

POWER BASE

(Linear Guide Unit)



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1 구조 및 성능(Structure & efficiency)

- 1) Rack gear와 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 최소화이다.
- 3) Lifter에 있어서 한쪽으로는 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-LINK와는 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 base의 종류(Type of Power base)

■ Power base는 크게 일반 type과 Clean type으로 나눈다

- 일반 type : 일반적인 산업용 설비에 사용되는 model로 외관은 painting 과 흑착색으로 되어 있다.
- Clean type : 반도체, LCD, PDP 생산 설비, 의료, 식품 생산설비에 사용되는 model로 부품의 다양한 후처리 방법이 있으며 Clean room의 조건에 따라 다양한 model이 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(motor 또는 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 구동 type)
 - SPM series에 motor를 직접연결하는 model로 spur gear나 chain, belt가 사용되지 않으므로 clean room 환경에 적합하다.
- 4) SPMH series(motor, handle 구동 type)
 - 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 구동 type)
 - 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 구동 type)
 - 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 form 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 does 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)

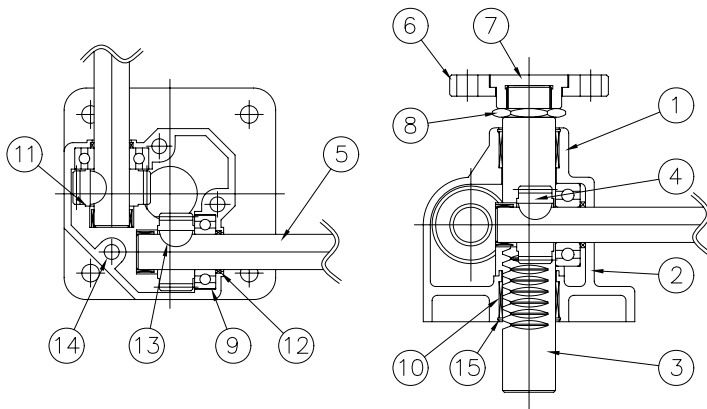
It is SPB series patched by miter gear box to move up and down by motor. It is easily adapted to the condition that is no necessary to be precise when moving light objects up and down.

3. 사용 용도(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) Greaneral 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 대응 Guide unit(SP Series)	6) 의약품 제조설비(Medical supplies making equipment)
7) 기타산업기기(Etc.. industrial equipment)	7) 식품 제조설비(Food supplies making equipment)

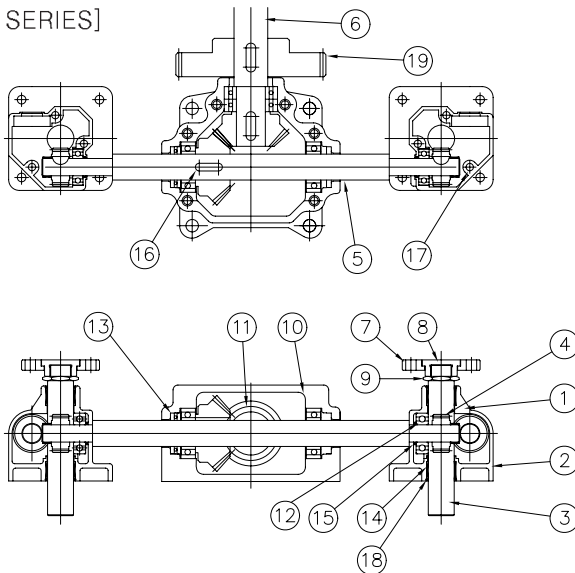
4. 내부구조도(Inside constructional draw)

[SP SERIES]



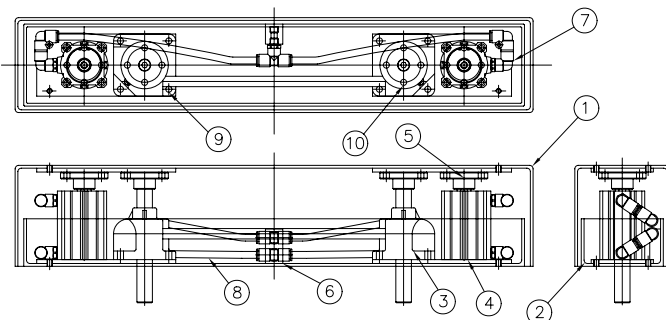
NO	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	8
5	Shaft	S45C	4
6	Flange	S45C	4
7	Flange joint	S45C	4
8	Lock nut	S45C	4
9	Ball bearing	SUJ	8
10	Du bush/oiless bearing		8
11	Du bush		8
12	Dust seal (option)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

[SPM SERIES]



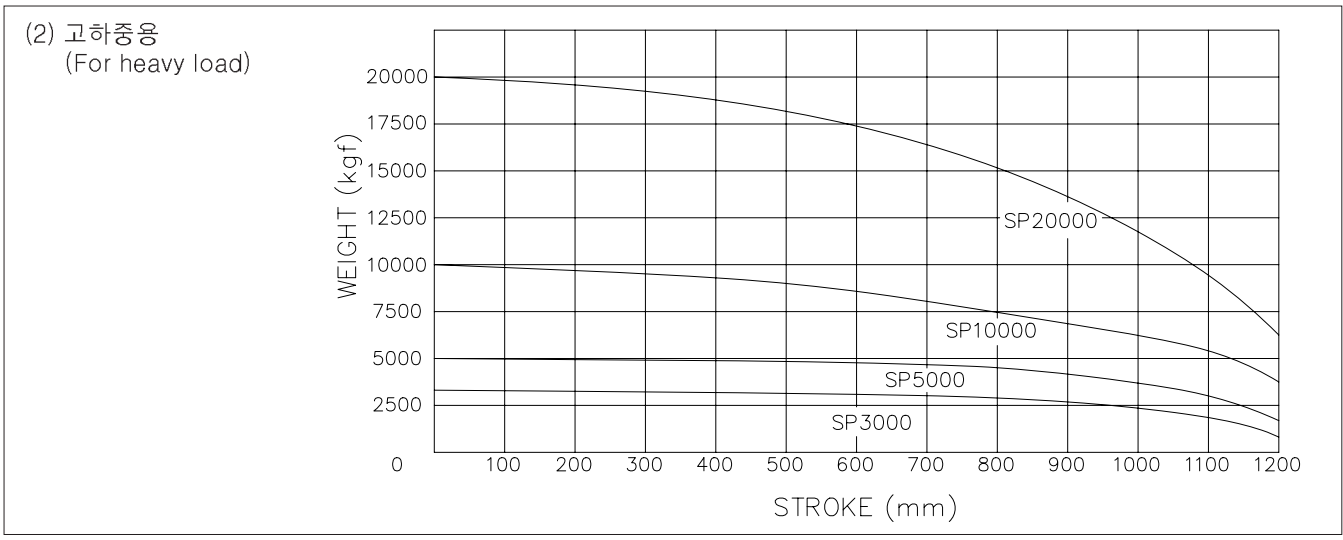
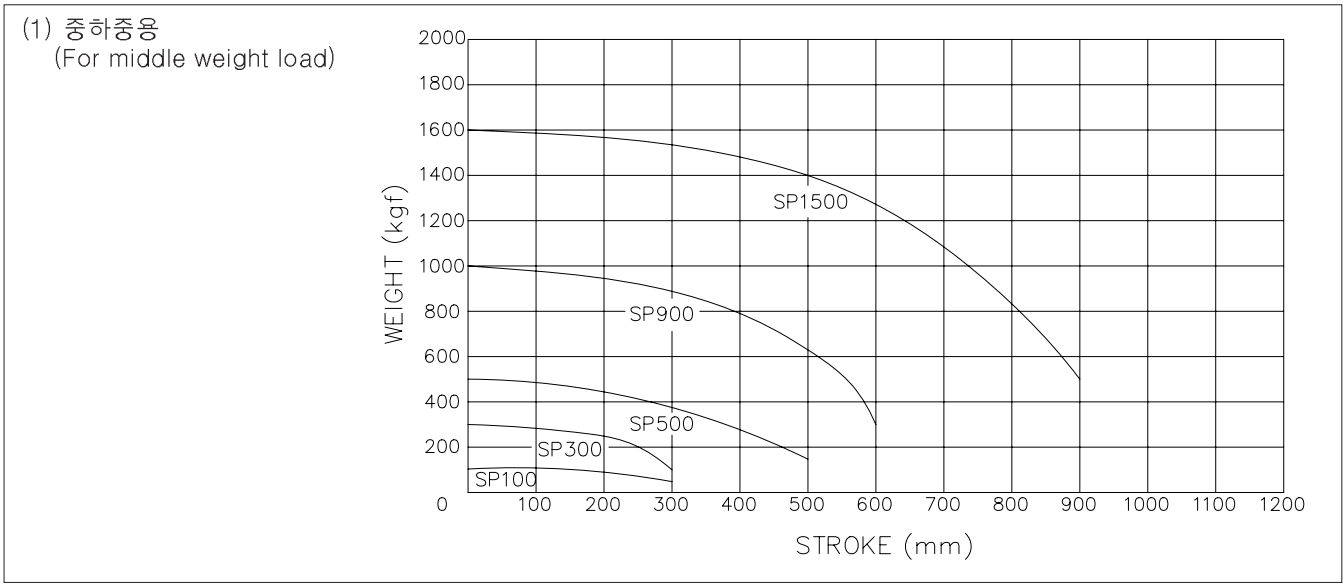
NO	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper gear box	ADC/FCD25	4
2	Lower gear box	ADC/FCD25	4
3	Rack gear	S45C	4
4	Pinion gear	S45C	4
5	Shaft A	S45C	2
6	Shaft B	S45C	1
7	Flange	S45C	4
8	Flange joint	S45C	4
9	Lock nut	S45C	4
10	Bevel gear box	AL/FCD25	2
11	Bevel gear	S45C/SCM21	4
12	Ball bearing	SUJ	8
13	Thrust bearing	SUJ	2
14	Du bush/oiless bearing		8
15	Dust seal (option)	NBR	4
16	Key	S45C	9
17	Wrench bolt	S45C	20
18	Stop ring	SWP	8
19	Spur gear/sprocket	S45C	1

[BSP SERIES]



NO	품명 (Names of goods)	재질 (The material)	수량 (Q'ty)
1	Upper box	SS41	1
2	Lower box	SS41	1
3	Power base unit		1
4	Compact cylinder		
5	Cylinder flange	S45C	2
6	Block	SS41	1
7	Fitting		8
8	Hose	URETHANE	
9	Wrench bolt	S45C	16
10	접시머리볼트(Flat head bolt)	S45C	16

5. SP Series 선정표(Selecting method)



사 양(Specification)	선정방법(Selecting method)
1. 하중 (Weight) : 1200 (kgf) 2. Stroke: 280 (mm) 3. 축간거리 (Shaft pitch) (L×W) : 950×600 (mm)	<p>그래프에서 SP 1500 model을 보면 하중 1200kgf와 280 stroke의 교차점이 그래프 하측에 위치 하므로, SP 1500 model을 선정 하면 된다. 축간 최대 한계표를 참조하면 SP 1500 model의 축간 최대거리가 1600mm 이므로 950 × 1600 (mm) 는 일반형으로 사용한다.</p> <p>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 shaftsof SP1500 is 1600mm so general model could be used in 950x1600 (mm)</p>

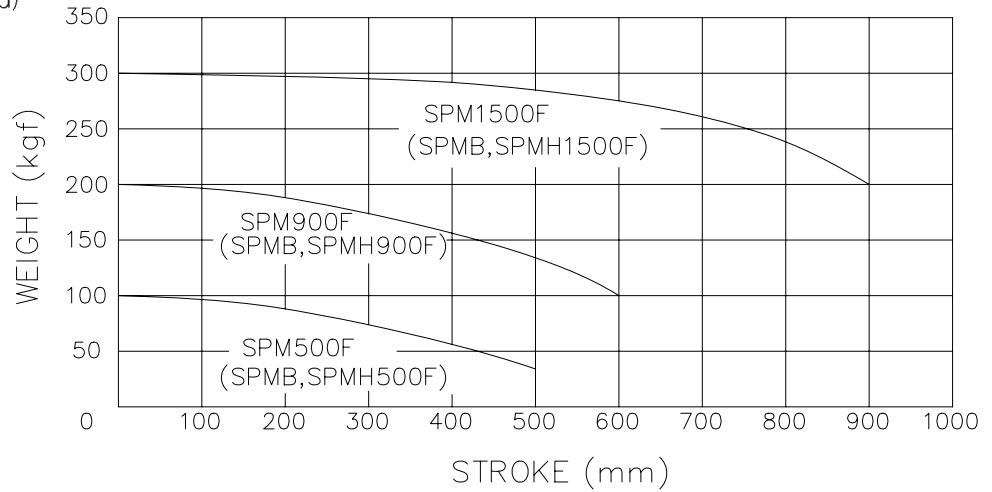
6. BSP Series 선정표(Selecting method)

MODEL 압력 (Pressure) (kg/cm ²)	허용하중 (work weight) kgf			
	BSP 3040	BSP 3050	BSP 9063	BSP 9080
5kg/cm ²	85	135	215	350
7kg/cm ²	120	190	300	490

사 양(Specification)	선정방법(Selecting method)
1. 하중 (Weight): 100 (kgf) 2. Stroke: 30 (mm) 3. 사용압력 (Pressure) : 5 (kg/cm ²) 4. 길이 (Length (L) : 800 (mm) 5. 사용수량 (Q'ty) : 2 (sets)	<p>BSP series 2sets를 이용하여 100kgf를 up-down 시키려 하므로 위의 표를 보면 BSP3040 model의 5kg/cm²의 압력시 출력이 85kgf이고 길이는 800으로 원하므로 BSP304080-30ST으로 선정한다.</p> <p>When lifting the object weighing 100kgf with 2 sets of BSP series, referring above table, output has to be 85 kgf and its length has to be 800 less than 5kg/cm² pressure so BSP304080-30ST is selected</p>

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

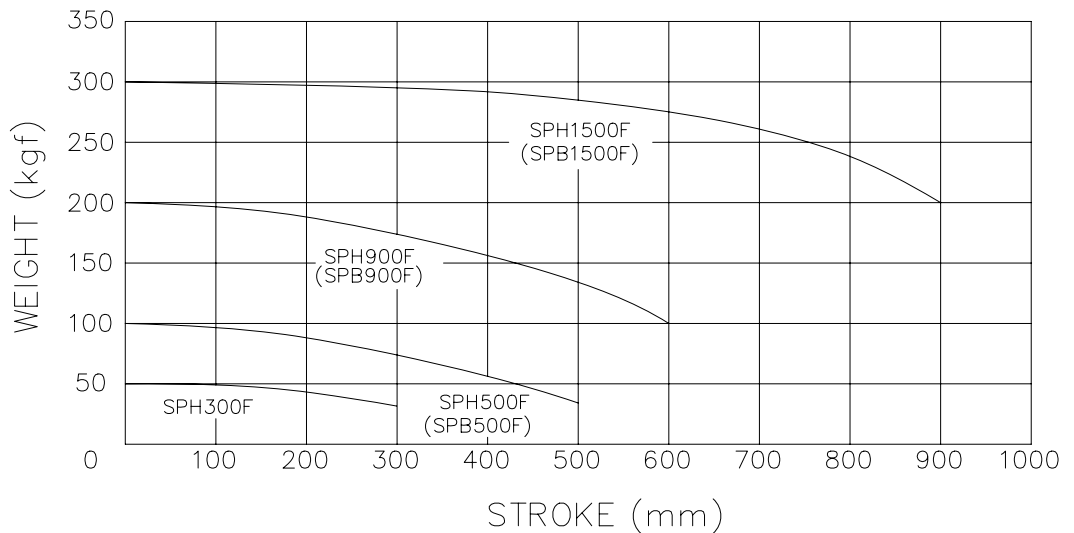
(1) 경하중용(For light load)



사 양(Specification)	선정방법(Selecting method)
<ol style="list-style-type: none"> 하중(Weight) : 150 (kgf) Stroke: 600 (mm) 축간거리 (Shaft pitch) (L × W) : 800 × 750 (mm) 속도(Speed) : 3 (m/min) 	<p>그래프에서 SPM 1500 model을 보면, 교차점이 그래프 하측에 위치 하므로 SPM 1500 model을 선정하면 된다. 또한 축간 최대 한계표를 참조하면 SPM 1500 model의 축간 최대 거리가 1200mm 이므로 800 × 750 (mm)는 일반형으로 사용한다.</p> <p>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 800x750 (mm)</p>

8. SPH, SPB Series 선정표(Selecting method)

(1) 경하중용(For light load)



사 양(Specification)	선정방법(Selecting method)
<ol style="list-style-type: none"> 하중(Weight): 150 (kgf) Stroke: 300 (mm) 축간거리 (Shaft pitch) (L × W) : 800 × 600 (mm) 구동원 (Actuator) : handle 	<p>그래프에서 SPH 900F model을 보면, 교차점이 그래프 하측에 위치 하므로 SPH 900F model을 선정한다 또한 축간 최대 한계표를 참조하면 SP900F model의 축간 최대 한계거리가 1200mm 이므로 800 × 600 (mm)는 일반형으로 사용한다. 입력축 1회전시 상승거리는 SPH900F model의 경우 125.66 mm 이므로 1/50의 감속기를 사용할 경우 handle 1회전시 상승 거리는 $125.66/50=2.51$mm 이다</p> <p>Looking at SP 900F model on graph, the intersection point is located on the bottom of the graph so SPH 900 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 800x600 (mm). Per one rotation, rising distance is 125.66mm of SPH900F model so when using 1/50 reducer, it is risen by $125.66/50=2.51$mm per a rotation.</p>

9. Motor 선정방법(Selection mode of Motor)

[사 양(Spec)]

① 하 중(Weight): 180(kgf)

② 속도(Speed): 3(m/min)

P=POWER(kw)	m=중량(Weight)kgf	V=속도(Speed)m/sec	n=효율(Efficiency)	g=9.81
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$$\text{HOISTING } P = \frac{m \times g \times v}{n \times 1000}$$

$$P = \frac{180 \times 9.81 \times 0.05}{0.8 \times 1000}$$

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

10. 속도계산식(Speed Calculation)

예) SPM 1500F model을 사용하여 속도는 3m/min으로 하고 geared motor는 감속비 1/60로 하고 spur gear 를 사용한다
 [계산식] $V = 1750 \times 1/60 \times 26/35 \times 0.138 = 3\text{m/min}$ 이므로 powerbase 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] $V = 1750 \times 1/60 \times 26/35 \times 0.138 = 3\text{m/min}$, 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)

11. Cylinder stroke 선정방법(Selection mode)

예) SPM 900F model을 사용하여 170mm를 up-down 시키려 한다. Cylinder 를 수평으로 설치 사용할 때, pinion gear의 module 은 M=2로 하고 잇수 Z=24로 선정할 때, cylinder의 stroke는?

[계산식] $\text{Cyl. ST} = 170(\text{사용stroke}) / 125.66(\text{shaft 1회전당 상승거리}) \times 24(\text{spur gear 잇수}(Z)) \times 6.283(M=2\text{의 pitch})$
 $= 203.9(\text{mm})$ 이므로 204stroke 로 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] $\text{Cyl. ST} = 170(\text{using stroke}) / 125.66(\text{rising distance per 1 rotation of input shaft}) \times 24(\text{the number of gear}(Z)) \times 6.283(\text{pitch of } M=2) = 203.9(\text{mm})$ so the value of the stroke will be 204.

12. Rack gear of Pitch(mm)

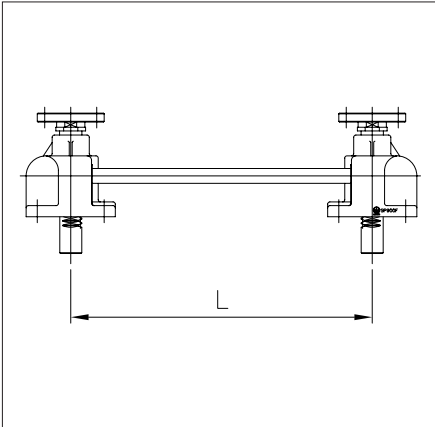
Module(M)	1	1.5	2	2.5	3	3.5	4	5
Pitch(P)	3.141	4.712	6.283	7.854	9.426	10.996	12.568	15.707

13. 외관및 후처리(Exterior & after treatment)

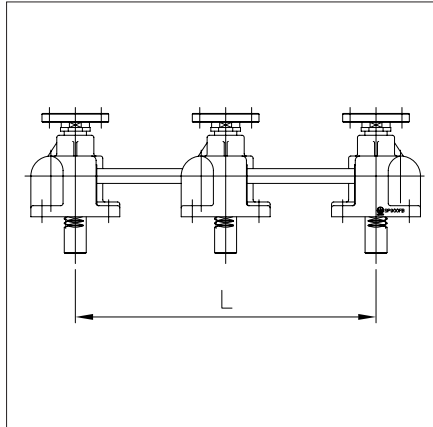
품 목 (Names of Goods)	표 준 (Standard)	녹방지용 (Blunt prevention)	클린룸용 (Clean room)	반도체장비 (Equipment semiconductor)	식품회사 (Food company)
Gear box	소부도장 (painting)	소부도장 (painting)	분체도장 (painting) / 무전해 니켈도금(non-electrolytic nickel plating)		
Rack gear	흑착색 (black coloring)	크롬도금 (chrom plating)	경질크롬도금(hard chrom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

14. 최대한계거리-Shaft maximum limit

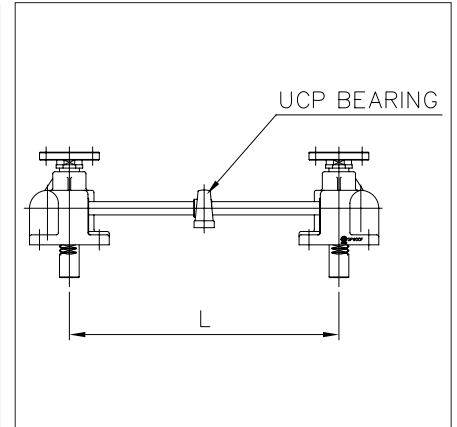
1) SD TYPE



2) B TYPE

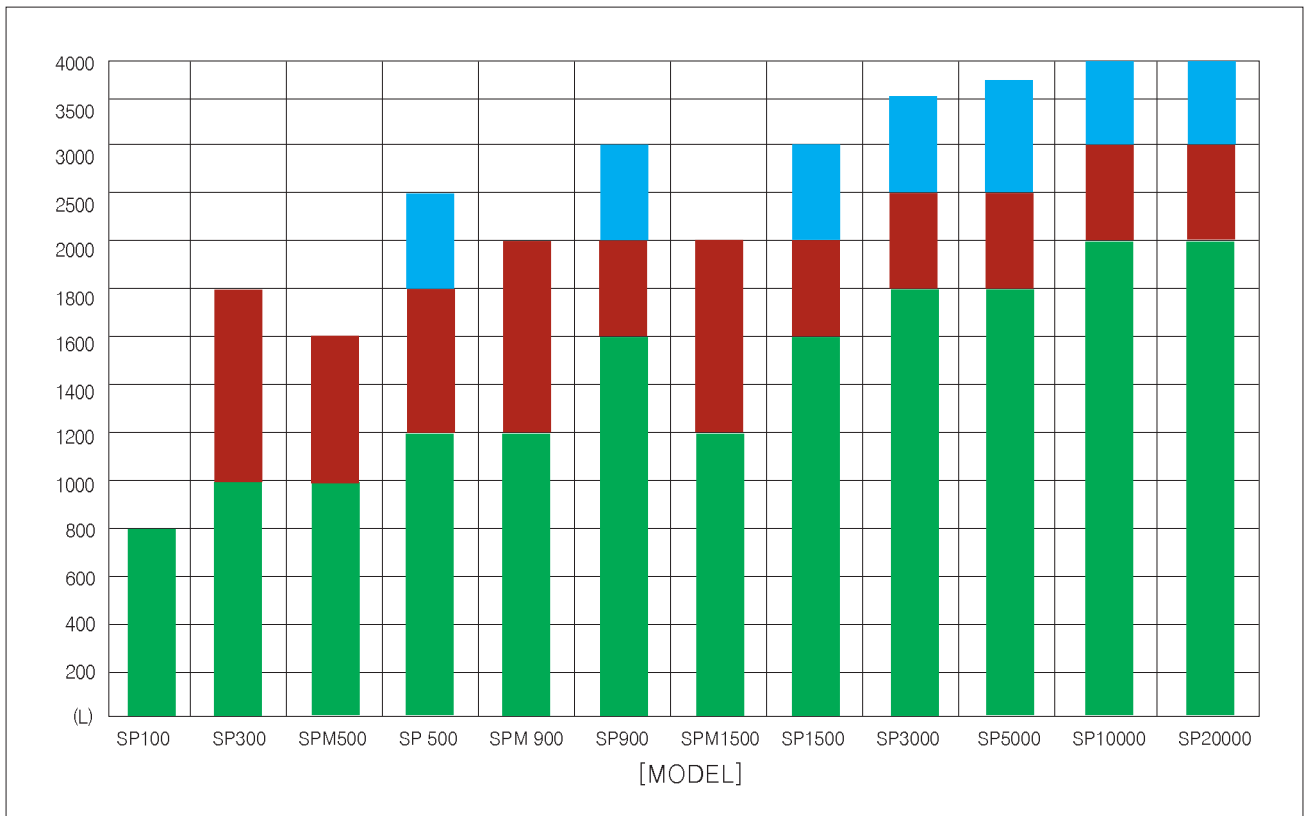


3) C TYPE



■ UCP BEARING 선정표(Selection mode)

Model	SP 300	SP 500	SP 900	SP 1500	SP 3000	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 powerbase unit중간에 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 box가 설치되어 있어 상부 frame의 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 its centerbut C type should be designed to consider of drop of the upper part of it because it just holds drop of shaft.

15. Hydraulic Cylinder 출력표(output power sheet)

♣ 유압 실린더 이론 출력표(실효율 100%)

(Hydraulic cylinder output power sheet-substance efficiency 100%)

내 경 Inside(mm) diameter	로드경 Rod diameter (mm)	작동방향 Operation direction	유효면적 Effective area(cm ²)	Output(kgf)		
				35(kgf/cm ²)	70(kgf/cm ²)	140(kgf/cm ²)
∅40	∅18	로드전진(Rod forward)	12.56	439.6	879.2	1758.4
		로드후진(Rod behind)	10.02	350.7	701.4	1402.8
∅50	∅22.4	로드전진(Rod forward)	19.63	687	1374.1	2748.2
		로드후진(Rod behind)	15.83	554.01	108.12	216.2
∅63	∅28	로드전진(Rod forward)	31.17	1090.9	2181.9	4363.8
		로드후진(Rod behind)	25.01	875.3	1750.7	3501.4
∅80	∅35	로드전진(Rod forward)	50.26	1759.1	3518.2	7036.4
		로드후진(Rod behind)	40.64	1422.4	2844.8	5689.6
∅100	∅45	로드전진(Rod forward)	78.54	2748.9	5497.8	10995.6
		로드후진(Rod behind)	62.63	2192	4384.1	8768.2
∅125	∅55	로드전진(Rod forward)	122.71	4294.8	8589.7	17179.4
		로드후진(Rod behind)	98.95	3463.2	6926.5	13853
∅140	∅60	로드전진(Rod forward)	153.93	5387.5	1077.5	21551.4
		로드후진(Rod behind)	125.66	4398.1	8796.2	17592.4
∅150	∅65	로드전진(Rod forward)	176.71	6184.8	12369.7	23739.4
		로드후진(Rod behind)	143.53	5023.5	10047.1	20094.2
∅160	∅70	로드전진(Rod forward)	201.06	7037.1	14074.2	28148.4
		로드후진(Rod behind)	162.57	5689.9	11379.9	22759.8
∅180	∅80	로드전진(Rod forward)	254.46	8906.1	17812.2	35624.4
		로드후진(Rod behind)	204.2	7147	14294	28588
∅200	∅90	로드전진(Rod forward)	314.15	10995.2	21990.5	43981
		로드후진(Rod behind)	250.54	8768.9	17537.8	35075.6
∅250	∅112	로드전진(Rod forward)	490.87	17180.4	34360.9	68721.8
		로드후진(Rod behind)	395.84	13855.4	27710.9	55421.8

16. Air Cylinder 출력표(output power sheet)

♣ 공압실린더 이론 출력표(실효율 70%)

(Air cylinder output power sheet-substance efficiency 70%)

(Unit: kgf)

내경(mm) Inside Diameter	작동 방향 (Operation direction)	1	2	3	4	5	6	7	8	9	10
Φ20	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
Φ25	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
Φ30	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
Φ40	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
Φ50	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
Φ63	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
Φ80	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
Φ100	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
Φ125	로드전진(Rod forward)	85.91	71.8	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
Φ140	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
Φ150	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	689.4	804.3	919.2	1034.1	1149
Φ160	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	1019.4
Φ180	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
Φ200	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
Φ250	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
Φ300	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

17. 조립시 유의사항(Attention Fact)

	<p>Power base unit의 center간 거리는 $\pm 1\text{mm}$ 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 이루어 지는데 상, 하면의 치수가 서로 틀린 상태에서 강제로 조립을 하면 gear의 마찰계수가 높아져 gear의 마모는 물론 부드러운 작동이 되지 않는다.</p> <p>The distance between centers of power base unit has extra room of (\pm) 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.</p> <p>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.</p>
	<p>상부 frame이나 철판의 변형으로 A치수가 1mm이상 차이가 난 상태에서 조립을 하면 gear의 마찰계수가 높아져 작동이 뻑뻑해 진다. 이때에는 powerbase flange가 변형으로 제작 되었으므로 rack gear 상면의 joint를 조정하여 상부 frame 취부면과 flange면이 최대한 밀착된 상태에서 조립을 한다. 또한 하부 frame이나 철판의 변형으로 B 치수가 1mm이상 차이가 생길 때에는 그냥 조립하지 말고 얇은 철판으로 liner 작업을 하여 유격을 없앤 뒤 조립을 하는 것이 제품의 수명이나 작동에 있어서 이상적이다.</p> <p>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.</p> <p>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</p> <p>And also it is strongly recommended for using it longer to keep narrowing the differences between the frames by liner work before connecting when the difference in B due to distortion of steel plate or below side of the frame is more than 1 mm.</p>
	<p>보다 정밀한 작동과 수평 level을 위해서는 Powerbase 취부면을 연마 가공한 후 취부한다.</p> <p>For more minute drive and keeping parallel level of the frame, connect it after grinding and cutting on the connecting side of power base.</p>
	<p>구동원을 단동 cylinder 나 air spring을 사용할 때는 powerbase 취부면을 연마 가공하거나 필히 liner 작업을 하여, 상하면의 유격을 없이 한 뒤 powerbase를 조립한다. 상승은 air 압력으로 하지만 하강은 자중으로 이루어 지므로 상, 하 frame이 변형이 된 상태에서 그대로 조립을 하면 gear의 마찰계수가 높아져 하강이 되지 않거나 자중이 무거워 하강이 된다 해도 부드럽지 못한 작동이 된다.</p> <p>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.</p>
	<p>Motor 나 다른 장치물의 간섭으로 powerbase의 한쪽 연결 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.</p> <p>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.</p>
	<p>높이 H를 맞추기 위해 powerbase die를 설치하여 취부할 경우, 취부 bolt를 처음부터 딱 조이면 powerbase center간 거리가 틀려져 작동이 뻑뻑해질 수 있으므로 취부 bolt를 약간 풀어놓은 상태에서 up-down test를 한 후 조이면 보다 원활한 작동을 할 수 있다.</p> <p>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 loosening 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 powerbase center.</p>

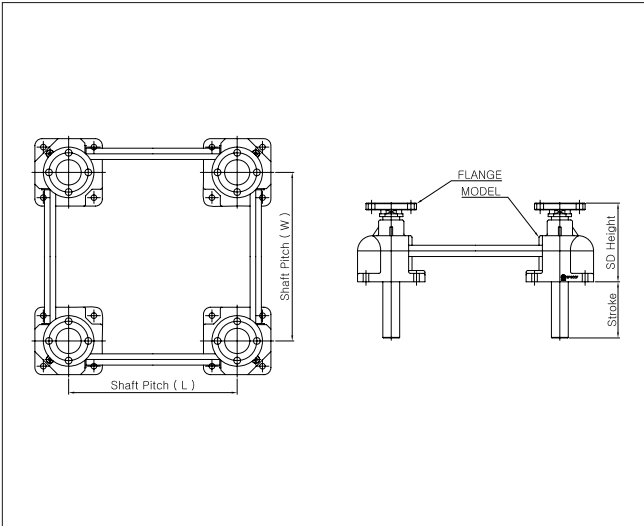
18. 형식표시방법-일반Type(Product Serial No-General type)

[SP Series]

SP 900 F - 600 × 500 - 50ST

① ② ③ ④ 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)			

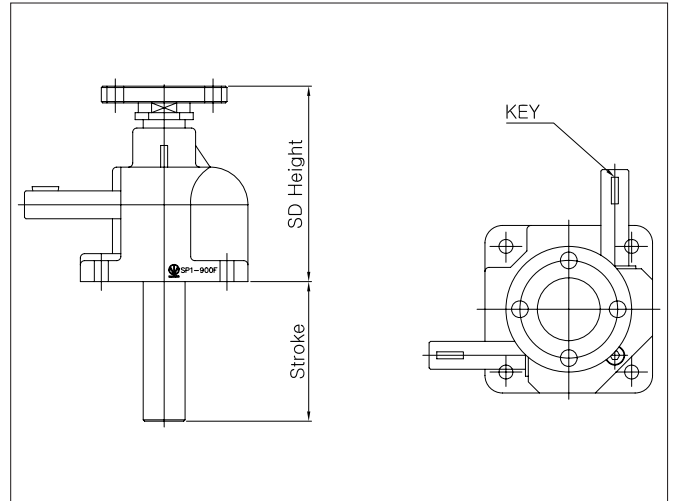


[SP 1 Series]

SP1 - 900 F - 100ST

① ② ③ ④

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 Stroke (mm)					

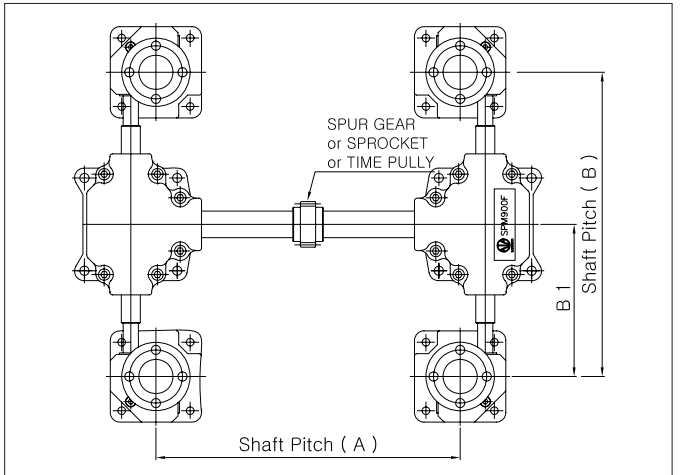


[SPM Series]

SPM 1500 F- 800 × 600-300-250ST

① ② ③ ④ ⑤ ⑥ ⑦

① Power base 구동Type (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 - Drive shaft pitch (B1) mm			
⑦ Stroke (mm)			

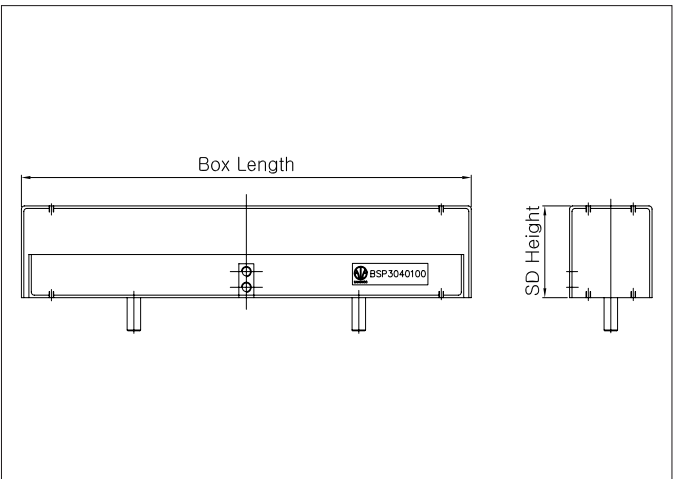


[BSP Series]

BSP 90 63 80 - 50ST - R2

① ② ③ ④ ⑤ ⑥

① Power base (Box type)					
② Model	30	SP300F	90	SP900F	
③ Cylinder	40	50	63	80	
	Φ40	Φ50	Φ63	Φ80	
④ 박스길이 (Box Length)					
60	600	80	800	100	1000
120	1200	140	1400	160	1600
⑤ Stroke (mm)					
⑥ Reed Switch					
Non	미부착 (Non)				
R1	1EA 부착 (Setting)	R2	2EA 부착 (Setting)		



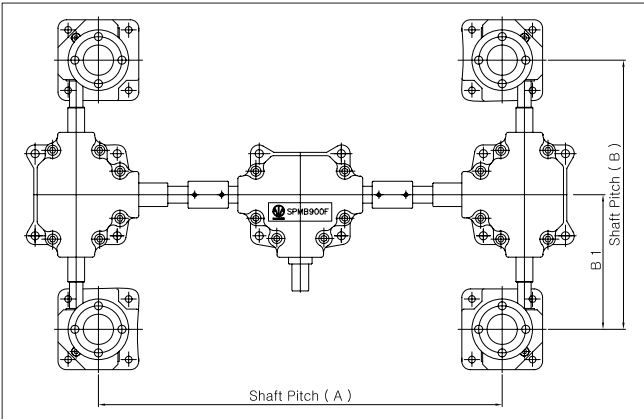
형식표시방법-일반Type(Product Serial No-General type)

[SPMB Series]

SPMB 900 F-900×600-300-200 ST

① ② ③ ④ ⑤ ⑥

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

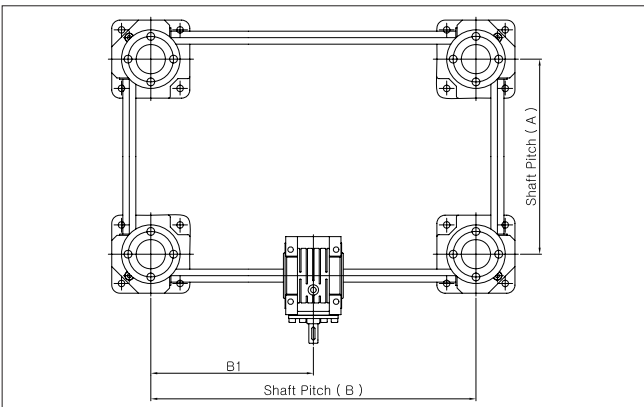


[SPH Series]

SPH 500 E-800×600-400-100ST-050-1/50

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Power base (Handle type)				
② Model	300	500	900	1500
③ Rack gear flange				
F	부 착 (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		

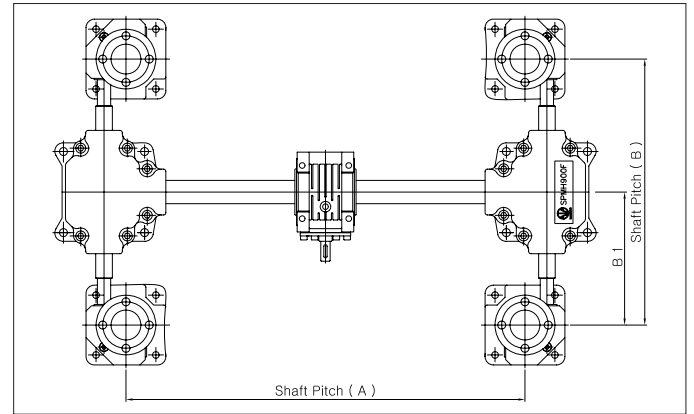


[SPMH Series]

SPMH 900 F-800×700-300-300ST-063-1/100

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Power base (Actuator type)			
② Model	500	900	1500
③ Rack gear flange			
F	부 착 (With flange)		
무기호 (Non)	미부착 (Without flange)		
④ 축간거리 (Shaft pitch) A × B mm			
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	

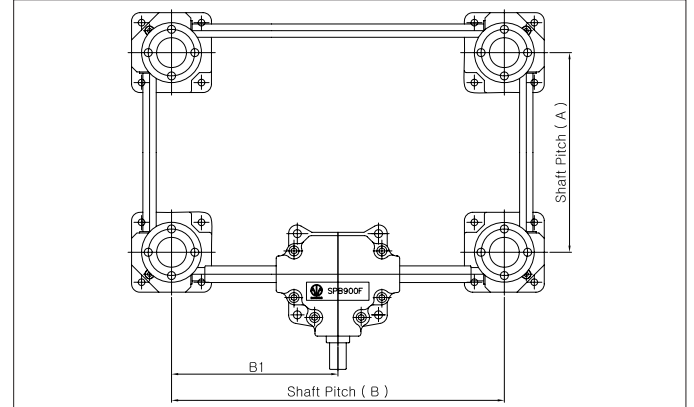


[SPB Series]

SPB 1500 F-1200×600-300-150ST

① ② ③ ④ ⑤ ⑥

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



19. 표준 사양-Standard Specification

[SP Series]

Model	Module	Pinion gear 잇수 (Value)	최대 stroke (Max stroke)	축간거리조정여유 Shaft Pitch tolerance(mm)	좌우동조오차 (Barance tolerance)	구동원 (Actuator)	Stroke 여유 (Stroke capacity)
SP 100	M1	21	300	±1	0.5mm below	Air cylinder Air spring Screw jack Rack jack	+6mm over
SP 300	M1	24	300				
SP 500	M1.5	18	500				
SP 900	M2	20	1300	±2			
SP1500	M2	22	1300				
SP3000	M2.5	18	1500	±2.5	1mm below		+10mm over
SP5000	M3	17	1500				
SP10000	M3	20	2000				
SP 20000	M3	22	2200		2mm below		

[SPM Series]

Model	Module	Pinion gear 잇수 (Value)	Spur gear module	Bevel gear	최대stroke (Max stroke) (mm)	1회전당상승거리 (1 rev' lead) (mm)	구동원 (Actuator)
SPM 500F	M1.5	18	M2	M3x25T	500	84.81	Air cylinder
SPM 900F	M2	20	M2		600	125.66	Geared motor Servo motor
SPM 1500F	M2	22	M2		900	138.22	

[SPMB Series]

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

[SPMH Series]

Model	Module	Pinion gear 잇 수 Value(z)	적 용 Worm reducer application	최대 stroke Max stroke(mm)	1회전당상승거리(mm) (1 rev' 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)	

표준 사양 - Standard Specification

[SPH Series]

Model	Module	Pinion gear 잇 수 value(z)	적 용 Worm reducer application	최대stroke Max stroke (mm)	입력축 1회전당 상승거리 (1 rev's lead) (mm)	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]

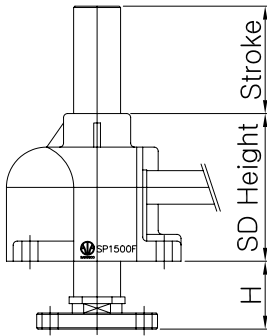
Model	Module	Pinion gear 잇 수 Value(z)	Bevel gear	최대stroke Max stroke (mm)	입력축 1회전당 상승거리(mm) (1 rev's lead)	구동원 (Actuator)
SPB 500F	M1.5	18	M3×25T	500	84.81/웜감속비 (worm reducer ratio)	Motor
SPB 900F	M2	20		600	125.66/웜감속비 (worm reducer ratio)	
SPB 1500F	M2	22		900	138.22/웜감속비 (worm reducer ratio)	

[BSP Series]

Model	Powerbase	Compact cylinder (TPC)	내부배관호스형 Inside piping hose type	최대 stroke Max stroke(mm)
BSP 304060	SP 300F	TCQ 2B40	∅8	50
BSP 3040100				
BSP 3040140				
BSP 305060	SP 900F	TCQ 2B50	∅10	75
BSP 3050100				
BSP 3050140				
BSP 906380	SP 900F	TCQ 2B63	∅12	100
BSP 9063120				
BSP 9063160				
BSP 908080		TCQ 2B80		
BSP 9080120				
BSP 9080160				

20. 응용방법 Application method

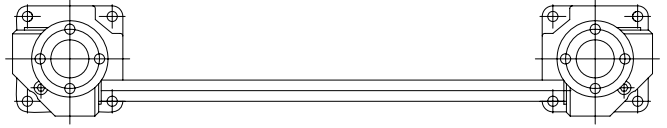
[거꾸로 사용(upside down use) - SP Series]



Power base를 거꾸로 사용하고자 할때에는 좌측 도면의 H값과 Stroke를 결정하여 주문하며, rack gear flange는 나사식으로 조립이 되어 있어 frame이나 plate에 powerbase를 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.

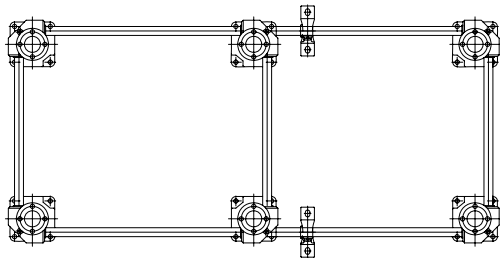
[2set만 사용(Gear box 2set use) - SP Series]



기본적으로 4개의 gear box 가 사각으로 구성이 되나 공간의 제약을 받거나 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.

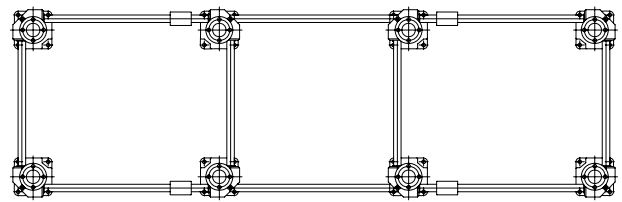
[Gear box 6set 사용(Gear box 6set use) - SP Series]



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]

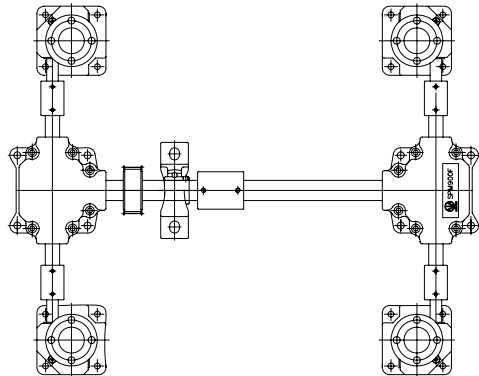


Lift frame 길이에 따라 8EA의 gear box를 연결 구성할 수 있다

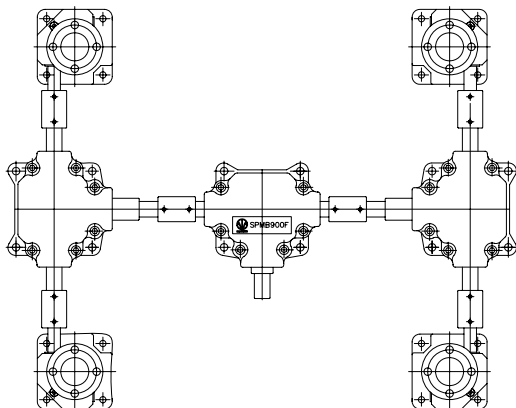
Gear box of 8EA can be connected by the length of lift frame.

■ Coupling 연결 type(Coupling type)

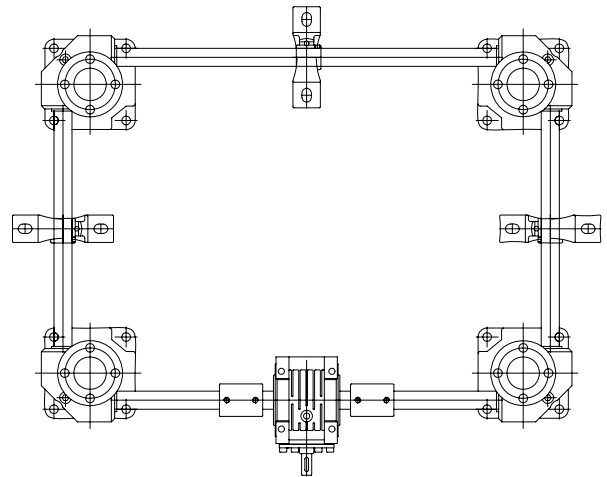
[SPM Series]



[SPMB, SPMH Series]



[SPH, SPB Series]

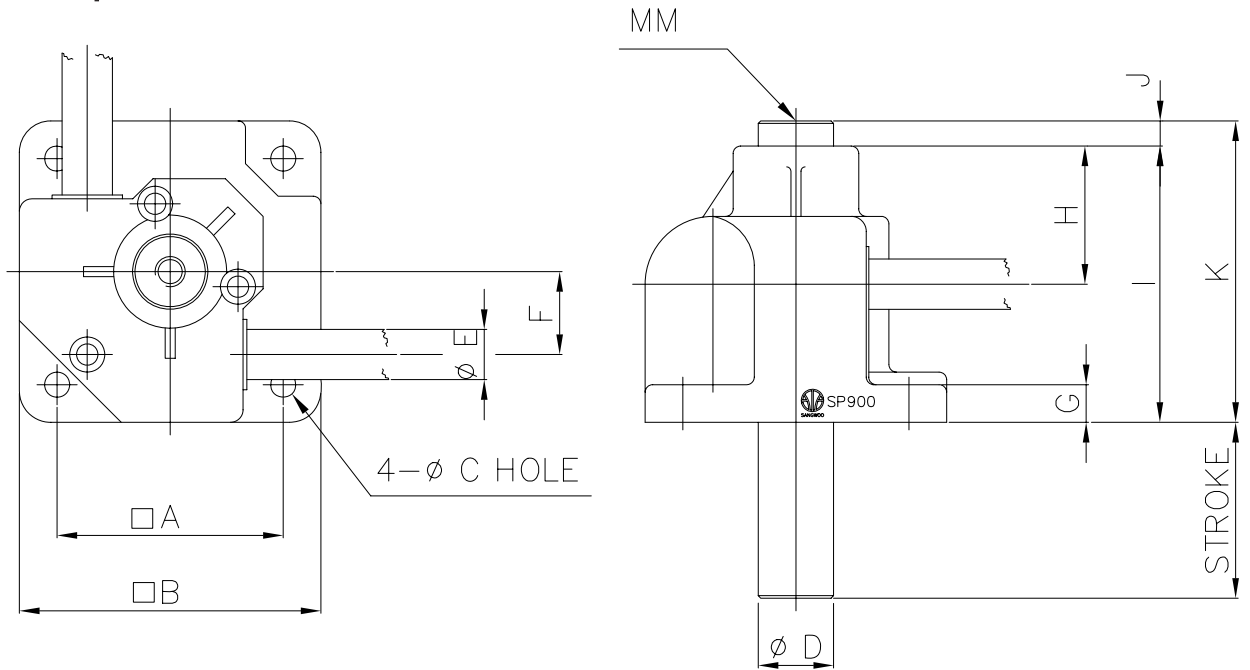


※ 하차보수 및 예방정비의 용이함을 위해 coupling으로 연결 구성할 수 있다. SPH, SPB model의 경우 powerbase 4개의 연결축 중 한개의 축으로 구동을 시켜 반대축의 축으로 동력을 전달시키는 구조이므로 축간거리가 500mm이상 사용시는 unit bearing으로 지지를 하여 사용하면 축의 이탈방지나 gear box의 파손을 방지할 수 있다.

※ 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.

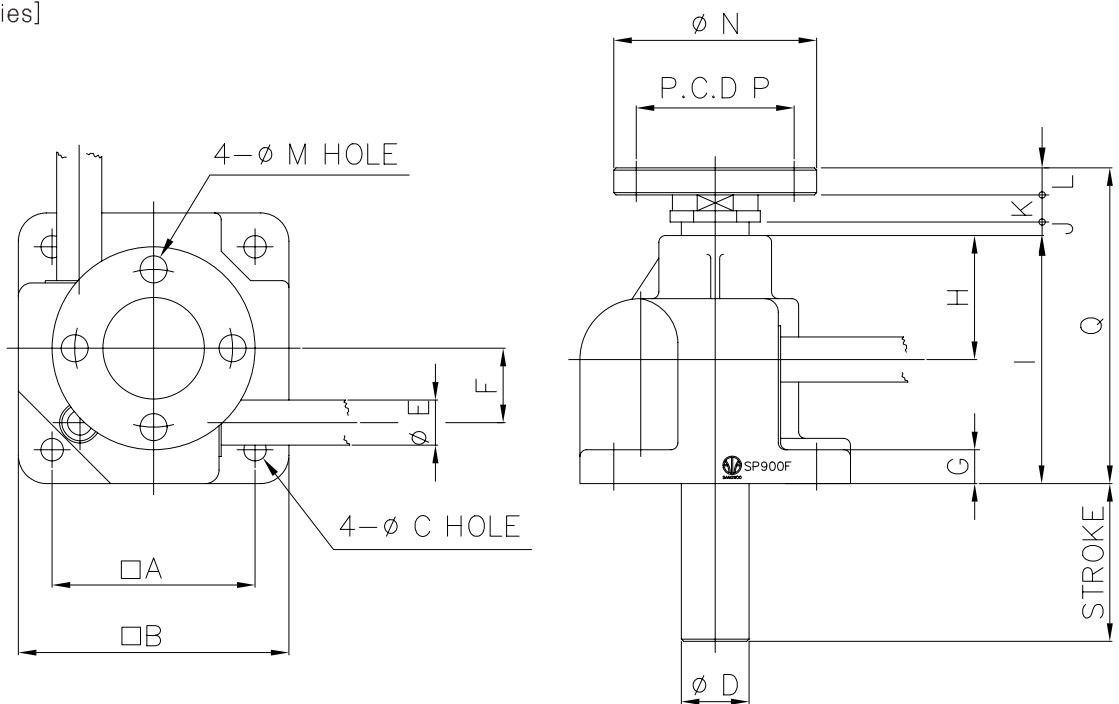
21. Dimension-일반형(General Type)

[SP Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	K	MM
SP300	56	72	φ7	φ18	φ12	19	10	30	60	10	70	M8TAP DP15
SP900	90	120	φ10	φ30	φ20	33	15	55	110	10	120	M12TAP DP 20
SP1500	100	125	φ12	φ35	φ25	37.5	15	55	110	10	120	M16TAP DP 30

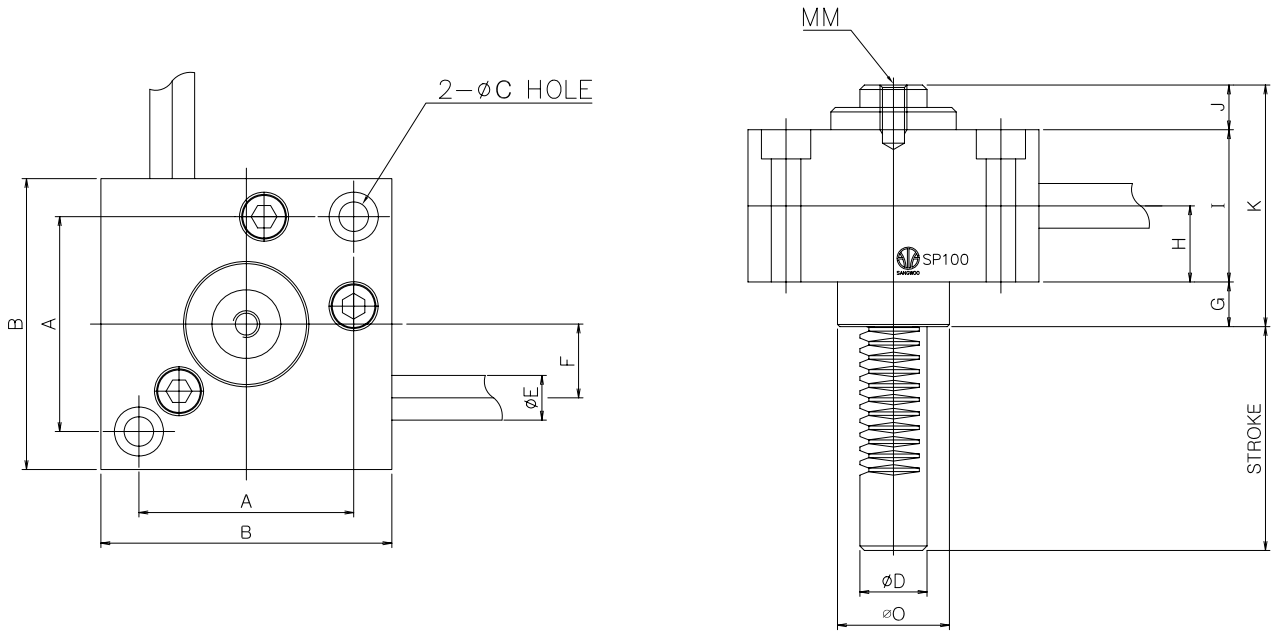
[SP Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	K	L	φM	φN	PCD P	Q
SP300F	56	72	φ7	φ18	φ12	19	10	30	60	5	12	8	φ7	φ55	φ40	85
SP900F	90	120	φ10	φ30	φ20	33	15	55	110	6	12	12	φ12	φ88	φ70	140
SP1500F	100	125	φ12	φ35	φ25	37.5	15	55	110	6	12	12	φ12	φ88	φ70	140

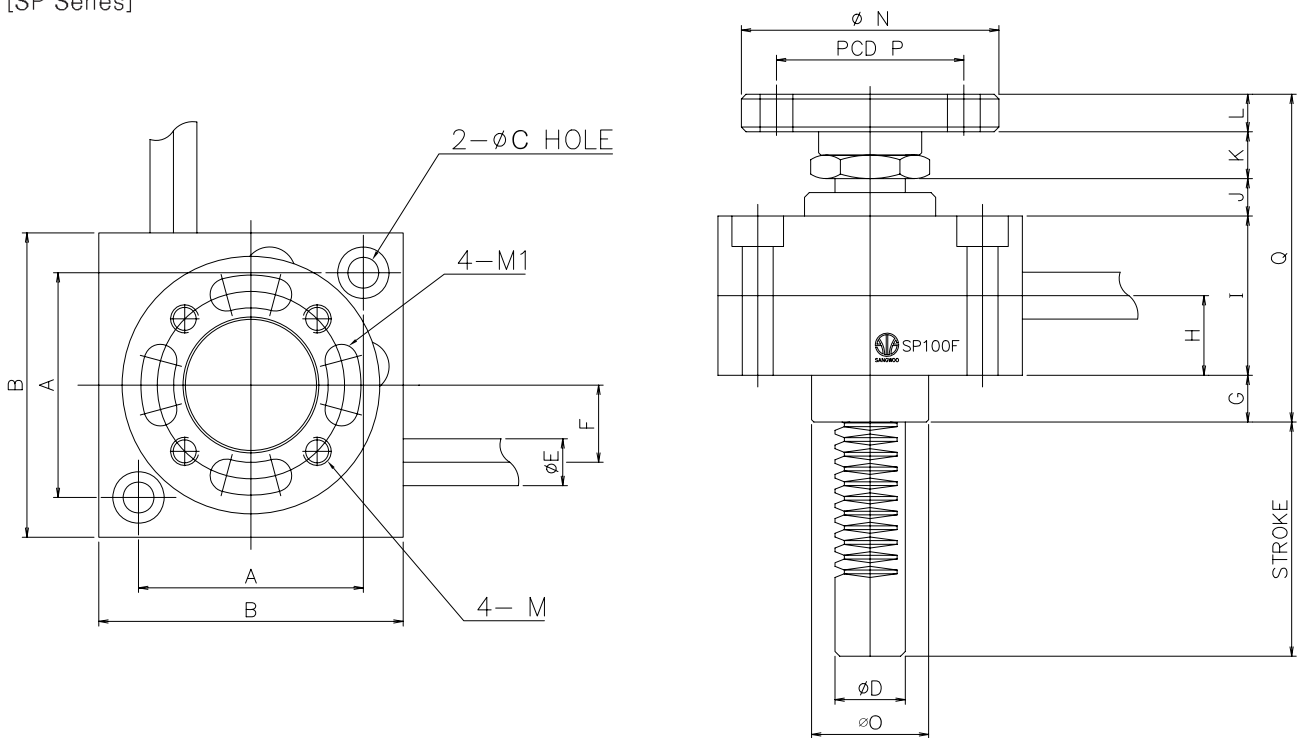
Dimension-일반형(General Type)

[SP Series]



MODEL	A	B	φC	φD	φE	F	G	H	I	J	K	MM	φO
SP 100	48	65	φ6.6	φ15	φ10	16.5	10	17	34	10	54	M6TAP DP10	φ25
SP 500	65	90	φ9	φ25	φ15	24.5	20	25	50	30	100	M10TAP DP20	φ50

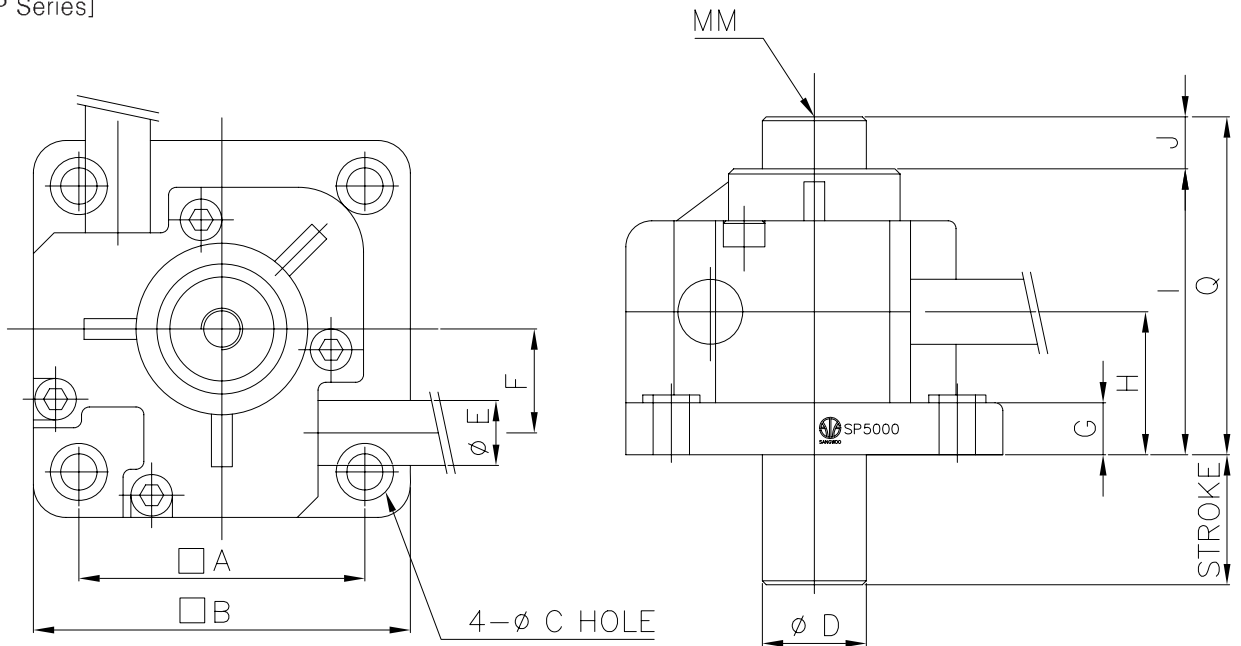
[SP Series]



MODEL	A	B	φC	φD	φE	F	G	H	I	J	K	L	M	M1	φO	φN	PCPP	Q
SP 100F	48	65	φ6.6	φ15	φ10	16.5	10	17	34	8	10	8	M6TAP	φ7	φ25	φ55	φ40	70
SP 500F	65	90	φ9	φ25	φ15	24.5	20	25	50	26	12	12	NON	φ9.5	φ50	φ88	φ70	120

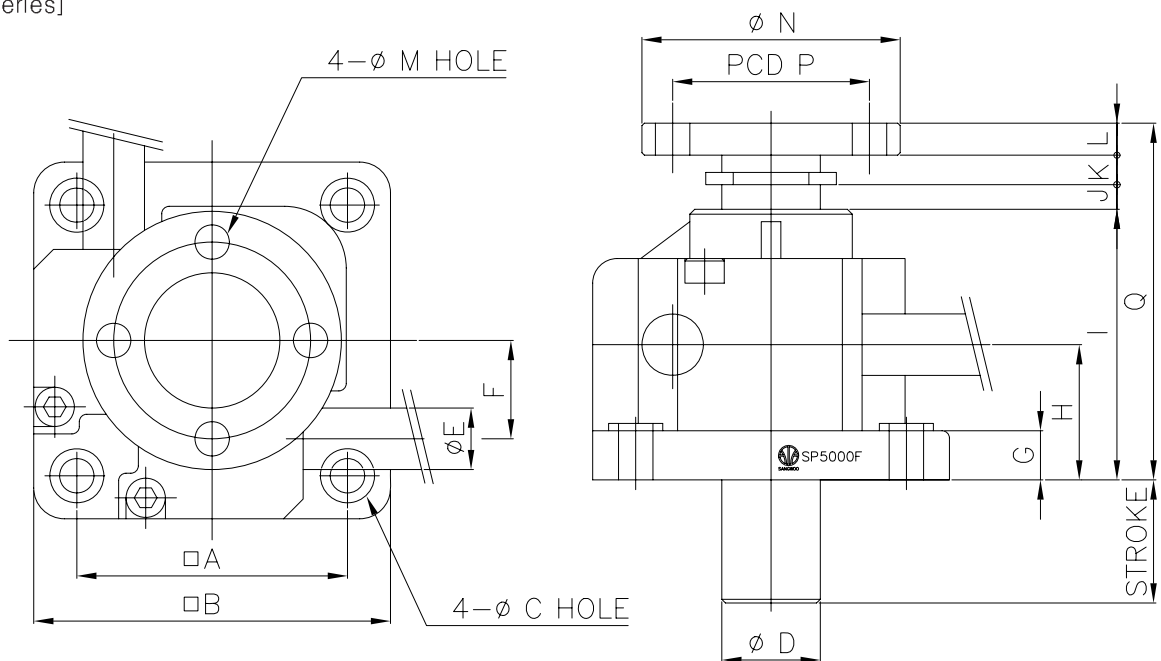
Dimension-일반형(General Type)

[SP Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	Q	MM
SP3000	110	145	φ14	φ40	φ25	40	20	55	110	20	130	M16TAP DP30
SP5000	130	160	φ14	φ45	φ30	45	20	60	120	20	140	M16TAP DP30
SP10000	150	190	φ16	φ50	φ35	52	20	65	145	30	175	M18TAP DP30
SP20000	170	210	φ18	φ60	φ40	60	20	80	160	30	190	M18TAP DP30

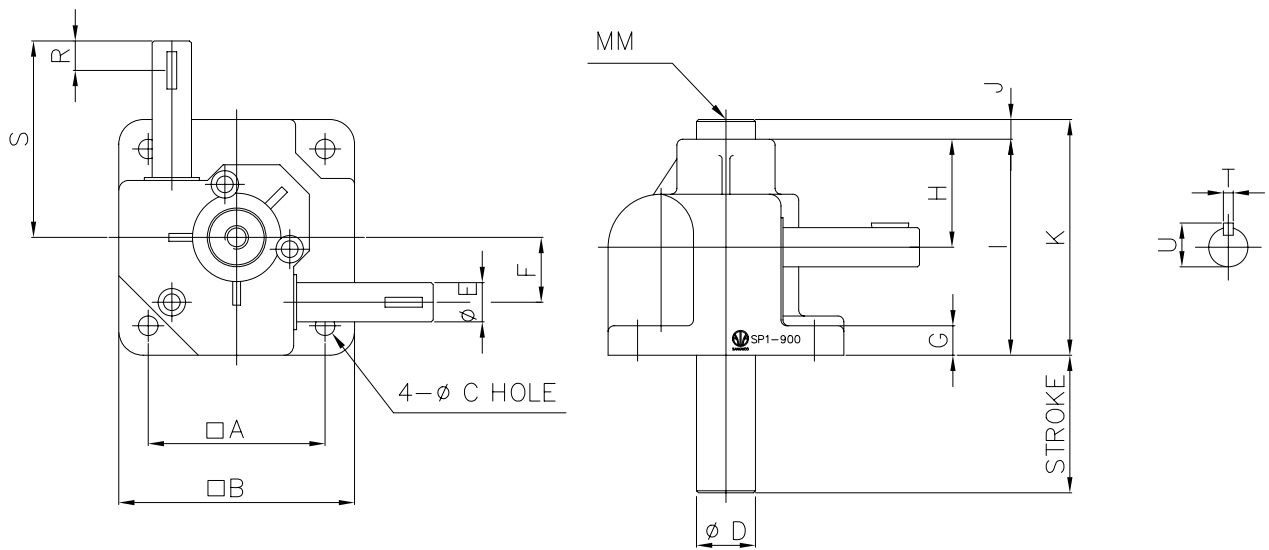
[SP Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	K	L	φM	φN	PCDP	Q
SP3000F	110	145	φ14	φ40	φ25	40	20	55	110	10	12	13	φ14	φ105	φ80	145
SP5000F	130	160	φ14	φ45	φ30	45	20	60	120	10	12	13	φ14	φ105	φ80	155
SP10000F	150	190	φ16	φ50	φ35	52	20	65	145	7	23	20	φ16	φ128	φ95	195
SP20000F	170	210	φ18	φ60	φ40	60	20	80	160	7	23	20	φ18	φ148	φ110	210

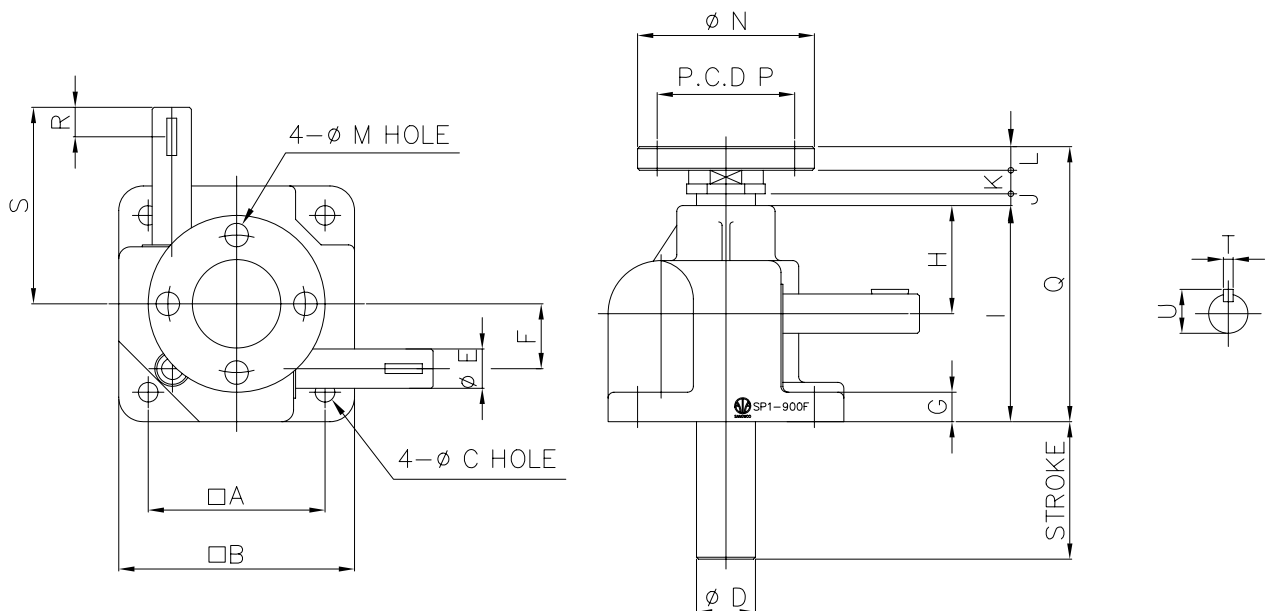
Dimension-일반형(General Type)

[SP1 Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	K	MM	R	S	T	U
SP1-300	56	72	φ7	φ18	φ12	19	10	30	60	10	70	M8TAP DP15	11	70	3	13.5
SP1-900	90	120	φ10	φ30	φ20	33	15	55	110	10	120	M12TAP DP20	19	100	5	22
SP1-1500	100	125	φ12	φ35	φ25	37.5	15	55	110	10	120	M16TAP DP30	26	110	5	27

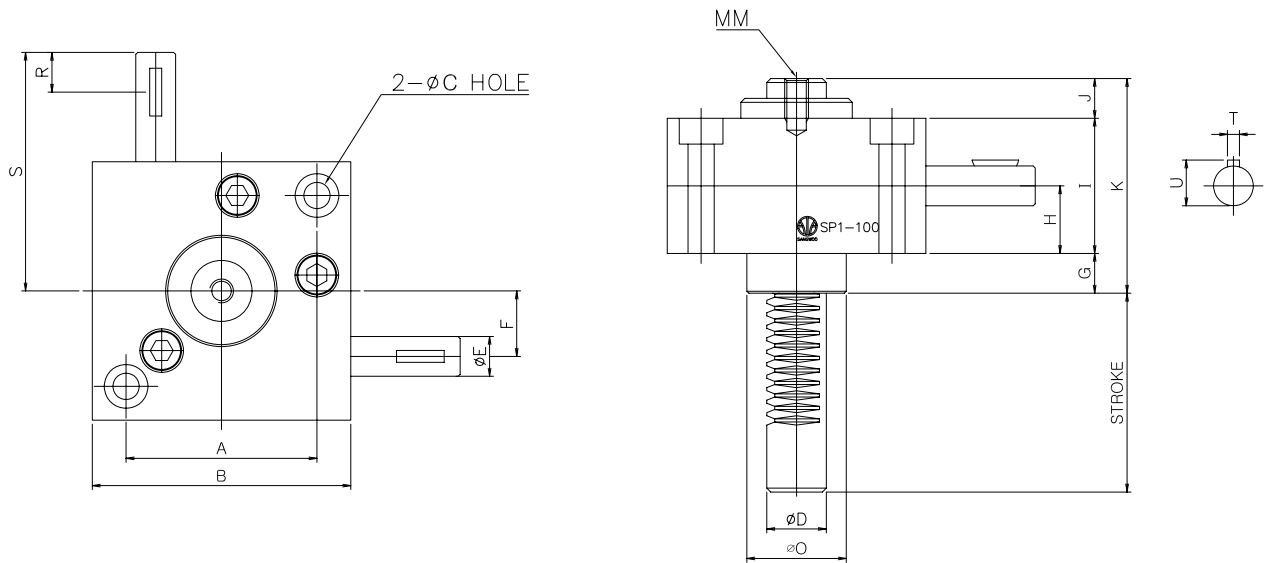
[SP1 Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	K	L	φM	φN	PCD P	Q	R	S	T	U
SP1-300F	56	72	φ7	φ18	φ12	19	10	30	60	5	12	8	φ7	φ55	φ40	85	11	70	3	13.5
SP1-900F	90	120	φ10	φ30	φ20	33	15	55	110	6	12	12	φ12	φ88	φ70	140	19	100	5	22
SP1-1500F	100	125	φ12	φ35	φ25	37.5	15	55	110	6	12	12	φ12	φ88	φ70	140	26	110	5	27

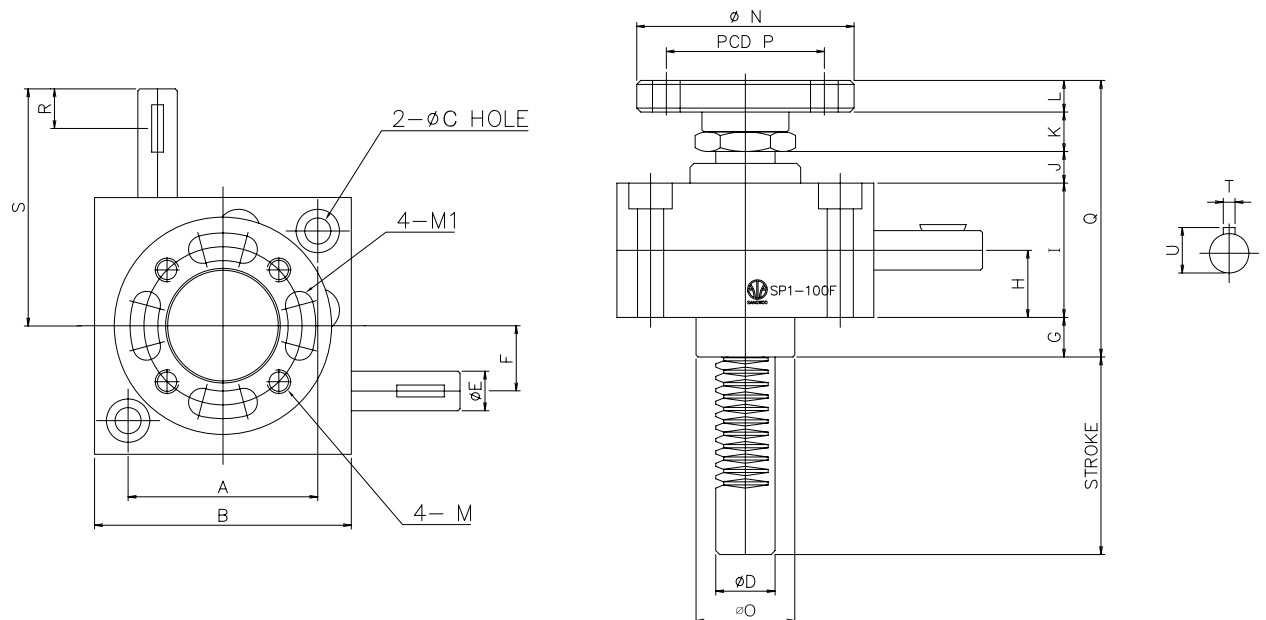
Dimension-일반형(General Type)

[SP1 Series]



MODEL	A	B	ØC	ØD	ØE	F	G	H	I	J	K	MM	ØO	R	S	T	U
SP1-100	48	65	Ø6.6	Ø15	Ø10	16.5	10	17	34	10	54	M6 TAP DP10	Ø25	8.6	60	3	11.5
SP1-500	65	90	Ø9	Ø25	Ø15	24.5	20	25	50	30	100	M10 TAP DP20	Ø50	10.5	120	4	16.5

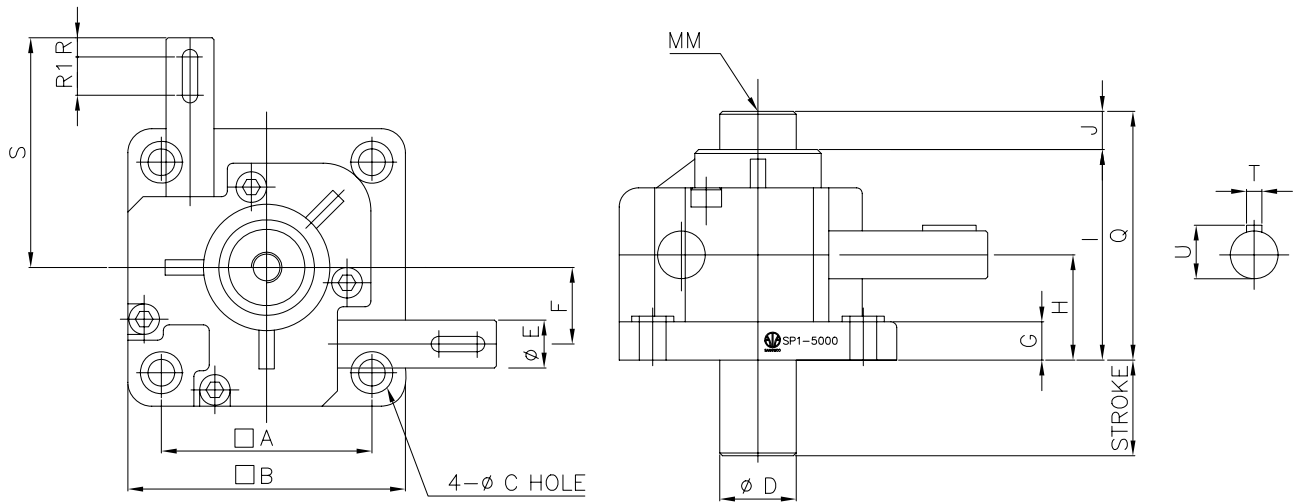
[SP1 Series]



MODEL	A	B	ØC	ØD	ØE	F	G	H	I	J	K	L	M	M1	ØN	ØO	PCD P	Q	R	S	T	U
SP1-100F	48	65	Ø6.6	Ø15	Ø10	16.5	10	17	34	8	10	8	M6 TAP	Ø7	Ø55	Ø25	Ø40	70	8.6	60	3	11.5
SP1-500F	65	90	Ø9	Ø25	Ø15	24.5	20	25	50	26	12	12	NON	Ø9.5	Ø88	Ø50	Ø70	120	10.5	120	4	16.5

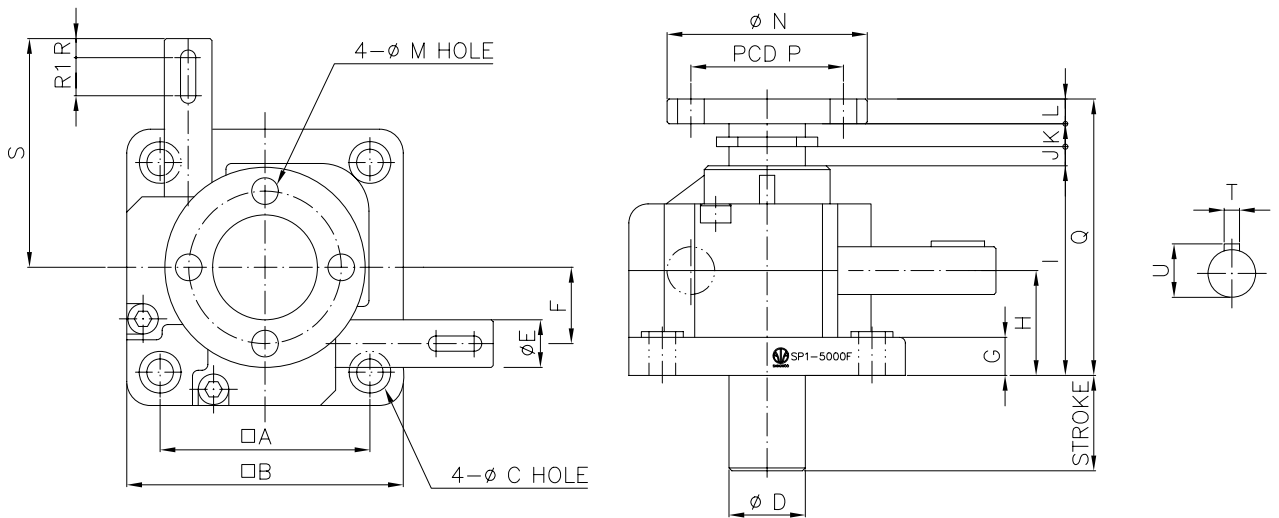
Dimension-일반형(General Type)

[SP1 Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	Q	MM	R	R1	S	T	U
SP1-3000	110	145	φ14	φ40	φ25	40	20	55	110	20	130	M16TAP DP30	10	20	120	8	28
SP1-5000	130	160	φ14	φ45	φ30	45	20	60	120	20	140	M16TAP DP30	10	20	130	8	33
SP1-10000	150	190	φ16	φ50	φ35	52	20	65	145	30	175	M18TAP DP30	10	30	150	10	38
SP1-20000	170	210	φ18	φ60	φ40	60	20	80	160	30	190	M18TAP DP 30	10	30	170	10	43

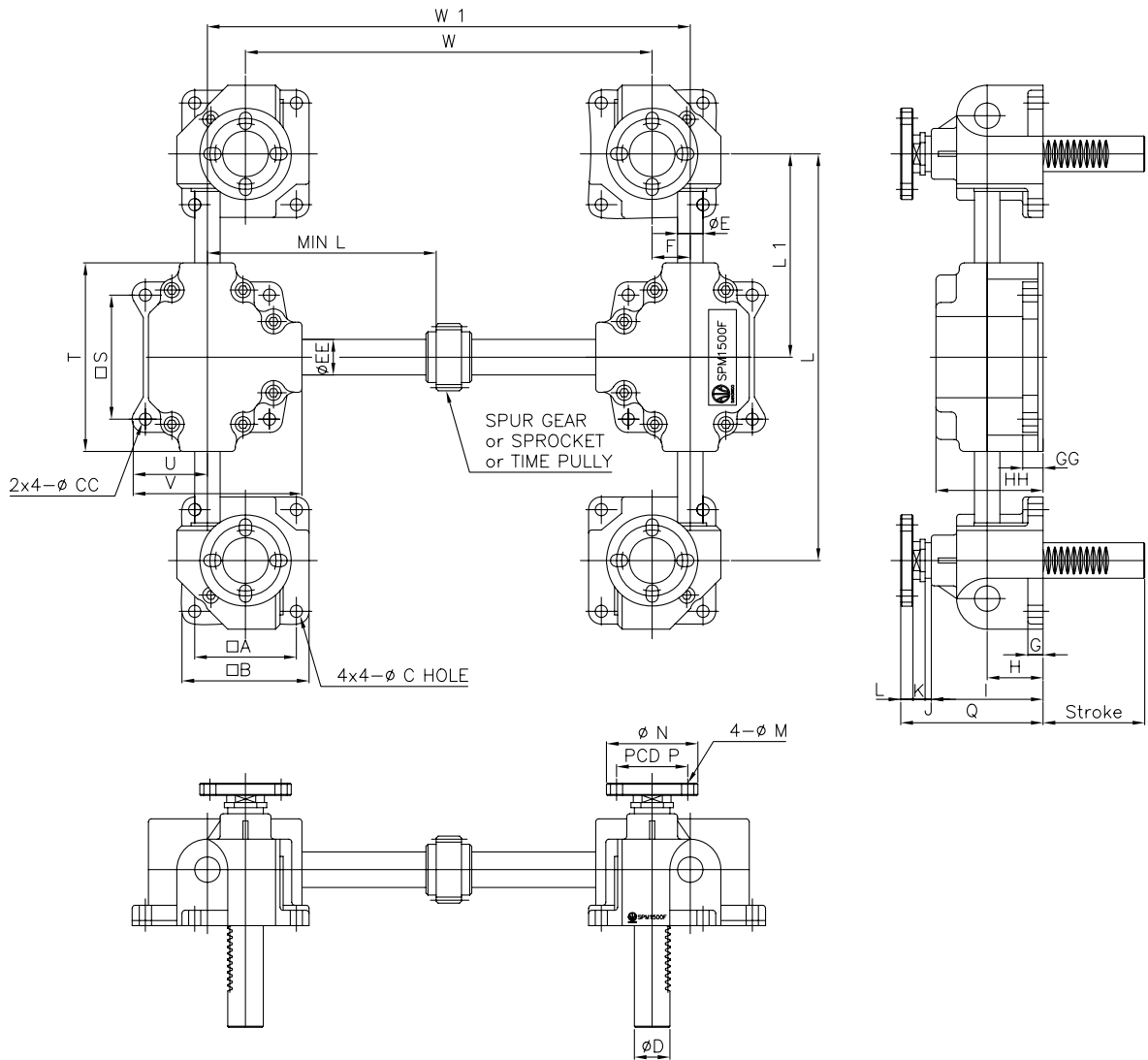
[SP1 Series]



MODEL	□A	□B	φC	φD	φE	F	G	H	I	J	K	L	φM	φN	PCDP	Q	R	R1	S	T	U
SP1-3000F	110	145	φ14	φ40	φ25	40	20	55	110	10	12	13	φ14	φ105	φ80	145	10	20	120	8	28
SP1-5000F	130	160	φ14	φ45	φ30	45	20	60	120	10	12	13	φ14	φ105	φ80	155	10	20	130	8	33
SP1-10000F	150	190	φ16	φ50	φ35	52	20	65	145	7	23	20	φ16	φ128	φ95	195	10	30	150	10	38
SP1-20000F	170	210	φ18	φ60	φ40	60	20	80	160	7	23	20	φ18	φ148	φ110	210	10	30	170	10	43

Dimension-일반형(General Type)

[SPM Series]



MODEL	□A	□B	φC	φCC	φD	φE	φEE	F	G	GG	H	HH	I
SPM500F	105	130	φ9	φ12	φ25	φ25	φ35	24.5	20	10	45	95	90
SPM900F	90	120	φ10	φ12	φ30	φ25	φ35	33	15	20	55	105	110
SPM1500F	100	125	φ12	φ12	φ35	φ25	φ35	37.5	15	20	55	105	110

MODEL	J	K	L	MINL	φM	φN	PCDP	Q	□S	T	U	V	W1
SPM500F	6	12	12	95	φ9.5	φ88	φ70	120	122	185	74	167	W+49
SPM900F	6	12	12	95	φ12	φ88	φ70	140	122	185	74	167	W+66
SPM1500F	6	12	12	95	φ12	φ88	φ70	140	122	185	74	167	W+75

NOTE

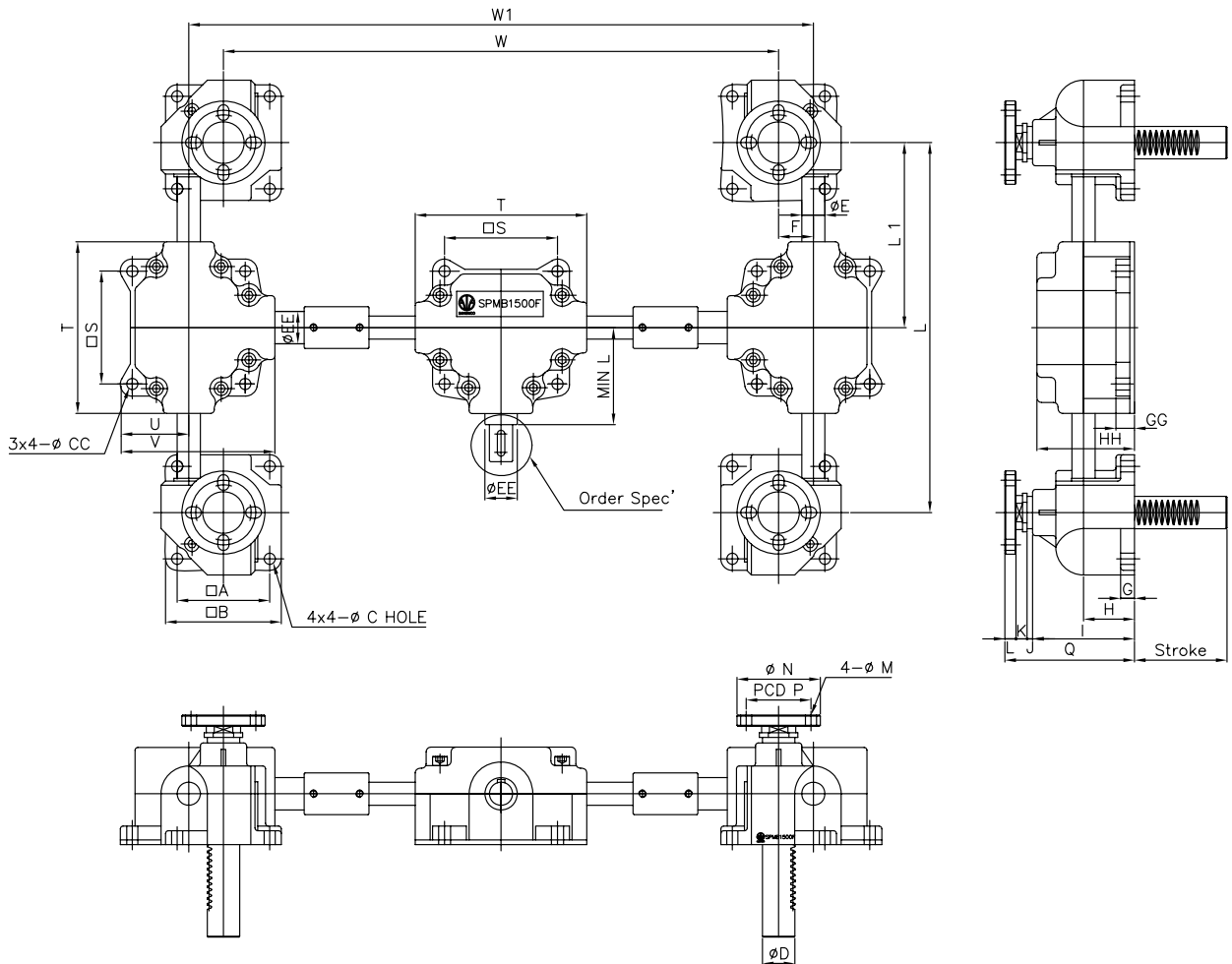
- MIN L size 는 최소 치수이며 설계자의 임의로 변경가능

(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 Series]



MODEL	□A	□B	φC	φCC	φD	φE	φEE	F	G	GG	H	HH	I
SPMB500F	105	130	φ9	φ12	φ25	φ25	φ35	24.5	20	10	45	95	90
SPMB900F	90	120	φ10	φ12	φ30	φ25	φ35	33	15	20	55	105	110
SPMB1500F	100	125	φ12	φ12	φ35	φ25	φ35	37.5	15	20	55	105	110

MODEL	J	K	L	MINL	φM	φN	PCDP	Q	□S	T	U	V	W1
SPMB500F	6	12	12	95	φ9.5	φ88	φ70	120	122	185	74	167	W+49
SPMB900F	6	12	12	95	φ12	φ88	φ70	140	122	185	74	167	W+66
SPMB1500F	6	12	12	95	φ12	φ88	φ70	140	122	185	74	167	W+75

NOTE

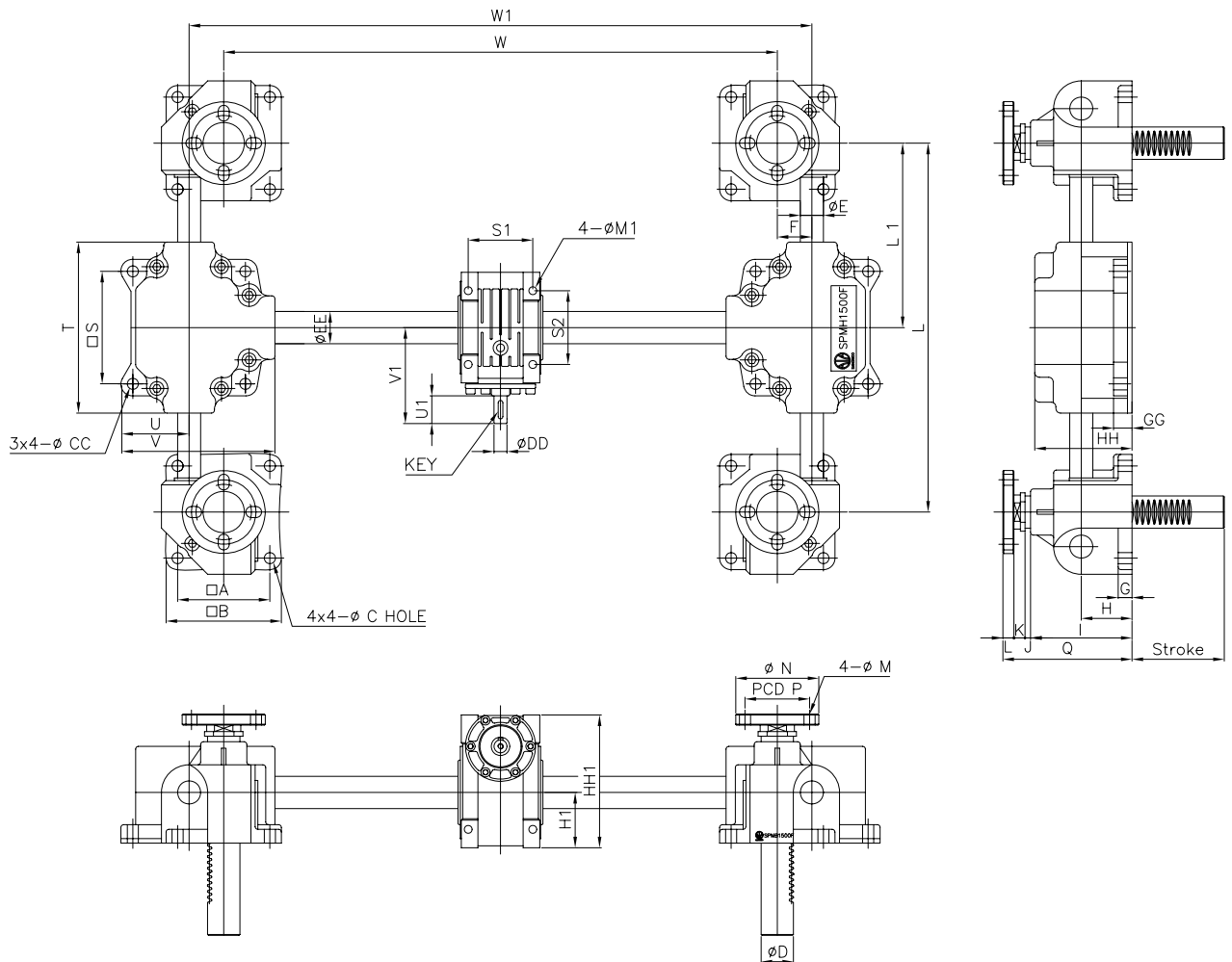
- MIN L size 는 최소 치수이며 설계자의 임의로 변경가능

(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)

[SPMH Series]



MODEL	$\square A$	$\square B$	ϕC	ϕCC	ϕD	ϕE	ϕEE	F	G	GG	H	HH	I
SPMH 500F	105	130	$\phi 9$	$\phi 12$	$\phi 25$	$\phi 25$	$\phi 35$	24.5	20	10	45	95	90
SPMH 900F	90	120	$\phi 10$	$\phi 12$	$\phi 30$	$\phi 25$	$\phi 35$	33	15	20	55	105	110
SPMH 1500F	100	125	$\phi 12$	$\phi 12$	$\phi 35$	$\phi 25$	$\phi 35$	37.5	15	20	55	105	110

MODEL	J	K	L	ϕM	ϕN	PCD P	Q	$\square S$	T	U	V	W1
SPMH 500F	6	12	12	$\phi 9.5$	$\phi 88$	$\phi 70$	120	122	185	74	167	W+49
SPMH 900F	6	12	12	$\phi 12$	$\phi 88$	$\phi 70$	140	122	185	74	167	W+66
SPMH 1500F	6	12	12	$\phi 12$	$\phi 88$	$\phi 70$	140	122	185	74	167	W+75

MODEL	H1	HH1	ϕDD	S1	S2	U1	V1	$\phi M1$	KEY
SPMH 500F-040	50	121.5	$\phi 11$	60	70	23	83	$\phi 6.5$	$4 \times 4 \times 15$
SPMH 900F-050	60	144	$\phi 14$	70	80	30	104	$\phi 8.5$	$5 \times 5 \times 20$
SPMH 900F-063	72	174	$\phi 19$	85	100	40	130	$\phi 8.5$	$6 \times 6 \times 30$
SPMH 1500F-050	60	144	$\phi 14$	70	80	30	104	$\phi 8.5$	$5 \times 5 \times 20$
SPMH 1500F-063	72	174	$\phi 19$	85	100	40	130	$\phi 8.5$	$6 \times 6 \times 30$

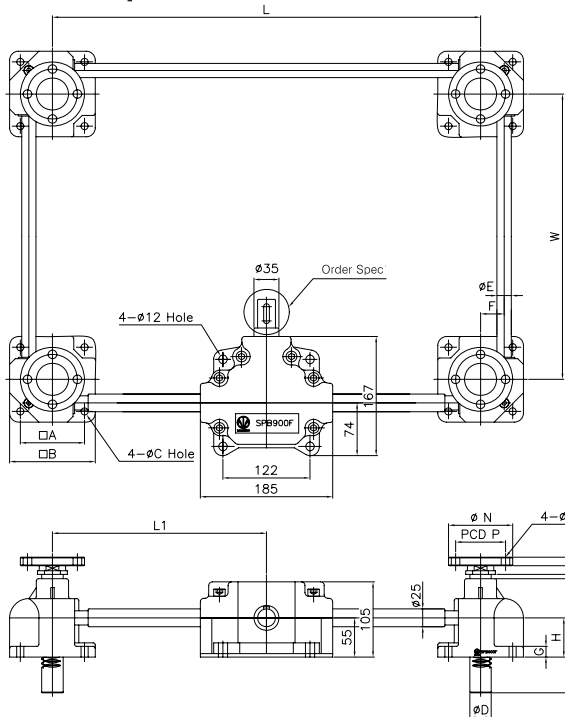
NOTE :

1. Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange 및 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)

[SPB Series]



MODEL	A	B	φC	φD	φE	F	G	H
SPB 500F	65	90	φ9	φ25	φ15	24.5		25
SPB 900F	90	120	φ10	φ30	φ20	33	15	55
SPB 1500F	100	125	φ12	φ35	φ25	37.5	15	55

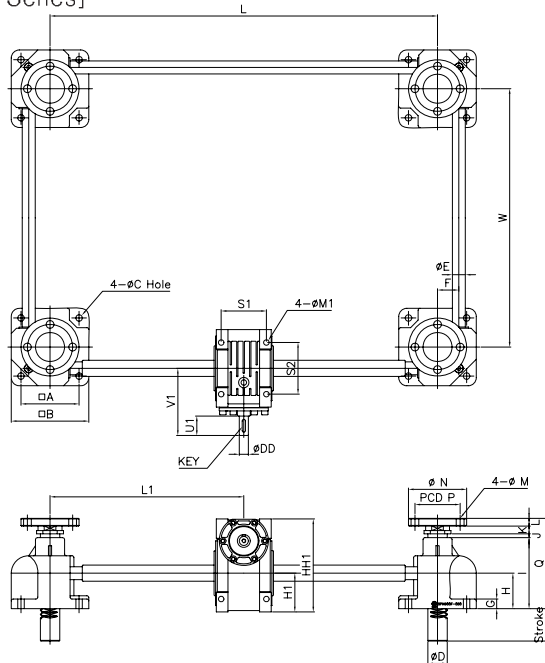
MODEL	I	J	K	L	φM	φN	PCDP	Q
SPB 500F	70	6	12	12	φ9.5	φ88	φ70	100
SPB 900F	110	6	12	12	φ12	φ88	φ70	140
SPB 1500F	110	6	12	12	φ12	φ88	φ70	140

※ NOTE

Miter gear box 입력축의 치수는 주문 사양임

(Miter gear box input spindle size is order specification)

[SPH Series]



MODEL	A	B	φC	φD	φE	F	G	H
SPH 300F	56	72	φ7	φ18	φ12	19	10	30
SPH 500F	65	90	φ9	φ25	φ15	24.5		25
SPH 900F	90	120	φ10	φ30	φ20	33	15	55
SPH 1500F	100	125	φ12	φ35	φ25	37.5	15	55

MODEL	I	J	K	L	φM	φN	PCDP	Q
SPH 300F	60	5	12	8	φ7	φ55	φ40	85
SPH 500F	70	6	12	12	φ9.5	φ88	φ70	100
SPH 900F	110	6	12	12	φ12	φ88	φ70	140
SPH 1500F	110	6	12	12	φ12	φ88	φ70	140

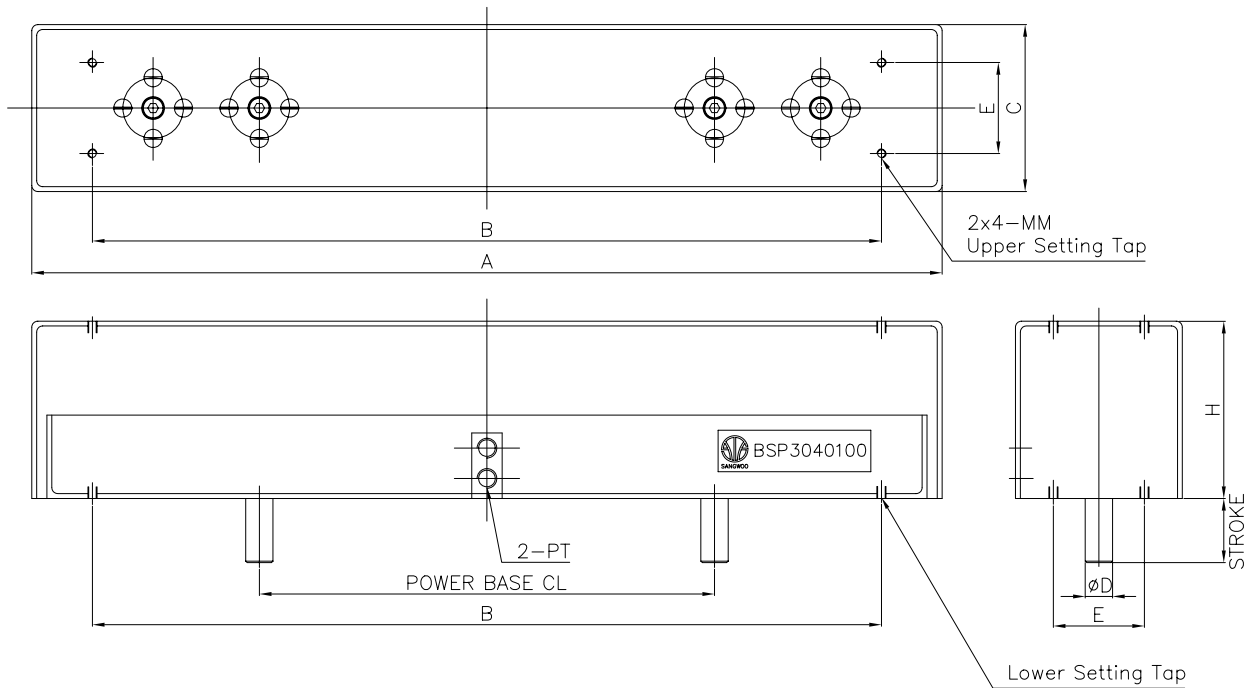
MODEL	H1	HH1	φDD	S1	S2	U1	V1	φM1	KEY
SPH 300F-030	40	97	9	44	54	20	71	φ6.5	3×3×15
SPH 500F-040	50	121.5	11	60	70	23	83	φ6.5	4×4×15
SPH 900F-050	60	144	14	70	80	30	104	φ8.5	5×5×20
SPH 900F-063	72	174	19	85	100	40	130	φ8.5	6×6×30
SPH 1500F-050	60	144	14	70	80	30	104	φ8.5	5×5×20
SPH 1500F-063	72	174	19	85	100	40	130	φ8.5	6×6×30

※ NOTE :Worm reducer 의 입력축에 moter를 설치할 경우 moter의 종류에 따라 취부 flange 및 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)

[BSP Series]



MODEL	A	B	C	CL	φD	E	MM	H		PT	ReedSwitch 부착 Type (Patched Type) Is H+10mm
								25ST	50ST		
BSP 304060	600	520	110	300	φ18	60	M 6	96.9	116.9	PT 1/8	
BSP 3040100	1000	920	110	700	φ18	60	M 6	96.9	116.9	PT 1/8	
BSP 3040140	1400	1320	110	1100	φ18	60	M 6	96.9	116.9	PT 1/8	

MODEL	A	B	C	CL	φD	E	MM	H			PT	Reed Switch 부착 Type (Patched Type) Is H+10mm 75st는 동일 (75st, the same)
								25ST	50ST	75ST		
BSP 305060	600	510	130	270	φ18	80	M 6	98.9	118.9	153.9	PT 1/4	
BSP 3050100	1000	910	130	670	φ18	80	M 6	98.9	118.9	153.9	PT 1/4	
BSP 3050140	1400	1310	130	1070	φ18	80	M 6	98.9	118.9	153.9	PT 1/4	

MODEL	A	B	C	CL	φD	E	MM	H				PT
								25ST	50ST	75ST	100ST	
BSP 906380	800	700	170	350	φ30	100	M8	158	158	193	218	PT 1/4
BSP 9063120	1200	1100	170	750	φ30	100	M8	158	158	193	218	PT 1/4
BSP 9063160	1600	1500	170	1150	φ30	100	M8	158	158	193	218	PT 1/4

※Reed Switch 부착 Type은 H+10mm(75,100ST 와 동일) -Patched with reed switch, adjusted type is H+10mm (the same type as 75 100ST)

MODEL	A	B	C	CL	φD	E	MM	H				PT
								25ST	50ST	75ST	100ST	
BSP 908080	800	700	170	330	φ30	100	M8	158	158	193	218	PT 3/8
BSP 9080120	1200	1100	170	730	φ30	100	M8	158	158	193	218	PT 3/8
BSP 9080160	1600	1500	170	1130	φ30	100	M8	158	158	193	218	PT 3/8

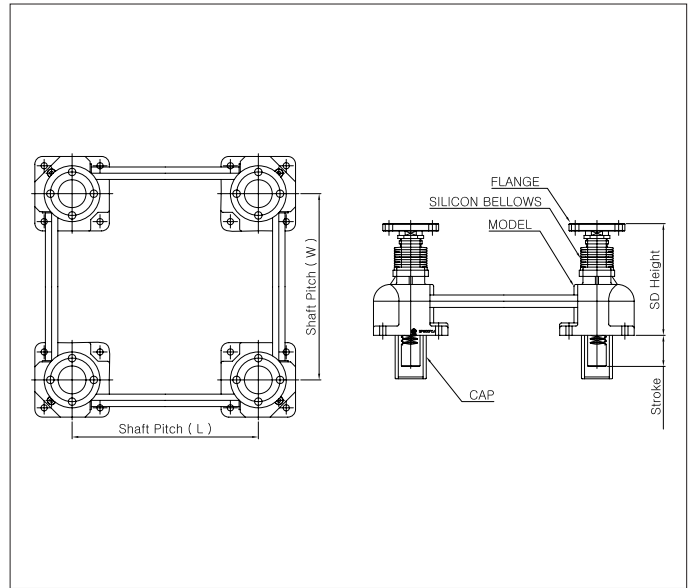
※Reed Switch 부착 Type은 H+10mm(75,100ST 와 동일) -Patched with reed switch, adjusted type is H+10mm (the same type as 75 100ST)

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

[SP Series]

SP 500 F C J R - 1000 × 800 - 100 ST / CAP

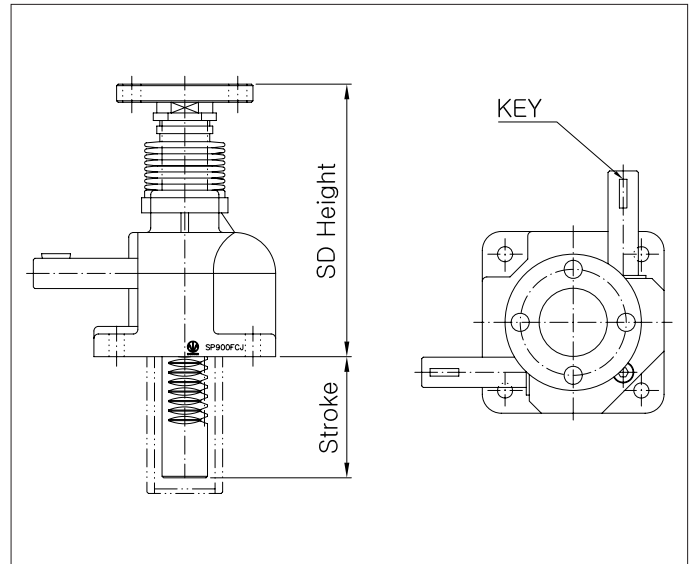
① Power base (guide type)					
② Model	100	300	500	500S	900
	1500	3000	5000	10000	20000
③ Rack gear flange					
F	부 착(With flange)				
무기호(NON)	미부착(Without flange)				
④ C	Clean type	NON	일반(General type)		
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)		
⑥ R	gear Raydent coating	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]

SP 1 - 100 F C J R - 50 ST / CAP

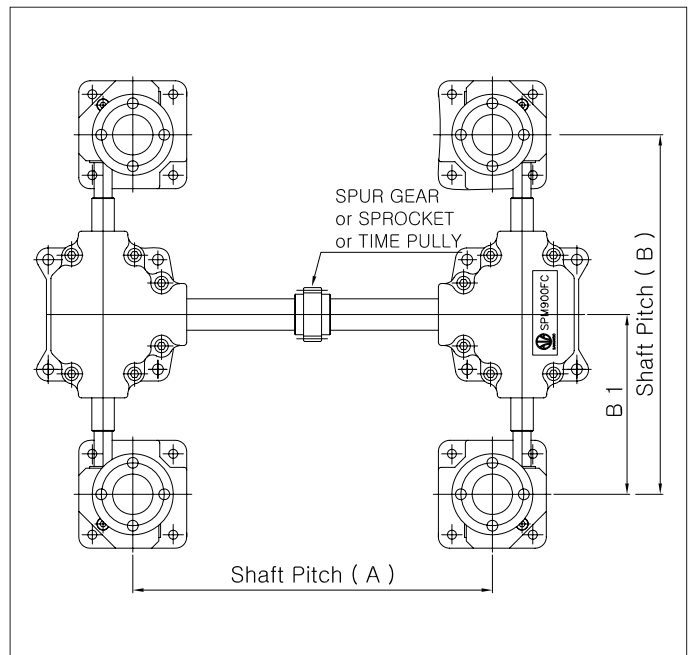
① Power base 분리형 (Separation)					
② Model	100	300	500	500S	900
	1500	3000	5000	10000	20000
③ Rack gear flange					
F	부 착(With flange)				
무기호(NON)	미부착(Without flange)				
④ C	Clean type	NON	일반(General type)		
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)		
⑥ R	gear Raydent coating	NON	크롬도금(Chrom Plating)		
⑦ 축간거리(Shaft pitch) mm					
⑧ CAP	하부 Cover 부착 (With lower cover)				
무기호(Non)	하부 Cover 미부착(Without lower cover)				



[SPM Series]

SPM 900 F C J R - 800 × 600 - 300- 250 ST / CAP

① Power base 구동Type (Actuator Type)					
② Model	500	500S	900	1500	
③ Rack gear flange					
F	부 착(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 coating	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)				

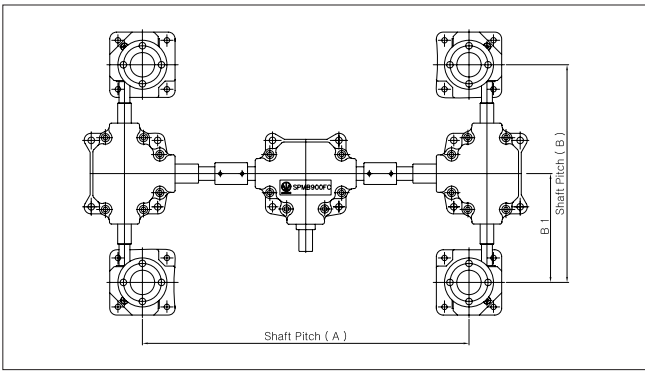


▣ 형식표시방법-클린Type(Product Serial No-Clean type)

[SPMB Series]

SPMB 900 F C J R- 800×600- 300- 300 ST/ CAP

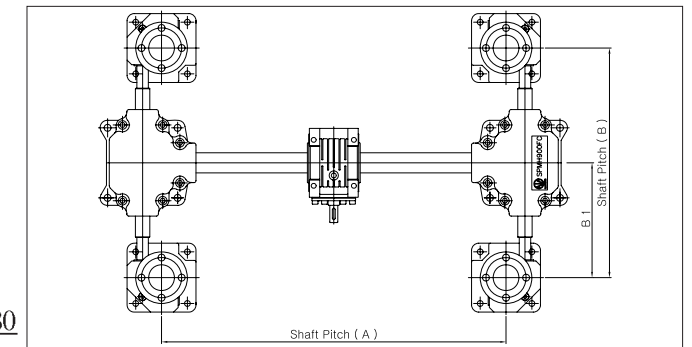
① Power base (Miter box type)				
② Model	500	500S	900	1500
③ Rack gear flange	F 부착 (With flange) 무기호 (NON) 미부착 (Without flange)			
④ C	Clean type	NON	일반 type (General type)	
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)	
⑥ R	Gear Raydent coating	NON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



[SPMH Series]

SPMH 900 F C J R- 1000×750- 300- 270 ST/ CAP- 050- 1/50

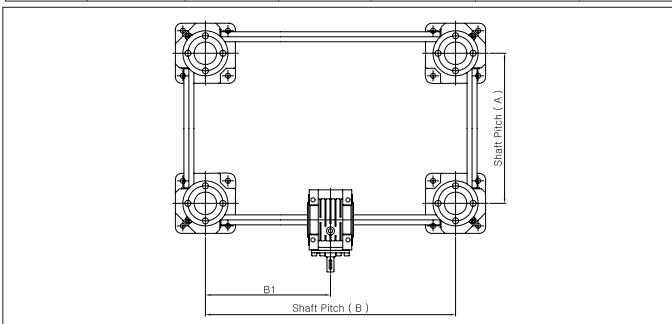
① Power base (Actuator Type)							
② Model	500	500S	900	1500			
③ Rack gear flange	F 부착 (With flange) 무기호 (NON) 미부착 (Without flange)						
④ C	Clean type	NON	일반 Type (General type)				
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)				
⑥ R	Gear Raydent coating	NON	크롬도금 (Chrom Plating)				
⑦ 축간거리 (Shaft pitch) A×Bmm	⑨ Stroke (mm)						
⑧ 구동Shaft 축간거리 (B1) - Drive shaft pitch (B1) 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



[SPH Series]

SPH 1500 F C J R- 1000×500- 300- 170 ST/ CAP- 050- 1/80

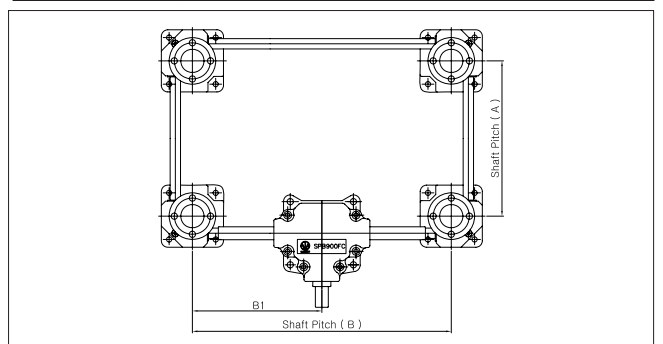
① Power base (Handle type)							
② Model	300	500	500S	900	1500		
③ Rack gear flange	F 부착 (With flange) 무기호 (NON) 미부착 (Without flange)						
④ C	Clean type	NON	일반 Type (General type)				
⑤ J	Silicon bellows 부착 (With Siliocin bellows)	NON	Silicon bellows 미부착 (Without Silicon bellows)				
⑥ R	Gear Raydent coating	NON	크롬도금 (Chrom Plating)				
⑦ 축간거리 (Shaft pitch) A×B mm	⑨ Stroke (mm)						
⑧ 구동Shaft 축간거리 (B1) - Drive shaft pitch (B1) 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 1500 F C J R- 1000×700- 350- 200 ST /CAP

① Power base (Miter box type)					
② Model	300	500	500S	900	1500
③ Rack gear flange	F 부착 (With flange) 무기호 (NON) 미부착 (Without flange)				
④ C	Clean type	NON	일반 Type (General type)		
⑤ J	Silicon bellows 부착 (With Silicon bellows)	NON	Siliocin bellows 미부착 (Without Silicon bellows)		
⑥ R	Gear Raydent coating	NON	크롬도금 (Chrom Plating)		
⑦ 축간거리 (Shaft pitch) A×B mm	⑨ Stroke (mm)				
⑧ 구동Shaft 축간거리 (B1) - Drive Shaft Pitch (B1) mm					
⑩ CAP	하부 Cover 부착 (With lower cover)				
무기호 (NON)	하부 Cover 미부착 (Without lower cover)				



23. Dimension(Clean Type)

[SP Series]

MM

NOTE

- Clean type 으로 bellows를 사용하지 않을 때는 일반형 dimension 과 같다
(When the bellows is not used in clean type, it work the same job as general type dimension)
- SP3000CJ 이상의 model을 사용시는 당사에 문의
(When using the model after S3000CJ, please ask us)
- SP500SCJ model은 Clean type 전용으로 box를 전체 가공하였으며 후처리는 anodizing을 한 제품이다.
(SP500SCJ is used only for clean type so its box was devised as a whole and after produce was anodized to it.)

MODEL	□A	□B	φC	φD	φE	F	G	H	MM
SP 500 SCJ	105	130	φ9	φ25	φ15	24.5	15	50	M10 TAP DP20
SP 900 CJ	90	120	φ10	φ30	φ20	33	15	55	M12 TAP DP20
SP 1500 CJ	100	125	φ12	φ35	φ25	37.5	15	55	M16 TAP DP30

MODEL	K						
	50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SP 500 SCJ	135	145	145	160	185	185	110+(STROKE / 4)
SP 900 CJ	150	165	165	175	200	200	120+(STROKE / 4)
SP 1500 CJ	160	170	180	180	200	200	120+(STROKE / 4)

[SP Series]

NOTE

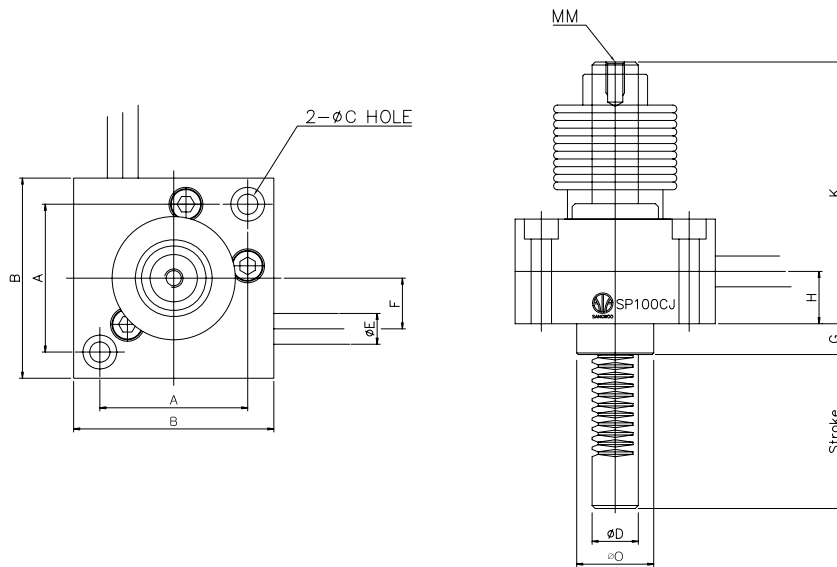
- Clean type 으로 bellows를 사용하지 않을 때는 일반형 dimension 과 같다
(When the bellows is not used in clean type, it work the same job as general type dimension)
- SP3000CJ 이상의 model을 사용시는 당사에 문의
(When using the model after S3000CJ, please ask us)
- SP500SCJ model은 Clean type 전용으로 box를 전체 가공하였으며 후처리는 anodizing을 한 제품이다.
(SP500SCJ is used only for clean type so its box was devised as a whole and after produce was anodized to it.)

MODEL	□A	□B	φC	φD	φE	F	G	H	I	K	L	φM	φN	PCD P
SP 500SFCJ	105	130	φ9	φ25	φ15	24.5	15	50	95	22	12	φ9.5	φ88	φ70
SP 900FCJ	90	120	φ10	φ30	φ20	33	15	55	110	22	12	φ12	φ88	φ70
SP 1500FCJ	100	125	φ12	φ35	φ25	37.5	15	55	110	22	12	φ12	φ88	φ70

MODEL	Q						
	50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SP 500SFCJ	165	175	175	190	215	215	140+(STROKE / 4)
SP 900FCJ	180	195	195	205	230	230	150+(STROKE / 4)
SP 1500FCJ	190	200	210	210	230	230	150+(STROKE / 4)

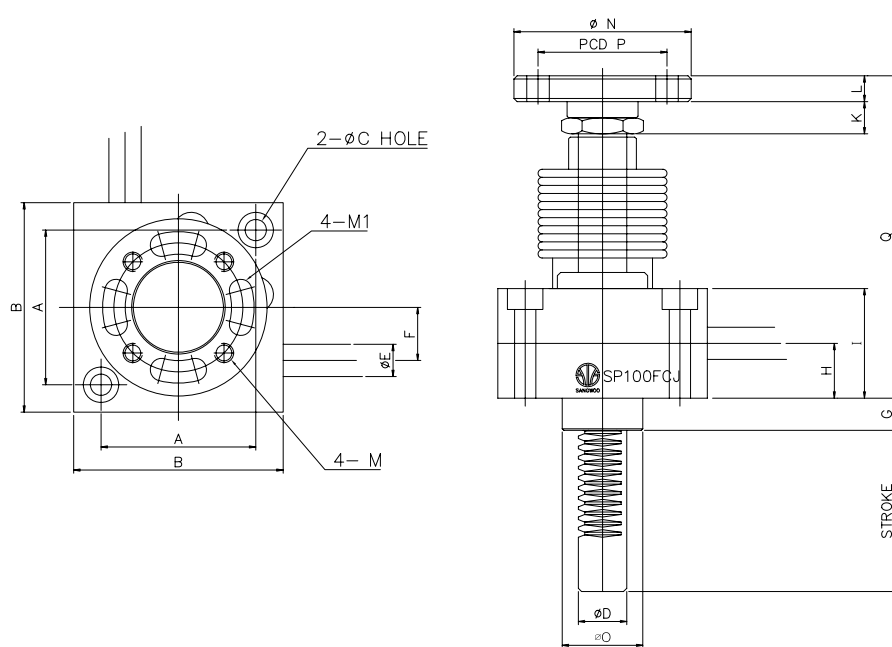
Dimension (Clean Type)

[SP Series]



MODEL	A	B	ϕC	ϕD	ϕE	F	G	H	MM	ϕO	K						
											50ST	100ST	150ST	200ST	250ST	300ST	350ST over
SP 100 CJ	48	65	$\phi 6.6$	$\phi 15$	$\phi 10$	16.5	10	17	M6TAP DP 10	$\phi 25$	85	85	100	115	130	145	
SP 300 CJ	56	74	$\phi 7$	$\phi 18$	$\phi 12$	20	10	20	M8TAP DP 15	$\phi 27$	90	90	105	120	135	150	
SP 500 CJ	65	90	$\phi 9$	$\phi 25$	$\phi 15$	24.5	20	25	M10TAP DP 20	$\phi 50$	110	120	120	135	160	160	85+ (STROKE/4)

[SP Series]

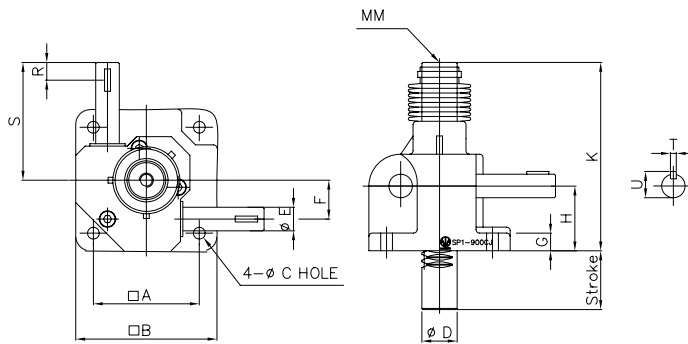


MODEL	A	B	ϕC	ϕD	ϕE	F	G	H	I	K	L	M	M1	ϕN	ϕO	PCD P
SP 100FCJ	48	65	$\phi 6.6$	$\phi 15$	$\phi 10$	16.5	10	17	34	10	8	M6 TAP	$\phi 7$	$\phi 55$	$\phi 25$	$\phi 40$
SP 300FCJ	56	74	$\phi 7$	$\phi 18$	$\phi 12$	20	10	20	40	10	8	M6 TAP	$\phi 7$	$\phi 55$	$\phi 27$	$\phi 40$
SP 500FCJ	65	90	$\phi 9$	$\phi 25$	$\phi 15$	24.5	20	25	50	22	12	NON	$\phi 9.5$	$\phi 88$	$\phi 50$	$\phi 70$

MODEL	Q						
	50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SP 100FCJ	100	100	115	130	145	160	
SP 300FCJ	105	105	120	135	150	165	
SP 500FCJ	140	150	150	165	190	190	115+ (STROKE / 4)

Dimension(Clean Type)

[SP1 Series]



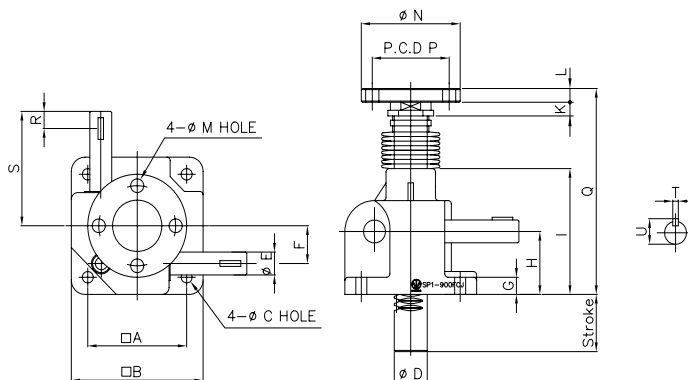
NOTE

- Clean type 으로 bellows를 사용하지 않을 때는 일반형 dimension 과 같다
(When the bellows is not used in clean type, it work the same job as general type dimension)
- SP3000CJ 이상의 model을 사용시는 당사에 문의
(When using the model after S3000CJ, please ask us)
- SP500SCJ model은 Clean type 전용으로 box를 전체 가공하였으며 후처리는 anodizing을 한 제품이다.
(SP500SCJ is used only for clean type so its box was devised as a whole and after produce was anodized to it.)

MODEL	□A	□B	φC	φD	φE	F	G	H	MM	R	S	T	U
SP1-500SCJ	105	130	φ9	φ25	φ15	24.5	15	50	M10 TAP DP20	10.5	120	4	16.5
SP1-900 CJ	90	120	φ10	φ30	φ20	33	15	55	M12 TAP DP20	19	100	5	22
SP1-1500 CJ	100	125	φ12	φ35	φ25	37.5	15	55	M16 TAP DP 30	26	110	5	27

MODEL	K						
	50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SP1-500SCJ	135	145	145	160	185	185	110+(STROKE / 4)
SP1-900 CJ	150	165	165	175	200	200	120+(STROKE / 4)
SP1-1500 CJ	160	170	180	180	200	200	120+(STROKE / 4)

[SP1 Series]



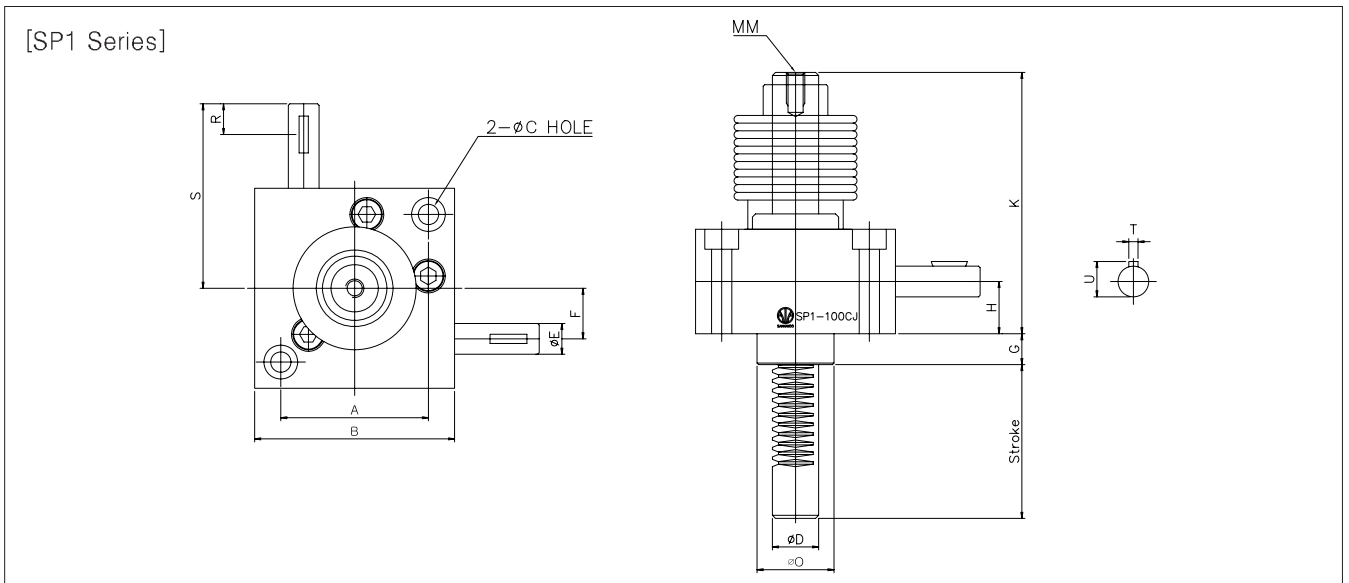
NOTE

- Clean type 으로 bellows를 사용하지 않을 때는 일반형 dimension 과 같다
(When the bellows is not used in clean type, it work the same job as general type dimension)
- SP3000CJ 이상의 model을 사용시는 당사에 문의
(When using the model after S3000CJ, please ask us)
- SP500SCJ model은 Clean type 전용으로 box를 전체 가공하였으며 후처리는 anodizing을 한 제품이다.
(SP500SCJ is used only for clean type so its box was devised as a whole and after produce was anodized to it.)

MODEL	□A	□B	φC	φD	φE	F	G	H	I	K	L	φM	φN	PCD P
SP1-500SFCJ	105	130	φ9	φ25	φ15	24.5	15	50	95	22	12	φ9.5	φ88	φ70
SP1-900FCJ	90	120	φ10	φ30	φ20	33	15	55	110	22	12	φ12	φ88	φ70
SP1-1500FCJ	100	125	φ12	φ35	φ25	37.5	15	55	110	22	12	φ12	φ88	φ70

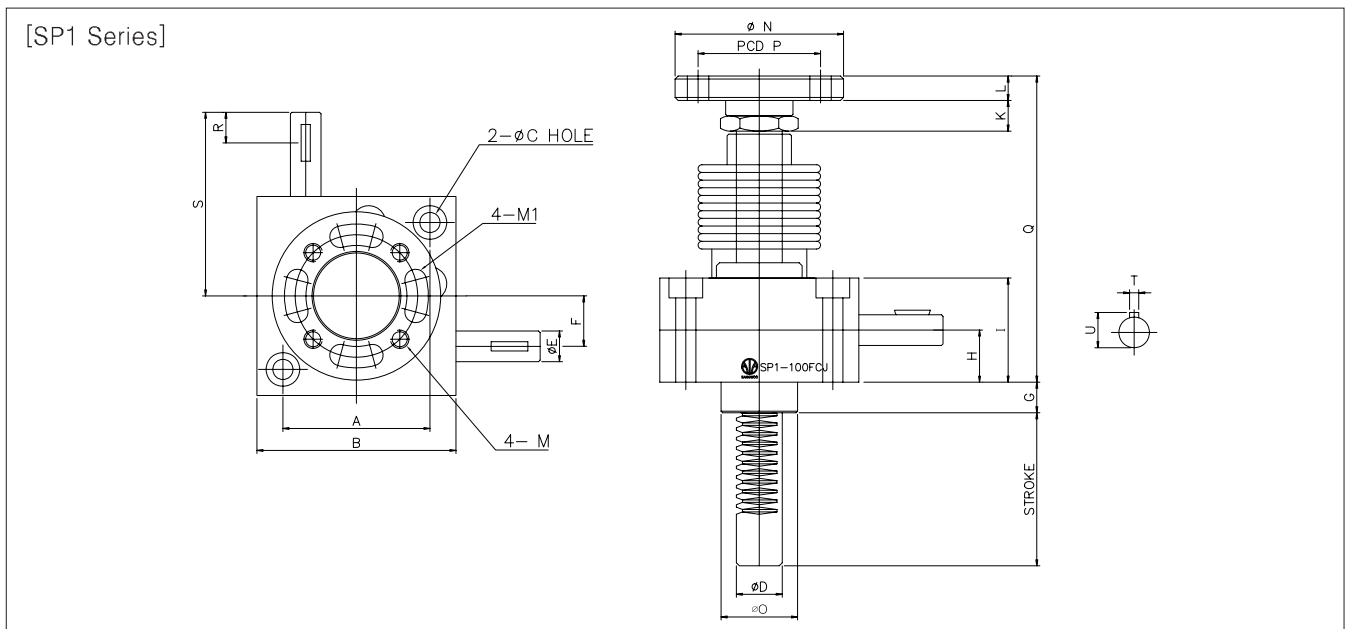
MODEL	R	S	T	U	Q						
					50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SP1-500SFCJ	10.5	120	4	16.5	165	175	175	190	215	215	140+(STROKE / 4)
SP1-900FCJ	19	100	5	22	180	195	195	205	230	230	150+(STROKE / 4)
SP1-1500FCJ	26	110	5	27	190	200	210	210	230	230	150+(STROKE / 4)

Dimension (Clean Type)



MODEL	A	B	φC	φD	φE	F	G	H	MM	φO	R	S	T	U
SP1-100CJ	48	65	φ6.6	φ15	φ10	16.5	10	17	M6 TAP DP10	φ25	8.6	60	3	11.5
SP1-300CJ	56	74	φ7	φ18	φ12	20	10	20	M8 TAP DP15	φ27	11	70	3	13.5
SP1-500CJ	65	90	φ9	φ25	φ15	24.5	20	25	M10 TAP DP 20	φ50	10.5	120	4	16.5

MODEL	K						
	50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SP1-100CJ	85	85	100	115	130	145	
SP1-300CJ	90	90	105	120	135	150	
SP1-500CJ	110	120	120	135	160	160	85+ (STROKE / 4)

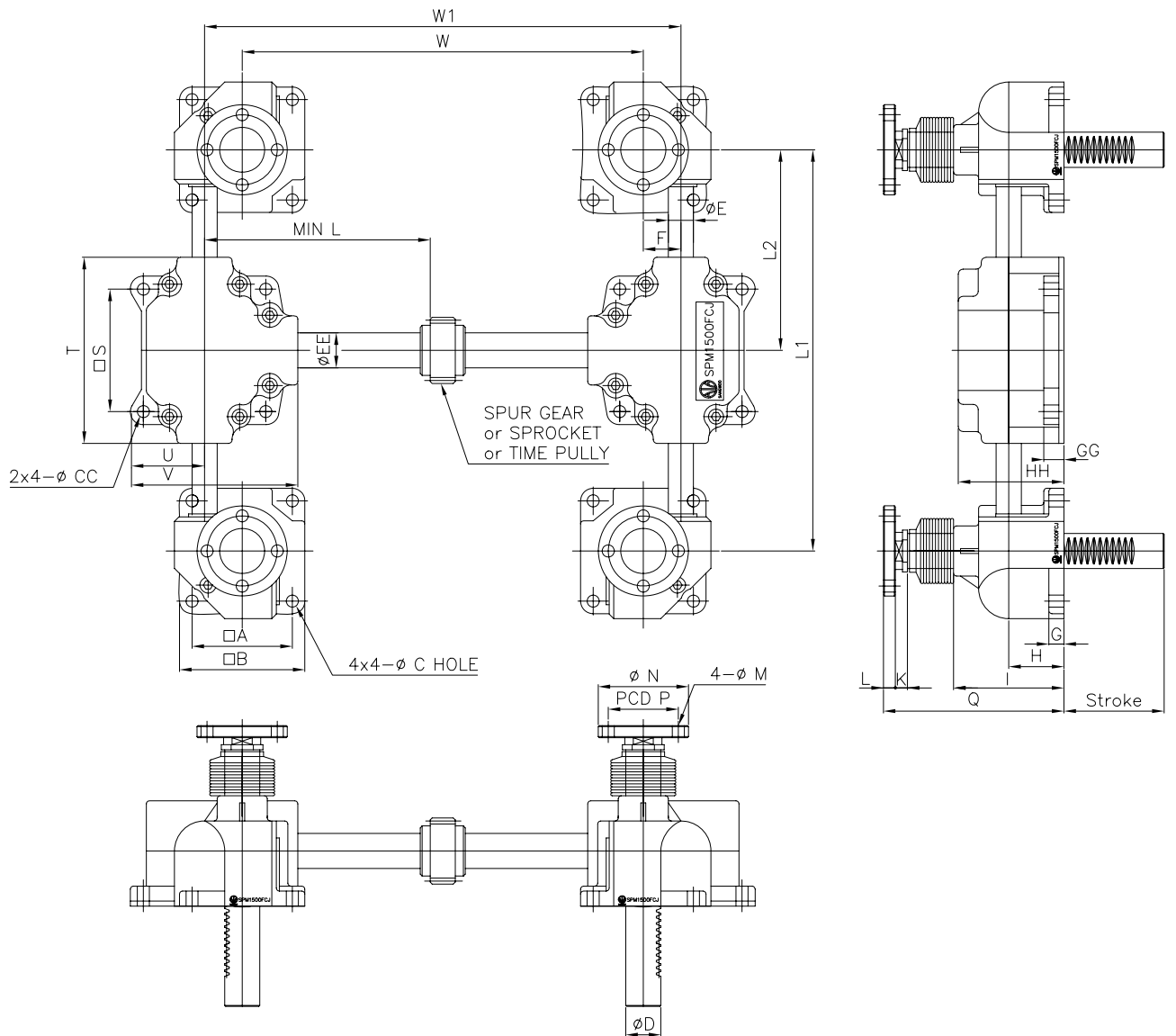


MODEL	A	B	φC	φD	φE	F	G	H	I	K	L	M	M1	φN	φO	PCD P
SP1-100FCJ	48	65	φ6.6	φ15	φ10	16.5	10	17	34	10	8	M6 TAP	φ7	φ55	φ25	φ40
SP1-300FCJ	56	74	φ7	φ18	φ12	20	10	20	40	10	8	M6 TAP	φ7	φ55	φ27	φ40
SP1-500FCJ	65	90	φ9	φ25	φ15	24.5	20	25	50	22	12	NON	φ9.5	φ88	φ50	φ70

MODEL	R	S	T	U	Q						
					50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SP1-100FCJ	8.6	60	3	11.5	100	100	115	130	145	160	
SP1-300FCJ	11	70	3	13.5	105	105	120	135	150	165	
SP1-500FCJ	10.5	120	5	16.5	140	150	150	165	190	190	115+ (STROKE / 4)

Dimension(Clean Type)

[SPM Series]



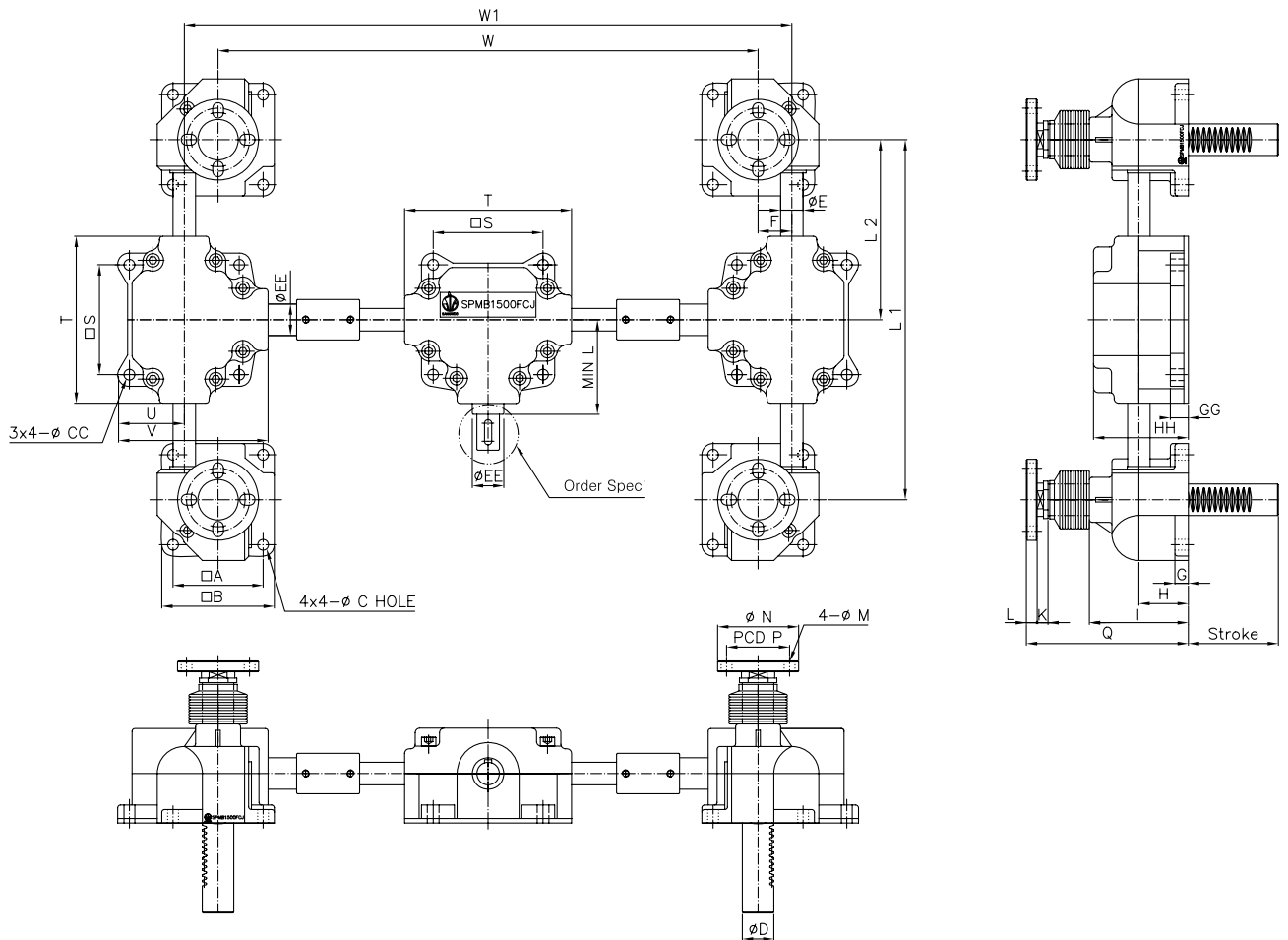
MODEL	□A	□B	φC	φCC	φD	φE	φEE	F	G	GG	H	HH	I	K	L	MIN L	φM
SPM 500FCJ	105	130	φ9	φ12	φ25	φ25	φ35	24.5	20	10	45	95	90	22	12	95	φ9.5
SPM 500SFCJ	105	130	φ9	φ12	φ25	φ25	φ35	24.5	15	15	50	100	95	22	12	95	φ9.5
SPM 900FCJ	90	120	φ10	φ12	φ30	φ25	φ35	33	15	20	55	105	110	22	12	95	φ12
SPM 1500FCJ	100	125	φ12	φ12	φ35	φ25	φ35	37.5	15	20	55	105	110	22	12	95	φ12

MODEL	φN	PCDP	□S	T	U	V	W1	Q						
								50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SPM 500 FCJ	φ88	φ70	122	185	74	167	W+49	165	175	175	190	215	215	140+(STROKE/4)
SPM 500 SFCJ	φ88	φ70	122	185	74	167	W+49	165	175	175	190	215	215	140+(STROKE/4)
SPM 900 FCJ	φ88	φ70	122	185	74	167	W+66	180	195	195	205	230	230	150+(STROKE/4)
SPM 1500 FCJ	φ88	φ70	122	185	74	167	W+75	190	200	210	210	230	230	150+(STROKE/4)

※NOTE : MINL SIZE는 최소 치수이며 설계자의 임의로 변경가능
(Min L size is minimum and can be tuned by the designer)

Dimension (Clean Type)

[SPMB Series]



MODEL	□A	□B	φC	φCC	φD	φE	φEE	F	G	GG	H	HH	I	K	L	MIN L	φ M
SPMB 500FCJ	105	130	φ9	φ12	φ25	φ25	φ35	24.5	20	10	45	95	90	22	12	95	φ9.5
SPMB 500SFCJ	105	130	φ9	φ12	φ25	φ25	φ35	24.5	15	15	50	100	95	22	12	95	φ9.5
SPMB 900FCJ	90	120	φ10	φ12	φ30	φ25	φ35	33	15	20	55	105	110	22	12	95	φ12
SPMB 1500FCJ	100	125	φ12	φ12	φ35	φ25	φ35	37.5	15	20	55	105	110	22	12	95	φ12

MODEL	φN	PCDP	□S	T	U	V	W1	Q						
								50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SPMB 500 FCJ	φ88	φ70	122	185	74	167	W+49	165	175	175	190	215	215	140+(STROKE/4)
SPMB 500 SFCJ	φ88	φ70	122	185	74	167	W+49	165	175	175	190	215	215	140+(STROKE/4)
SPMB 900 FCJ	φ88	φ70	122	185	74	167	W+66	180	195	195	205	230	230	150+(STROKE/4)
SPMB 1500 FCJ	φ88	φ70	122	185	74	167	W+75	190	200	210	210	230	230	150+(STROKE/4)

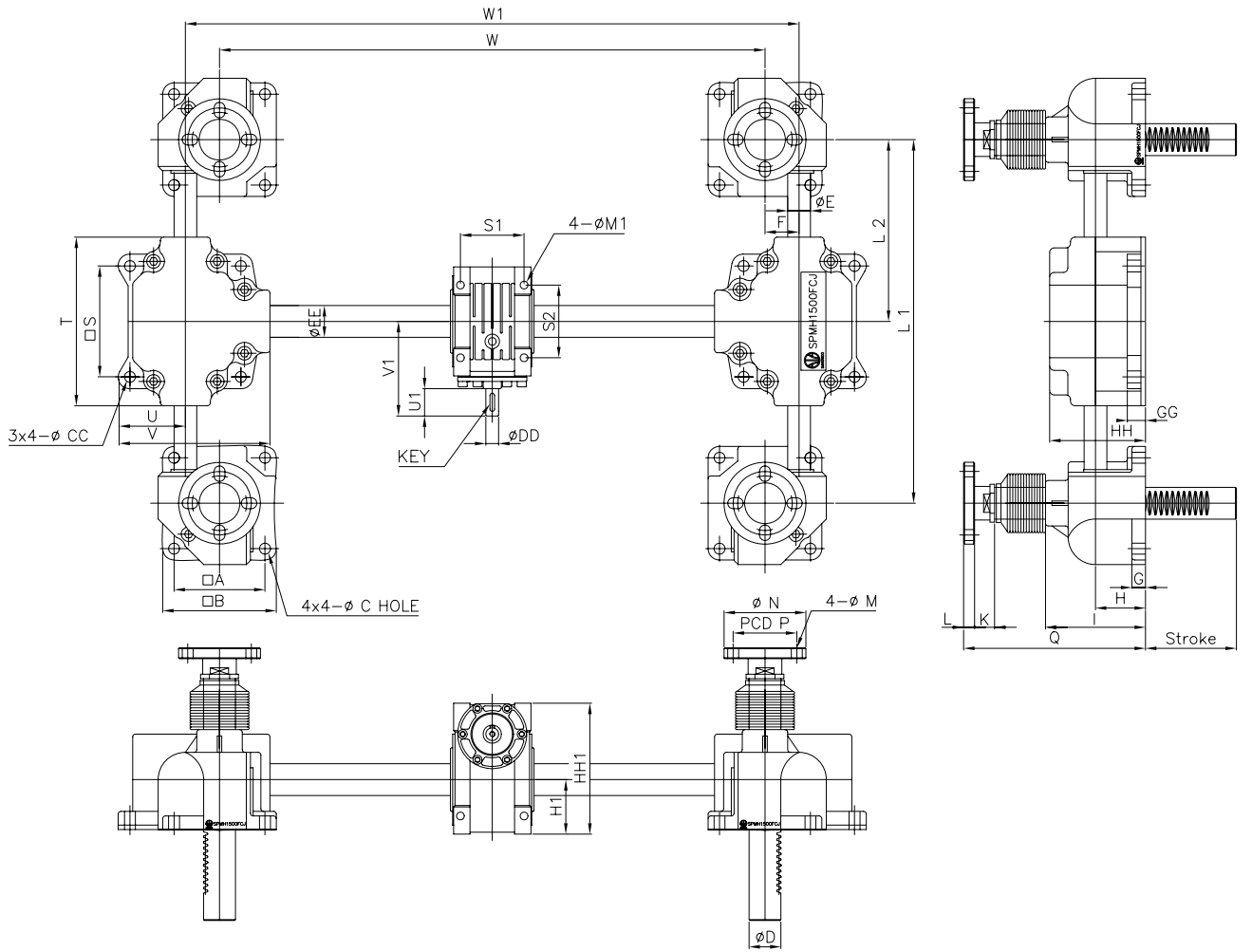
※NOTE - MINL size 최소 치수이며 설계자의 임의로 변경가능

(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)

[SPMH Series]



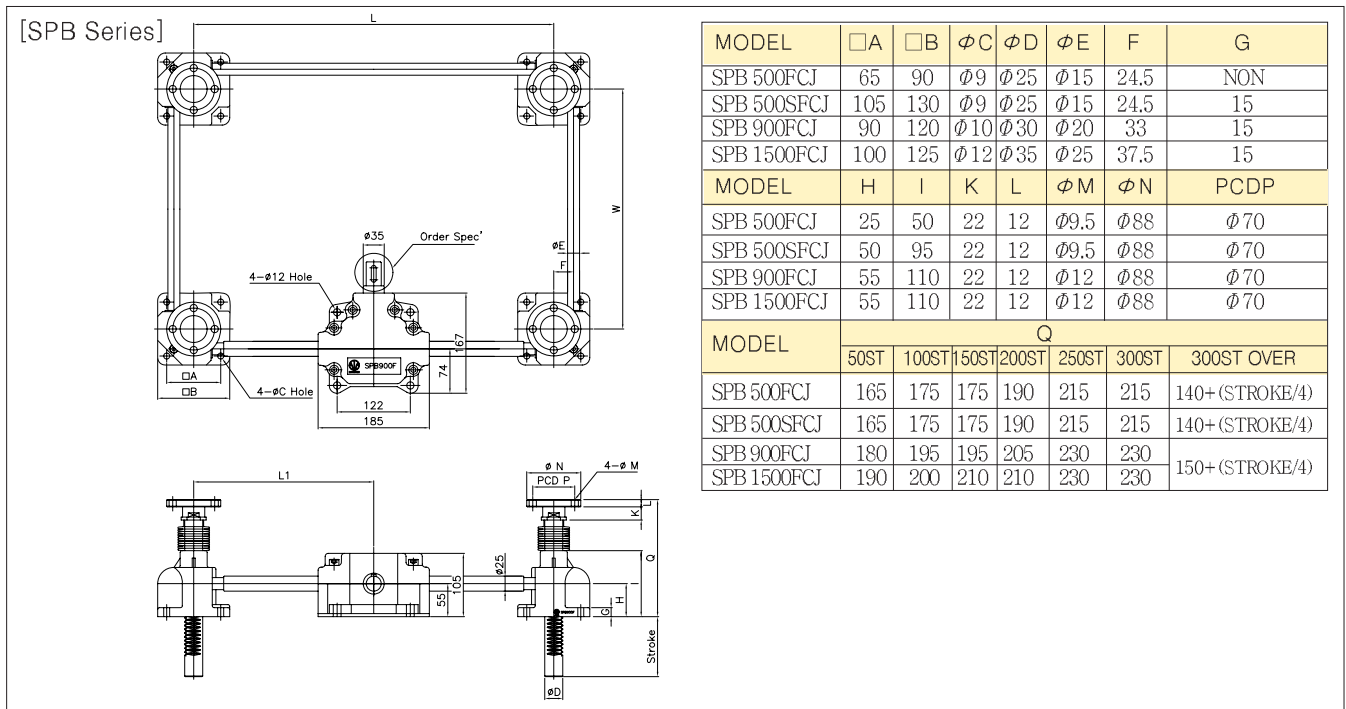
MODEL	□A	□B	φC	φCC	φD	φE	φEE	F	G	GG	H	HH	I	K	L	φM
SPMH 500FCJ	105	130	φ9	φ12	φ25	φ25	φ35	24.5	20	10	45	95	90	22	12	φ9.5
SPMH 500SFCJ	105	130	φ9	φ12	φ25	φ25	φ35	24.5	15	15	50	100	95	22	12	φ9.5
SPMH 900FCJ	90	120	φ10	φ12	φ30	φ25	φ35	33	15	20	55	105	110	22	12	φ12
SPMH 1500FCJ	100	125	φ12	φ12	φ35	φ25	φ35	37.5	15	20	55	105	110	22	12	φ12

MODEL	φN	PCDP	□S	T	U	V	W1	Q						
								50ST	100ST	150ST	200ST	250ST	300ST	300ST over
SPMH 500 FCJ	φ88	φ70	122	185	74	167	W+49	165	175	175	190	215	215	140+(STROKE/4)
SPMH 500 SFCJ	φ88	φ70	122	185	74	167	W+49	165	175	175	190	215	215	140+(STROKE/4)
SPMH 900 FCJ	φ88	φ70	122	185	74	167	W+66	180	195	195	205	230	230	150+(STROKE/4)
SPMH 1500 FCJ	φ88	φ70	122	185	74	167	W+75	190	200	210	210	230	230	150+(STROKE/4)

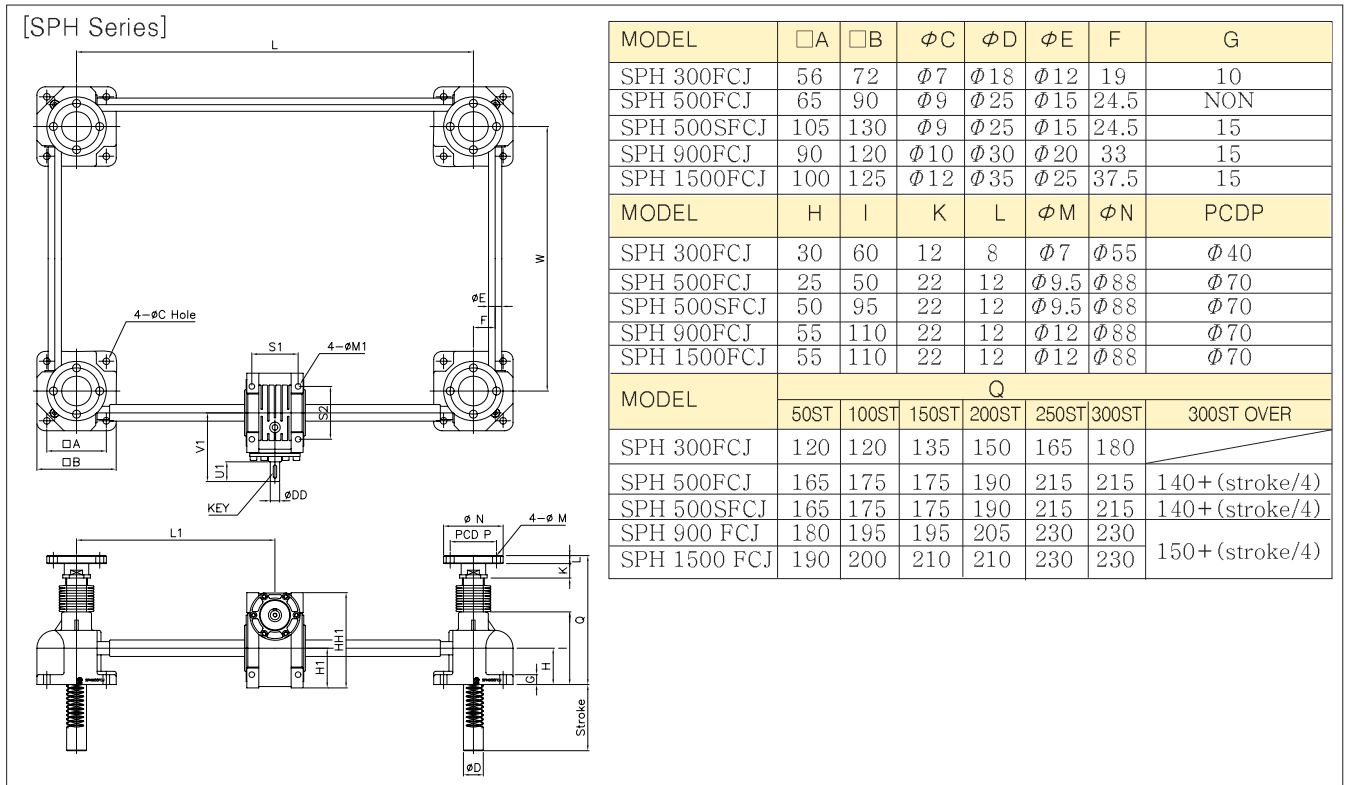
MODEL	H1	HH1	φDD	S1	S2	U1	V1	φM1	KEY
SPMH 500FCJ-040	50	121.5	φ11	60	70	23	83	φ6.5	4×4×15
SPMH 500SFCJ-040	50	121.5	φ11	60	70	23	83	φ6.5	4×4×15
SPMH 900FCJ-050	60	144	φ14	70	80	30	104	φ8.5	5×5×20
SPMH 900FCJ-063	72	174	φ19	85	100	40	130	φ8.5	6×6×30
SPMH 1500FCJ-050	60	144	φ14	70	80	30	104	φ8.5	5×5×20
SPMH 1500FCJ-063	72	174	φ19	85	100	40	130	φ8.5	6×6×30

※NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange 및 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)



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

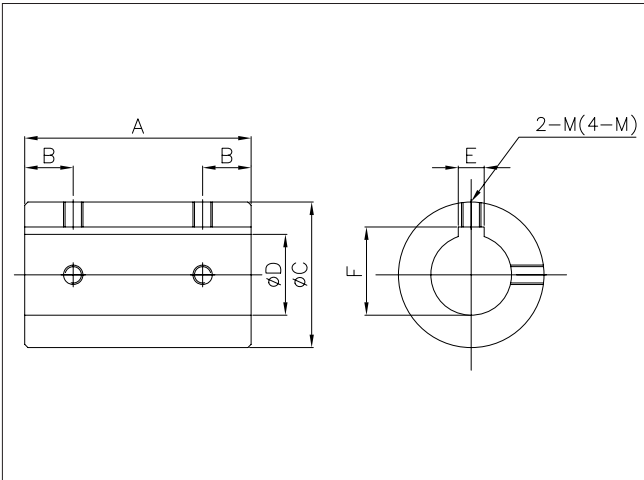


MODEL	H1	HH1	φDD	S1	S2	U1	V1	φM1	KEY
SPH 300FCJ-030	40	97	9	44	54	20	71	φ6.5	3×3×15
SPH 500FCJ-040	50	121.5	11	60	70	23	83	φ6.5	4×4×15
SPH 500SFCJ-040	50	121.5	11	60	70	23	83	φ6.5	4×4×15
SPH 900FCJ-050	60	144	14	70	80	30	104	φ8.5	5×5×20
SPH 900FCJ-063	72	174	19	85	100	40	130	φ8.5	6×6×30
SPH 1500FCJ-050	60	144	14	70	80	30	104	φ8.5	5×5×20
SPH 1500FCJ-063	72	174	19	85	100	40	130	φ8.5	6×6×30

※NOTE : Worm reducer의 입력축에 motor를 설치할 경우 motor의 종류에 따라 취부 flange 및 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.)

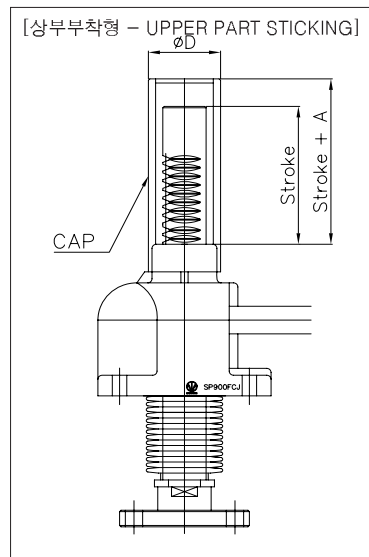
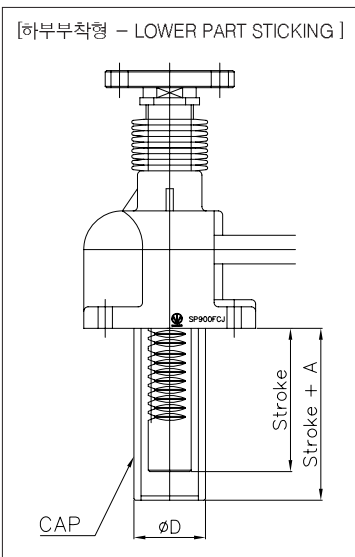
24. Accessories

■ COUPLING



MODEL	A	B	ØC	ØD	E	F	M
C1025-3	40	10	Ø24	Ø10	3	11.5	M6 TAP
C1225-3	40	10	Ø24	Ø12	3	13.5	M6 TAP
C1530-4	55	10	Ø29	Ø15	4	17	M6 TAP
C2040-5	60	10	Ø39	Ø20	5	22	M6 TAP
C2545-5	70	15	Ø44	Ø25	5	27.3	M8 TAP
C2545-8	70	15	Ø44	Ø25	8	28.3	M8 TAP
C3055-8	80	15	Ø55	Ø30	8	33.3	M8 TAP
C3055-10	80	15	Ø55	Ø30	10	33.3	M8 TAP
C3560-10	80	15	Ø59	Ø35	10	38.3	M8 TAP
C4070-10	90	20	Ø68	Ø40	10	43.3	M8 TAP
C5080-14	100	20	Ø78	Ø50	14	54	M8 TAP
C60100-14	110	20	Ø98	Ø60	14	64	M10 TAP

■ CAP

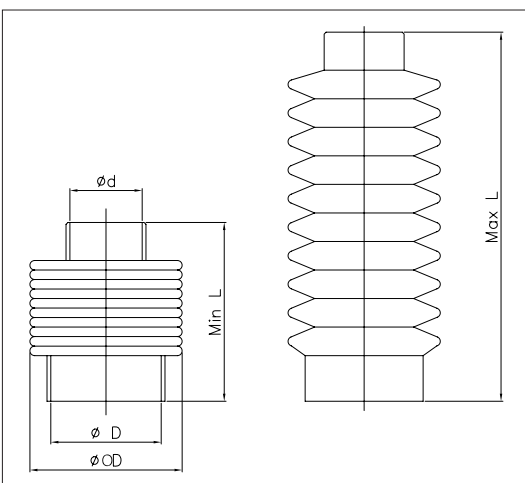


MODEL	A	ØD	재질 (The material)
SP100FCJ/CAP	10	Ø30	AL PIPE (ANODIZING)
SP300FCJ/CAP	10	Ø30	
SP500FCJ/CAP	20	Ø50	
SP900FCJ/CAP	20	Ø50	
SP1500FCJ/CAP	20	Ø55	

※ NOTE

1. 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.)
2. SP3000FCJ 이상의 MODEL은 별도 문의
(Further question is required about models after SP3000FCJ,)

■ BELLOWS

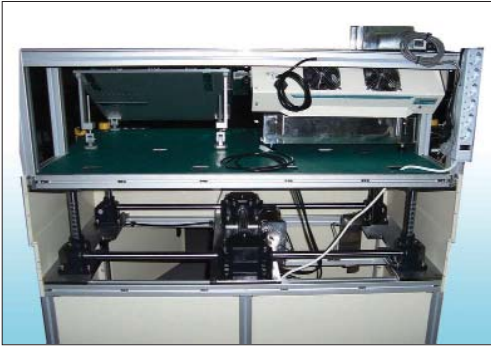


MODEL	Color	Ød	ØD	ØOD	MIN L	MAX L	Application
B1528-100	BLACK	Ø15	Ø28	Ø40	45	145	SP100CJ
W1528-100	WHITE						
B1828-100	BLACK	Ø18	Ø28	Ø40	50	150	SP300CJ
W1828-100	WHITE						
B3050-80	BLACK	Ø25	Ø45	Ø55	55	135	SP500CJ
W3050-80	WHITE						
B3050-150	BLACK	Ø30	Ø50	Ø52	70	250	SP500CJ SP900CJ
W3050-150	WHITE						
B4065-200	BLACK	Ø40	Ø65	Ø67	90	300	SP900CJ SP1500CJ
W4065-200	WHITE						
B5060-200	BLACK	Ø50	Ø60	Ø78	80	300	SP3000CJ SP5000CJ
W5060-200	WHITE						

※ NOTE

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

▣ 사진자료(Photo data)



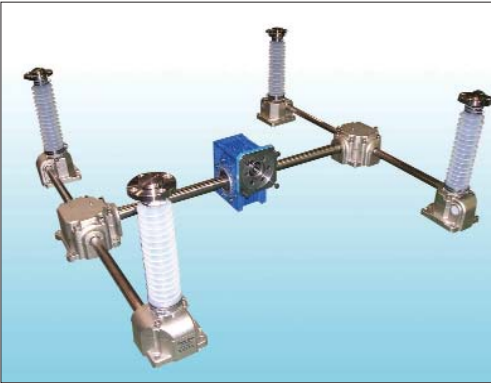
[SPM 900F]



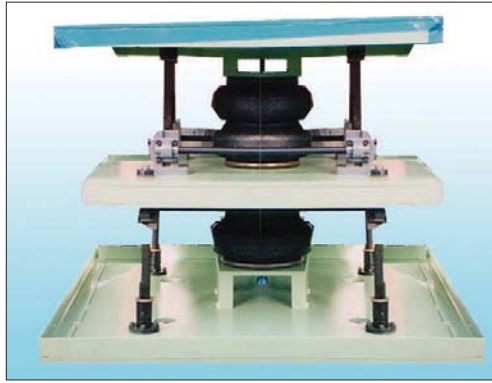
[BSP 906380]



[SP 900F]



[SPMH 1500FCJR]



[SP 1500F]



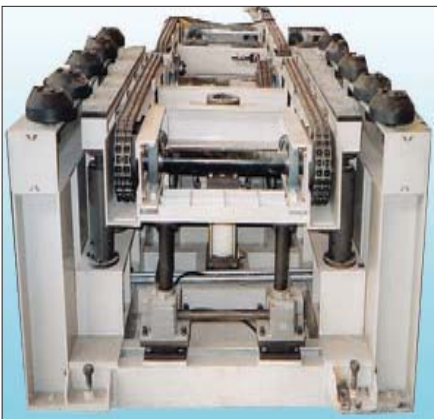
[SP 900F]



[SPH300F - 030]



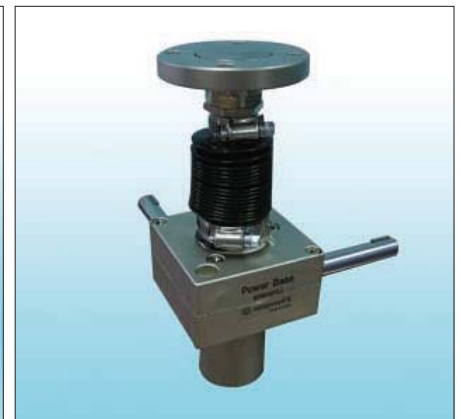
[SP500SFCJ/CAP]



[SP 20000F]



[SP1 - 100FC]



[SP1 - 500FCJ/CAP]