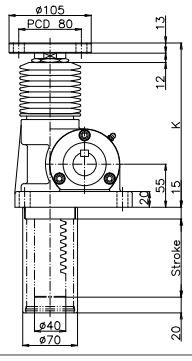

◈ RJ 10LCJ/CAP

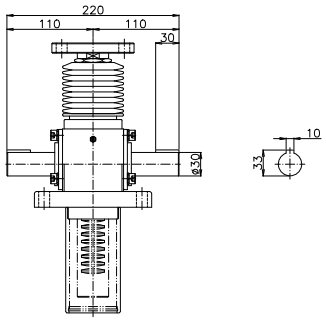

◈ RJ 10RCJ/CAP

RJ 20DCJ/CAP

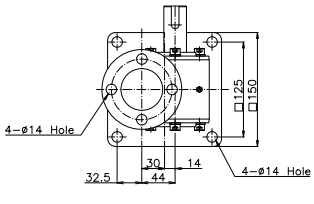


K			
50ST	100ST	150ST	300ST OVER
200	210	210	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

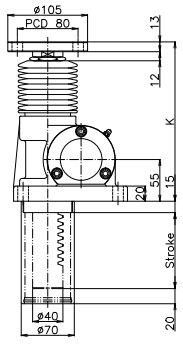


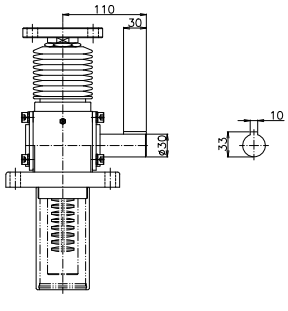


RJ 20RCJ/CAP



K			
50ST	100ST	150ST	300ST OVER
200	210	210	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	



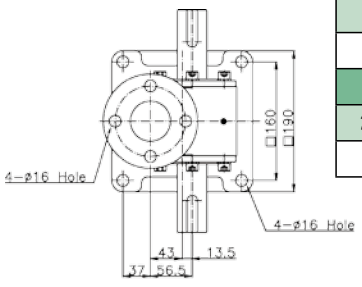



◈ RJ 20LCJ/CAP

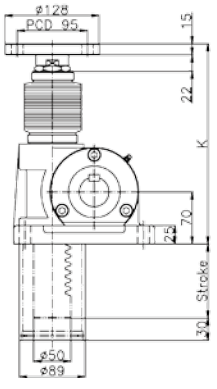

◈ RJ 20RCJ/CAP

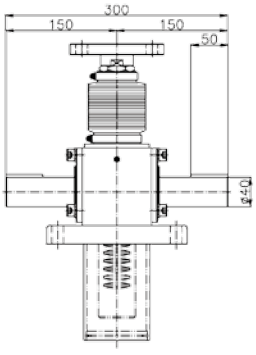
Dimension (Clean Type)

RJ 30DCJ/CAP



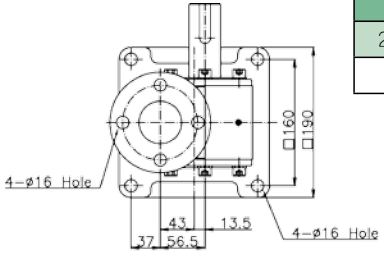
K			
50ST	100ST	150ST	300ST OVER
260	270	270	230 + (STROKE/4)
K			
200ST	250ST	300ST	
290	310	310	



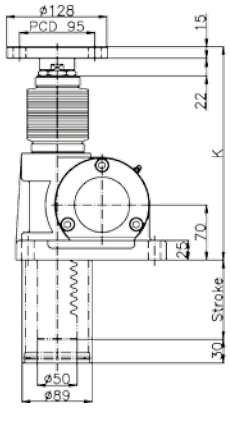


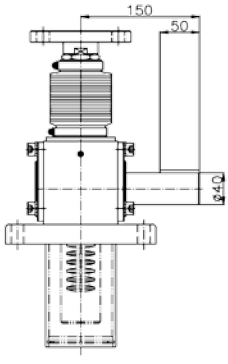
※ NOTE – RJ 40 model은 별도문의
(Further question is required about models after RJ 40)

RJ 30RCJ/CAP



K			
50ST	100ST	150ST	300ST OVER
260	270	270	230 + (STROKE/4)
K			
200ST	250ST	300ST	
290	310	310	





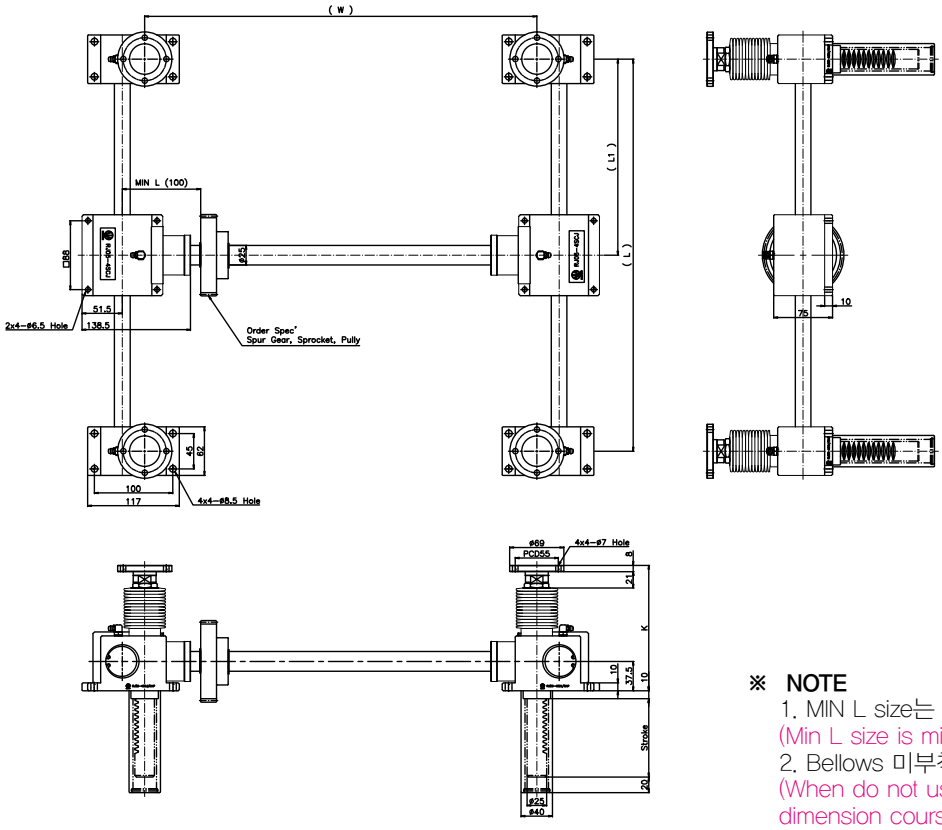
※ NOTE – RJ 40 model은 별도문의
(Further question is required about models after RJ 40)

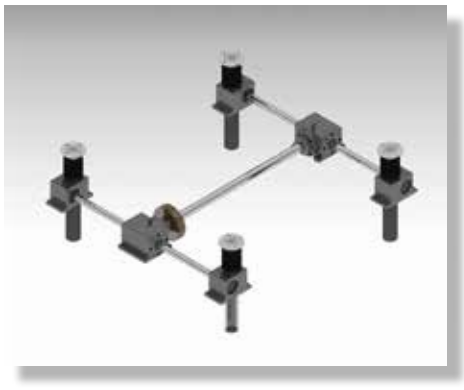
◈ RJ 30RCJ/CAP

◈ RJ 30LCJ/CAP

Dimension (Clean Type)

RJ05-4SCJ/CAP



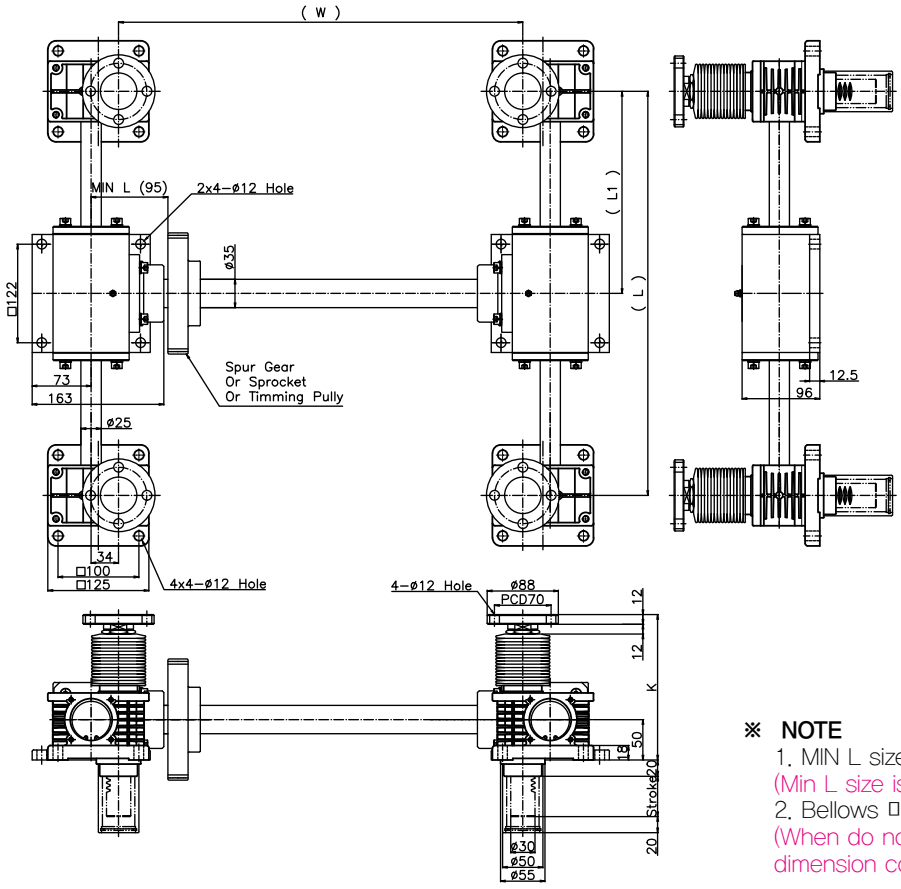


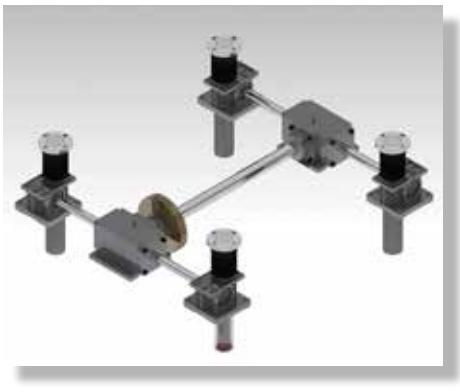
K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280

※ **NOTE**

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
(Min L size is minimum and can be tuned by the designer)
2. Bellows 미부착 dimension은 일반사양의 dimension 참조
(When do not use bellows in clean type, seem general type dimension course.)

RJ10-4SCJ/CAP





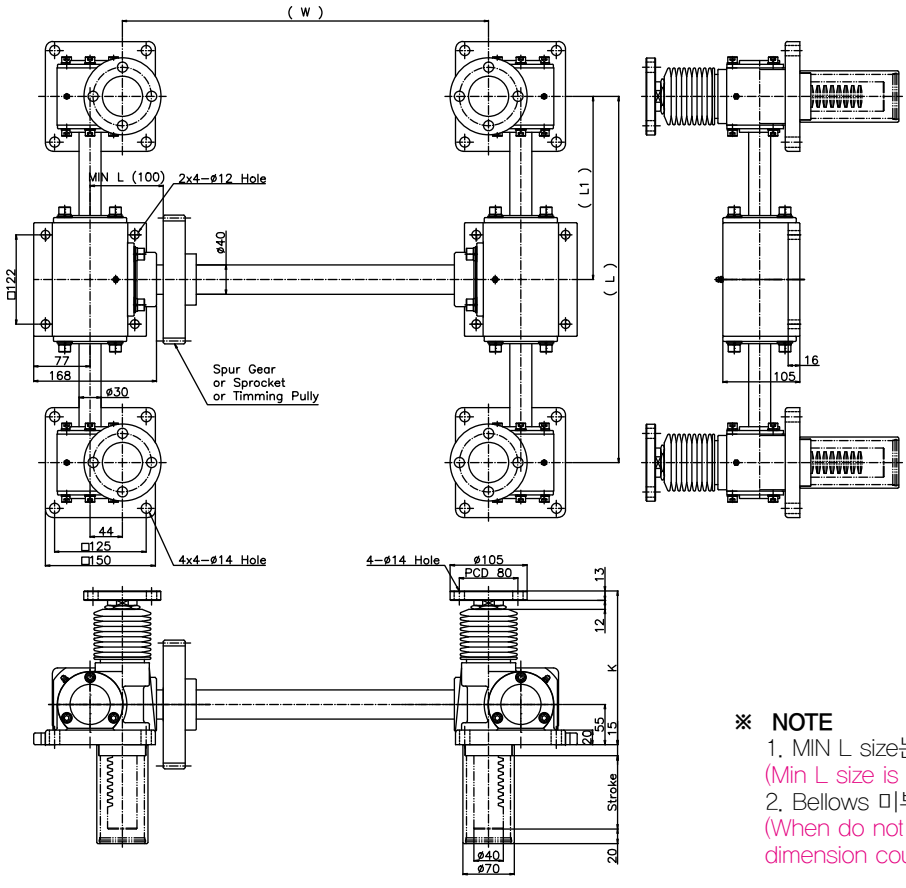
K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

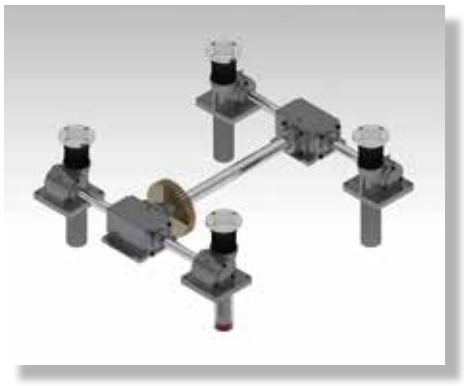
※ **NOTE**

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
(Min L size is minimum and can be tuned by the designer)
2. Bellows 미부착 dimension은 일반사양의 dimension 참조
(When do not use bellows in clean type, seem general type dimension course.)

◈ Dimension (Clean Type)

RJ20-4SCJ/CAP

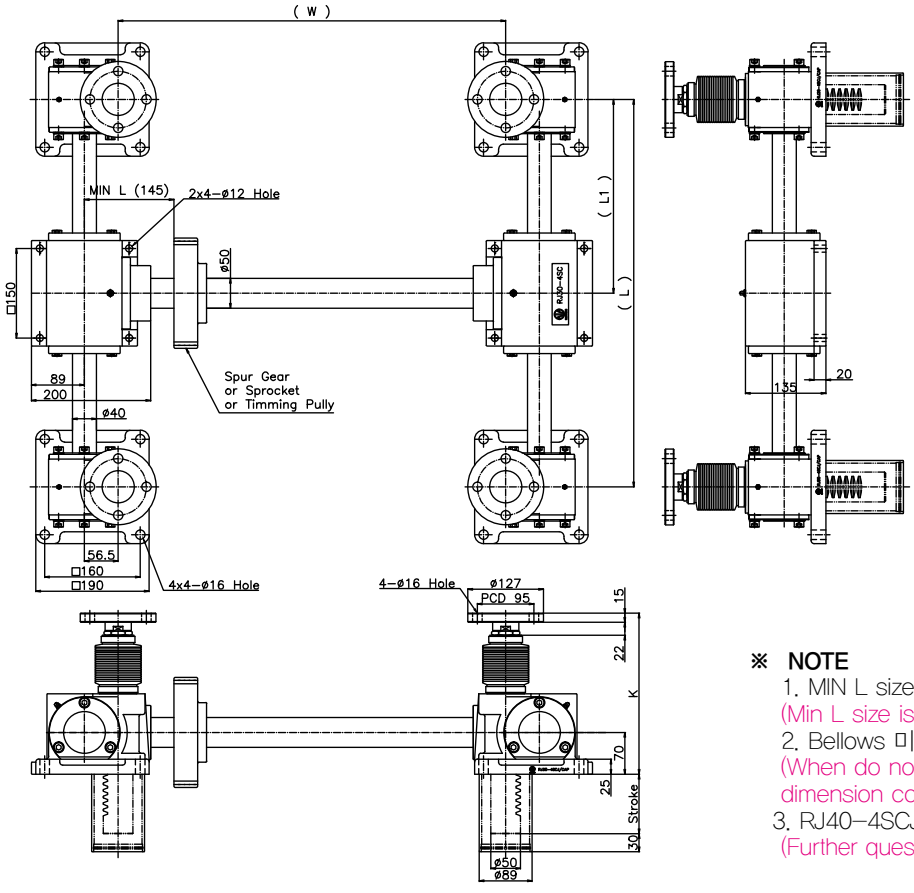


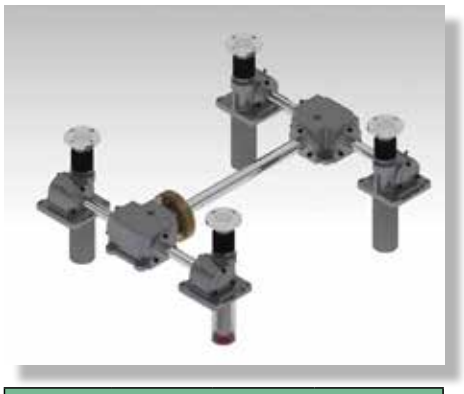


K			
50ST	100ST	150ST	300ST OVER
200	210	210	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

※ **NOTE**
1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
(Min L size is minimum and can be tuned by the designer)
2. Bellows 미부착 dimension은 일반사양의 dimension 참조
(When do not use bellows in clean type, seem general type dimension course.)

RJ30-4SCJ/CAP



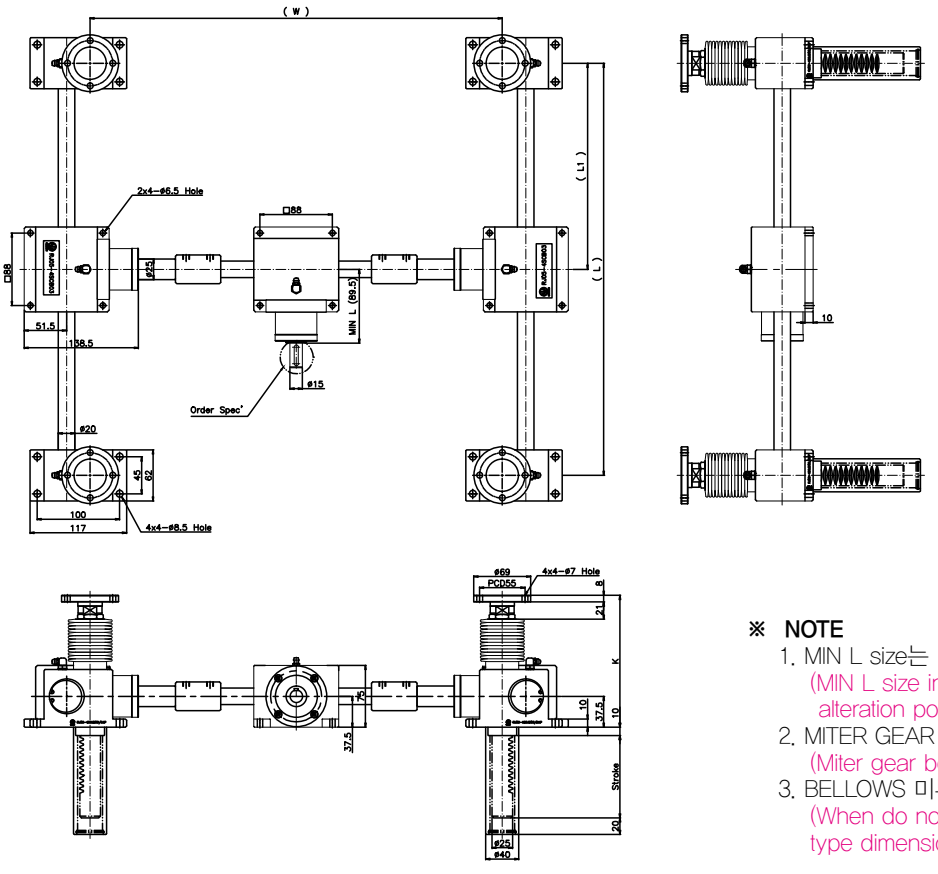


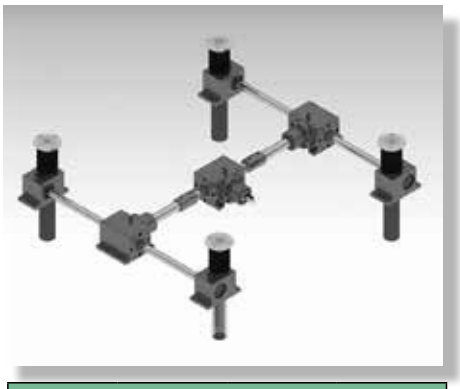
K			
50ST	100ST	150ST	300ST OVER
260	270	270	230 + (STROKE/4)
K			
200ST	250ST	300ST	
290	310	310	

※ **NOTE**
1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
(Min L size is minimum and can be tuned by the designer)
2. Bellows 미부착 dimension은 일반사양의 dimension 참조
(When do not use bellows in clean type, seem general type dimension course.)
3. RJ40-4SCJ model은 별도문의
(Further question is required about models after RJ40-4SCJ)

◈ Dimension (Clean Type)

RJ05-4SCJB03/CAP



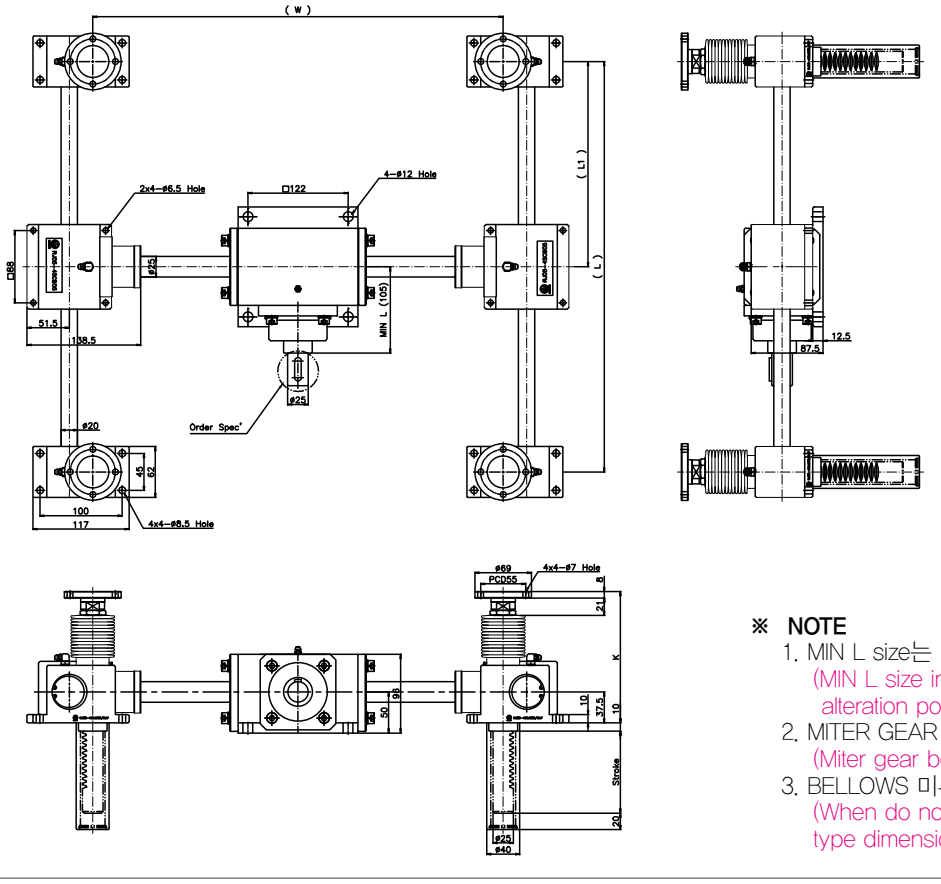


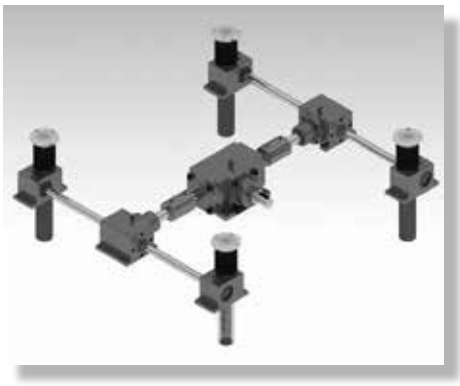
K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280

※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size increasing lower limit and designer of random alteration possibility.)
2. MITER GEAR BOX 입력축의 치수는 주문사양임
   (Miter gear box input spindle size is order specification)
3. BELLOWS 미부착 DIMENSION은 일반사양의 DIMENSION참조
   (When do not use bellows in Clean type, seem general type dimension course.)

RJ05-4SCJB05/CAP





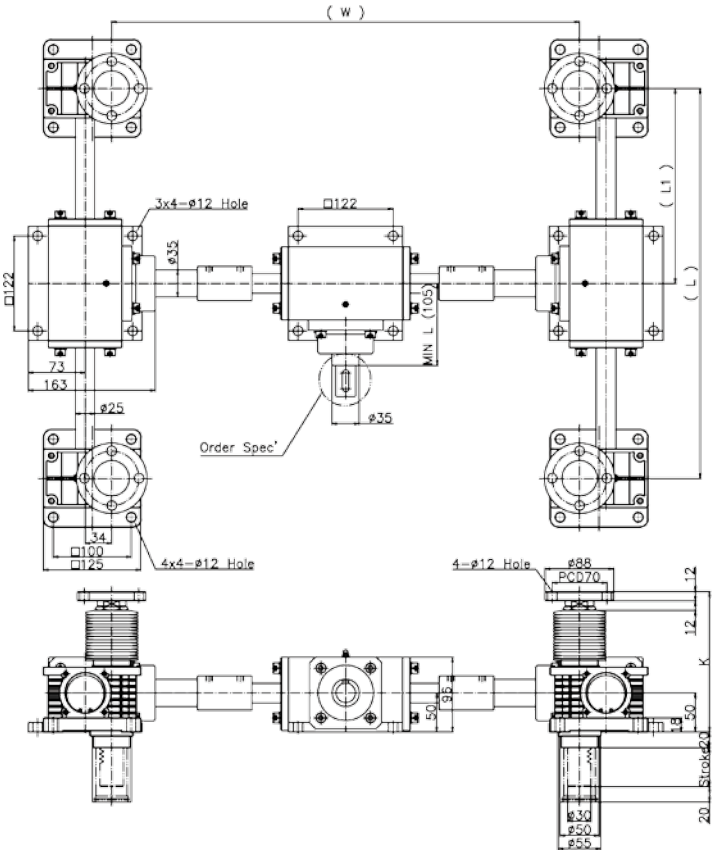
K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280

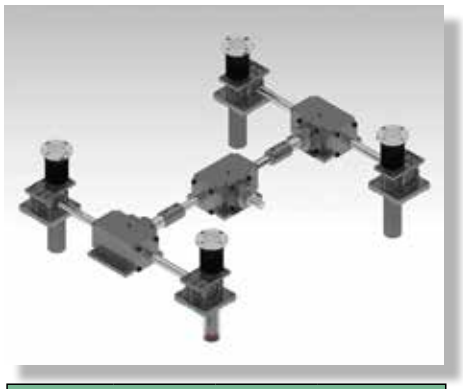
※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size increasing lower limit and designer of random alteration possibility.)
2. MITER GEAR BOX 입력축의 치수는 주문사양임
   (Miter gear box input spindle size is order specification)
3. BELLOWS 미부착 DIMENSION은 일반사양의 DIMENSION참조
   (When do not use bellows in Clean type, seem general type dimension course.)

◈ Dimension (Clean Type)

RJ10-4SCJB05/CAP



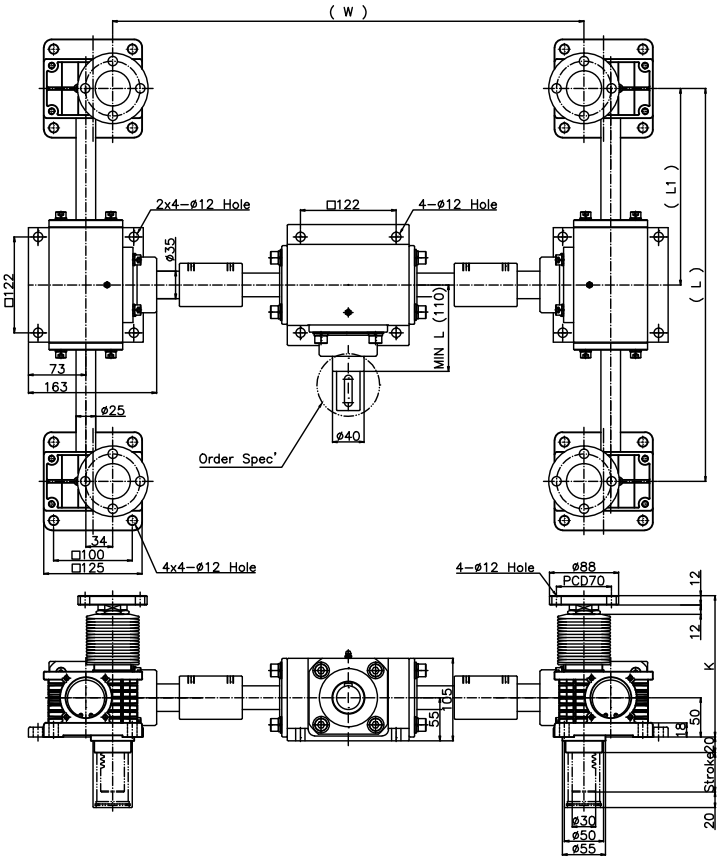


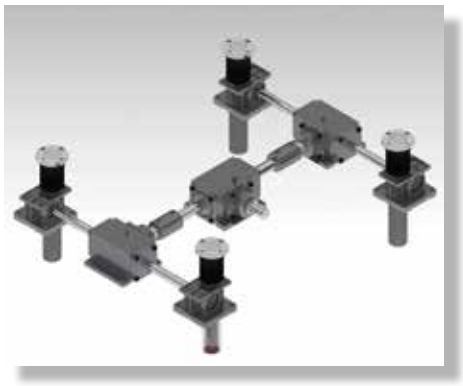
K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size increasing lower limit and designer of random alteration possibility.)
2. MITER GEAR BOX 입력축의 치수는 주문사양임
   (Miter gear box input spindle size is order specification)
3. BELLOWS 미부착 DIMENSION은 일반사양의 DIMENSION참조
   (When do not use bellows in Clean type, seem general type dimension course.)

RJ10-4SCJB10/CAP





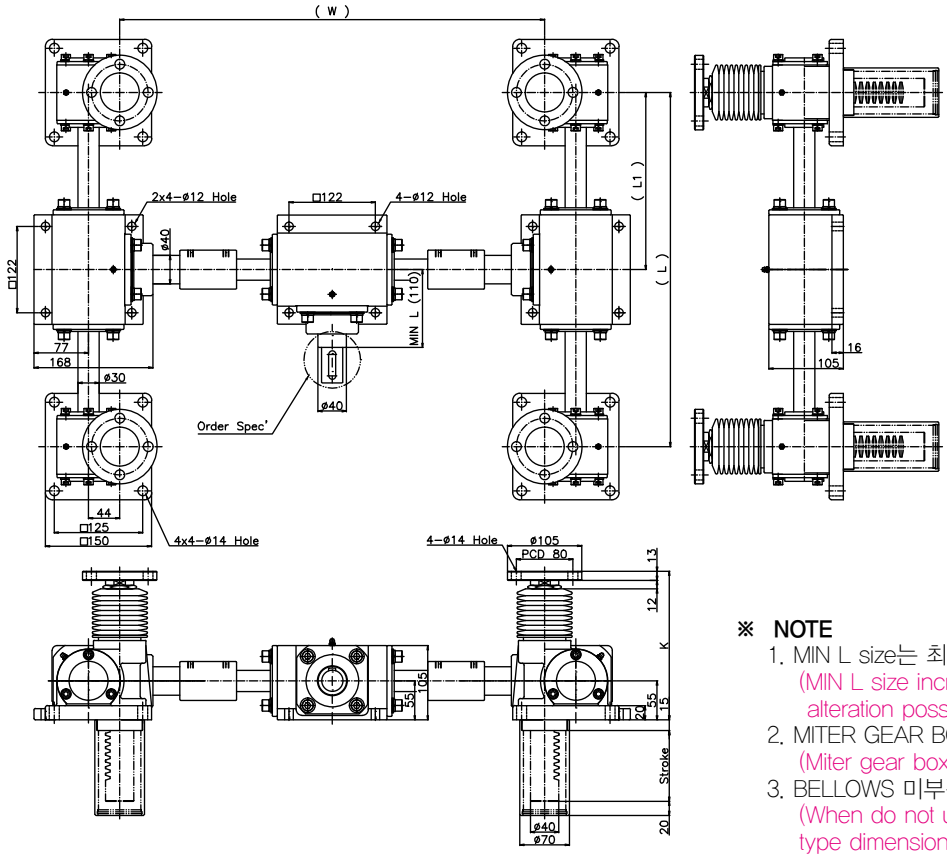
K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

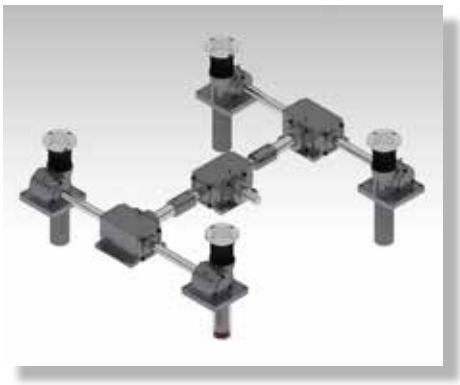
※ NOTE

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size increasing lower limit and designer of random alteration possibility.)
2. MITER GEAR BOX 입력축의 치수는 주문사양임
   (Miter gear box input spindle size is order specification)
3. BELLOWS 미부착 DIMENSION은 일반사양의 DIMENSION참조
   (When do not use bellows in Clean type, seem general type dimension course.)

◈ Dimension (Clean Type)

RJ20-4SCJB10/CAP

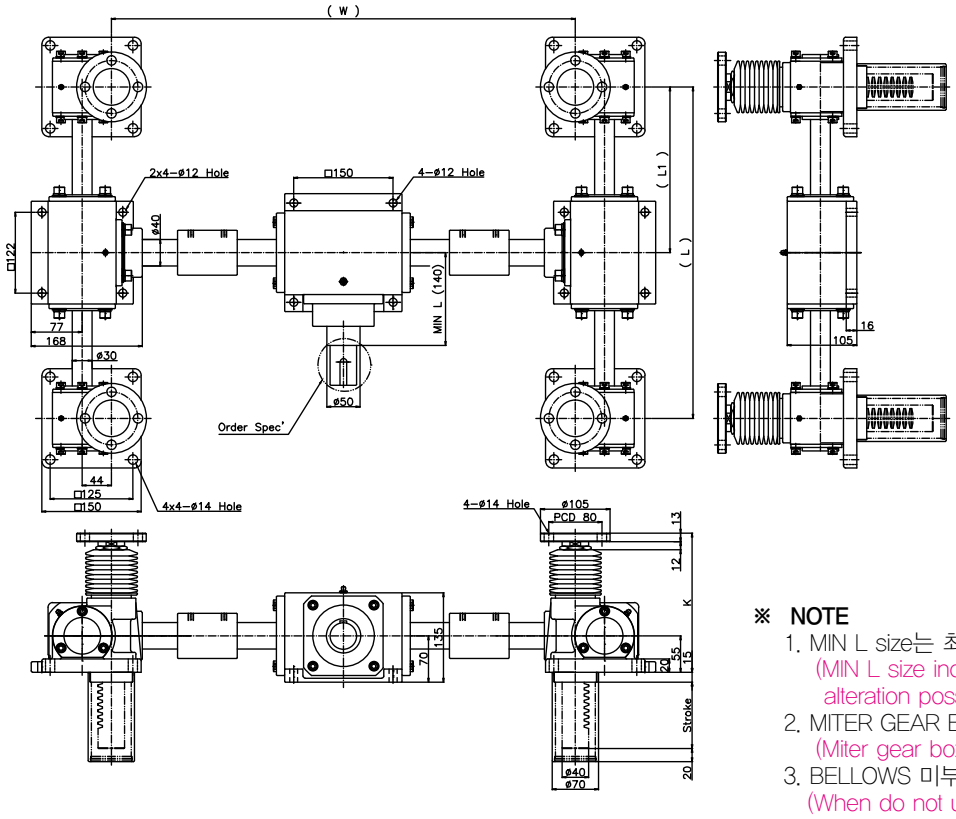




K			
50ST	100ST	150ST	300ST OVER
200	210	210	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

※ NOTE
1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
(MIN L size increasing lower limit and designer of random alteration possibility.)
2. MITER GEAR BOX 입력축의 치수는 주문사양임
(Miter gear box input spindle size is order specification)
3. BELLOWS 미부착 DIMENSION은 일반사양의 DIMENSION참조
(When do not use bellows in Clean type, seem general type dimension course.)

RJ20-4SCJB15/CAP

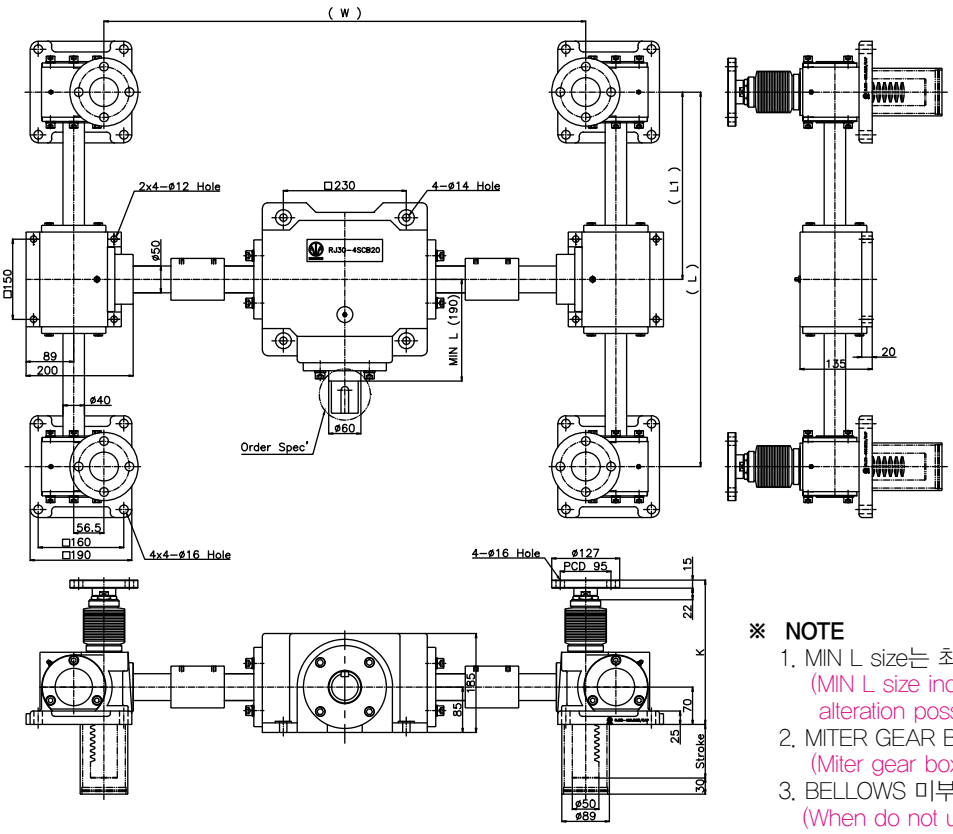


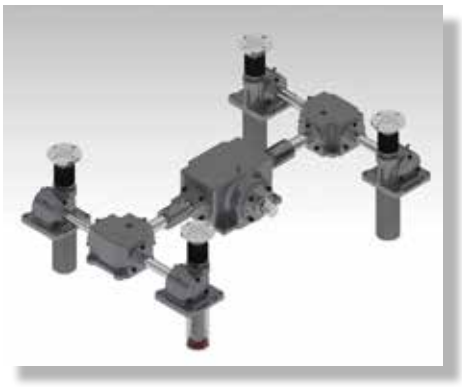
K			
50ST	100ST	150ST	300ST OVER
200	210	210	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

※ NOTE
1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
(MIN L size increasing lower limit and designer of random alteration possibility.)
2. MITER GEAR BOX 입력축의 치수는 주문사양임
(Miter gear box input spindle size is order specification)
3. BELLOWS 미부착 DIMENSION은 일반사양의 DIMENSION참조
(When do not use bellows in Clean type, seem general type dimension course.)

◈ Dimension (Clean Type)

RJ30-4SCJB20/CAP



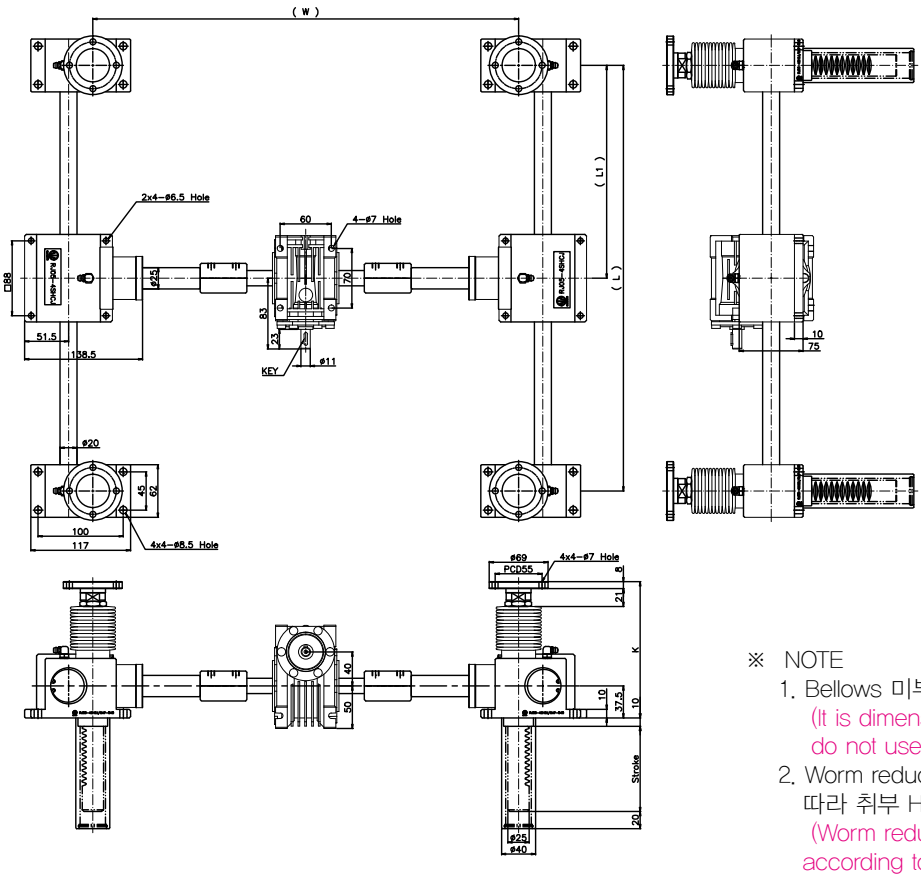


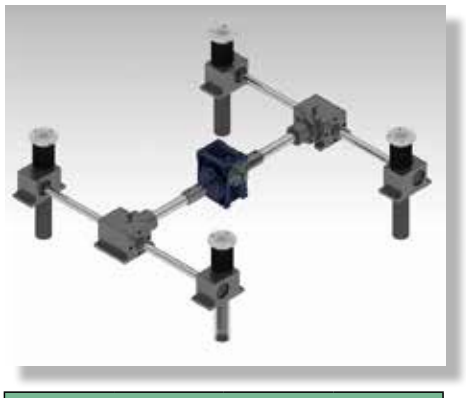
K			
50ST	100ST	150ST	300ST OVER
260	270	270	230 + (STROKE/4)
K			
200ST	250ST	300ST	
290	310	310	

※ **NOTE**

1. MIN L size는 최소 치수이며 설계자의 임의로 변경가능
   (MIN L size increasing lower limit and designer of random alteration possibility.)
2. MITER GEAR BOX 입력축의 치수는 주문사양임
   (Miter gear box input spindle size is order specification)
3. BELLOWS 미부착 DIMENSION은 일반사양의 DIMENSION참조
   (When do not use bellows in Clean type, seem general type dimension course.)

RJ05-4SHCJ-040/CAP





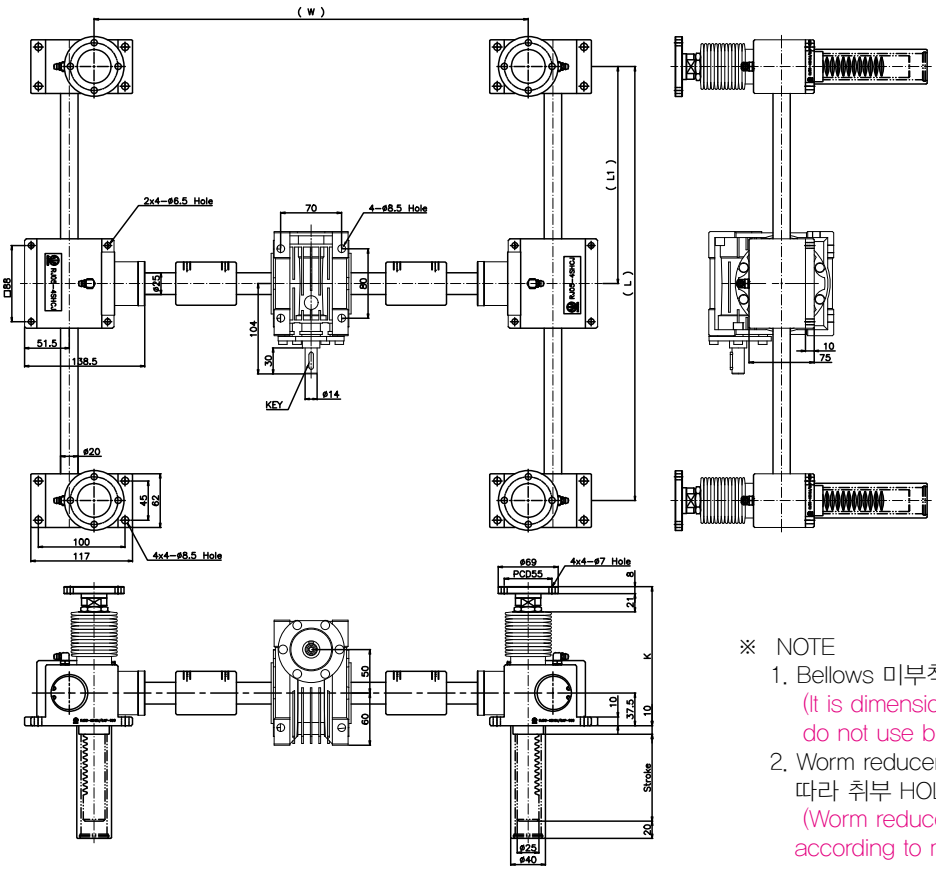
K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280

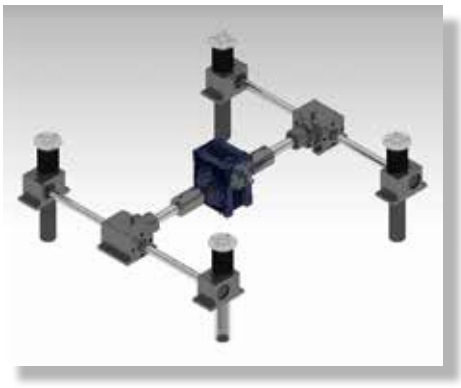
※ NOTE

1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
   (It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
   (Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension (Clean Type)

RJ05-4SHCJ-050/CAP



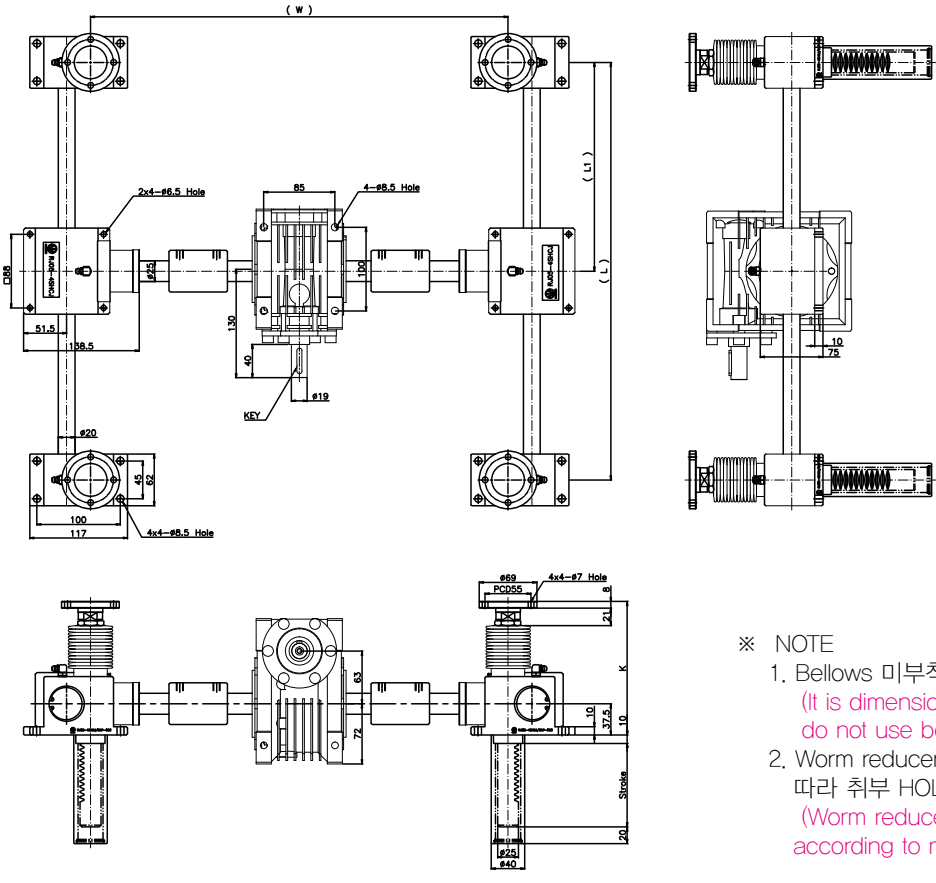


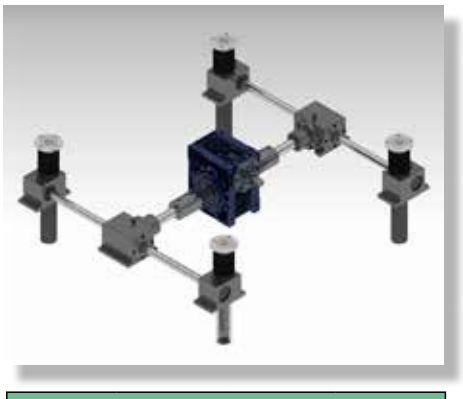
K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280

※ NOTE

1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
   (It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
   (Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ05-4SHCJ-063/CAP





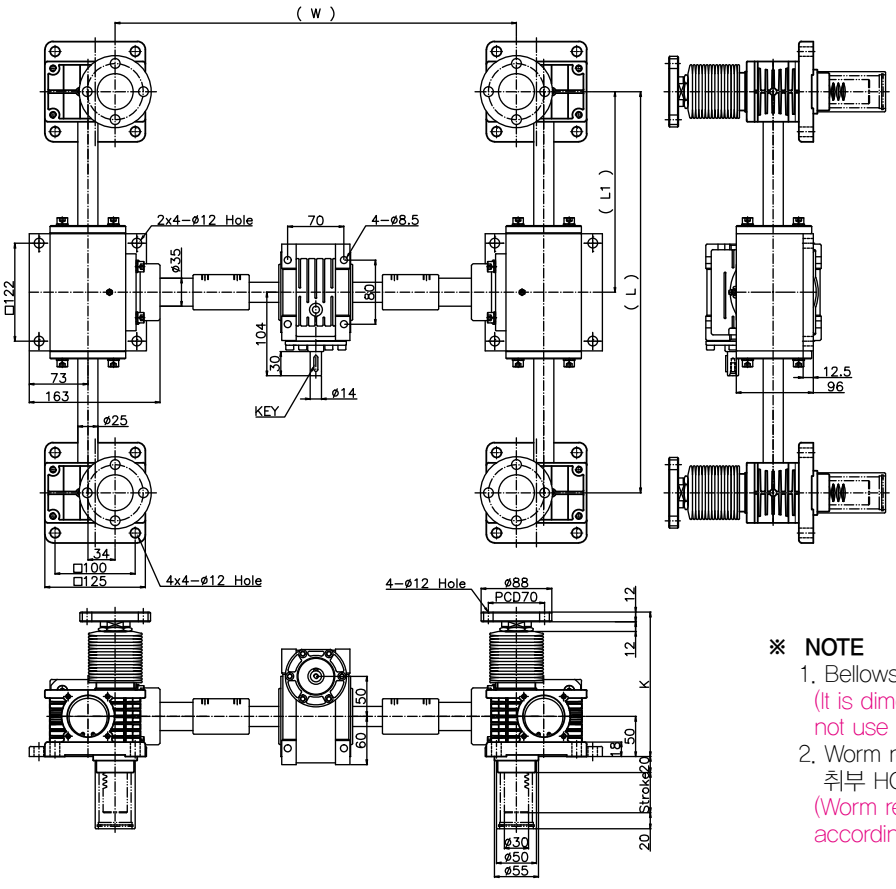
K			
50ST	100ST	150ST	200ST
140	160	170	180
250ST	300ST	350ST	400ST
190	200	220	230
450ST	500ST	550ST	600ST
240	250	270	280

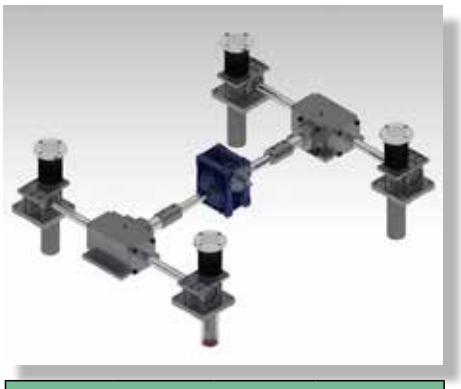
※ NOTE

1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
   (It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
   (Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension (Clean Type)

RJ10-4SHCJ-050/CAP



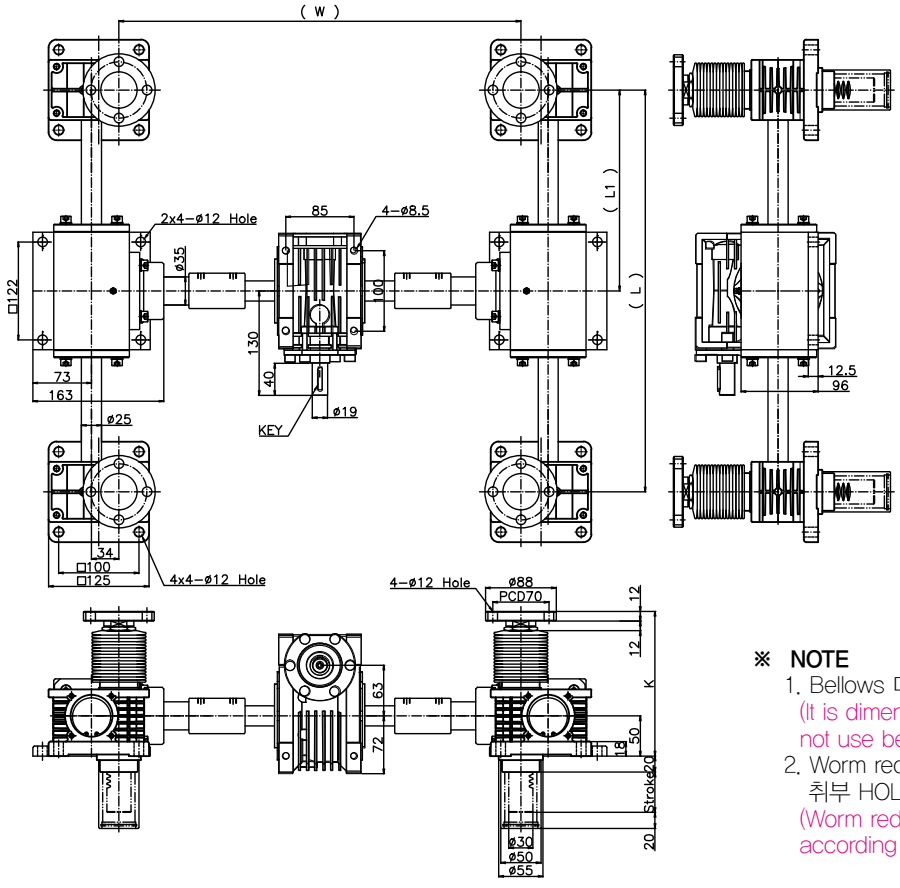


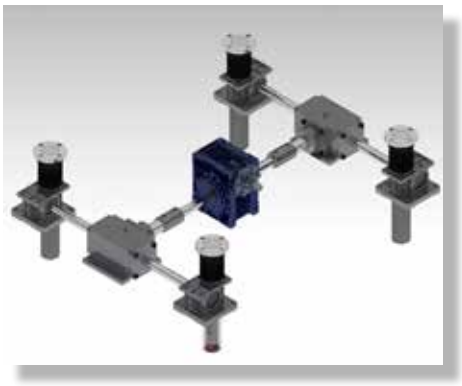
K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ NOTE

1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
(It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ10-4SHCJ-063/CAP





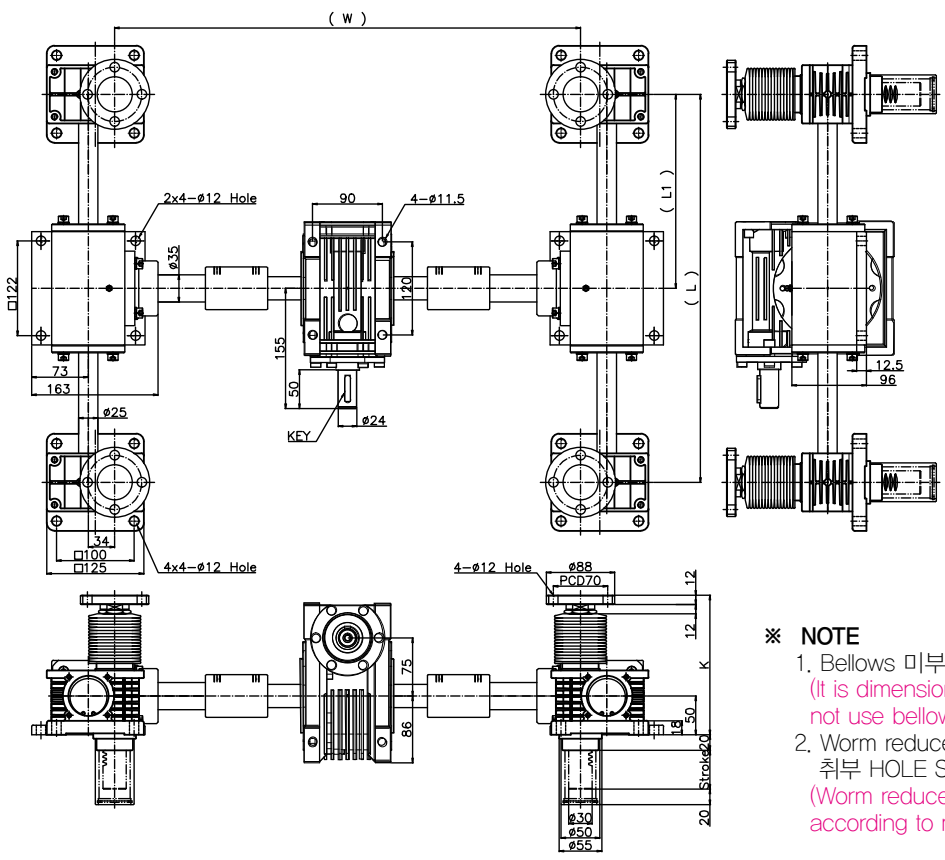
K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

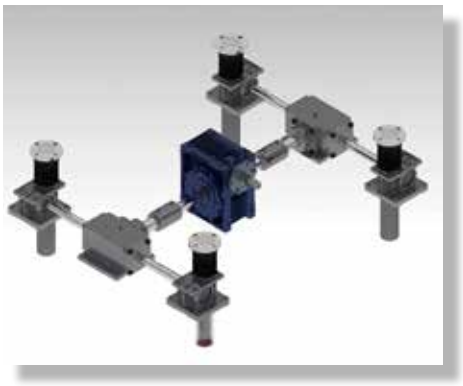
※ NOTE

1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
(It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension (Clean Type)

RJ10-4SHCJ-075/CAP



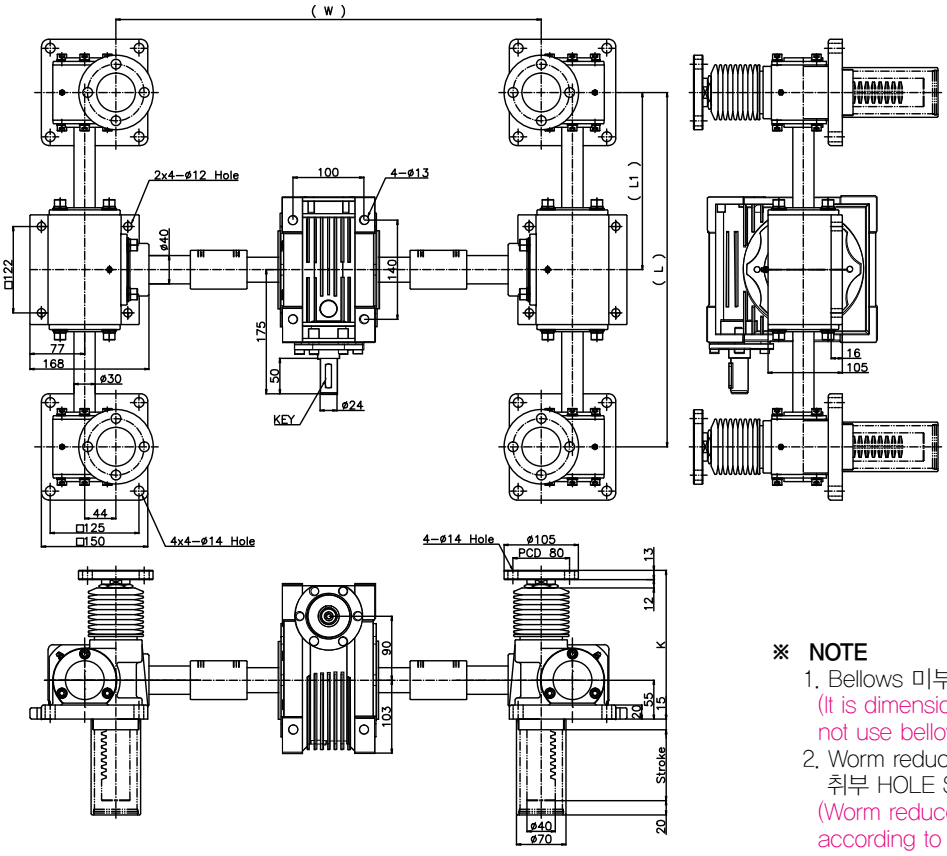


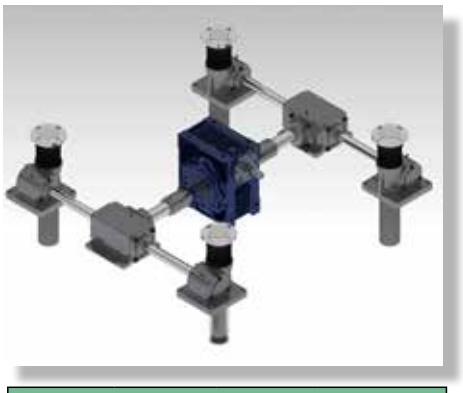
K			
50ST	100ST	150ST	300ST OVER
180	195	210	150 + (STROKE/4)
K			
200ST	250ST	300ST	
210	230	230	

※ **NOTE**

1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
   (It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
   (Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ20-4SHCJ-090/CAP





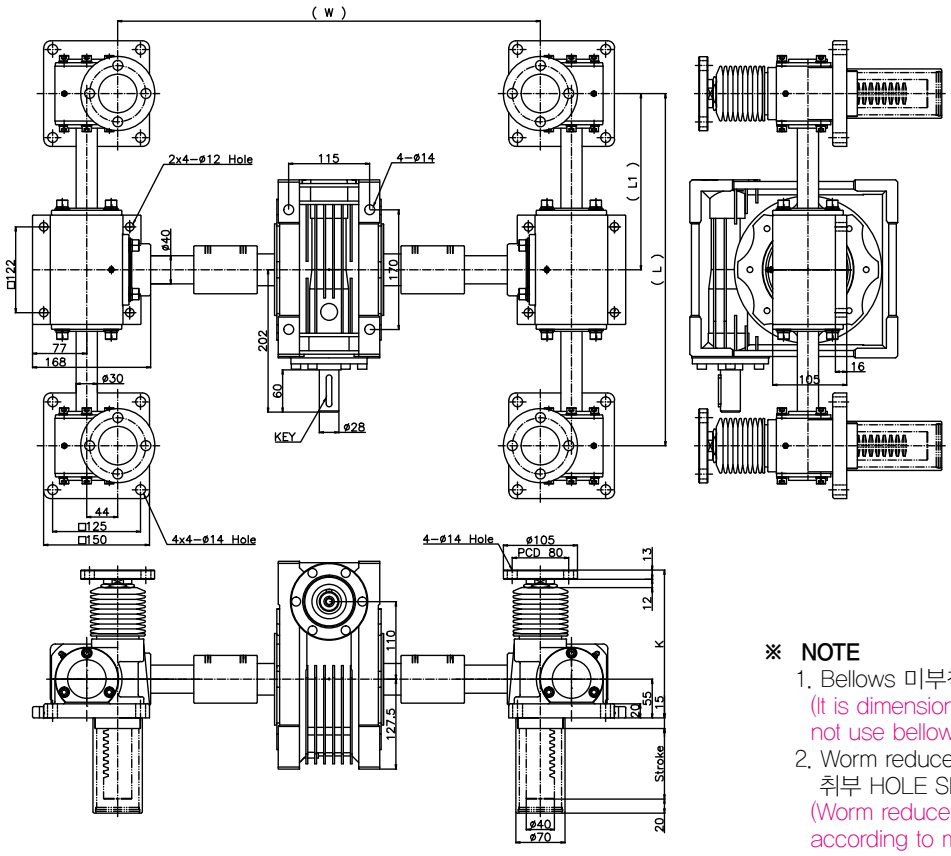
K			
50ST	100ST	150ST	300ST OVER
200	210	210	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

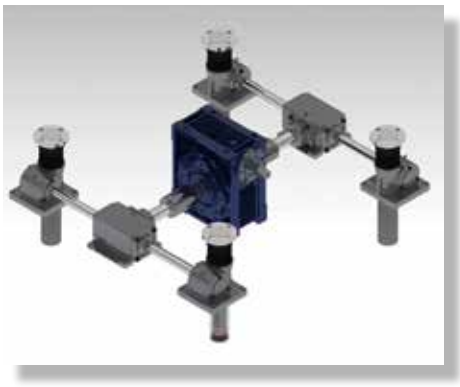
※ **NOTE**

1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
   (It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
   (Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

◈ Dimension (Clean Type)

RJ20-4SHCJ-105/CAP

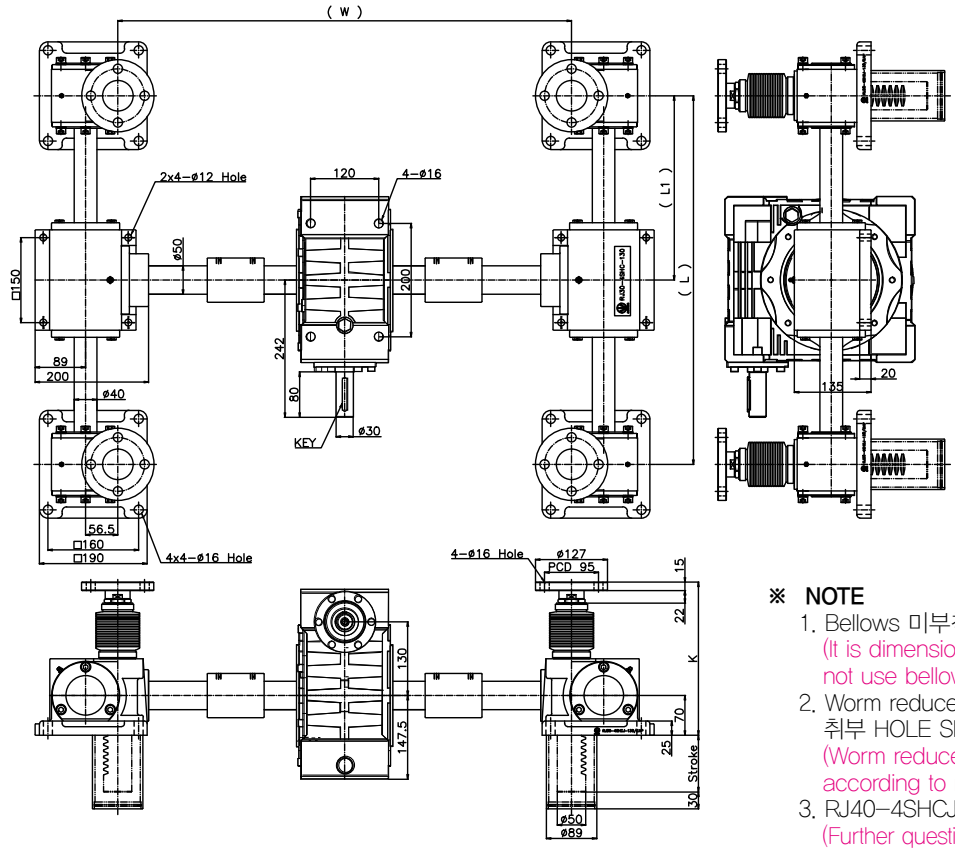


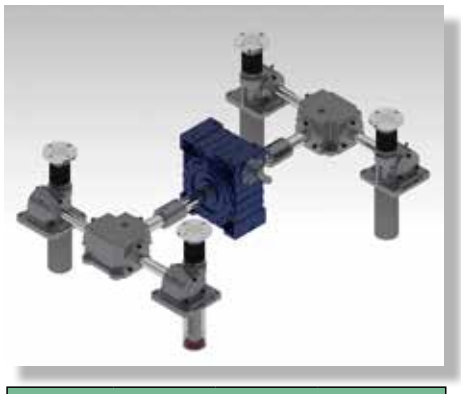


K			
50ST	100ST	150ST	300ST OVER
200	210	210	170 + (STROKE/4)
K			
200ST	250ST	300ST	
230	250	250	

※ NOTE
1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
(It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)

RJ30-4SHCJ-130/CAP





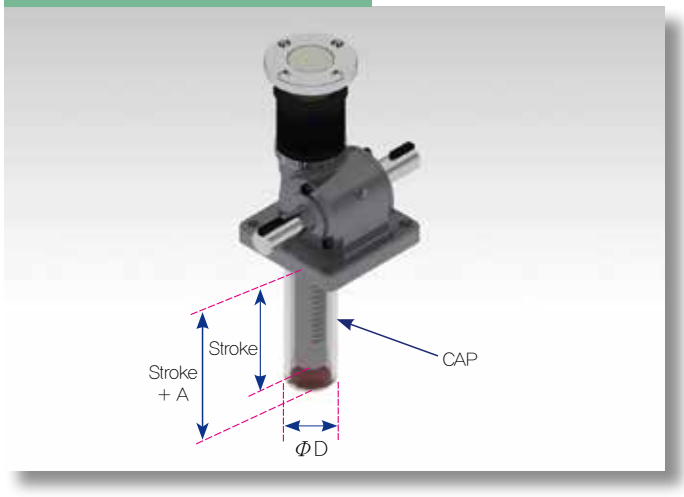
K			
50ST	100ST	150ST	300ST OVER
260	270	270	230 + (STROKE/4)
K			
200ST	250ST	300ST	
290	310	310	

※ NOTE
1. Bellows 미부착 dimension은 일반사양의 dimension 참조.
(It is dimension reference of general specification when do not use bellows.)
2. Worm reducer의 motor 취부 flange는 motor의 종류에 따라 취부 HOLE SIZE가 틀려진다.
(Worm reducer's motor flange is been mistaken hole size according to motor's kind.)
3. RJ40-4SHCJ model은 별도문의
(Further question is required about models after RJ40-4SHCJ)

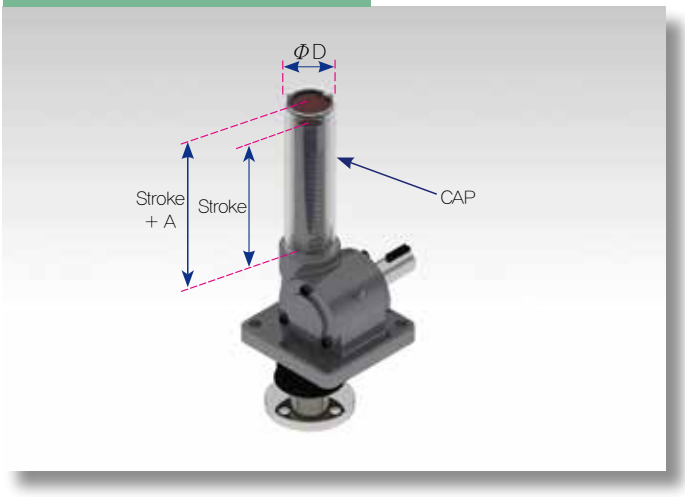
◈ Dimension (Clean Type)

▣ Cover 부착형 (Cover Sticking Type)

(하부부착형-LOWER PART STICKING)



(상부부착형-UPPER PART STICKING)



※ **NOTE**

1. COVER부착 Model은 RJ-4SC, RJ-4SCB, RJ-4SCH 모델에도 동일하게 적용된다. (The model with cover is adapted by the same way to RJ-4SC, RJ-4SCB, RJ-4SCH)
2. RJ 40 model은 별도문의
   (Further question is required about models after RJ 40)

MODEL	A	ΦD	재질 (The material)
RJ05 – CJ / CAP	20	40	AL PIPE ANODIZING
RJ10 – CJ / CAP	20	50	
RJ20 – CJ / CAP	20	60	
RJ30 – CJ / CAP	30	70	

18. 응용방법 (Application method)

(1) RJOOR(D)

[직결사용–motor direct connection use]

Rack jack의 입력축과 motor의 출력축을 coupling을 이용하여 직결로 연결한 구조이다. 구조가 간단하며 빠른속도를 얻을 수 있다.

It is a form that connecting in direct way output shaft on motor and input shaft on Rack jack with coupling. It is simple and can obtain good speed.

[간접연결사용–motor Indirectness connection use]

Rack jack과 motor의 연결은 spur gear나 sprocket, timming pully를 사용하여 연결한 구조이다. up–down 속도를 감속비로 맞출 수 있으며, 하자보수가 용이하다.

The connection between rack jack and motor takes advantage of spur gear, sprocket and timming pully. The speed of up/down can be fixed by reduce rate of the speed and it is easy to repair and maintain.

(2) RJOO–2S

[중간부분 구동–Shaft intermediate part drive]

구동 shaft에 spur gear나 sprocket를 사용하여 motor와 연결한 구조이다. spur gear나 sprocket이 rack jack gear box와의 거리가 멀때에는 UCP bearing을 설치하여 shaft의 변형을 최소화 한다.

Drive shaft is connected with motor by spur gear or sprocket. When the distance between spur gear or sprocket and rack jack gear box is too far to install, transforming of shaft should be minimized by using UCP bearing.

[끝부분 구동–Shaft end part drive]

중간부분에 motor의 설치가 곤란할 경우 rack jack의 바깥부분에 motor를 연결한 구조이다. 이때, rack jack 간의 center 거리가 2m를 초과할 경우나 빠른 속도를 사용할때는 shaft의 비틀림이 발생하여 2개의 rack jack이 작동시 약간의 오차가 생길 수 있다.

When it is difficult to install motor in the middle of the machine, it explains how to connect motor to outside of rack jack. If the distance between centers of rack jack is more than 2m or using it too fast,distortion of shaft would cause slight error on the operation of 2 shafts.

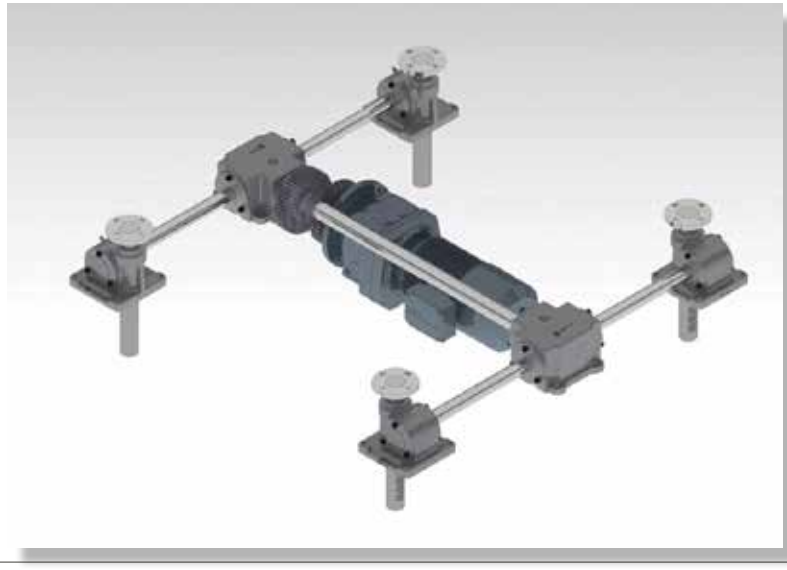
(3) RJOO–3S

Rack jack의 center간 거리가 2.5m 이상일 경우 중간에 rack jack 1개를 추가 사용한 구조이다. 이 구조는 rack jack shaft의 처짐과 변형을 방지하여 제품 수명을 연장 시킬 수 있다.

It shows how to use one more rack jack when the distance is more than 2.5m. This kind of connecting can make the machine live longer by protecting it from drop and transformation.

◈ 응용방법 (Application method)

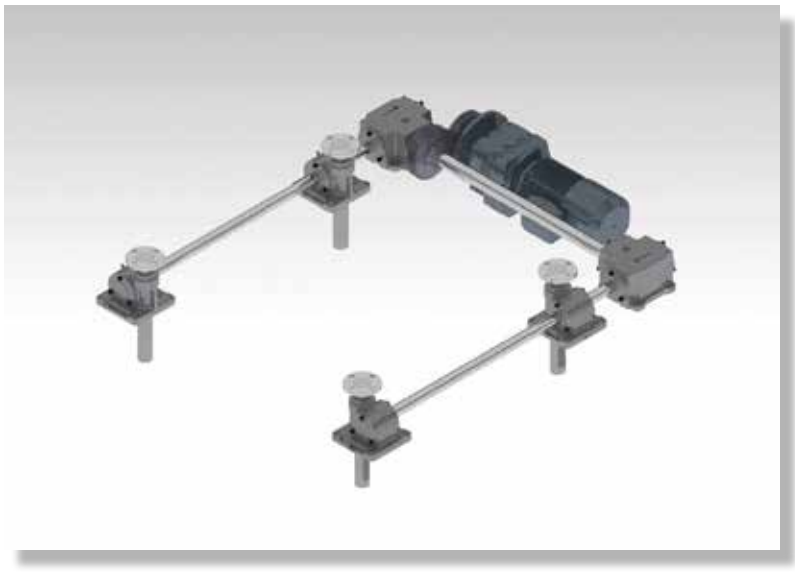
(4) RJOO-4S



[중간부분구동-Shaft Intermediate part drive]

가장 기본적인 구조로서 일반적인 lifter에 적용 할 수 있다. bevel gear box로 양쪽 shaft를 연결하여 rack jack 4EA가 동시에 up-down이 이루어진다.

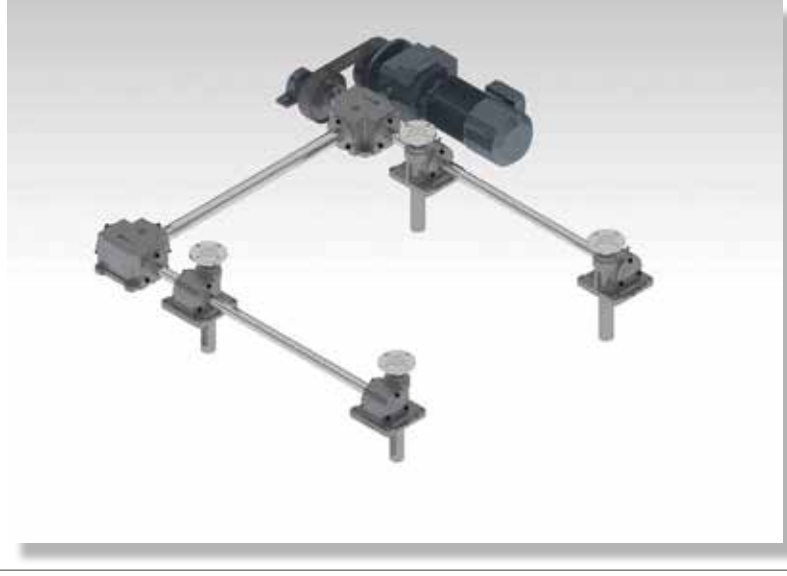
It is most basic form of the connecting and it can also be adapted to general lifter. Connecting both shafts with bevel gear box, 4ea rack jacks work up and down ward at the same time.



[끝부분 구동-Shaft end part drive]

Rack jack 중간 부분으로의 motor 설치가 곤란 할 경우 Rack jack의 끝부분에 bevel gear box로 연결하여 구성하면 다른 기구의 간섭을 피할 수 있다.

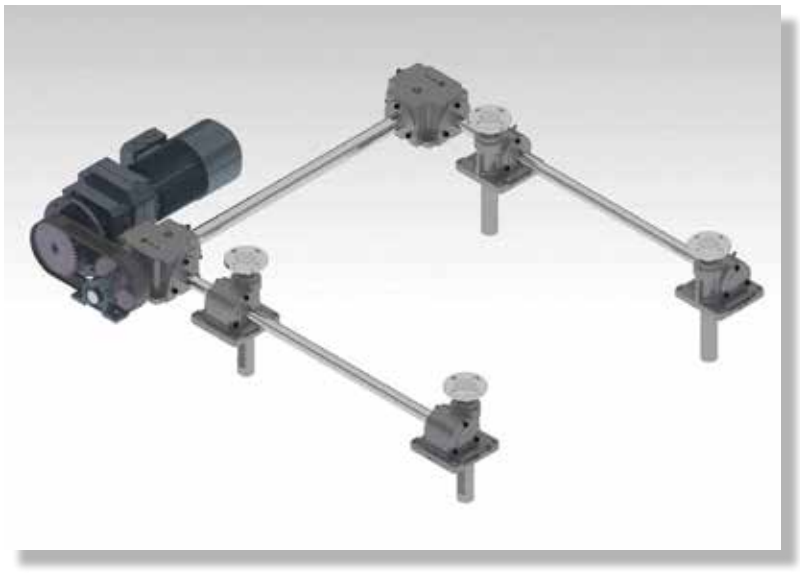
When it is difficult to install motor in the middle of rack jack, it is recommended that the motor connect to the edge of the rack jack with bevel gear box to avoid interference from other machines.



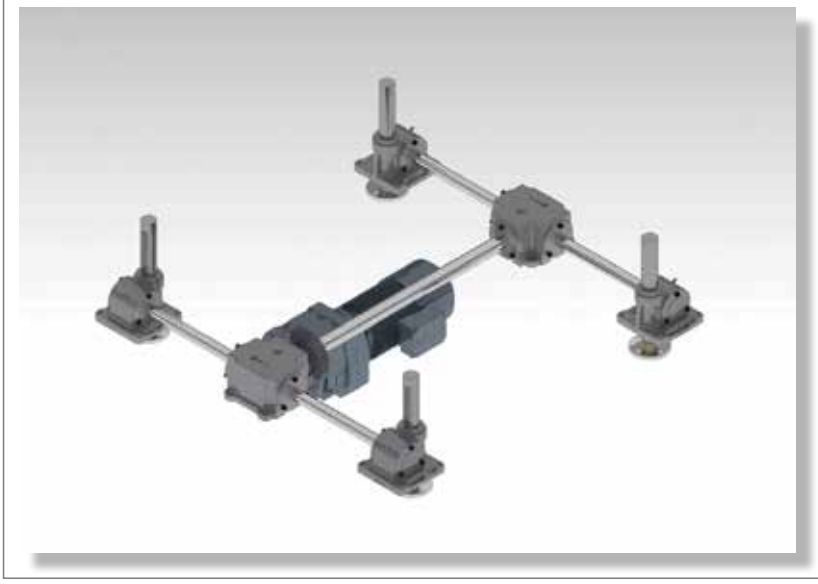
[끝부분구동-Shaft end part drive]

◈ 응용방법 (Application method)

(4) RJOO-4S

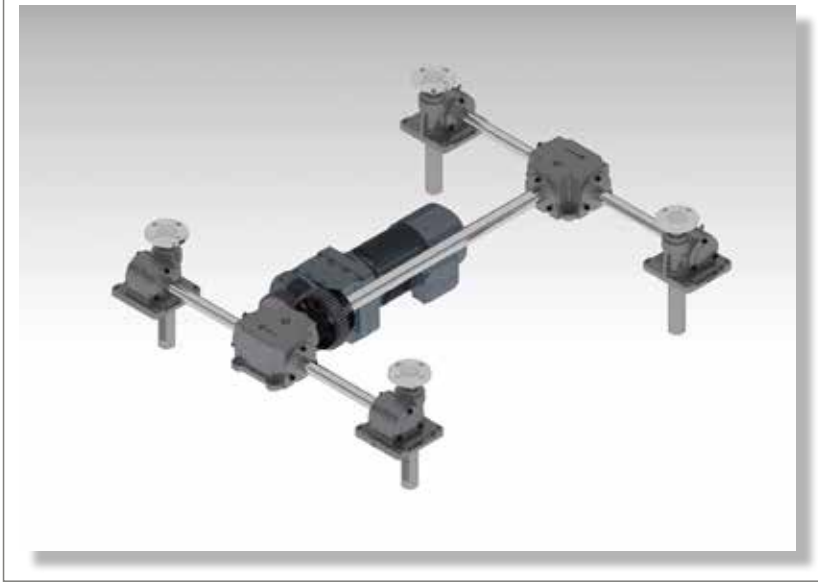


[끝부분구동-Shaft end part drive]



[거꾸로 사용-Shaft Intermediate part drive]

Rack jack의 상부 flange를 하부에 부착하여 사용할 수 있다.
Upper flange of rack jack can be attached to below side.

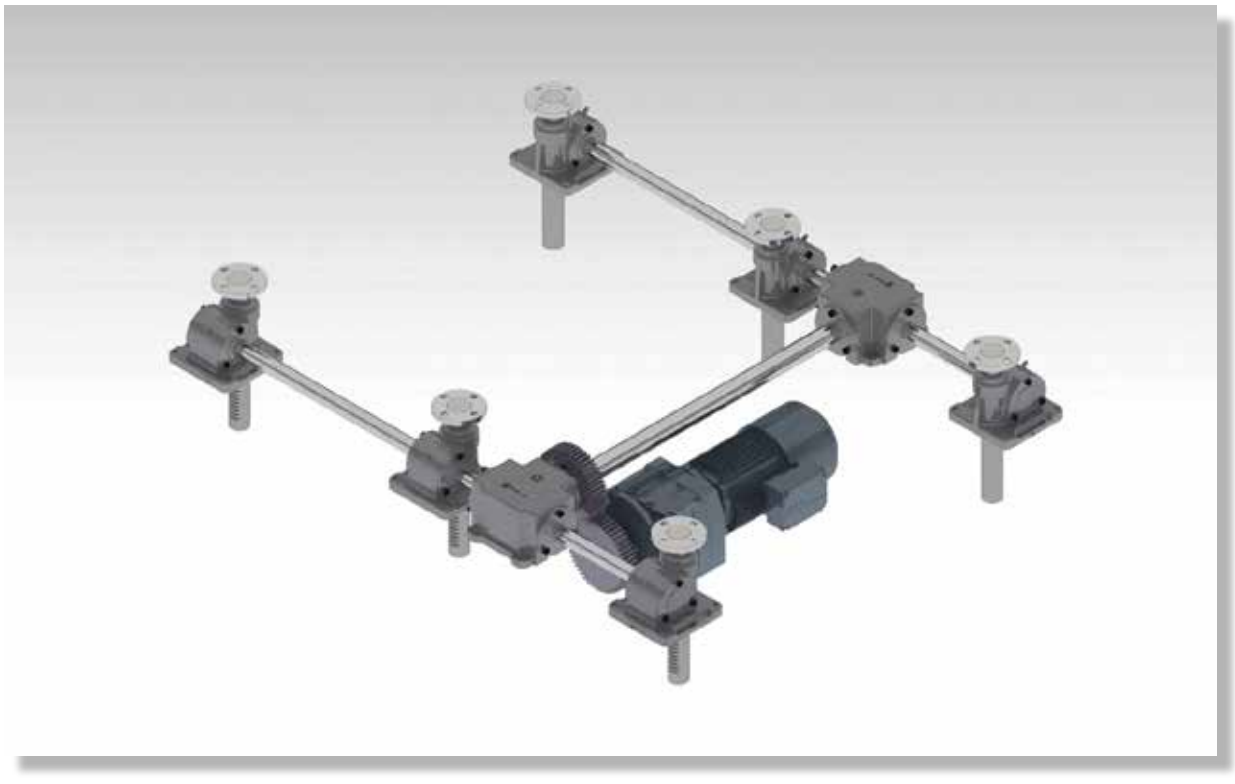


[Torque Limit]

Torque limit를 사용하여 작동중 과부하시나 정지센서의 오작동으로 한계 Stroke이상 동작시 motor 및 rack jack의 파손을 막을 수 있다.
Using torque limit, overload on operation, limit stroke error caused by false working of cease sensor and damage of motor or rack jack can be deterred.

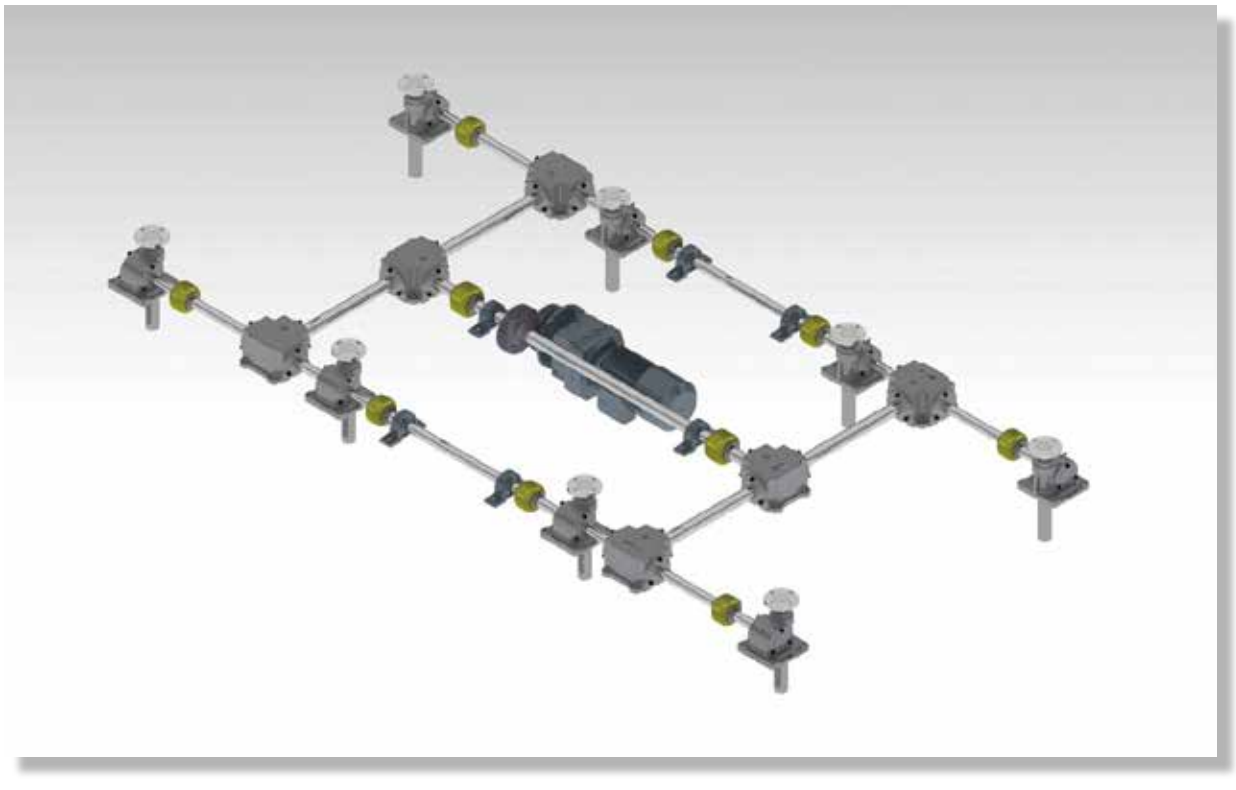
◈ 응용방법 (Application method)

(5) RJOO-6S



Up-down frame의 길이가 2.5M 이상이거나, 고 중량물을 승하강시에는 Rack jack을 6EA 사용하여 구성한다.
(When the length of the frame is less than 2.5m or lifting and loading heavy goodes, compose rack jack of 6ea)

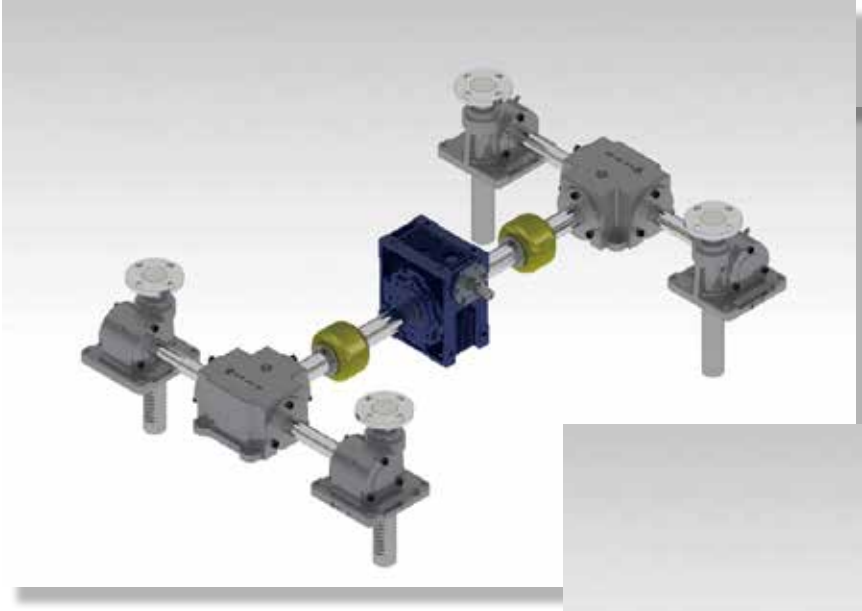
(6) RJOO-8S

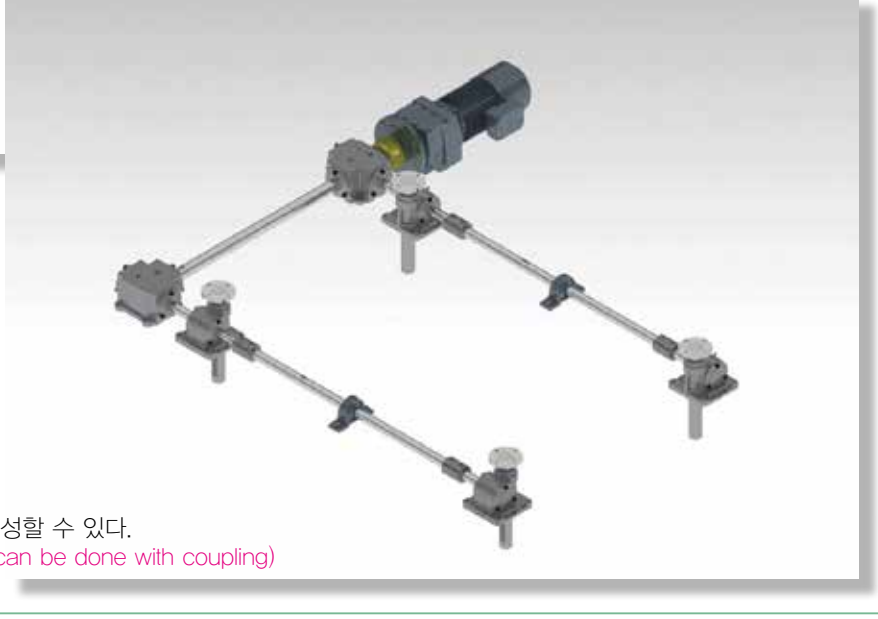


Up-down frame의 길이가 5M 이상일때 Rack jack을 8EA 사용하여 구성한다.
(When the length of the frame is less than 5m, compose rack jack of 8ea)

◈ 응용방법 (Application method)

(7) COUPLING

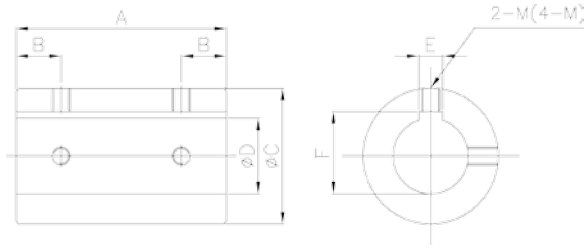




※ Maintenance의 용이함을 위해 coupling으로 연결 구성할 수 있다.
(To make the maintenance easier, the assembling can be done with coupling)

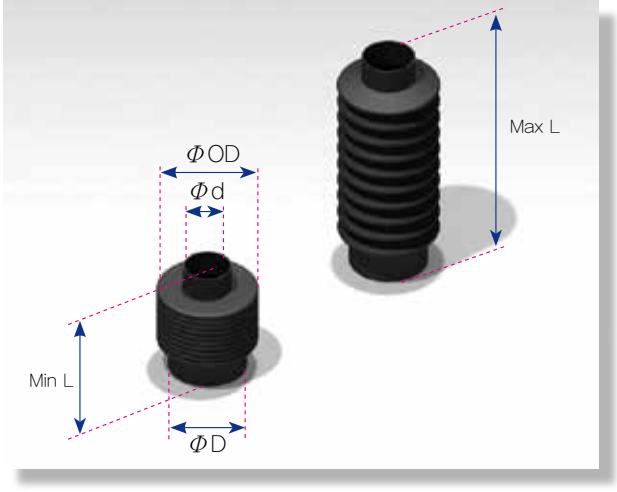
19. Accessories

◈ COUPLING



MODEL	A	B	ΦC	ΦD	E	F	M
C2550-8	70	13	Φ50	Φ25	8	28.3	M8 TAP
C3060-10	80	15	Φ60	Φ30	10	33.3	M8 TAP
C4070-12	90	15	Φ68	Φ40	12	43.3	M8 TAP
C4070-14	90	15	Φ68	Φ40	14	44	M10 TAP
C5090-14	100	18	Φ90	Φ50	14	54.3	M10 TAP
C60110-16	140	25	Φ108	Φ60	16	64.3	M10 TAP

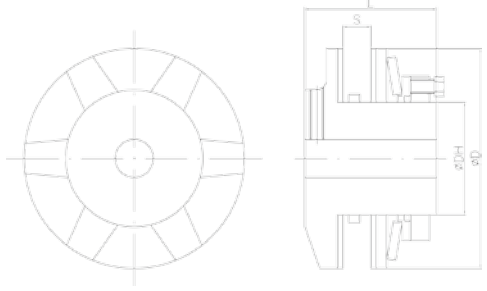
◈ BELLOWS



MODEL	COLOR	Φd	ΦD	ΦOD	MIN L	MAX L	APPLICATION
B3050-80	BLACK	Φ25	Φ45	Φ55	55	135	RJ10-CJ
W3050-80	WHITE						
B3050-150	BLACK	Φ30	Φ52	Φ52	70	250	RJ10-CJ
W3050-150	WHITE						
B4065-200	BLACK	Φ42	Φ65	Φ65	90	300	RJ10-CJ RJ20-CJ
W4065-200	WHITE						
B4065-400	BLACK	Φ42	Φ65	Φ65	130	650	RJ10-CJ RJ20-CJ
W4065-400	WHITE						
B5060-200	BLACK	Φ52	Φ62	Φ78	80	300	RJ20-CJ RJ30-CJ
W5060-200	WHITE						

※ NOTE : 1. Bellows의 재질은 silicon이며 검정색과 유백색 두 종류가 있다.
(The bellows is made up of silicon and it's colors are black and white)
2. Bellows의 1개의 기본 stroke보다 길게 사용시는 silicon 전용 접착제로 여러개를 연결하여 사용한다.
(When using more than one stroke, connect them with glue made from Loctite only for silicon)

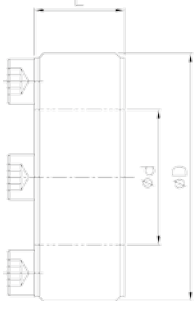
◈ TORQUE LIMIT



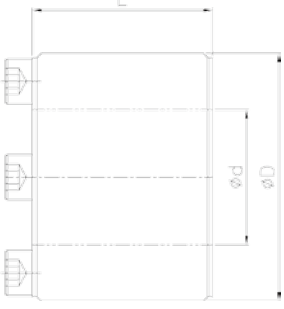
MODEL	ΦDH	ΦD	L	S MAX	APPLICATION
TL500-1	Φ65	Φ127	76	16	RJ10
TL500-2					
TL700-1	Φ95	Φ178	98	29	RJ20
TL700-1					

◈ POWER LOCK

PL Type

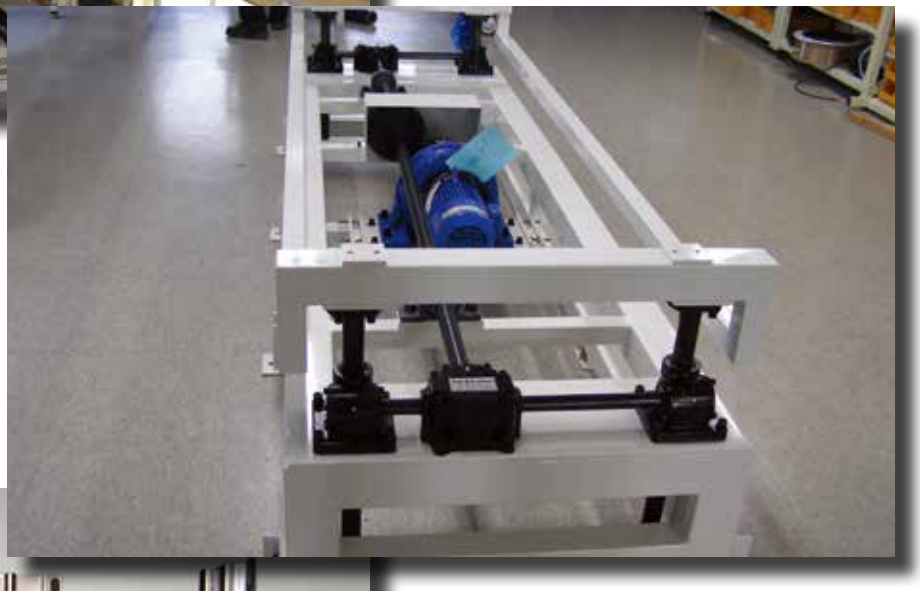


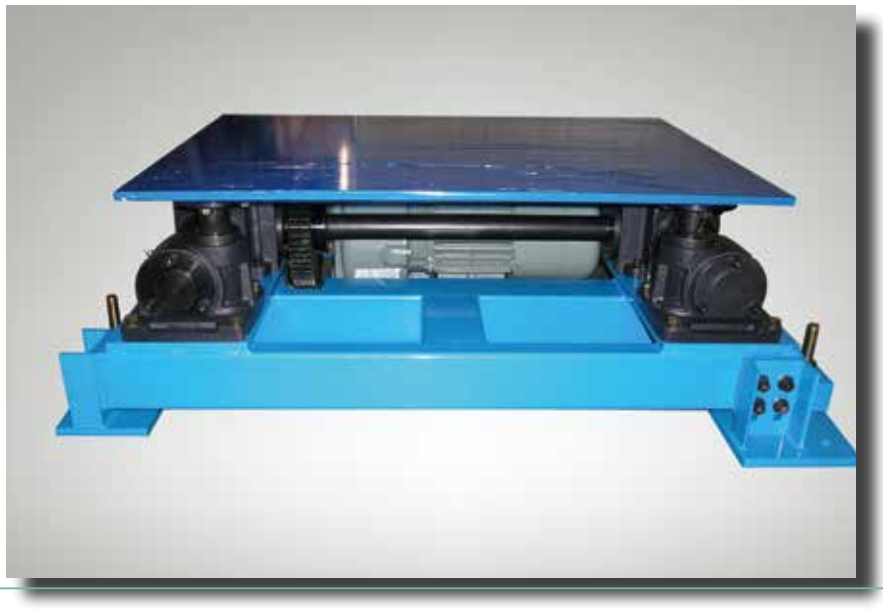
PL AD N Type

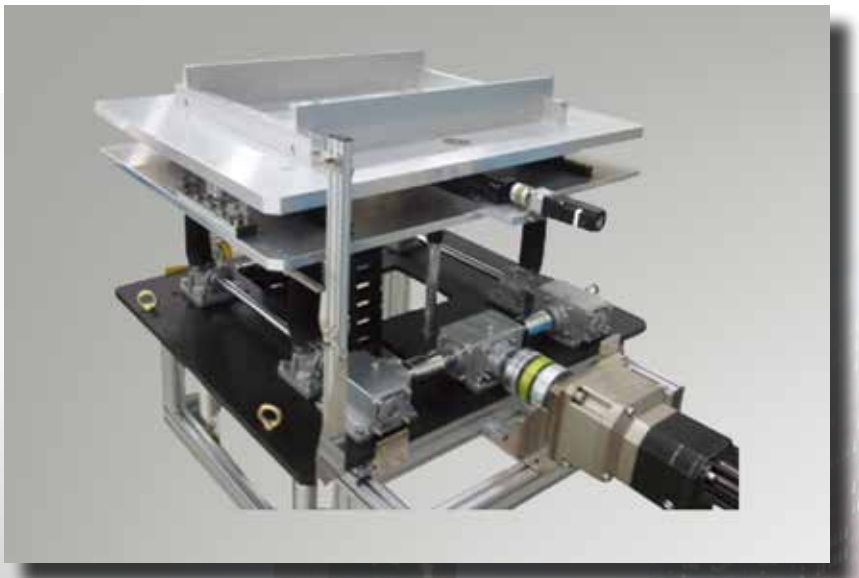


MODEL	Φd	ΦD	L	APPLICATION
PL025×050	Φ25	Φ50	20	RJ10-4S
PL035×060AD-N	Φ35	Φ60	50	RJ10-6S
PL030×055	Φ30	Φ55	20	RJ20-4S
PL040×065AD-N	Φ40	Φ65	57	RJ20-6S
PL040×065	Φ40	Φ65	20	RJ30-4S
PL050×080AD-N	Φ50	Φ80	64	RJ30-6S
PL050×080	Φ50	Φ80	24	RJ40-4S
PL060×090AD-N	Φ60	Φ90	64	RJ40-6S

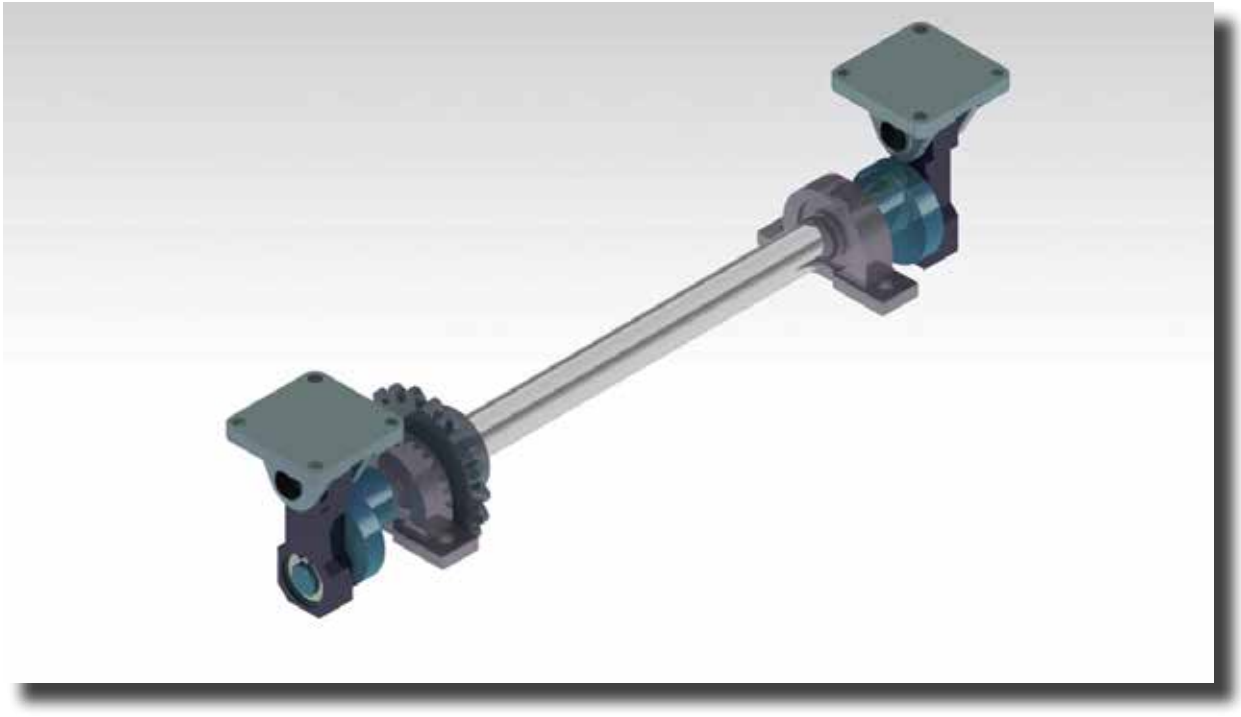
20. 사진자료 (Photo data)

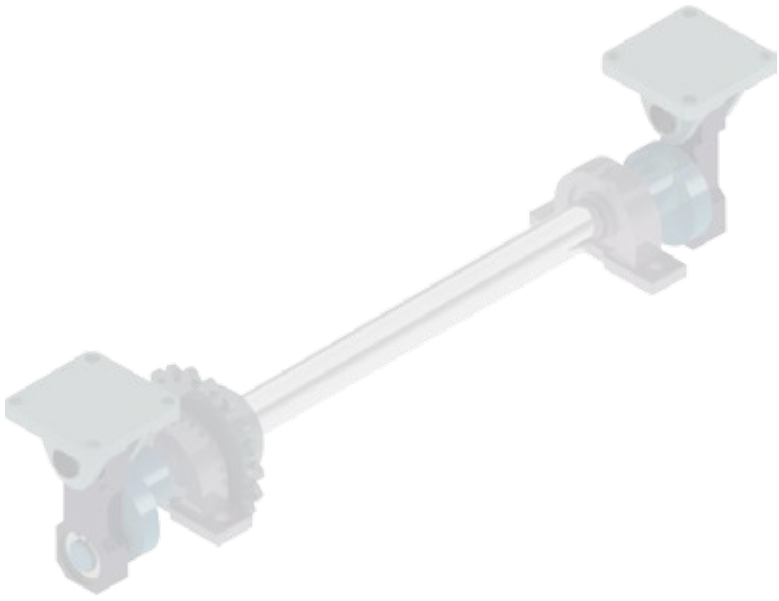




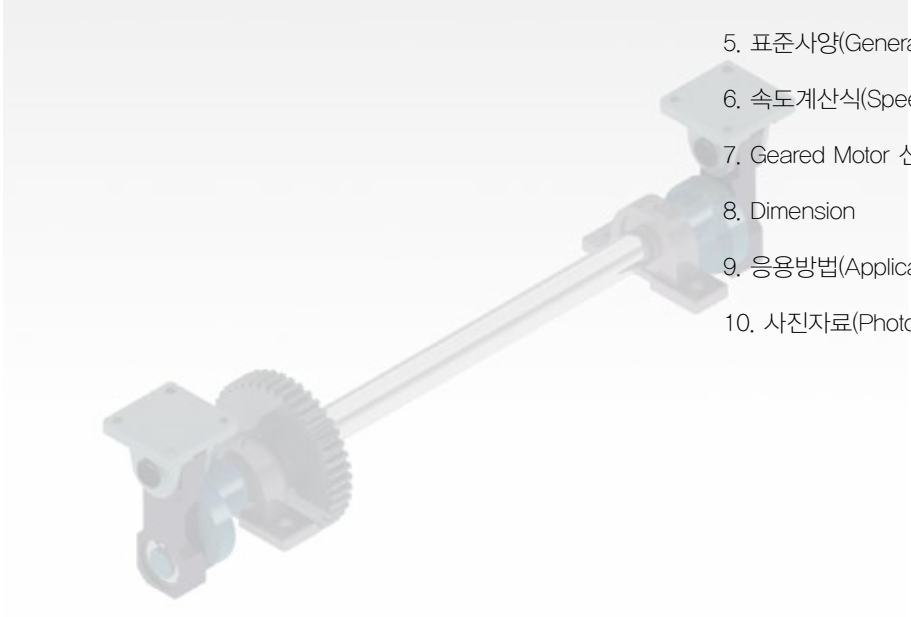


CAM LINK UNIT





◈ CONTENTS



1. 구조 및 성능 (Structure & efficiency)

1) 기존의 Cam방식은 Cam과 Idle roller로 구성되어 있어, Cam의 곡선을 타고 Idle roller가 상승하고 자중으로 하강하는 구조이나, Cam Link Unit는 Cam에 Link를 연결하고 그위에 Bracket를 부착시켜 Bracket이 승하강을 하는 구조로 되어있다.
2) Clank축의 구조와 흡사하며 상승 및 하강을 강제적으로 작동시켜서 하강시 끼임이 발생 하여도 MOTOR의 힘으로 강제 하강시키므로 오작동의 위험이 없다.
3) 기존의 Cam 방식은 설계자가 임의로 설계하는 제작품이지만 Cam Link Unit는 표준화 되어 있어 Cam과 Center거리만 지정하면 되므로 보다 쉽고 편한 설계를 할 수 있다.

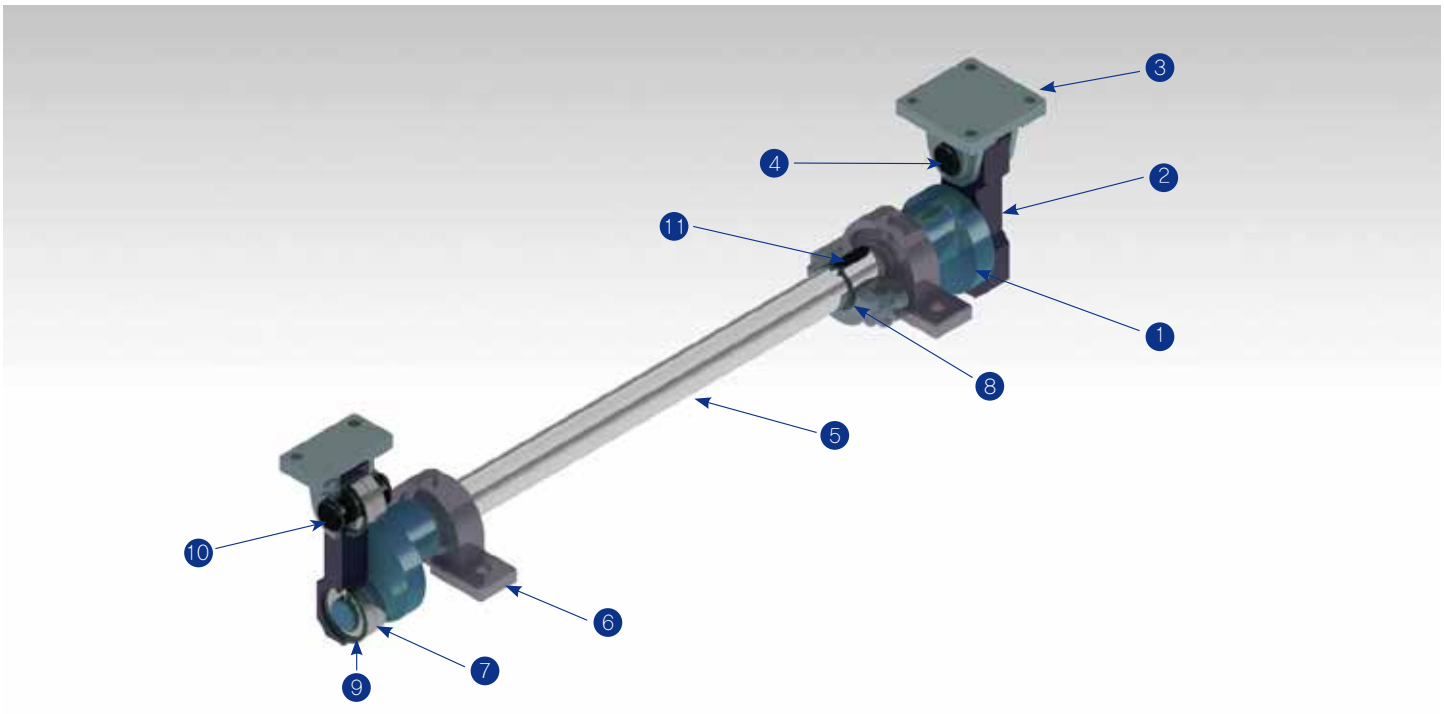
1) Currently used cam is composed of idle roller, it works in the way that idle roller moves up through cam curve and down by itself. But how cam link unit works is that connecting cam with link and attaching bracket on the top of it makes it move up and down.
2) Like clank shaft, forced working of moving up and down ward is free from false drive when it stuck on downward because the motor move it down ward.
3) Currently used cam is designed by a designer each by each, on the other hands, cam link is standardized so when installing, just fix the distance between the centers.

2. Cam Link Unit의 사용용도 (Use)

1) Roller 및 Chain Conveyor용 Diverter(Diverter for roller and chain conveyor)
2) Stroke 60mm 이하의 단순 Up-down lifter(up-down lifter used in the condition of less than 60mm strokes)
3) 기타 응용 기기(Other applications)

3. 내부구조도 (Inside constructional draw)

(CU Series)

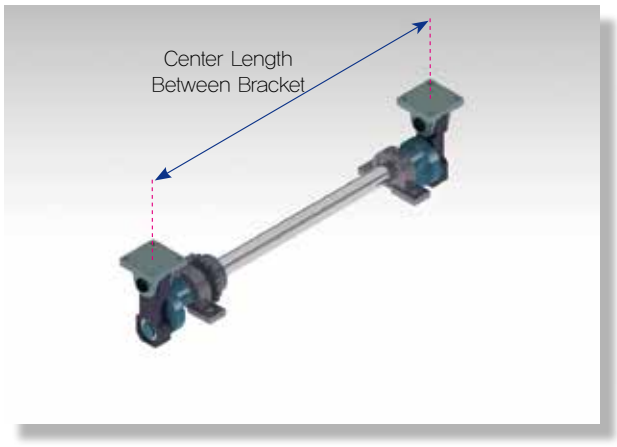


NO	품 명 (Names of goods)	재 질 (The material)	수 량 (Q'ty)
1	Cam	S45C	2
2	Link	FCD25	2
3	Bracket	FCD25	2
4	Pin	S45C	2
5	Shaft	S45C	1
6	Ucp Bearing	SUJ	2
7	Ball Beaing	SUJ	8
8	Snap Ring	SWP	2
9	Snap Ring	SWP	4
10	Snap Ring	SWP	4
11	Key	S45C	3

4. 형식표시방법 (Product Serial No)

CU ① 10 ② – 750 ③ – 60ST ④

① Cam Link Unit		
② Model	10	20
③ Bracket간 Center거리 (Center Length between Bracket)		
④ Stroke (mm)	50	60



5. 표준사항 (General specification)

MOEDL	CU 10	CU 20
구동원(Drive)	Geared Motor(Break Type)	
기 본 용 량(Basic capacity)kgf	1000	2000
Stroke(Max)	60	60

6. 속도계산식 (Speed Calculation)

[계산식]

예) CU10–60ST Model을 사용하여 속도는 2.7m/min으로 하고 Geared Motor는 감속비 1/60로 하고 Sprocket를 사용한다.

[Calculation]

Ex) Using CU10–60ST model, sprocket, speed is 2.7m/min and reduce rate of geared motor is 1/60.

$$V = \underset{①}{1750\times1/60} \times \underset{②}{13} / \underset{③}{17} \times \underset{④}{0.06} \times \underset{⑤}{2} = 2.67(m/min)$$

① Geared Motor 감속비 : Reduce rate of geared motor

② Motor 측 Sprocket 잇수(Z) : The number of sprocket gears on motor (Z)

③ Cam link측 Sprocket 잇수(Z) : The number of sprocket gears on cam link (Z)

④ Stroke (mm를 m로 환산) : Stroke (converted to mm)

⑤ 1/2 회전에 Stroke가 진행하므로 x2를 한다 : Stroke works per 1/2 rotate so multiply 2

7. Geared Motor 선정방법 (Selection mode of Geared Motor)

◈ 사양 (Spec)

① 하 중 (Weight) : 800(kgf) ② 속 도(Speed) : 3(m/min)

P = POWER(kw)	m = 중량(Weight)kgf	v = 속도 (Speed)m/sec	n = 효율 (Efficiency)	g = 9.81

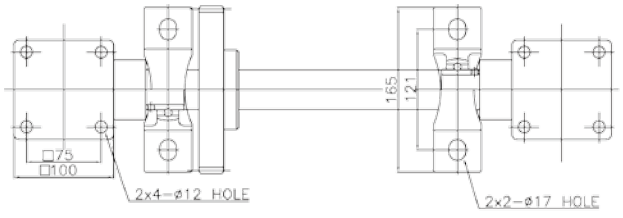
$$\text{HOISTING } P = \frac{m \times g \times v}{n \times 1000} \qquad P = \frac{800 \times 9.81 \times 0.05}{0.7 \times 1000}$$

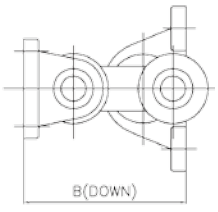
P =0.56(kw) 이므로 Geared motor는 0.75kw 용량의 break type으로 사용한다.

P =0.56(kw) so break type having capability of 0.75kw should be used as the geared motor.

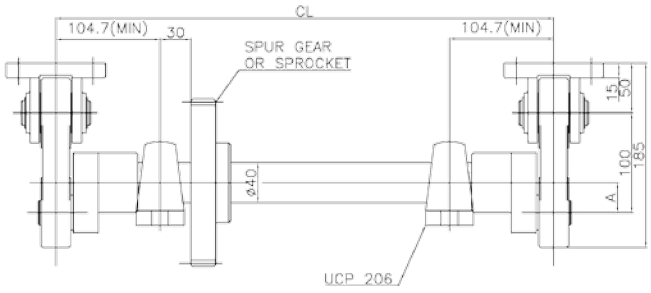
8. Dimension

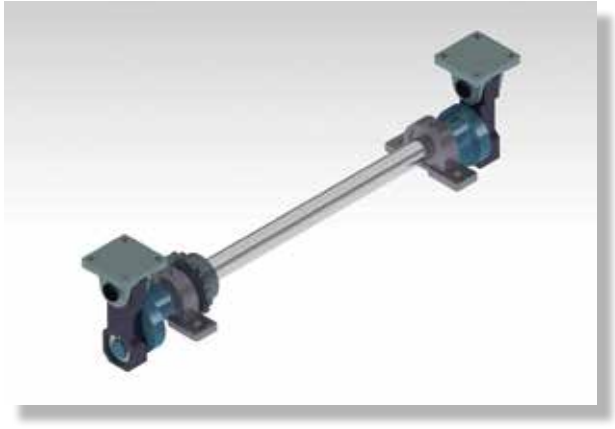
(CU 10)



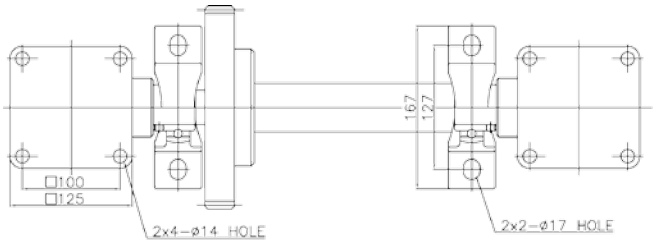


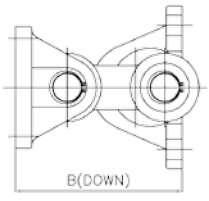
STROKE	A	B
50	25	167.9
60	30	162.9



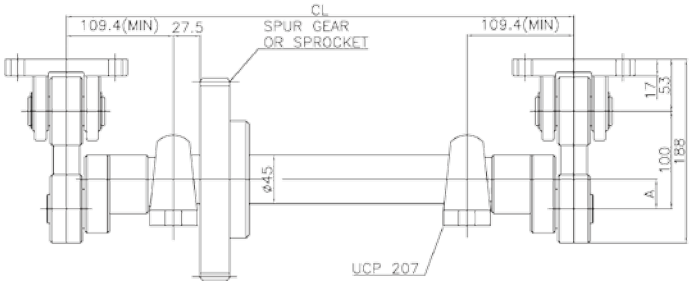


(CU 20)





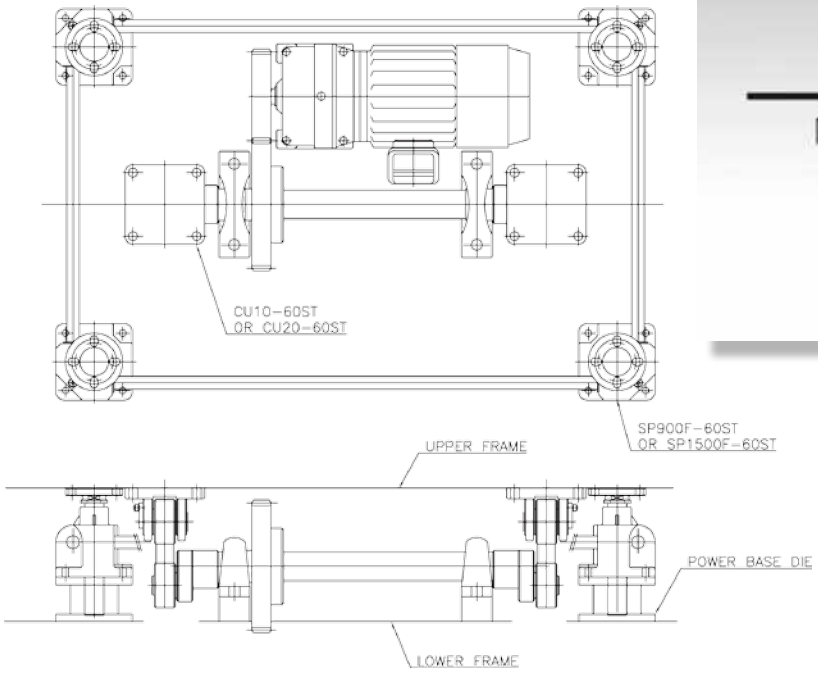
STROKE	A	B
50	25	175.6
60	30	170.6

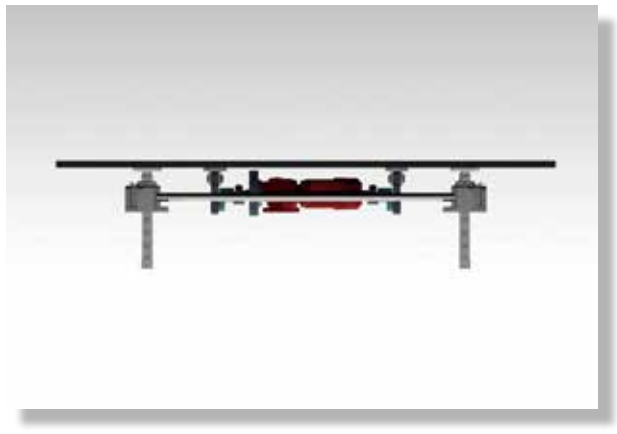


9. 응용방법 (Application method)

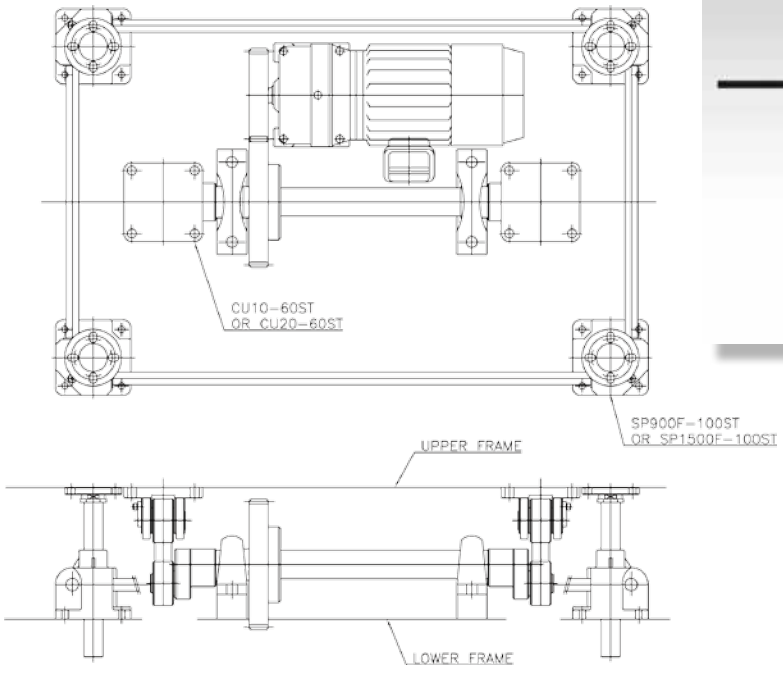
♣ Cam link unit는 Power base(SP series)와 함께 사용합니다 : Cam link unit uses with Power base(SP series)

◈ Cam Link Unit와 Power base를 같은 Stroke으로 사용할 경우 (When using Cam link unit and power base with the same)

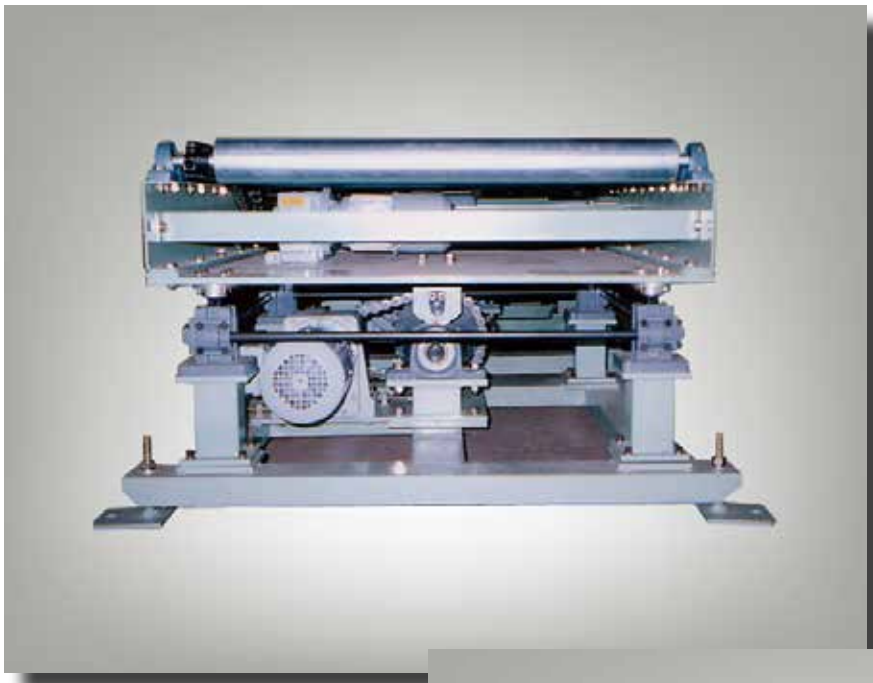


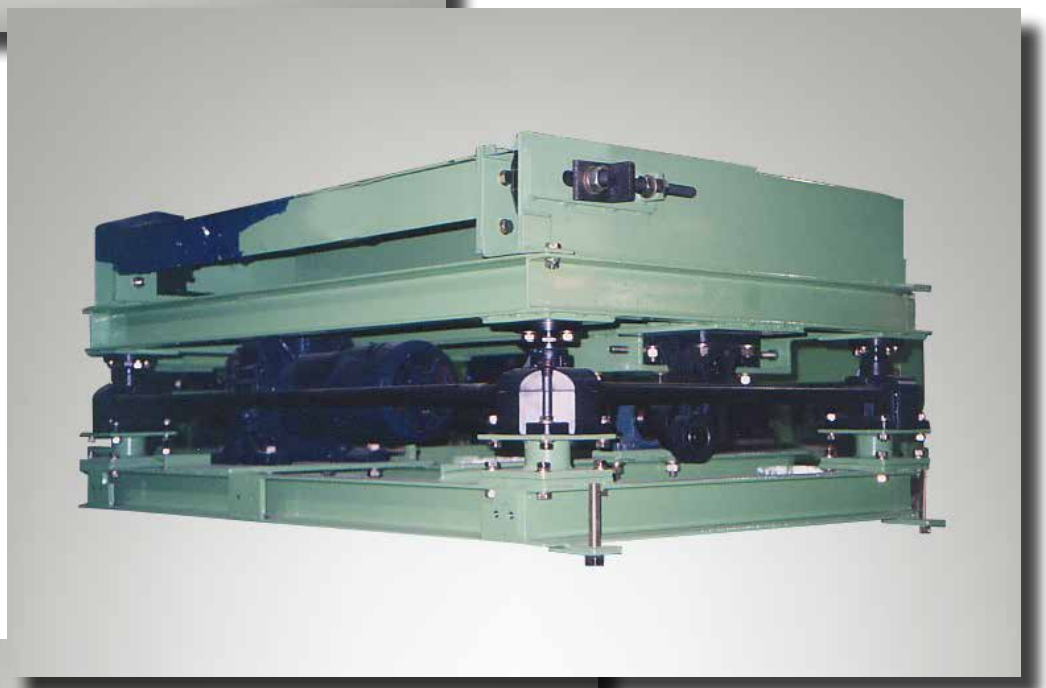


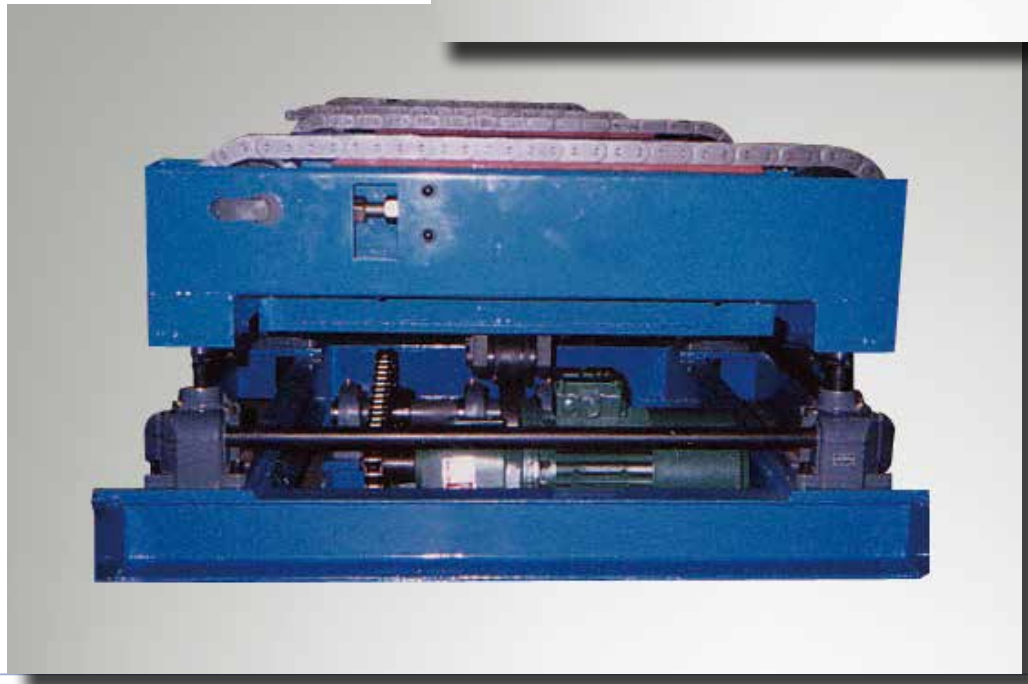
◈ Power base의 초기 높이를 연장하여 사용할 경우 (When the initial height of power base is heightened)



10. 사진자료 (Photo data)



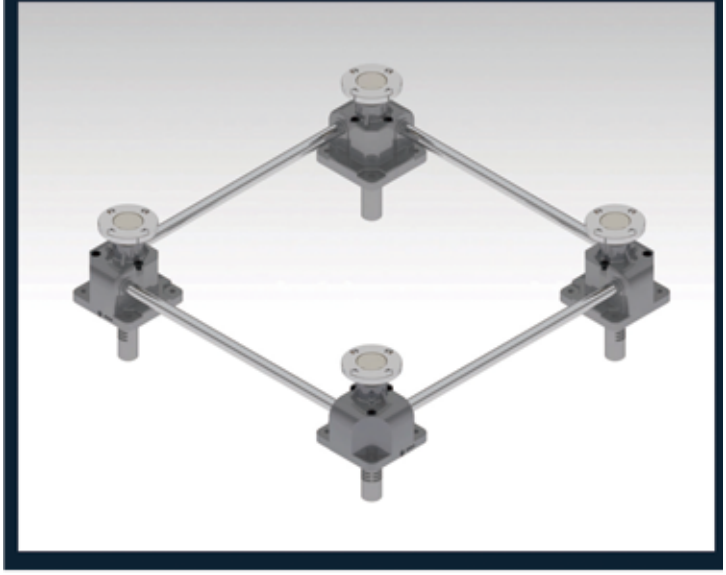




MEMO

MEMO

sangwooFA



www.sangwooFA.com

상우산기

경기도 부천시 원미구 평천로794(도당동165-31)
TEL : 032) 671-4758, 032) 671-9571~2
FAX : 032) 671-4759, 032) 671-9570
E-mail:sale@sangwoofa.com