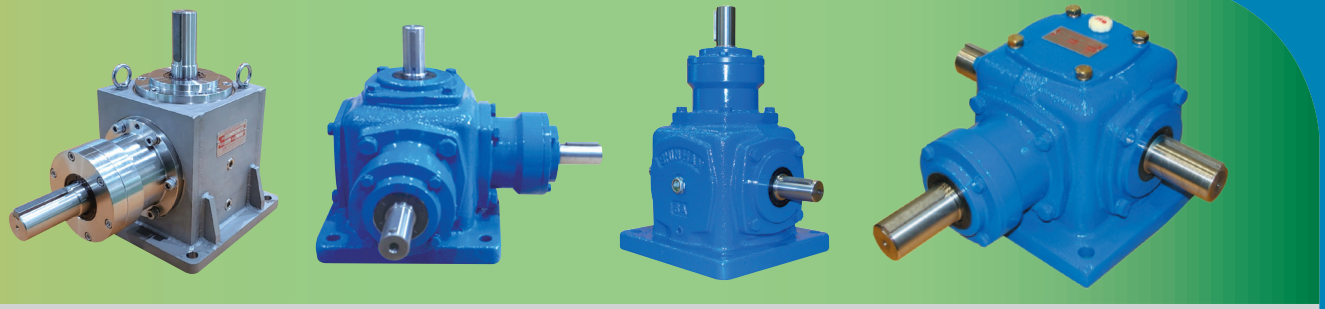
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2023

SHINHANSM PRODUCT GUIDE BOOK

# 베벨기어박스 Bevel gear box
# 스 크 류 잭 Screw Jack
# 볼스크류잭 Ball Screw Jack





(주)신한에스엠
SHINHAN SHINHAN SM CO.,LTD

# 성실 · 정밀 · 신속

시간의 흐름과 유행의 변화 속에서도
정밀함, 정확성을 중시하는 한결같은 경영 마인드로
쓰임새 좋은 제품 생산과 가치 있는 유 · 무형의 기술서비스로
고객의 신뢰를 차곡차곡 쌓아가겠습니다.



# HIGH-TECH & PRODUCTS

SCREW JACK 스크류잭(SMJ) SMJ

BALL SCREW JACK 볼스크류잭(SMJB) SMJB

BEVEL GEAR BOX 베벨기어박스(SMA) SMA

# BELIEVE & HISTORY

(주)신한에스엠은 1993년 창업이래 지금까지 기어동력전달기기 개발과 제작분야에 매진하여 SCREW JACK, BEVEL GEAR BOX 등 기어응용 제품 전문업체로서 전통과 자부심을 키우고 있습니다.
(주)신한에스엠의 다양한 생산제품들은 각종 기계장치의 동력전달 및 승강기능에서 탁월한 효율성과 안정감을 드릴것을 약속드립니다.

(주)신한에스엠

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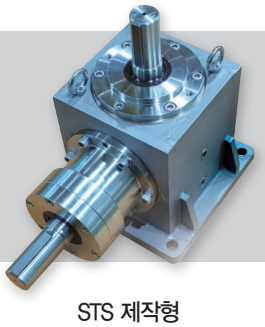
# 베벨기어박스
## BEVEL GEAR BOX



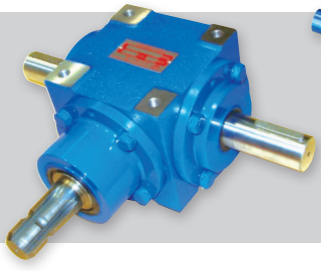

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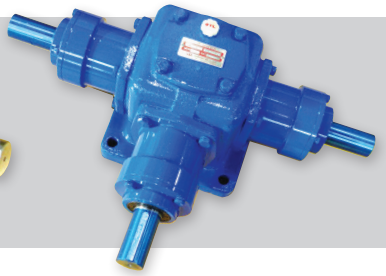

정 · 역 조작형



STS 제작형



멀티부착형



3축 역회전형

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모터플랜지부착형


볼스크류승강형


볼너트승강형


자바라 · 플랜지부착

# 베벨기어박스 개요 High Quality BEVEL GEAR BOX

## ■ 베벨기어박스 개요

1. 당사의 HIGH-TECH 베벨기어박스는 단순 동력 전달과 동력배분 기능은 물론이며 1.5:1, 2:1, 3:1 등 소량의 감속 또는 증속 기능이 요구되는 다양한 기계장치에 용이하게 사용이 됩니다.
2. 베벨기어박스의 주요구성품인 CASE, GEAR, SHAFT, BEARING 등은 내구성을 고려한 최적의 소재와 부품을 사용하였습니다.
3. 베벨기어박스는 높은 효율과 저소음으로 POWERFUL한 회전력을 자랑하는 스파이럴베벨기어 동력전달기기입니다.

## ■ 사용사례

무대작동장치, 인쇄기계, 농업기계, 목공기계, 제지기계, 섬유기계, 각종 프레스, 진동성형기, 압연기계, 윤전기계, 철강 및 반도체 부품 생산장비, 태양광추적장치, 의료기계장비 등에 다양하게 적용됩니다.

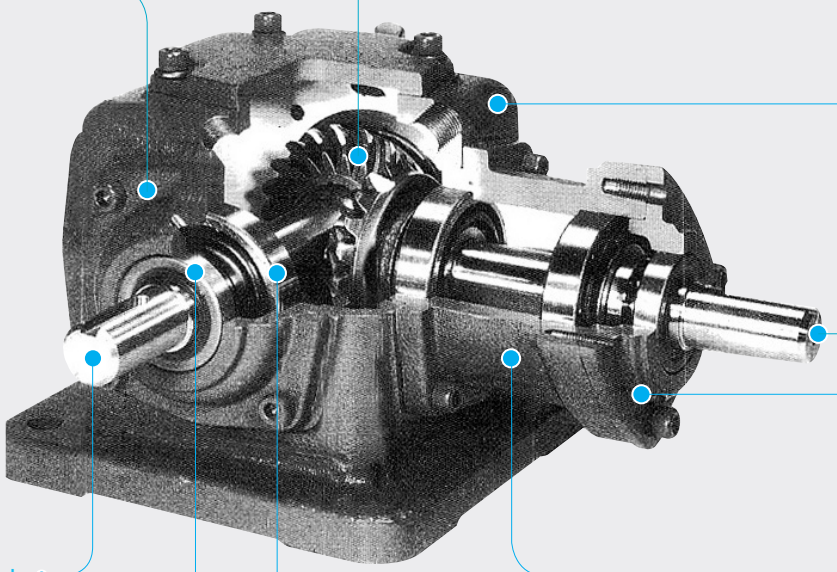
## ■ FEATURES OF THE BEVEL GEAR BOX

BASED ON THE HIGH QUALITY OF MATERIALS, THE REFORMED STANDARD, THE UNIFORM COMPONENTS AND THE HIGH PRECISION MACHINING, IT SECURES A RELIABILITY AND A DURATION

## ■ APLLICATIONS

STAGE EQUIPMENT, PRINTING MACHINE, WOOD MACHINE, AGRICULTURAL MACHINE, PEPER MAKING MACHINE, TEXITILE MACHINE, PRINTING PRESS, BRICKYARD, STEEL & SOLAR, MEDICAL SEMICONDUCTER EQUIPMENT...

### 부품 명칭 및 구성 ORGANIZATION



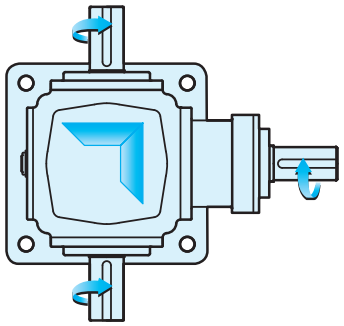
# 제품규격 선택자료 FOR SELECTION

## ■ 사용규격선정 REQUIRED DATA FOR SELECTION

| ITEM | PART.S | SPEC |
|---|---|---|
| 1. POWER | kw 또는 kg.m_N.m | 허용전달동력표 참조 |
| 2. RPM | INPUT RPM OUTPUT RPM | |
| 3. RATIO | 1.5:1, 2:1, 3:1 등 | |
| 4. ROTATE | TIME hours/date 연속/단속 | |
| 5. 부하의 형태<br>LOAD CLASSFICATION | 균일하중, 적은 충격하중, 큰 충격하중<br>UNIFORM LOAD, MODERATE LOAD, HEAVY SHOCK LOAD | |
| 6. SHAFT DIRECTION | 정회전(I–LR) 또는 역회전(I–LR–O) | 축배치 그림 참조(p8~9) |
| 7. INSTALLTION | 정방향 설치, 역방향 설치, 옆으로 설치 등 | 설치그림 참조(p26) |

## ■ 규격표기방법

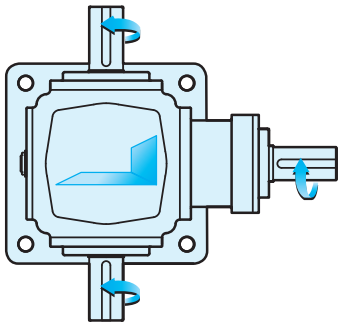
기본형



제품기호표기 SM 8A I–LR–O

- 신한에스엠
- 제품규격(크기)
- 회전비 1/1
- 축배치 및 회전방향

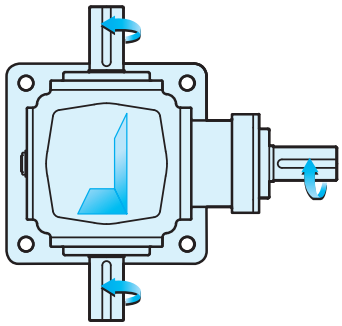
감속형



제품기호표기 SM 8A 20 I–LR

- 신한에스엠
- 제품규격(크기)
- 회전비 2/1 감속
- 축배치 및 회전방향

증속형



제품기호표기 SM 8A 20H I–LR

- 신한에스엠
- 제품규격(크기)
- 회전비 2/1 증속
- 축배치 및 회전방향

## ■ 교환조립이 가능한 표준 형식

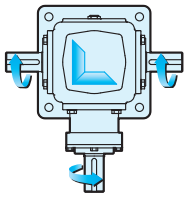
| 기본형 | 교환 조립가능형 |
|---|---|
| I–LR | I–LR–O |
| I–R | I–L–O |
| I–L | I–R–O |
| I–UD | I–UD–O, D–LR, D–LR–O, U–LR, U–LR–O |
| I–U | I–D–O, D–R, D–L–O, U–L, U–R–O |
| I–D | I–U–O, D–L, D–R–O, U–R, U–L–O |

# 기본형의 축배열 및 회전관계 SHAFT DIRECTION

- 축의 배열 및 회전 방향에 따라 아래와 같이 기본 24종류로 구분하며 기어비율 1:1 제품의 경우 화살표 표시 방향 및 그 반대 회전으로 사용하여도 가능하며 또한 동일한 동력 전달 효과를 얻을 수 있습니다.
- 제품 선정 및 주문 시에 기어 비율 1:1이 아닐 경우 사용하고자 하는 축의 배치 방향 즉, 입력 축 · 출력축의 위치를 표시, 고지하여 주어야 제작의 오류를 방지할 수 있습니다.

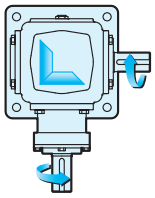
## ■ 수평형 HORIZONTAL TYPE

1



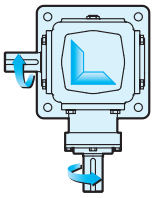
I–LR

2



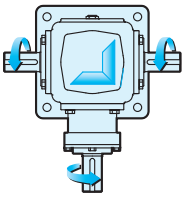
I–R

3



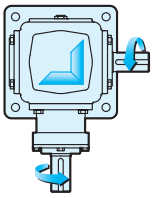
I–L

4



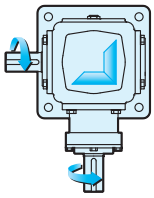
I–LR–O

5



I–R–O

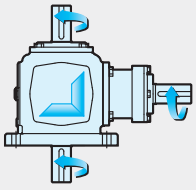
6



I–L–O

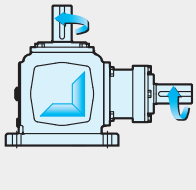
## ■ 수직형 VERTICAL TYPE

7



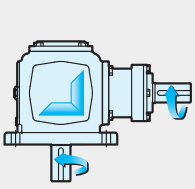
I–UD

8



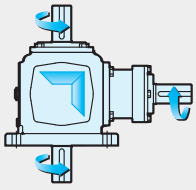
I–U

9



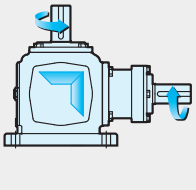
I–D

10



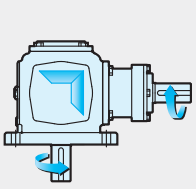
I–UD–O

11



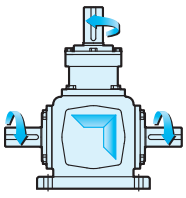
I–U–O

12



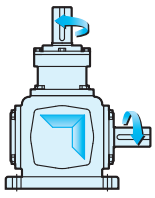
I–D–O

13



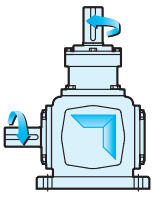
U–LR

14



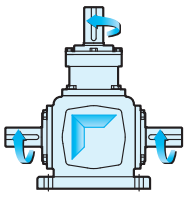
U–R

15



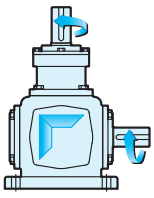
U–L

16



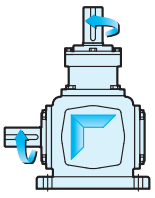
U–LR–O

17



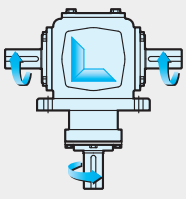
U–R–O

18



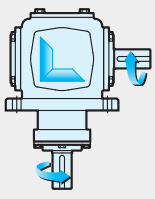
U–L–O

19



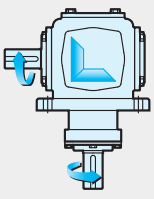
D–LR

20



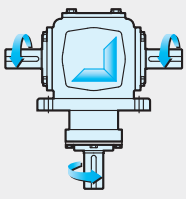
D–R

21



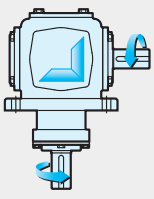
D–L

22



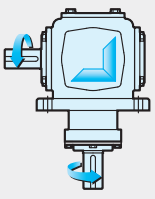
D–LR–O

23



D–R–O

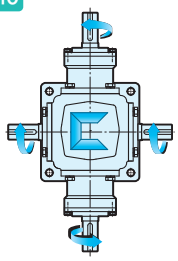
24



D–L–O

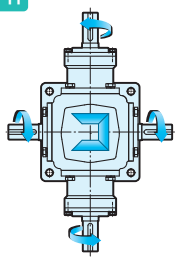
# 4축 역회전형[Y형]

Y-10



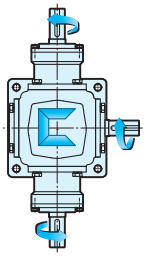
I–I–LR

Y-11



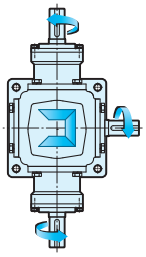
I–I–LR–O

Y-12



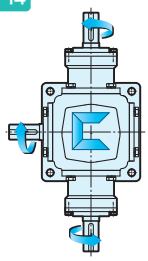
I–I–R

Y-13



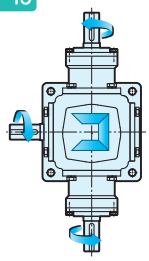
I–I–R–O

Y-14



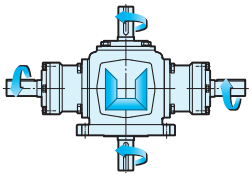
I–I–L

Y-15



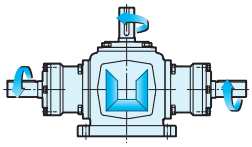
I–I–L–O

Y-20



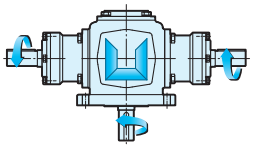
I–I–UD

Y-22



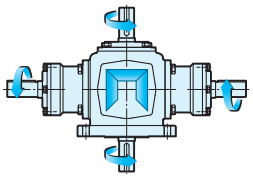
I–I–U

Y-24



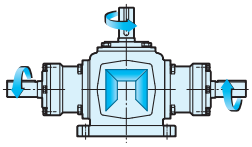
I–I–D

Y-21



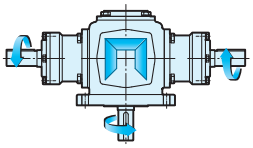
I–I–UD–O

Y-23



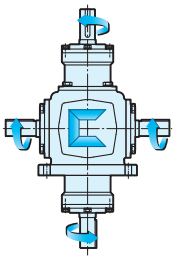
I–I–U–O

Y-25



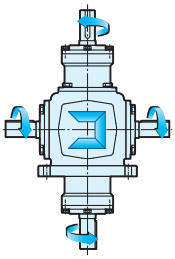
I–I–D–O

Y-30



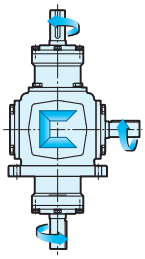
U–D–LR

Y-31



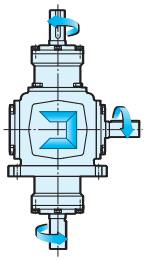
U–D–LR–O

Y-32



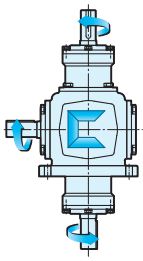
U–D–R

Y-33



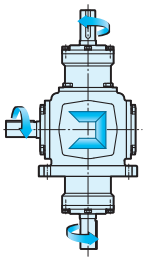
U–D–R–O

Y-34



U–D–L

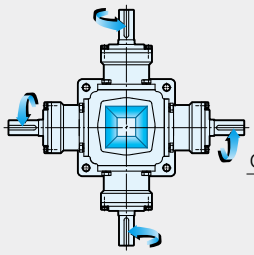
Y-35



U–D–L–O

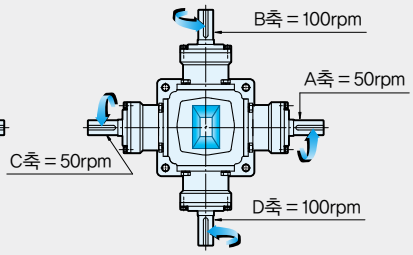
## ■ 감속비 적용사례

Y-410



속비 1:1 사용

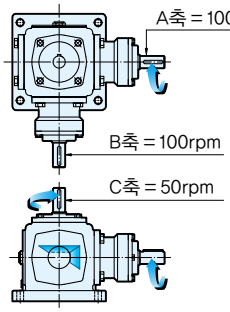
Y-420



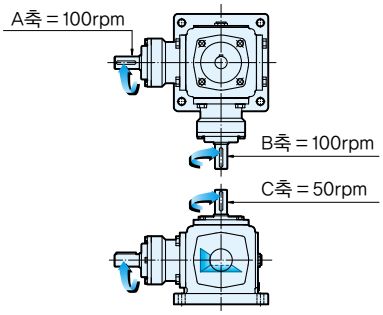

감속 · 증속 사용

## ■ PALLET LIFT TYPE

P–43




P–44



# 규격 및 생산자료 SUM UP PRODUCTION

## ■ 규격요약표 SUMMARY

| 베벨기어박스 | SPECIFICATION | | MATERIAL | | | OIL & WEIGHT | |
|---|---|---|---|---|---|---|---|
| 규 격 | 축 경 | 키-이 | 베벨기어 | 케이스 | 샤프트 | OIL( ℓ ) | 개략중량(kg) |
| SM 1A | 15 | 5×5×25 2R | SCM 415 | AC4C | S45C | GREASE | 3.0 |
| SM 2A | 17 | 5×5×30 2R | SCM 415 | FCD450 | S45C | 0.25 | 7.5 |
| SM 4A | 20 | 6×6×30 2R | SCM 415 | FCD450 | S45C | 0.4 | 14 |
| SM 6A | 25 | 7×7×40 2R | SCM 415 | FCD450 | S45C | 0.95 | 21 |
| SM 7A | 32 | 10×8×60 1R | SCM 415 | FCD450 | S45C | 1.5 | 30 |
| SM 8A | 40 | 10×8×70 1R | SCM 415 | FCD450 | S45C | 1.9 | 40 |
| SM 10A | 45 | 12×8×80 1R | SCM 415 | FCD450 | S45C | 3.5 | 72 |
| SM 12A | 50 | 14×9×90 1R | SCM 415 | FCD450 | S45C | 7 | 117 |
| SM 16A | 60 | 18×11×95 1R | SCM 415 | FCD450 | S45C | 10 | 178 |
| SM 20A | 72 | 20×12×100 1R | SCM 415 | FCD450 | S45C | 13 | 285 |
| SM 25A | 85 | 24×16×110 1R | SCM 415 | FCD450 | S45C | 19 | 470 |

▶축경(Ø)의 공차는 KS B0412의 h7입니다
▶카탈로그상의 일부 치수는 제품 향상을 위해 변경될 수 있습니다.

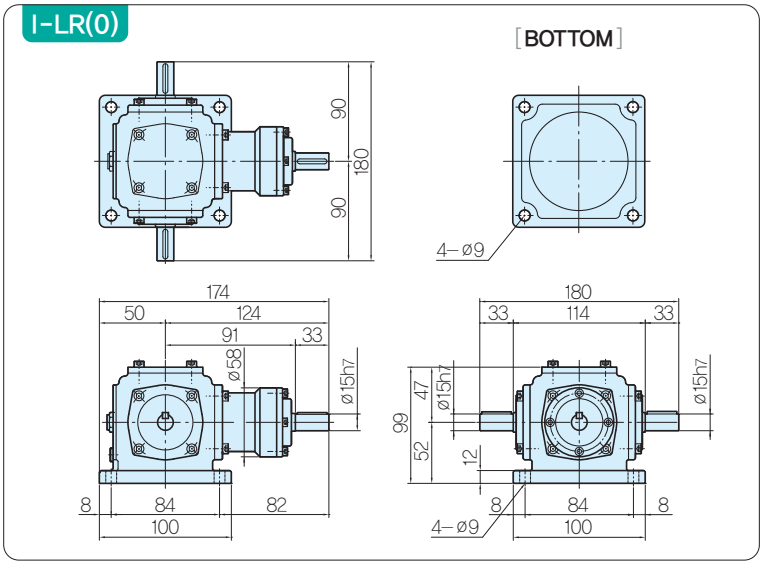
## ■ 생산현황표 PRODUCTION INDEX

| ITEM RATIO | 1:1 | 1.5:1 | 2:1 | 3:1 | 기 타 |
|---|---|---|---|---|---|
| SM 1A | ● | ○ | ● | ○ | |
| SM 2A | ● | ○ | ● | ○ | |
| SM 4A | ● | ○ | ● | ● | |
| SM 6A | ● | ● | ● | ● | |
| SM 7A | ● | ● | ● | ● | |
| SM 8A | ● | ● | ● | ● | |
| SM 10A | ● | ● | ● | ● | |
| SM 12A | ● | ○ | ● | ◎ | |
| SM 16A | ● | ○ | ○ | ◎ | |
| SM 20A | ● | ○ | ○ | ◎ | |
| SM 25A | ● | ○ | ○ | ◎ | |

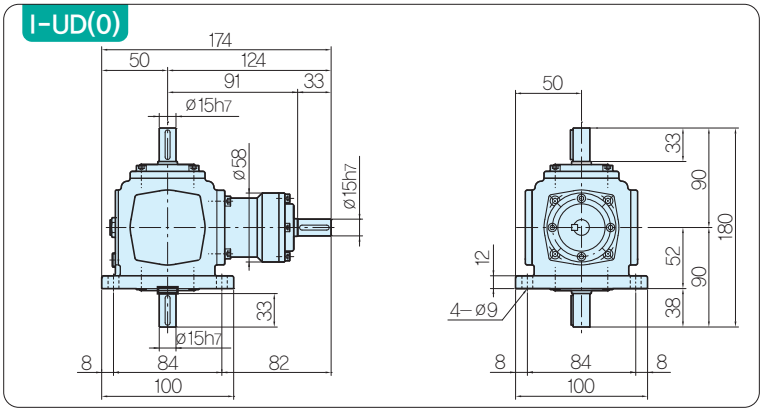
▶표준품(●) 항시 부품 재고 유지
▶준표준품(○) 항시 또는 일부 부품의 재고 유지
▶비규격품(◎) 일부 부품 재고 유지
▶표기 외 필요한 사양은 협의 제작 가능합니다.

## ■ 기본형 Fundamental form

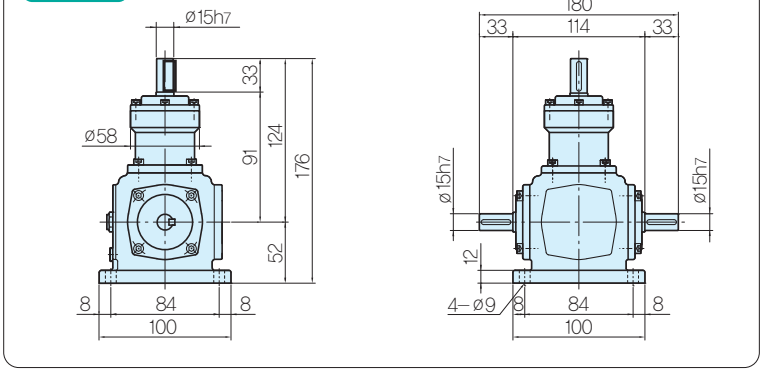
### I-LR(0)



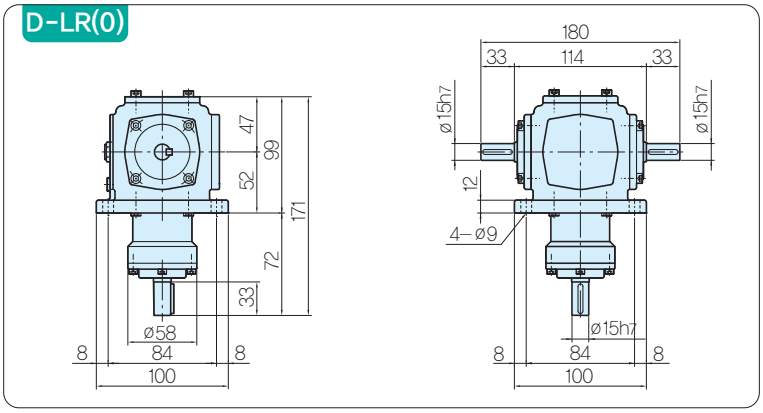

### I-UD(0)




### U-LR(0)

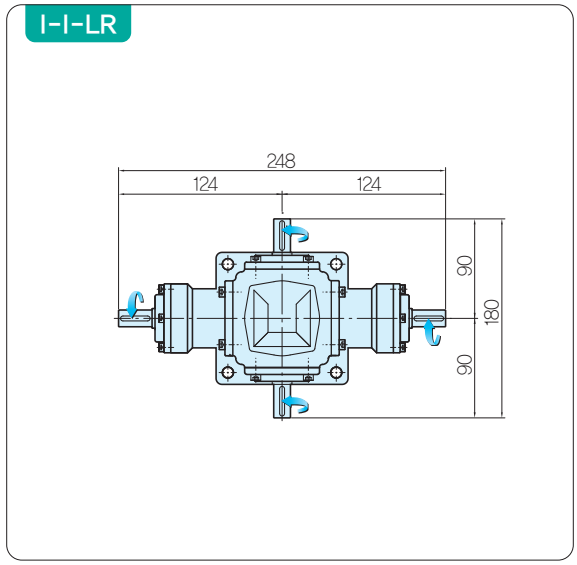



### D-LR(0)

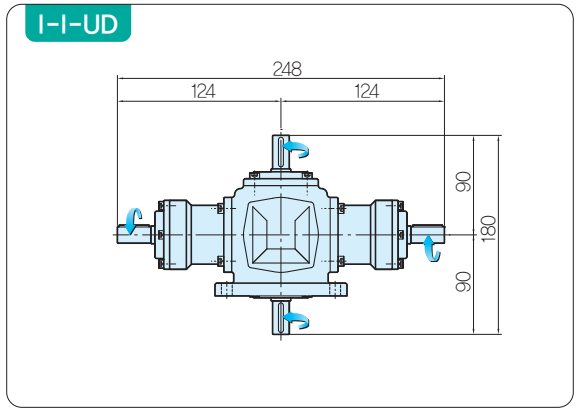



## ■ 역회전형(4축형) Opposite Directions

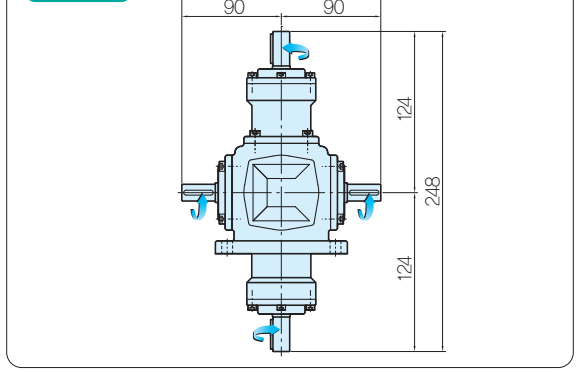
### I-I-LR

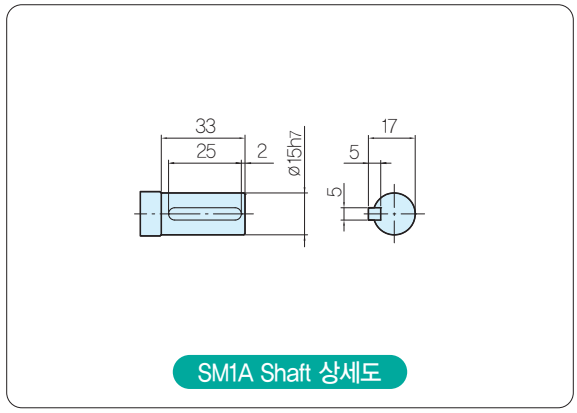



### I-I-UD




### U-D-LR

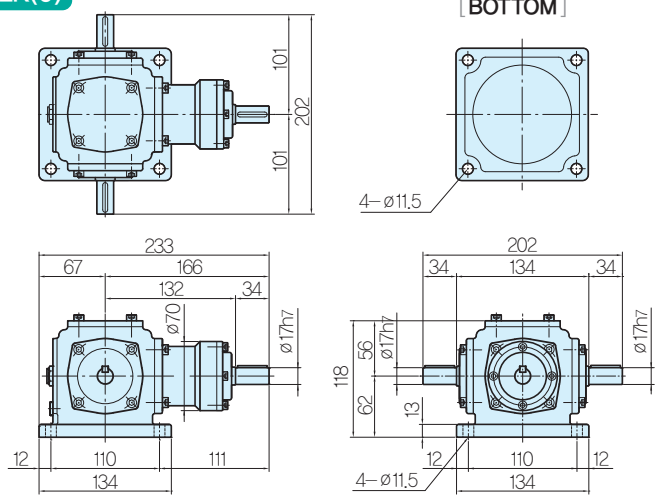


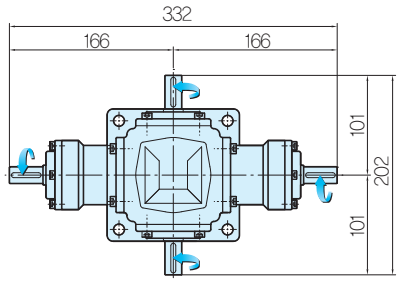

SM1A Shaft 상세도

## ■ 기본형 Fundamental form

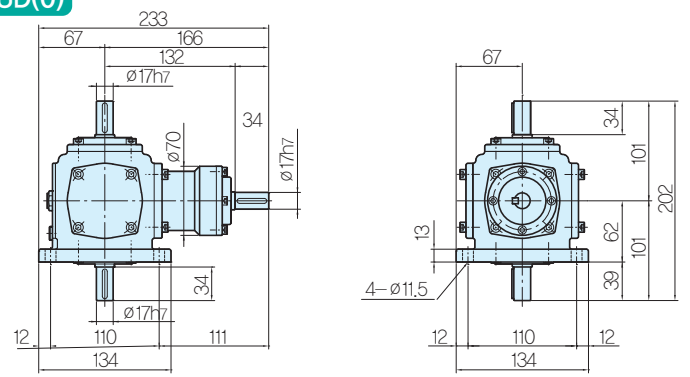
### I-LR(0)



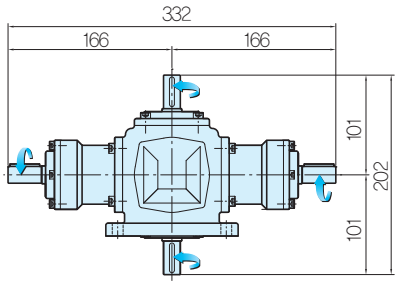

### I-I-LR



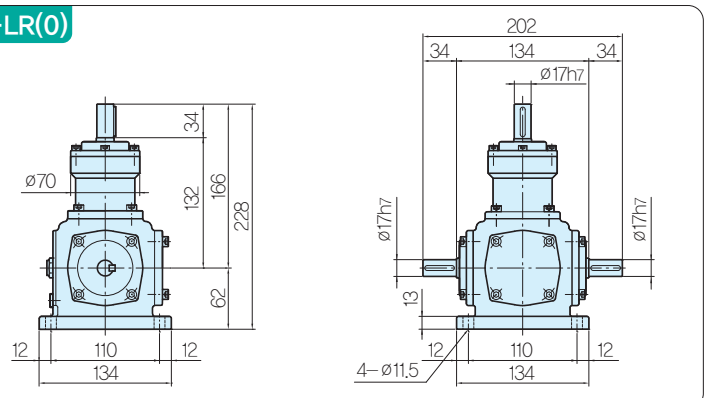

### I-UD(0)



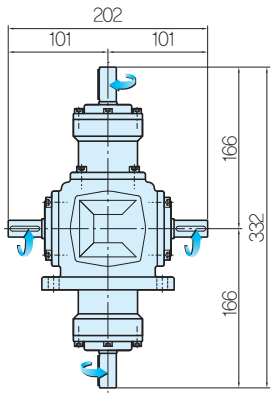

### I-I-UD



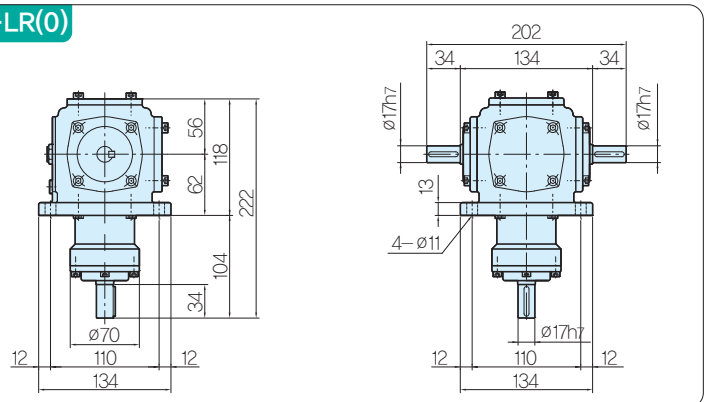

### U-LR(0)

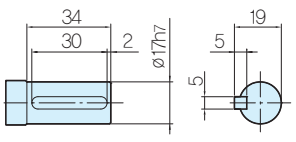



### U-D-LR




### D-LR(0)

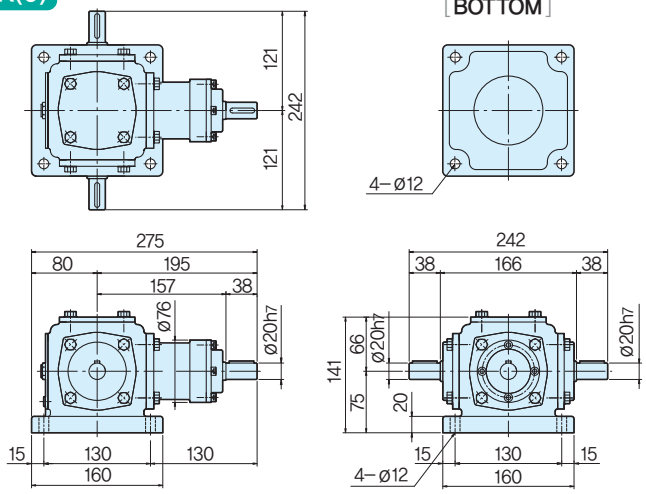


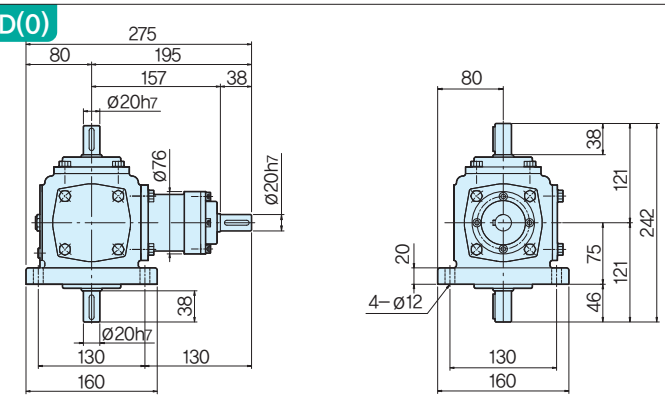

SM4A Shaft 상세도

## ■ 기본형 Fundamental form

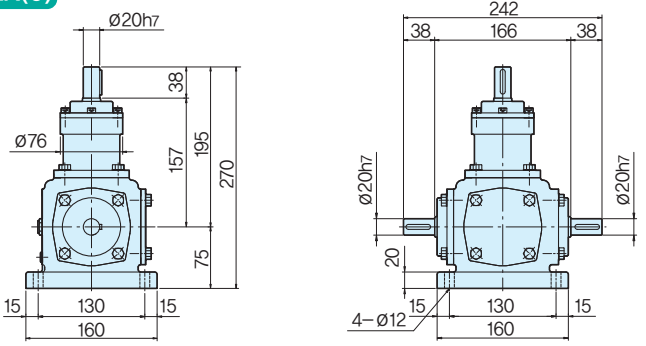
### I-LR(0)



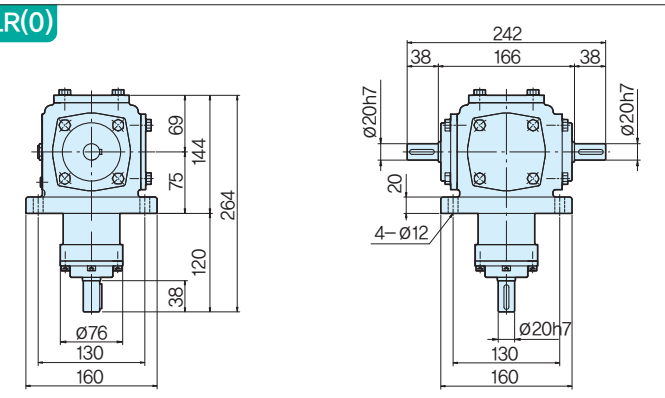

### I-UD(0)




### U-LR(0)

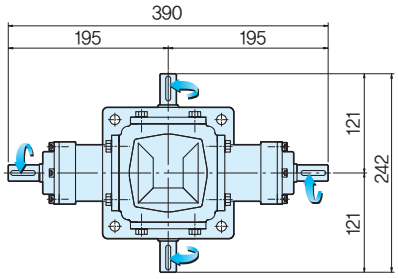



### D-LR(0)

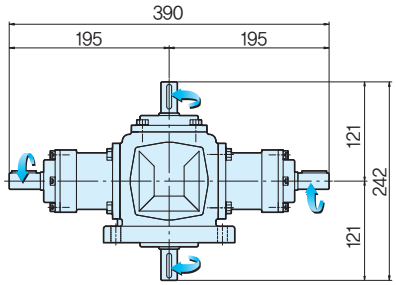



## ■ 역회전형(4축형) Opposite Directions

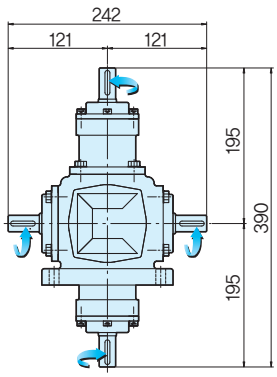
### I-I-LR

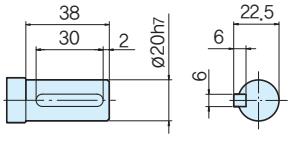



### I-I-UD




### U-D-LR

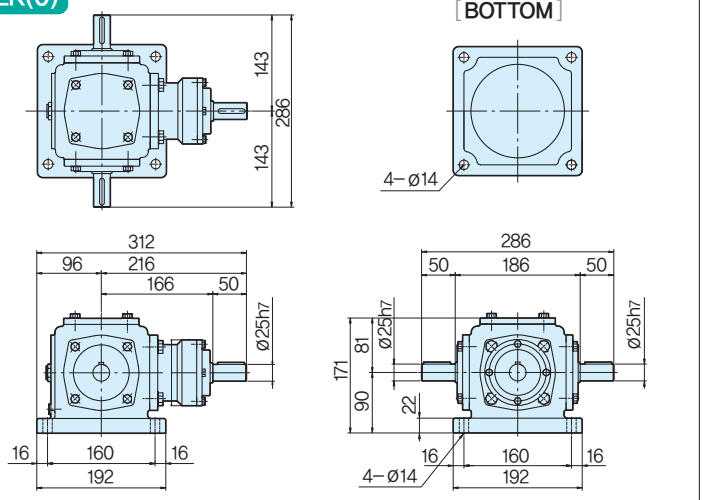


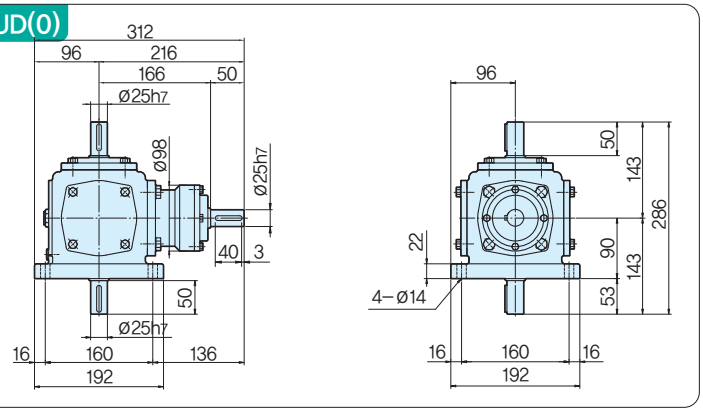

SM4A Shaft 상세도

## ■ 기본형 Fundamental form

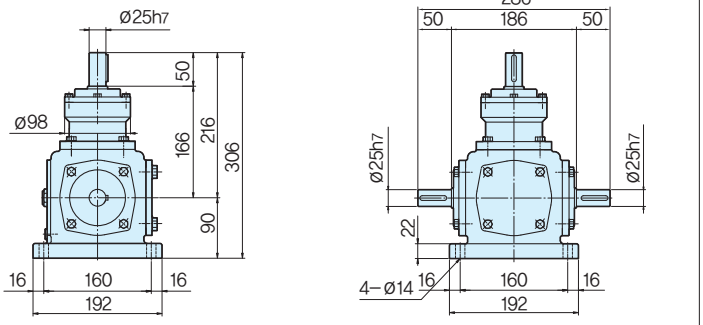
### I-LR(0)



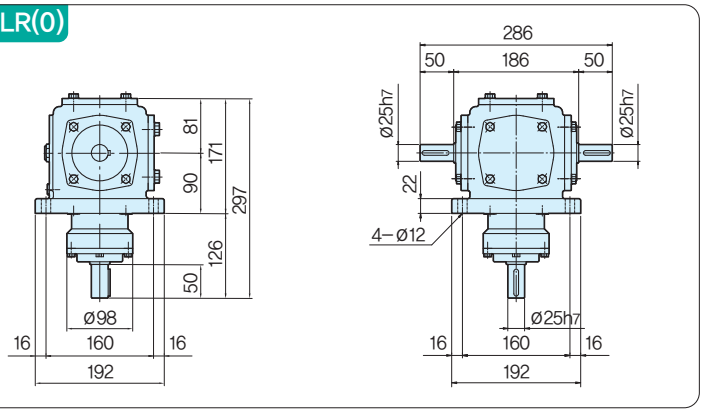

### I-UD(0)




### U-LR(0)

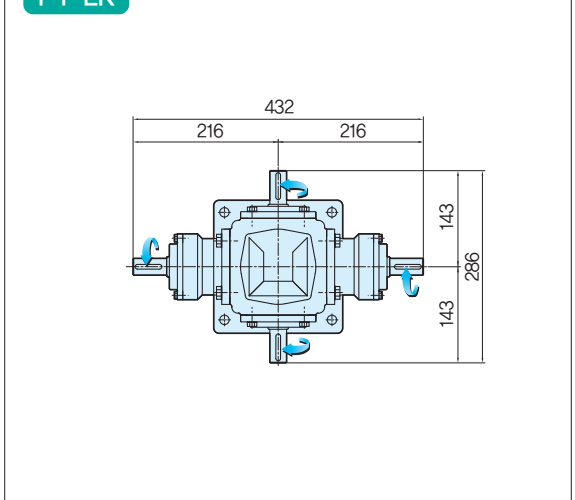



### D-LR(0)

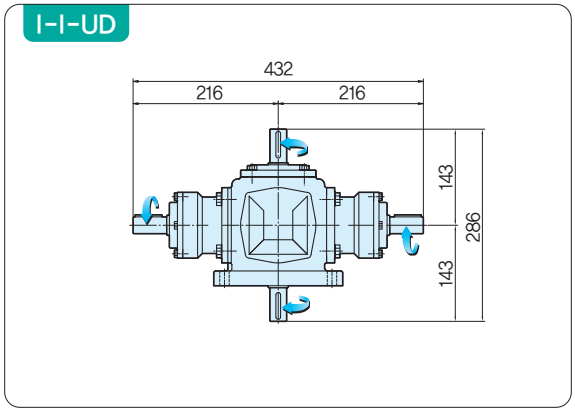



## ■ 역회전형(4축형) Opposite Directions

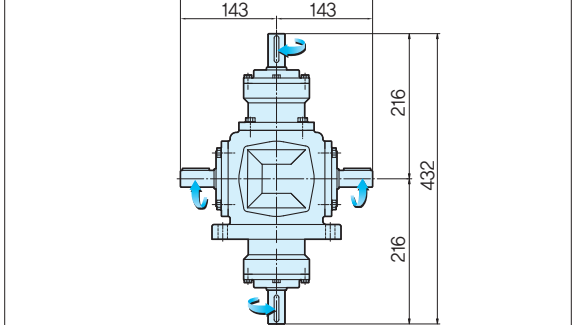
### I-I-LR

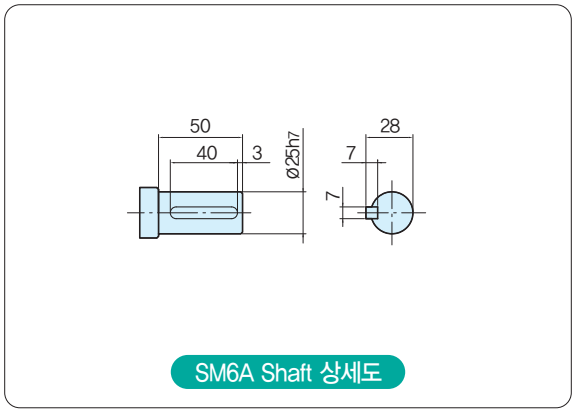



### I-I-UD




### U-D-LR

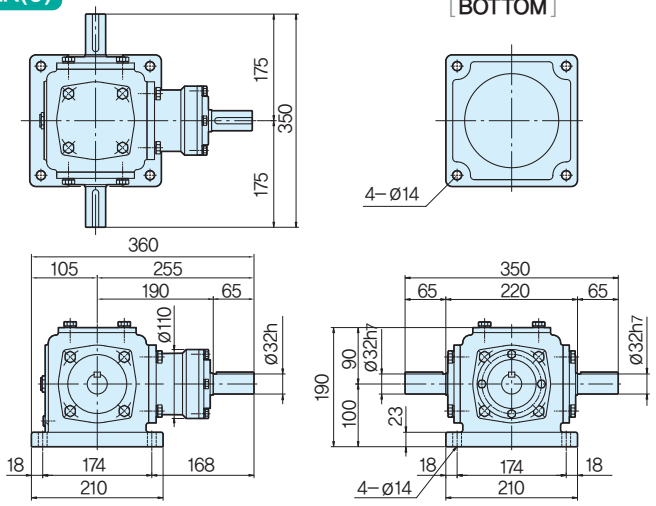


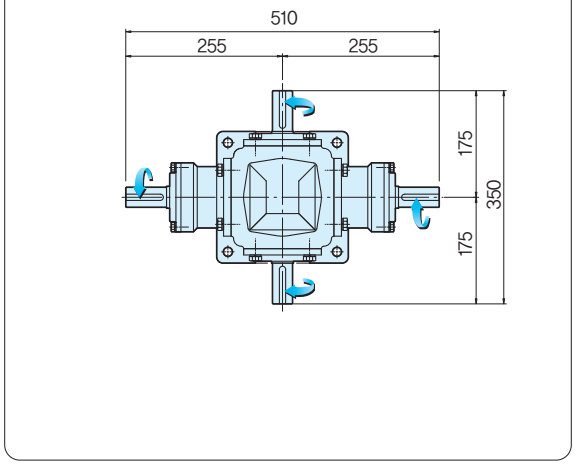

SM6A Shaft 상세도

## ■ 기본형 Fundamental form

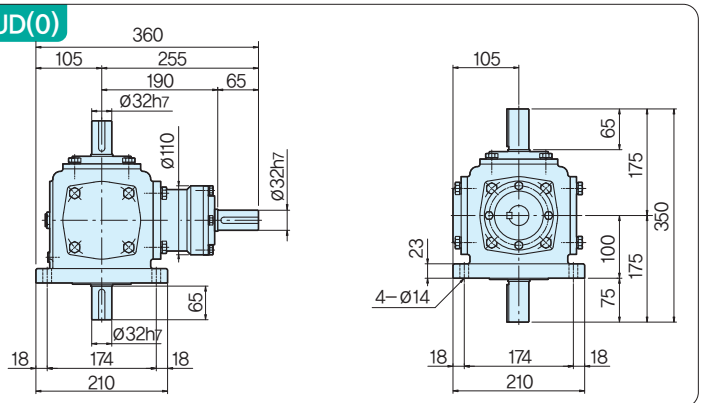
### I-LR(0)



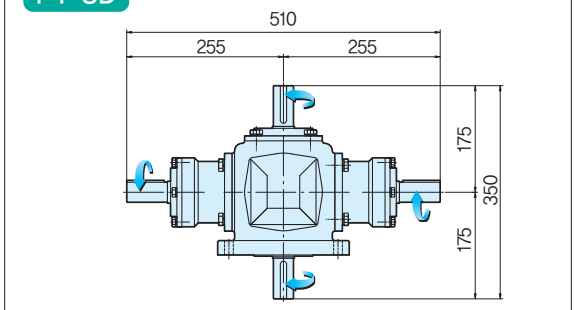

### I-I-LR



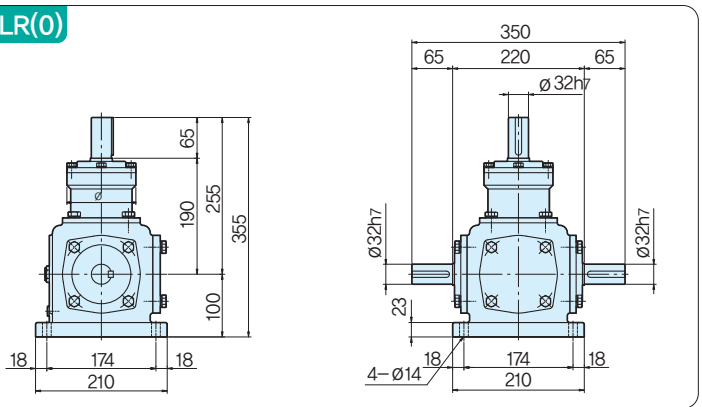

### I-UD(0)



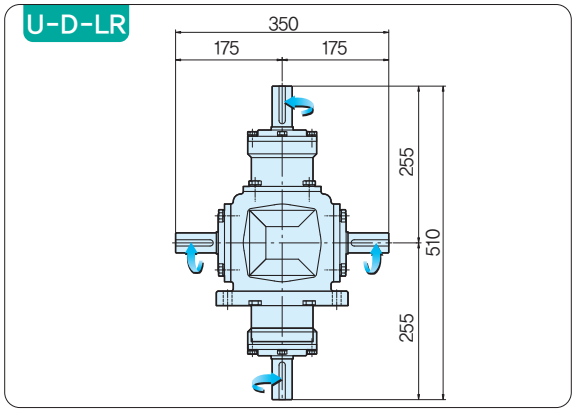

### I-I-UD



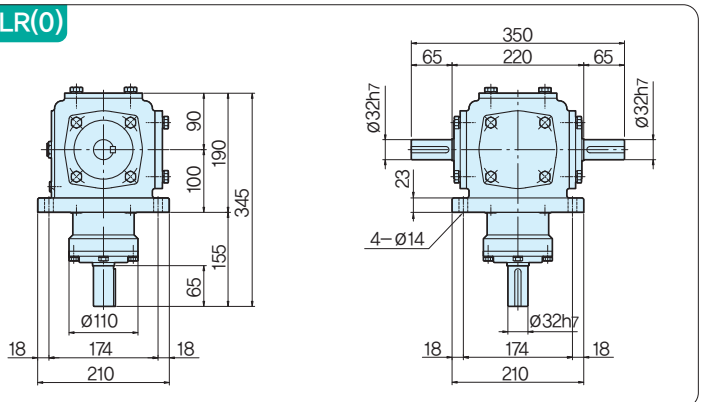

### U-LR(0)

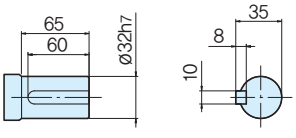



### U-D-LR




### D-LR(0)

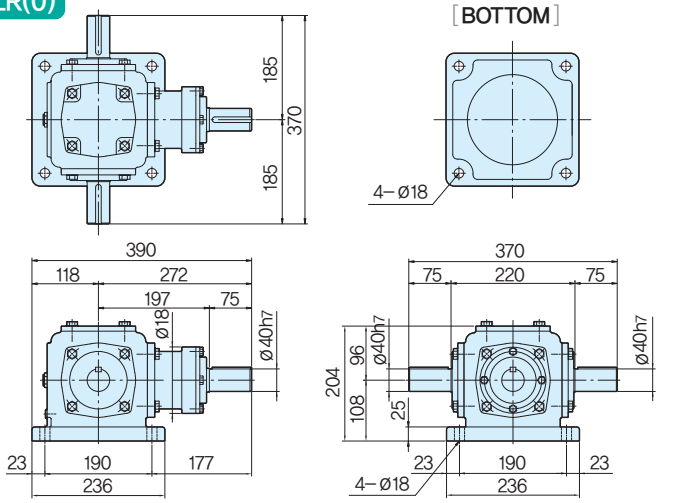


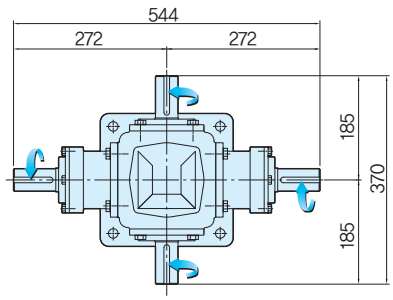

SM7A Shaft 상세도

## ■ 기본형 Fundamental form

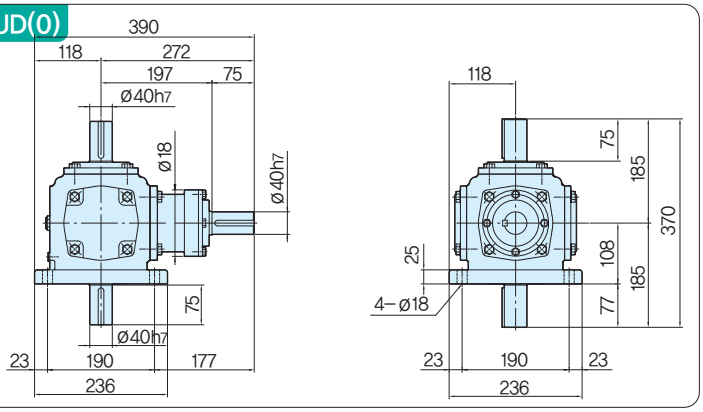
### I-LR(0)



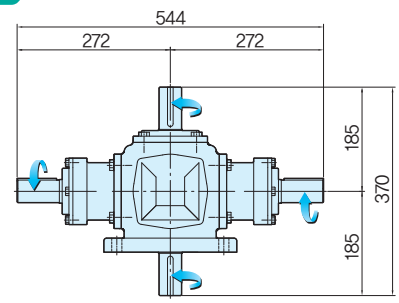

### I-I-LR



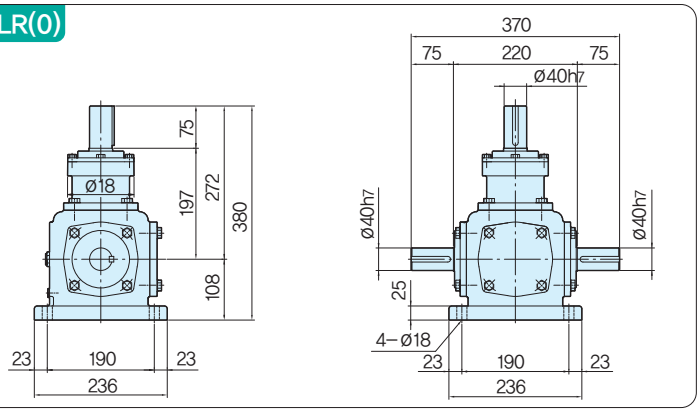

### I-UD(0)



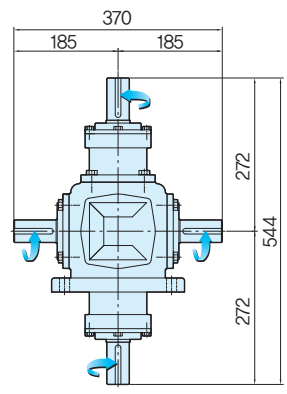

### I-I-UD



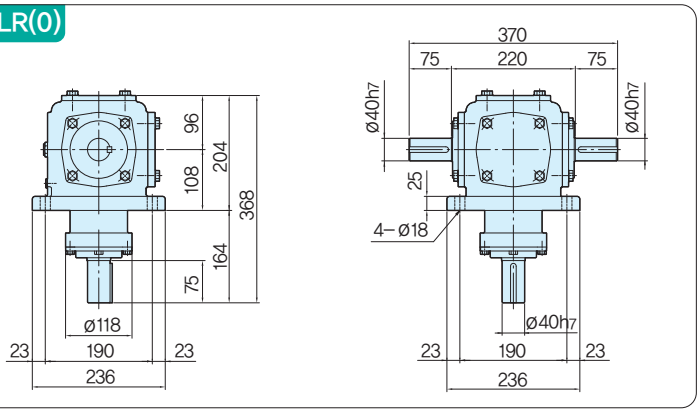

### U-LR(0)

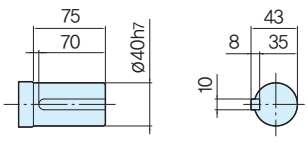



### U-D-LR




### D-LR(0)

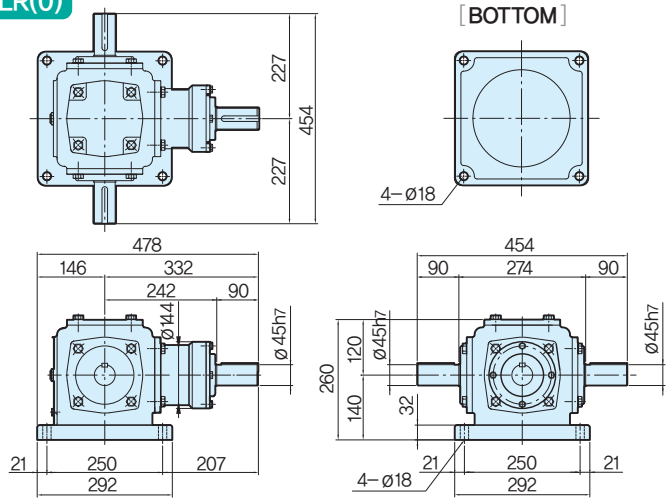


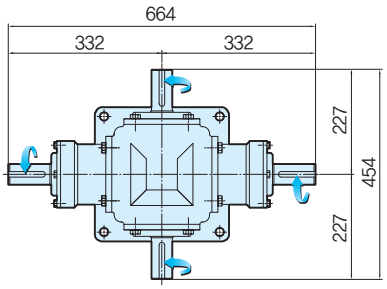

SM8A Shaft 상세도

## ■ 기본형 Fundamental form

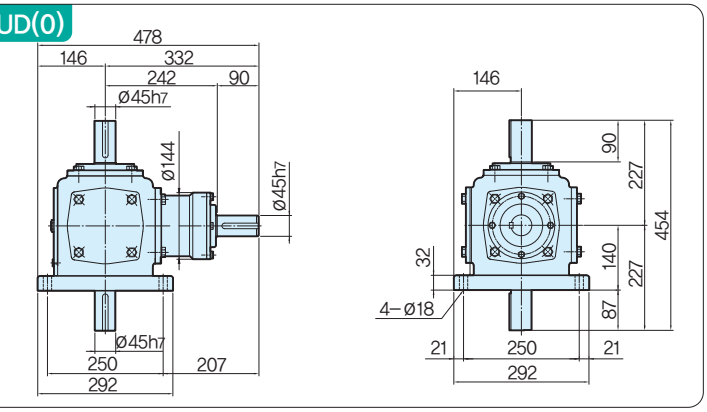
### I-LR(0)



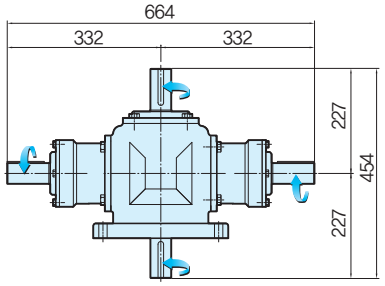

### I-I-LR



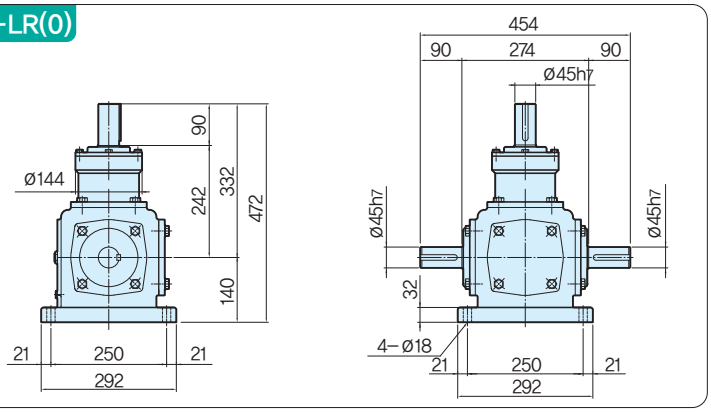

### I-UD(0)



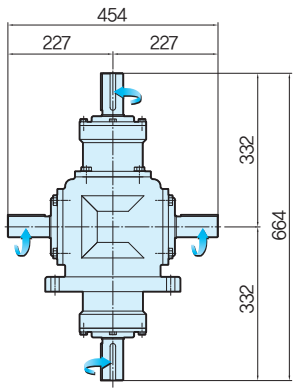

### I-I-UD



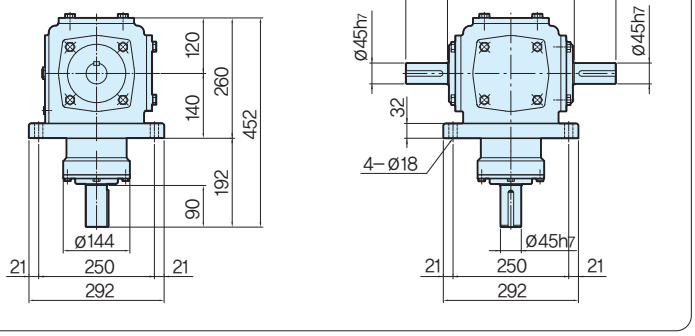

### U-LR(0)

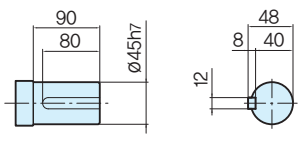



### U-D-LR




### D-LR(0)

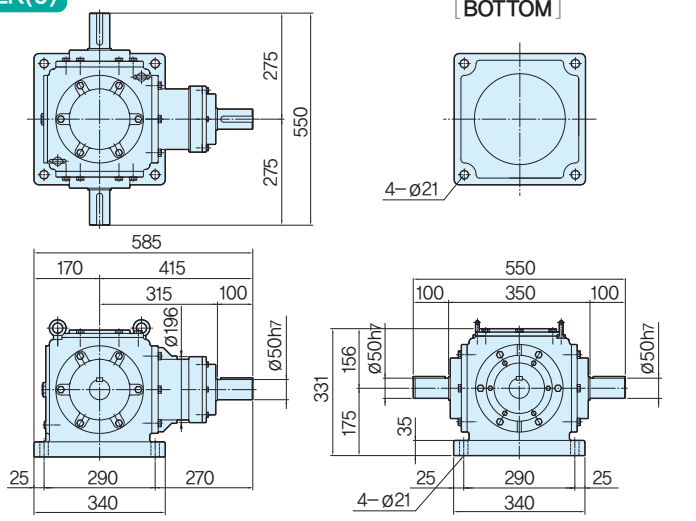


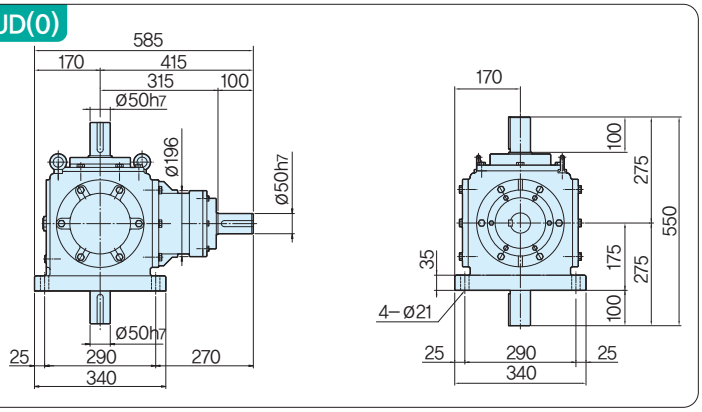

SM10A Shaft 상세도

## ■ 기본형 Fundamental form

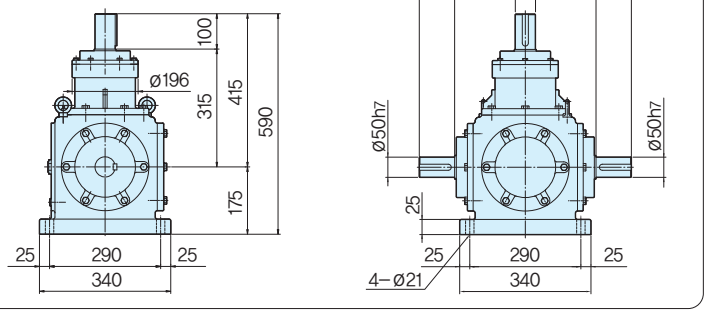
### I-LR(0)



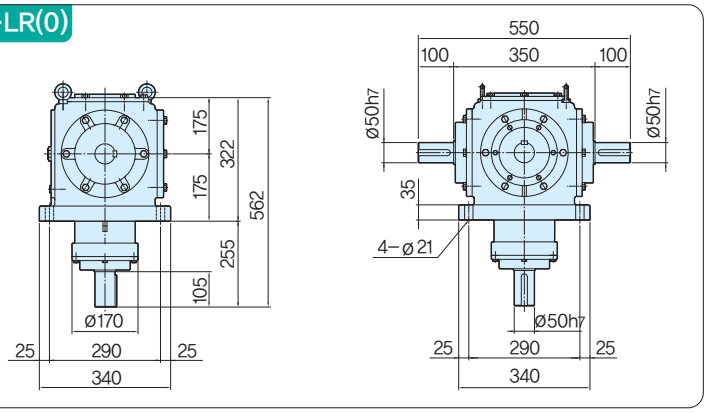

### I-UD(0)




### U-LR(0)

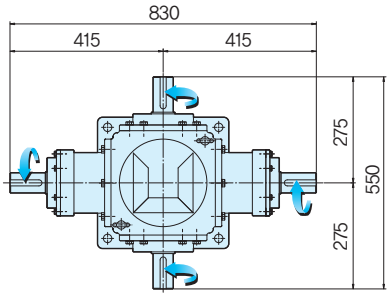



### D-LR(0)

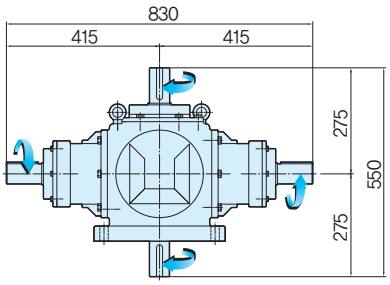



## ■ 역회전형(4축형) Opposite Directions

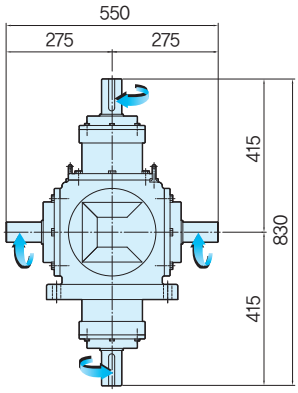
### I-I-LR

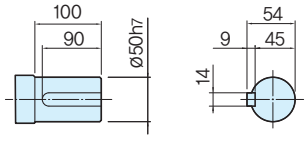



### I-I-UD




### U-D-LR

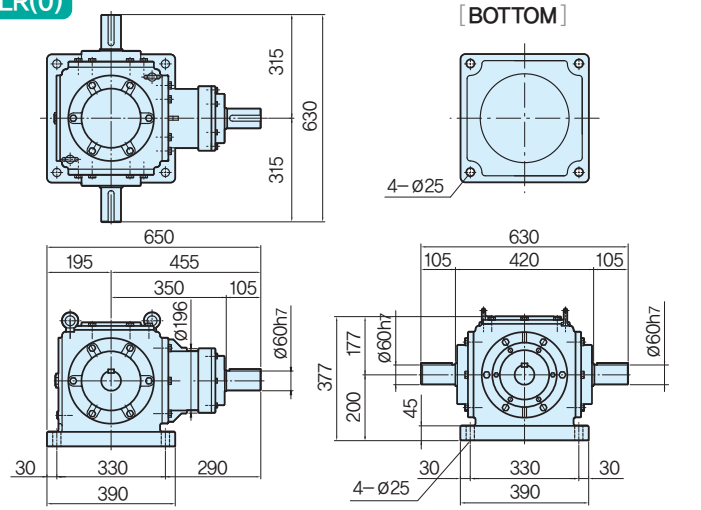


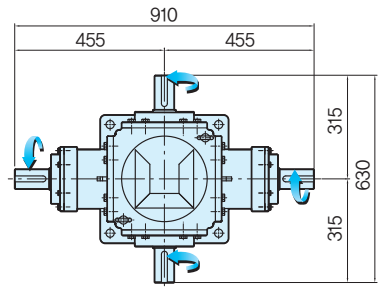

SM12A Shaft 상세도

## ■ 기본형 Fundamental form

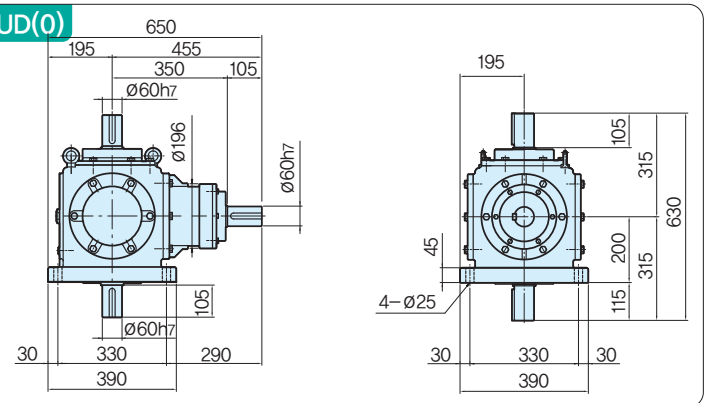
### I-LR(0)



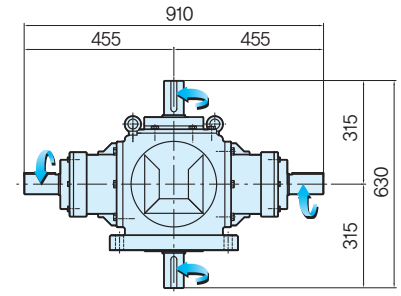

### I-I-LR



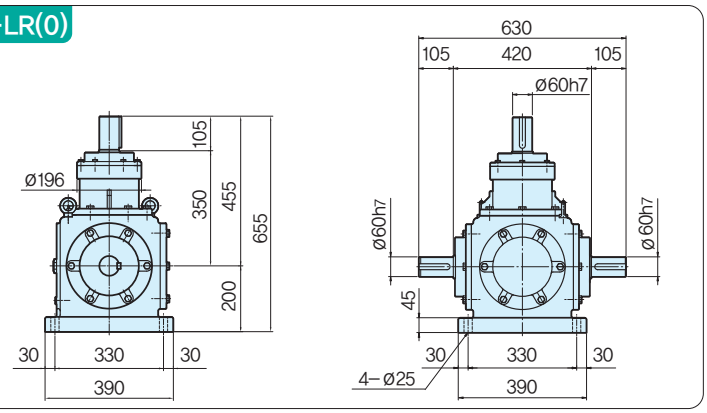

### I-UD(0)



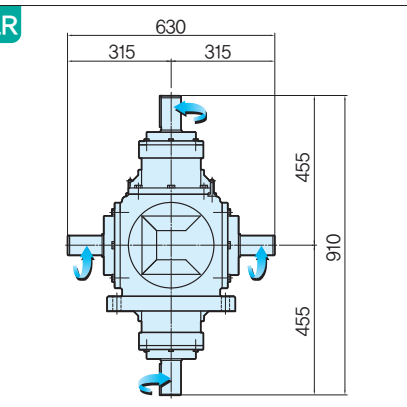

### I-I-UD



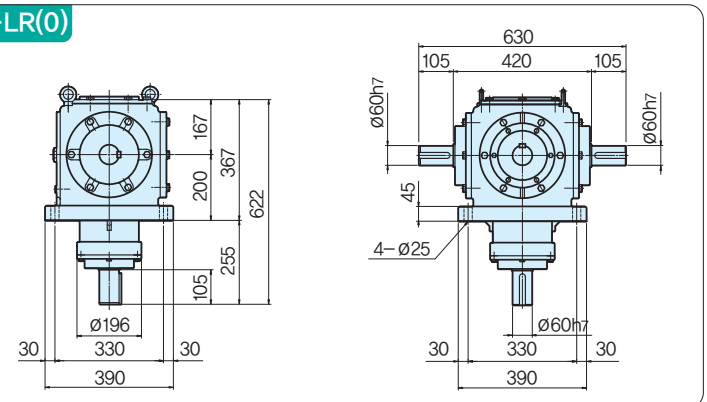

### U-LR(0)

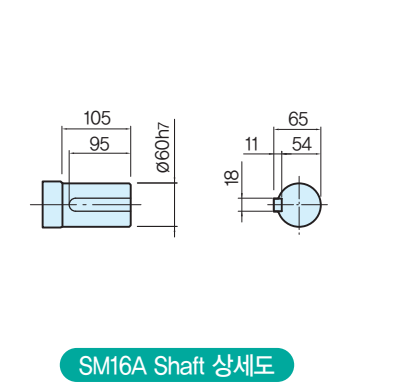



### U-D-LR




### D-LR(0)

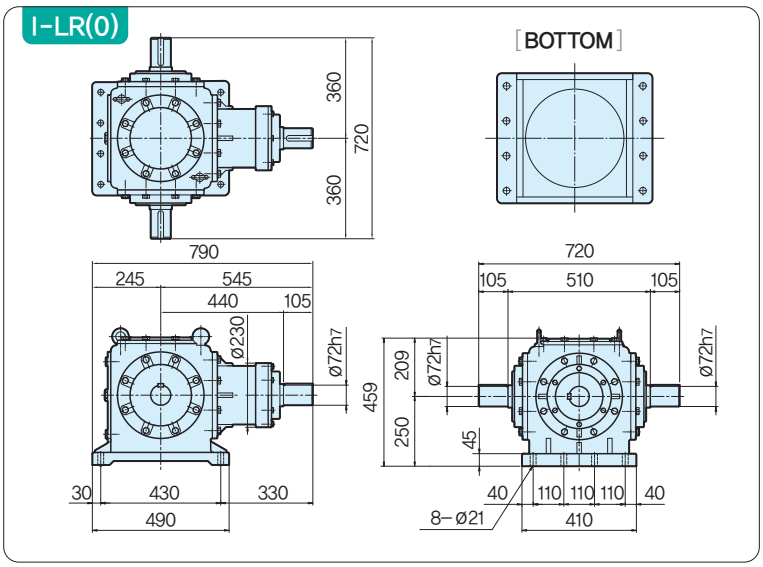


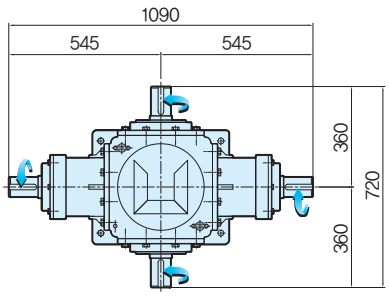

SM16A Shaft 상세도

## ■ 기본형 Fundamental form

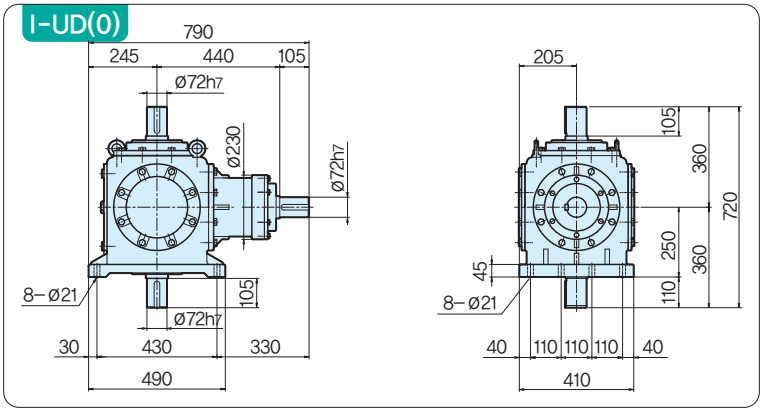
### I-LR(0)



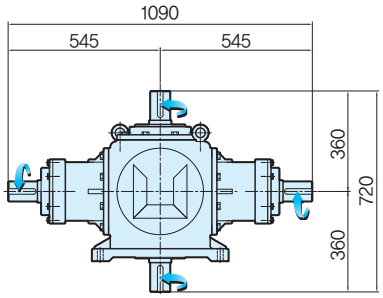

### I-I-LR



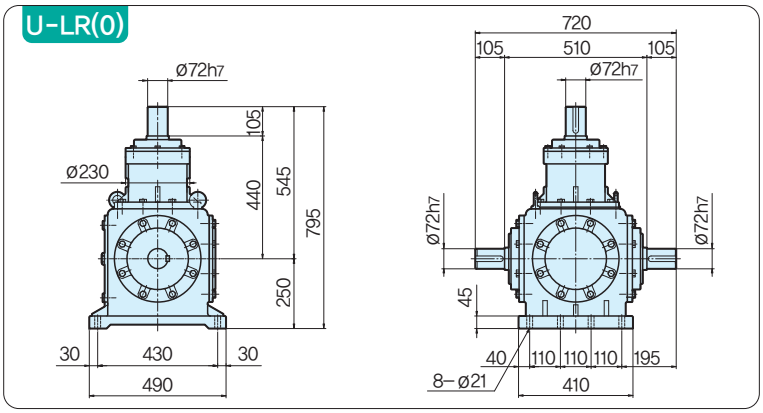

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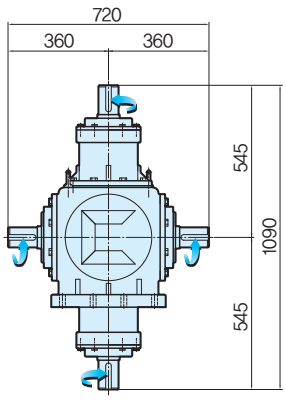

### I-I-UD



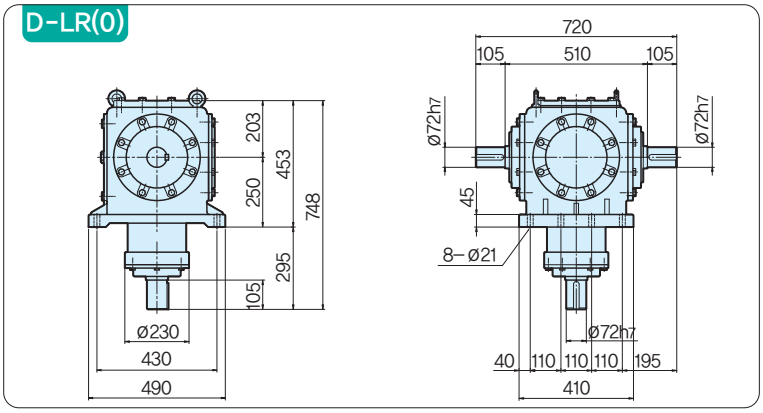

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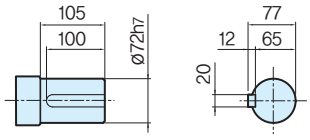



### U-D-LR




### D-LR(0)

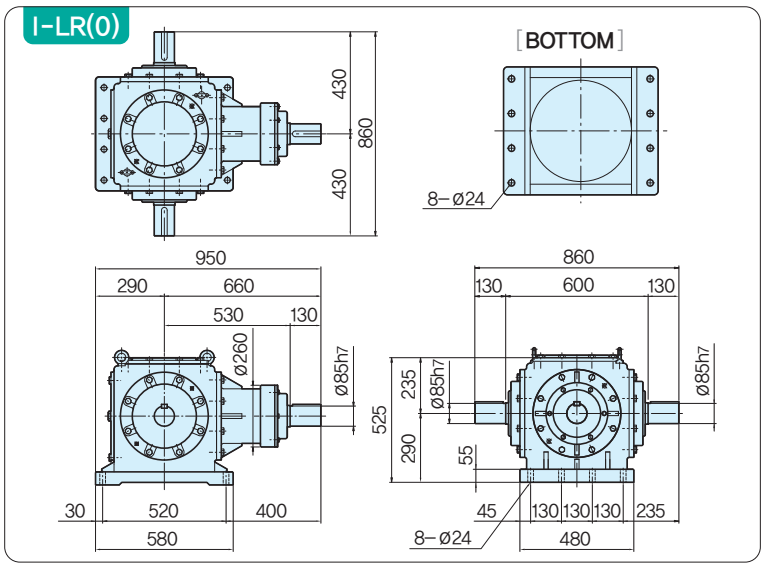


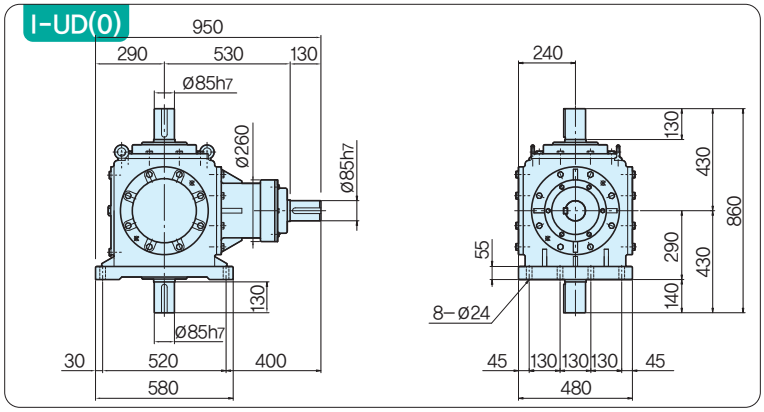

SM20A Shaft 상세도

## ■ 기본형 Fundamental form

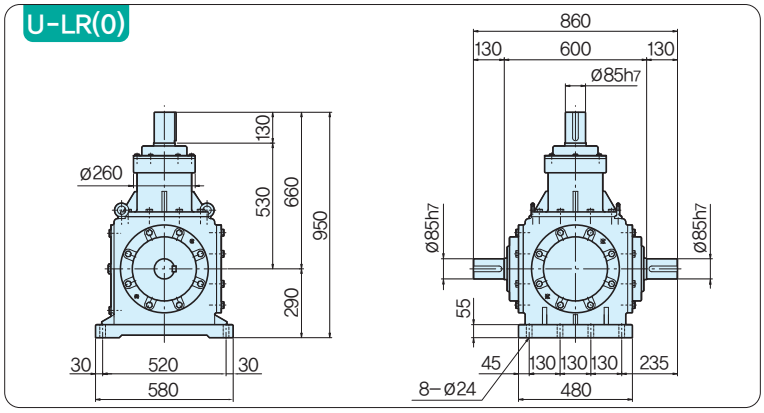
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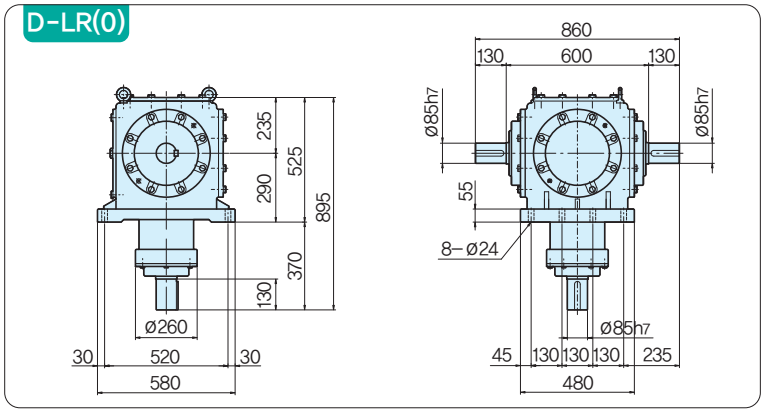

### I-UD(0)




### U-LR(0)

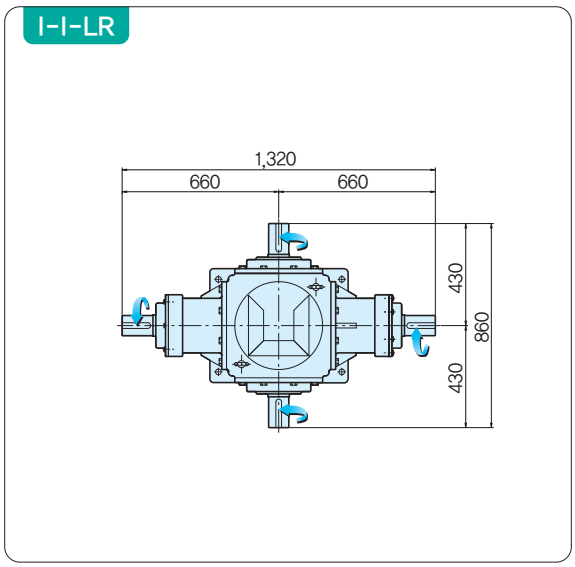



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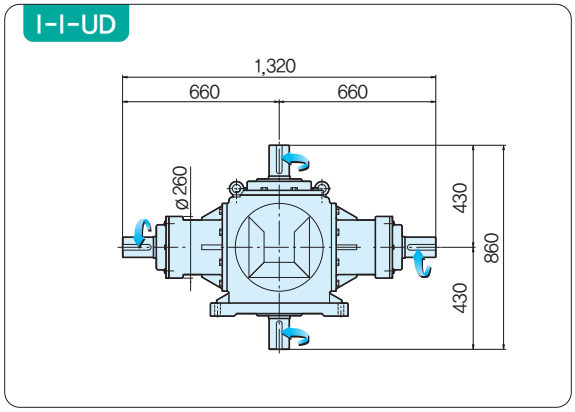



## ■ 역회전형(4축형) Opposite Directions

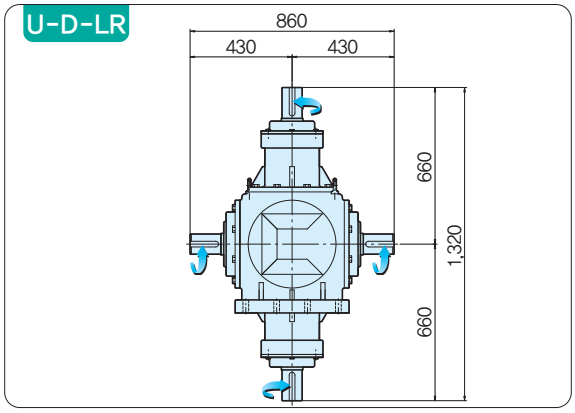
### I-I-LR

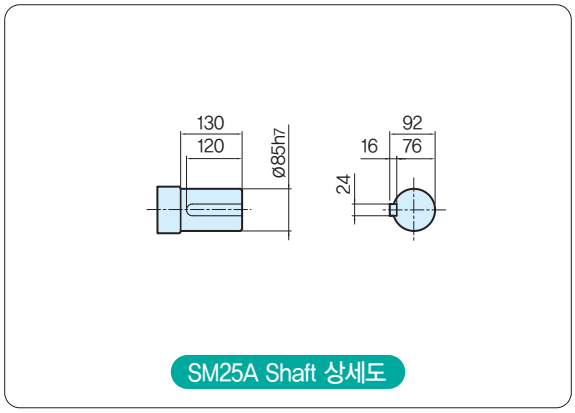



### I-I-UD




### U-D-LR



# 허용전달동력표

## ■ RATIO 1:1

| 형 번 \ 입력축회전수 | | 1750 | 1460 | 1150 | 870 | 580 | 400 | 300 | 200 | 150 | 100 | 50 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM1A | 입력축 KW | 2.14 | 1.80 | 1.44 | 1.10 | 0.748 | 0.523 | 0.396 | 0.266 | 0.201 | 0.136 | 0.068 | 0.014 |
| | 출력토르크(kgf.m) | 1.17 | 1.18 | 1.109 | 1.23 | 1.23 | 1.25 | 1.26 | 1.27 | 1.28 | 1.30 | 1.30 | 1.33 |
| | 입력축 O.H.L(kgf) | 22 | 27 | 33 | 41 | 56 | 65 | 71 | 80 | 100 | 100 | 100 | 100 |
| | 출력축 O.H.L(kgf) | 20 | 22 | 24 | 26 | 32 | 36 | 40 | 45 | 58 | 60 | 60 | 60 |
| SM2A | 입력축 kw | 3.59 | 3.02 | 2.42 | 1.85 | 1.26 | 0.88 | 0.67 | 0.45 | 0.35 | 0.26 | 0.13 | 0.026 |
| | 출력토르크(kgf.m) | 2.00 | 2.01 | 2.05 | 2.07 | 2.12 | 2.14 | 2.18 | 2.19 | 2.27 | 2.53 | 2.53 | 2.53 |
| SM4A | 입력축 kw | 5.61 | 4.98 | 4.19 | 3.46 | 2.45 | 1.72 | 1.30 | 0.880 | 0.665 | 0.448 | 0.227 | 0.046 |
| | 출력토르크(kgf.m) | 3.06 | 3.25 | 3.25 | 3.48 | 4.03 | 4.10 | 4.13 | 4.20 | 4.23 | 4.28 | 4.33 | 4.39 |
| | 입력축 O.H.L(kgf) | 80 | 85 | 90 | 98 | 110 | 140 | 155 | 195 | 195 | 195 | 195 | 195 |
| | 출력축 O.H.L(kgf) | 92 | 97 | 105 | 115 | 135 | 175 | 200 | 200 | 200 | 200 | 200 | 200 |
| SM6A | 입력축 kw | 15.4 | 13.5 | 11.5 | 9.46 | 7.11 | 5.19 | 3.94 | 2.67 | 2.02 | 1.36 | 0.693 | 0.142 |
| | 출력토르크(kgf.m) | 8.40 | 8.82 | 9.54 | 10.4 | 11.7 | 12.4 | 12.5 | 12.7 | 12.8 | 13.0 | 13.2 | 13.5 |
| | 입력축 O.H.L(kgf) | 185 | 195 | 210 | 225 | 255 | 325 | 350 | 350 | 350 | 350 | 350 | 350 |
| | 출력축 O.H.L(kgf) | 235 | 250 | 265 | 295 | 325 | 360 | 360 | 360 | 360 | 360 | 360 | 360 |
| SM7A | 입력축 kw | 24.6 | 22.2 | 18.3 | 15.2 | 11.4 | 8.36 | 6.36 | 4.30 | 3.26 | 2.20 | 1.12 | 0.229 |
| | 출력토르크(kgf.m) | 13.4 | 14.5 | 15.2 | 16.7 | 18.8 | 19.9 | 20.2 | 20.5 | 20.7 | 21.0 | 21.4 | 21.8 |
| | 입력축 O.H.L(kgf) | 220 | 250 | 280 | 305 | 345 | 410 | 450 | 520 | 520 | 520 | 520 | 520 |
| | 출력축 O.H.L(kgf) | 290 | 320 | 330 | 345 | 390 | 500 | 565 | 640 | 640 | 640 | 640 | 640 |
| SM8A | 입력축 kw | 47.1 | 39.9 | 32.0 | 24.7 | 16.9 | 12.2 | 9.52 | 6.35 | 4.92 | 3.49 | 1.84 | 0.386 |
| | 출력토르크(kgf.m) | 25.7 | 26.1 | 26.5 | 27.1 | 27.8 | 29.1 | 30.3 | 30.3 | 31.3 | 33.3 | 35.2 | 36.8 |
| | 입력축 O.H.L(kgf) | 315 | 330 | 355 | 385 | 435 | 495 | 535 | 805 | 860 | 860 | 860 | 860 |
| | 출력축 O.H.L(kgf) | 330 | 345 | 370 | 405 | 455 | 610 | 710 | 900 | 900 | 900 | 900 | 900 |
| SM10A | 입력축 kw | 67.3 | 58.9 | 50.1 | 41.0 | 30.5 | 21.5 | 16.4 | 11.1 | 8.46 | 5.72 | 2.91 | 0.599 |
| | 출력토르크(kgf.m) | 36.7 | 38.5 | 41.6 | 45.0 | 50.2 | 51.3 | 52.2 | 53.0 | 53.8 | 54.6 | 55.5 | 57.2 |
| | 입력축 O.H.L(kgf) | 405 | 425 | 455 | 495 | 560 | 640 | 685 | 875 | 1,020 | 1,020 | 1,020 | 1,020 |
| | 출력축 O.H.L(kgf) | 435 | 460 | 495 | 540 | 600 | 720 | 815 | 980 | 1,080 | 1,200 | 1,200 | 1,200 |
| SM12A | 입력축 kw | 91.9 | 80.9 | 68.7 | 56.5 | 42.9 | 33.2 | 26.7 | 18.2 | 13.8 | 9.35 | 4.77 | 0.983 |
| | 출력토르크(kgf.m) | 50.1 | 52.9 | 57.0 | 62.0 | 70.6 | 79.2 | 84.9 | 86.8 | 87.8 | 89.2 | 91.0 | 93.8 |
| | 입력축 O.H.L(kgf) | 495 | 520 | 560 | 600 | 685 | 790 | 840 | 945 | 1,060 | 1,160 | 1,210 | 1,210 |
| | 출력축 O.H.L(kgf) | 545 | 570 | 620 | 670 | 745 | 830 | 925 | 1,050 | 1,160 | 1,285 | 1,480 | 1,480 |
| SM16A | 입력축 kw | | 164 | 139 | 114 | 86.1 | 66.4 | 54.2 | 36.9 | 27.7 | 18.5 | 9.24 | 1.90 |
| | 출력토르크(kgf.m) | | 104 | 112 | 121 | 137 | 153 | 167 | 171 | 171 | 171 | 171 | 175 |
| | 입력축 O.H.L(kgf) | | 1,085 | 1,160 | 1,270 | 1,430 | 1,600 | 1,750 | 2,000 | 2,150 | 2,300 | 2,300 | 2,300 |
| | 출력축 O.H.L(kgf) | | 1,120 | 1,200 | 1,300 | 1,480 | 1,650 | 1,800 | 2,030 | 2,215 | 2,300 | 2,300 | 2,300 |
| SM20A | 입력축 kw | | | 212 | 175 | 131 | 101 | 81.6 | 62.4 | 51.0 | 34.4 | 17.2 | 3.50 |
| | 출력토르크(kgf.m) | | | 170 | 186 | 209 | 233 | 252 | 288 | 315 | 318 | 318 | 324 |
| | 입력축 O.H.L(kgf) | | | 1,570 | 1,700 | 1,920 | 2,150 | 2,390 | 2,650 | 2,890 | 2,900 | 2,900 | 2,900 |
| | 출력축 O.H.L(kgf) | | | 1,600 | 1,750 | 1,980 | 2,220 | 2,460 | 2,730 | 2,980 | 3,360 | 3,400 | 3,400 |
| SM25A | 입력축 kw | | | | 291 | 219 | 167 | 140 | 103 | 89.6 | 60.0 | 30.2 | 6.30 |
| | 출력토르크(kgf.m) | | | | 309 | 349 | 386 | 432 | 476 | 552 | 555 | 559 | 583 |
| | 입력축 O.H.L(kgf) | | | | 2,530 | 2,860 | 3,200 | 3,500 | 3,940 | 4,000 | 4,000 | 4,000 | 4,000 |
| | 출력축 O.H.L(kgf) | | | | 2,600 | 2,950 | 3,300 | 3,600 | 4,060 | 4,400 | 5,000 | 5,000 | 5,000 |

## ■ RATIO 2:1

| 형 번 \ 입력축회전수 | | 1750 | 1460 | 1150 | 870 | 580 | 400 | 300 | 200 | 150 | 100 | 50 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM4A20 | 입력축 kw | 3.97 | 3.34 | 2.67 | 2.04 | 1.38 | 0.968 | 0.732 | 0.493 | 0.372 | 0.250 | 0.126 | 0.026 |
| | 입력토르크(kgf.m) | 2.21 | 2.23 | 2.26 | 2.28 | 2.31 | 2.35 | 2.37 | 2.40 | 2.41 | 2.43 | 2.45 | 2.53 |
| | 출력토르크(kgf.m) | 4.33 | 4.37 | 4.43 | 4.47 | 4.53 | 4.60 | 4.64 | 4.70 | 4.72 | 4.76 | 4.80 | 4.95 |
| | 입력축 O.H.L(kgf) | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| | 출력축 O.H.L(kgf) | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| SM6A20 | 입력축 kw | 9.50 | 8.01 | 6.40 | 4.91 | 3.34 | 2.34 | 1.77 | 2.19 | 0.607 | 0.607 | 0.307 | 0.062 |
| | 입력토르크(kgf.m) | 5.28 | 5.34 | 5.42 | 5.49 | 5.61 | 5.70 | 5.74 | 5.79 | 5.85 | 5.91 | 5.98 | 6.04 |
| | 출력토르크(kgf.m) | 10.3 | 10.4 | 10.6 | 10.7 | 11.0 | 11.1 | 11.2 | 11.3 | 11.4 | 11.6 | 11.7 | 11.8 |
| | 입력축 O.H.L(kgf) | 225 | 260 | 310 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| | 출력축 O.H.L(kgf) | 280 | 290 | 315 | 340 | 360 | 360 | 360 | 360 | 360 | 360 | 350 | 360 |
| SM7A20 | 입력축 kw | 12.7 | 10.7 | 8.56 | 6.57 | 4.47 | 3.13 | 2.37 | 1.60 | 1.21 | 0.815 | 0.413 | 0.084 |
| | 입력토르크(kgf.m) | 7.07 | 7.14 | 7.25 | 7.35 | 7.50 | 7.62 | 7.69 | 7.79 | 7.85 | 7.94 | 8.04 | 8.18 |
| | 출력토르크(kgf.m) | 13.8 | 14.0 | 14.2 | 14.4 | 14.7 | 14.9 | 15.1 | 15.2 | 15.4 | 15.5 | 15.7 | 16.0 |
| | 입력축 O.H.L(kgf) | 310 | 350 | 415 | 485 | 520 | 520 | 520 | 520 | 520 | 520 | 520 | 520 |
| | 출력축 O.H.L(kgf) | 510 | 550 | 610 | 620 | 630 | 640 | 640 | 640 | 640 | 340 | 640 | 640 |
| SM8A20 | 입력축 kw | 16.9 | 14.1 | 11.3 | 8.70 | 5.92 | 4.15 | 3.15 | 2.13 | 1.61 | 1.08 | 0.55 | 0.112 |
| | 입력토르크(kgf.m) | 9.42 | 9.42 | 9.57 | 9.74 | 9.94 | 10.1 | 10.2 | 10.3 | 10.4 | 10.5 | 10.7 | 10.9 |
| | 출력토르크(kgf.m) | 18.4 | 18.4 | 18.7 | 19.1 | 19.5 | 19.8 | 20.0 | 20.2 | 20.4 | 20.6 | 21.0 | 21.3 |
| | 입력축 O.H.L(kgf) | 390 | 445 | 520 | 620 | 780 | 860 | 860 | 860 | 860 | 860 | 860 | 860 |
| | 출력축 O.H.L(kgf) | 740 | 815 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 |
| SM10A20 | 입력축 kw | 28.2 | 23.9 | 19.1 | 14.7 | 10.0 | 7.04 | 5.34 | 3.61 | 2.73 | 1.84 | 0.934 | 0.191 |
| | 입력토르크(kgf.m) | 15.7 | 15.9 | 16.1 | 16.4 | 16.8 | 17.1 | 17.3 | 17.6 | 17.7 | 17.9 | 18.2 | 18.6 |
| | 출력토르크(kgf.m) | 30.8 | 31.1 | 31.5 | 32.1 | 32.9 | 33.5 | 33.9 | 34.5 | 34.7 | 35.1 | 35.6 | 36.4 |
| | 입력축 O.H.L(kgf) | 455 | 530 | 630 | 760 | 975 | 1,020 | 1,020 | 1,020 | 1,020 | 1,020 | 1,020 | 1,020 |
| | 출력축 O.H.L(kgf) | 840 | 940 | 1,070 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 |
| SM12A20 | 입력축 kw | 48.3 | 40.3 | 31.8 | 24.0 | 16.3 | 11.5 | 8.72 | 5.90 | 4.47 | 3.01 | 1.53 | 0.313 |
| | 입력토르크(kgf.m) | 26.9 | 26.9 | 26.9 | 26.9 | 27.3 | 28.0 | 28.3 | 28.7 | 29.0 | 29.3 | 29.8 | 30.5 |
| | 출력토르크(kgf.m) | 52.7 | 52.7 | 52.7 | 52.7 | 53.5 | 54.9 | 55.4 | 56.2 | 56.8 | 57.4 | 58.4 | 59.8 |
| | 입력축 O.H.L(kgf) | 520 | 610 | 740 | 905 | 1,170 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 |
| | 출력축 O.H.L(kgf) | 940 | 1,070 | 1,240 | 1,480 | 1,480 | 1,480 | 1,480 | 1,480 | 1,480 | 1,480 | 1,480 | 1,480 |
| SM16A20 | 입력축 kw | 87.7 | 74.3 | 59.6 | 46.0 | 31.5 | 22.2 | 16.8 | 11.4 | 8.65 | 5.84 | 2.97 | 0.608 |
| | 입력토르크(kgf.m) | 48.8 | 49.5 | 50.4 | 51.5 | 52.9 | 54.0 | 54.5 | 55.5 | 56.1 | 56.9 | 57.8 | 59.2 |
| | 출력토르크(kgf.m) | 92.7 | 94.0 | 95.7 | 97.8 | 100 | 102 | 103 | 105 | 106 | 108 | 110 | 112 |
| | 입력축 O.H.L(kgf) | 555 | 610 | 655 | 710 | 800 | 900 | 980 | 1,105 | 1,210 | 1,360 | 1,680 | 2,300 |
| | 출력축 O.H.L(kgf) | 1,055 | 1,240 | 1,355 | 1,450 | 1,640 | 1,830 | 2,000 | 2,260 | 2,300 | 2,300 | 2,300 | 2,300 |
| SM20A20 | 입력축 kw | | 127 | 102 | 79.0 | 54.2 | 38.2 | 29.1 | 19.7 | 15.0 | 10.1 | 5.16 | 1.06 |
| | 입력토르크(kgf.m) | | 84.7 | 86.4 | 88.4 | 91.0 | 93.0 | 94.5 | 95.9 | 97.4 | 98.4 | 100 | 103 |
| | 출력토르크(kgf.m) | | 161 | 164 | 168 | 173 | 176 | 179 | 182 | 185 | 187 | 190 | 196 |
| | 입력축 O.H.L(kgf) | | 785 | 895 | 970 | 1,100 | 1,225 | 1,340 | 1,510 | 1,650 | 1,860 | 2,290 | 2,900 |
| | 출력축 O.H.L(kgf) | | 1,490 | 1830 | 1,985 | 2,245 | 2,510 | 2,790 | 3,090 | 3,370 | 3,400 | 3,400 | 3,400 |
| SM25A20 | 입력축 kw | | | 200 | 155 | 107 | 75.5 | 57.5 | 39.2 | 29.7 | 20.1 | 10.3 | 2.11 |
| | 입력토르크(kgf.m) | | | 169 | 173 | 179 | 184 | 187 | 191 | 193 | 196 | 200 | 205 |
| | 출력토르크(kgf.m) | | | 321 | 329 | 340 | 349 | 355 | 363 | 266 | 372 | 380 | 390 |
| | 입력축 O.H.L(kgf) | | | 1,325 | 1,385 | 1,600 | 1,790 | 1,955 | 2,210 | 2,410 | 2,720 | 3,345 | 4,000 |
| | 출력축 O.H.L(kgf) | | | 2,515 | 3,000 | 3,390 | 3,790 | 4,130 | 4,670 | 5,000 | 5,000 | 5,000 | 5,000 |

# 허용전달동력표

## ■ RATIO 1.5:1

| 형 번 \ 입력축회전수 | | 1,750 | 1,460 | 1,150 | 870 | 580 | 400 | 300 | 200 | 150 | 100 | 50 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM6A15 | 입력축 KW | 13.6 | 12.1 | 9.99 | 7.68 | 5.23 | 3.67 | 2.78 | 1.88 | 1.42 | 0.957 | 0.485 | 0.099 |
| | 입력토르크(kgf.m) | 7.60 | 8.10 | 8.46 | 8.60 | 8.78 | 8.93 | 9.02 | 9.15 | 9.22 | 9.32 | 9.45 | 9.64 |
| | 출력토르크(kgf.m) | 11.2 | 11.9 | 12.4 | 12.6 | 12.9 | 13.1 | 13.2 | 13.4 | 13.5 | 13.7 | 13.9 | 14.2 |
| SM7A15 | 입력축 KW | 17.4 | 15 | 12 | 9.3 | 6.32 | 4.41 | 3.35 | 2.28 | 1.82 | 1.16 | 0.66 | 0.12 |
| | 입력토르크(kgf.m) | 9.66 | 10.06 | 10.20 | 10.40 | 10.61 | 10.74 | 10.88 | 11.08 | 11.22 | 11.29 | 11.56 | 11.70 |
| | 출력토르크(kgf.m) | 14.20 | 14.80 | 15.00 | 15.30 | 15.60 | 15.80 | 16.00 | 16.30 | 16.50 | 16.60 | 17.00 | 17.20 |
| SM8A15 | 입력축 KW | 22.9 | 19.3 | 15.5 | 11.9 | 8.14 | 5.71 | 4.34 | 2.93 | 2.22 | 1.50 | 0.759 | 0.155 |
| | 입력토르크(kgf.m) | 12.7 | 12.9 | 13.1 | 13.3 | 13.7 | 13.9 | 14.1 | 14.2 | 14.4 | 14.6 | 14.8 | 15.1 |
| | 출력토르크(kgf.m) | 18.6 | 18.9 | 19.2 | 19.5 | 20.1 | 20.4 | 20.7 | 20.8 | 21.1 | 21.4 | 21.7 | 22.2 |
| SM10A15 | 입력축 KW | 46.0 | 39.0 | 31.2 | 24.1 | 16.4 | 11.6 | 8.79 | 5.95 | 4.51 | 3.04 | 1.55 | 0.316 |
| | 입력토르크(kgf.m) | 25.6 | 26.0 | 26.4 | 27.0 | 27.5 | 28.2 | 28.5 | 29.0 | 29.3 | 29.6 | 30.2 | 30.8 |
| | 출력토르크(kgf.m) | 37.6 | 38.2 | 38.8 | 39.7 | 40.4 | 41.4 | 41.9 | 42.6 | 43.0 | 43.5 | 44.4 | 45.2 |
| SM12A15 | 입력축 KW | 65.9 | 58.7 | 49.2 | 40.6 | 28.9 | 20.3 | 15.5 | 10.5 | 7.95 | 5.37 | 2.73 | 0.56 |
| | 입력토르크(kgf.m) | 36.7 | 39.2 | 41.7 | 45.5 | 48.5 | 49.4 | 50.3 | 51.1 | 51.6 | 52.3 | 53.2 | 54.5 |
| | 출력토르크(kgf.m) | 53.9 | 57.6 | 61.3 | 66.9 | 71.3 | 72.6 | 73.9 | 75.1 | 75.8 | 76.9 | 78.2 | 80.1 |

## ■ RATIO 2.5:1

| 형 번 \ 입력축회전수 | | 1,750 | 1,460 | 1,150 | 870 | 580 | 400 | 300 | 200 | 150 | 100 | 50 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM6A25 | 입력축 KW | 7.13 | 6.01 | 4.79 | 3.68 | 2.49 | 1.74 | 1.32 | 0.899 | 0.671 | 0.451 | 0.228 | 0.046 |
| | 입력토르크(kgf.m) | 3.97 | 4.01 | 4.05 | 4.12 | 4.18 | 4.23 | 4.28 | 4.33 | 4.35 | 4.39 | 4.44 | 4.48 |
| | 출력토르크(kgf.m) | 9.72 | 9.82 | 9.92 | 10.1 | 10.2 | 10.3 | 10.5 | 10.6 | 10.6 | 10.7 | 10.8 | 11.0 |
| SM7A25 | 입력축 KW | 8.36 | 6.99 | 5.64 | 4.3 | 2.92 | 2.05 | 1.55 | 1.05 | 0.78 | 0.52 | 0.26 | 0.05 |
| | 입력토르크(kgf.m) | 4.65 | 4.69 | 4.78 | 4.82 | 4.90 | 4.98 | 5.02 | 5.10 | 5.12 | 5.14 | 5.20 | 5.27 |
| | 출력토르크(kgf.m) | 11.40 | 11.50 | 11.70 | 11.80 | 12.00 | 12.20 | 12.30 | 12.50 | 12.55 | 12.60 | 12.75 | 12.90 |
| SM8A25 | 입력축 KW | 13.5 | 11.5 | 9.14 | 7.02 | 4.77 | 3.34 | 2.53 | 1.71 | 1.29 | 0.867 | 0.439 | 0.089 |
| | 입력토르크(kgf.m) | 7.51 | 7.67 | 7.74 | 7.86 | 8.01 | 8.13 | 8.21 | 8.33 | 8.37 | 8.44 | 8.55 | 8.66 |
| | 출력토르크(kgf.m) | 18.4 | 18.8 | 18.9 | 19.2 | 19.6 | 19.9 | 20.1 | 20.4 | 20.5 | 20.7 | 20.9 | 21.2 |
| SM10A25 | 입력축 KW | 21.7 | 18.3 | 14.7 | 11.3 | 7.67 | 5.37 | 4.07 | 2.75 | 2.08 | 1.40 | 0.709 | 0.144 |
| | 입력토르크(kgf.m) | 12.1 | 12.2 | 12.4 | 12.6 | 12.9 | 13.1 | 13.2 | 13.4 | 13.5 | 13.6 | 13.8 | 14.0 |
| | 출력토르크(kgf.m) | 29.6 | 29.9 | 30.4 | 30.8 | 31.6 | 32.1 | 32.3 | 32.8 | 33.1 | 33.3 | 33.8 | 34.3 |
| SM12A25 | 입력축 KW | 37.4 | 31.3 | 25.3 | 19.5 | 13.3 | 9.33 | 7.08 | 4.78 | 3.62 | 2.44 | 1.24 | 0.252 |
| | 입력토르크(kgf.m) | 20.8 | 21.1 | 21.4 | 21.8 | 22.3 | 22.7 | 23.0 | 23.3 | 23.5 | 23.7 | 24.1 | 24.5 |
| | 출력토르크(kgf.m) | 51.0 | 51.7 | 52.4 | 53.4 | 54.6 | 55.6 | 56.3 | 57.1 | 57.6 | 58.0 | 59.0 | 60.0 |

## ■ RATIO 3:1

| 형 번 \ 입력축회전수 | | 1,750 | 1,460 | 1,150 | 870 | 580 | 400 | 300 | 200 | 150 | 100 | 50 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM6A30 | 입력축 KW | 5.79 | 4.88 | 3.89 | 2.98 | 2.02 | 1.41 | 1.07 | 0.718 | 0.542 | 0.364 | 0.184 | 0.037 |
| | 입력토르크(kgf.m) | 3.22 | 3.25 | 3.29 | 3.33 | 3.39 | 3.43 | 3.47 | 3.49 | 3.52 | 3.54 | 3.58 | 3.60 |
| | 출력토르크(kgf.m) | 9.46 | 9.55 | 9.67 | 9.79 | 9.96 | 10.1 | 10.2 | 10.2 | 10.3 | 10.4 | 10.5 | 10.6 |
| SM7A30 | 입력축 KW | 6.48 | 5.42 | 4.34 | 3.34 | 2.25 | 1.58 | 1.18 | 0.8 | 0.62 | 0.41 | 0.2 | 0.04 |
| | 입력토르크(kgf.m) | 3.63 | 3.66 | 3.70 | 3.77 | 3.80 | 3.87 | 3.87 | 3.94 | 3.97 | 4.01 | 4.08 | 4.11 |
| | 출력토르크(kgf.m) | 10.60 | 10.70 | 10.80 | 11.00 | 11.10 | 11.30 | 11.30 | 11.50 | 11.60 | 11.70 | 11.90 | 12.00 |
| SM8A30 | 입력축 KW | 9.78 | 8.25 | 6.58 | 5.05 | 3.43 | 2.40 | 1.81 | 1.22 | 0.923 | 0.621 | 0.314 | 0.064 |
| | 입력토르크(kgf.m) | 5.44 | 5.50 | 5.57 | 5.65 | 5.76 | 5.84 | 5.87 | 5.94 | 5.99 | 6.04 | 6.11 | 6.23 |
| | 출력토르크(kgf.m) | 16.0 | 16.2 | 16.3 | 16.6 | 16.9 | 17.1 | 17.2 | 17.4 | 17.6 | 17.7 | 17.9 | 18.3 |
| SM10A30 | 입력축 KW | 16.8 | 14.1 | 11.3 | 8.68 | 5.90 | 4.13 | 3.12 | 2.11 | 1.59 | 1.07 | 0.95 | 0.110 |
| | 입력토르크(kgf.m) | 9.35 | 9.40 | 9.57 | 9.72 | 9.91 | 10.0 | 10.1 | 10.2 | 10.3 | 10.4 | 10.5 | 10.7 |
| | 출력토르크(kgf.m) | 27.5 | 17.6 | 28.1 | 28.5 | 29.1 | 29.4 | 29.7 | 30.0 | 30.3 | 30.6 | 30.8 | 31.4 |
| SM12A30 | 입력축 KW | 28.2 | 23.8 | 17.1 | 14.6 | 9.97 | 6.99 | 5.30 | 3.58 | 2.70 | 1.82 | 0.922 | 0.188 |
| | 입력토르크(kgf.m) | 15.7 | 15.9 | 16.1 | 16.3 | 17.7 | 17.0 | 17.2 | 17.4 | 17.5 | 17.7 | 17.9 | 18.3 |
| | 출력토르크(kgf.m) | 46.1 | 46.7 | 47.3 | 47.9 | 49.1 | 50.0 | 50.5 | 51.1 | 51.4 | 52.0 | 52.6 | 53.8 |

# 제품설치작업 MOUNTING

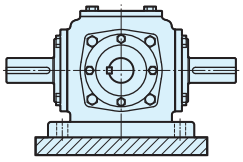
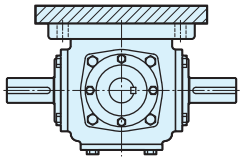
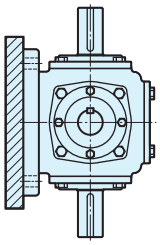
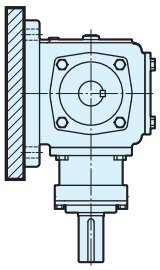
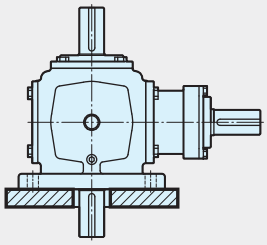
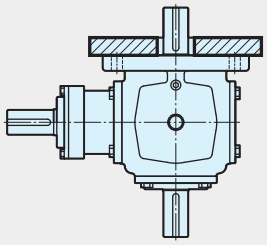
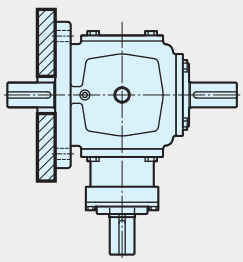
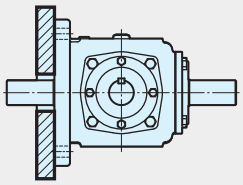
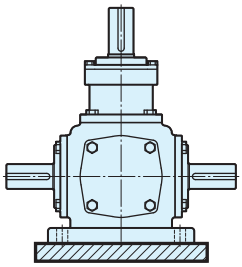
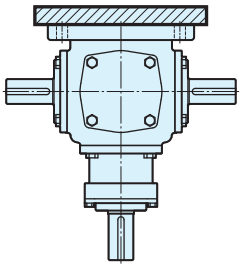
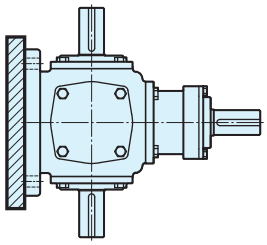
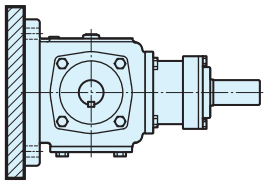
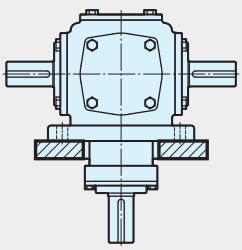
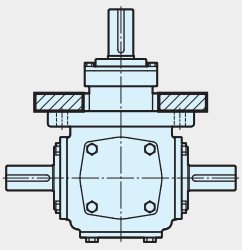
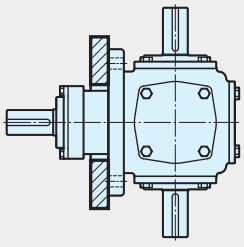
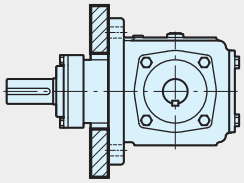
## ■ 설치 및 시운전

기어박스를 다른 동력전달기구와 연결 사용할 경우 양축의 중심선이 일치하도록 사용함으로써 축의 편하중으로 인한 내부 부품의 수명저하를 방지할 수 있습니다.

## ■ INSTALLTION

AFTER ENOUGH CONSIDERATION OF THE TRANSMISSION ELEMENTS AND METHODS GEAR BOX TO DRIVEN MACHINE, CONNECT THE FIRMLY ON EXACT POSITION THROUGH THE MEASUREMENTS FOR THE PURPOSE OF MAINTAINING ESSENTIAL FUNCTION

## ■ 여러가지 설치 방법 VARIOUS CONVENIENT MOUNTING

| 적용규격 \ 설치방법 | 수평설치 | 천정설치 | 측면설치 | |
|---|---|---|---|---|
| I-LR(0)<br>I-R(0)<br>I-L(0) |  |  |  |  |
| I-UD(0)<br>I-U(0)<br>I-D(0) |  |  |  |  |
| U-LR(0)<br>U-R(0)<br>U-L(0) |  |  |  |  |
| D-LR(0)<br>D-R(0)<br>D-L(0) |  |  |  |  |

# 취급 및 보전 CAUTIONS

## ■ 오일교환 및 점검

GEAR BOX의 윤활은 OIL bath방식이며 처음 작동 후 2주일 또는 100~200시간 사용 후 새로 교환 해줌으로써 GEAR 및 BEARING의 성능과 수명 보전에 도움이 됩니다. 이후에는 사용조건에 따라 6~12개월 주기로 교환하며 1일 12시간 이상 작동시 3~6개월 주기로 교환합니다.

## ■ LUBRICATION AND MAINTENANCE

LUBRICATED BY OIL BATH DESIDES ATTATCHED ENABLES SOOTH OIL CIRCULATION LUBRICATION OIL MUST BE REPLACED AFTER FIRST 100~200HOURS RUNNING REGARDLESS OF OIL QUANTITY AND OIL PURTY, HEREAFTER REPLACE OIL EVERY 6~12 MONTHS ACCORDING TO RUNNING TIME OR OIL CONDITON

## ■ 공업용 기어오일 규격표 INDUSTRIAL GEAR OIL

| 종 류 TYPE | | | 용 도 USAGE |
|---|---|---|---|
| 공업용 기어오일<br>INDUSTRIAL GEAR OIL | 제1종<br>CLASS ONE | ISO VG32<br>ISO VG46<br>ISO VG68<br>ISO VG100<br>ISO VG150<br>ISO VG220<br>ISO VG320<br>ISO VG460 | 일반기계의 고속경하중용 적합<br>GENERAL AND LIGHT LODED CLOSED GEAR SYSTEM |
| | 제2종<br>CLASS TWO | ISO VG68<br>ISO VG100<br>ISO VG150<br>ISO VG220<br>ISO VG320<br>ISO VG460 | 일반기계, 압연기 등 저속중하중용 적합<br>GENERAL AND HEAVY LODED CLOSED GEAR SYSTEM |

## ■ 각종 기어장치의 고장원인과 그 대책 TROUBLE – SHOOTING

| 문제점 TROUBLE | 원 인 CAUSE | 대 책 MEASURED TO BE TAKEN |
|---|---|---|
| 높은열이 발생하는 경우<br>OVERHEATING | 과부하운전 또는 윤활유 적음<br>OVERLOAD & SMALL OIL | 기아박스 용량 점검, 윤활유 보충<br>ACTUAL LOADING, OIL TO PROPER LEVEL |
| 소음, 진동이 심할 경우<br>UNUSUAL VIBRATION AND BUZZES | 기어 및 베아링 파손<br>DEFECTIVE GEAR, BEARING<br>고정볼트 풀림<br>LOOSED MOUNT & SCREWS | 기어, 베아링 교환<br>REPLACED IT<br>볼트 조여 줌<br>TIGHTEN AND FAST BOLTS |
| 오일누유 시<br>LEAKING OF OIL | 오일씰 및 가스켓 손상<br>DEFECTIVE OILSEAL & GASKET | 오일씰 및 가스켓 교환<br>REPLACED OIL SEAL & GASKET |
| 입 · 출력축의 회전불량<br>INPUT/OUTPUT SHAFT DO NOT ROTATE | 기어 및 베아링, 키이파손<br>DEFECTIVE GEAR, BEARING, KEY | 원인 품목 교환<br>REPLACED IT |

# 스크류잭의 구조와 특징

## ■ TM나사축 승강형

• SMJ표준형잭은 고효율, 고강도의 승강, 하강직선력 전달장치로서 위엄기어와 승강나사 축으로 구성되었습니다.

It is composed of high precision worm gear and trapezoidal screw shaft. Technology only make to manufactired SMJ JACK.

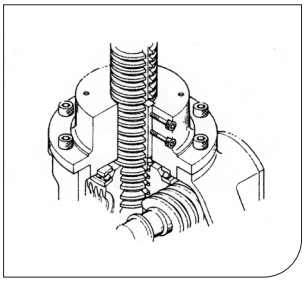
• 위엄기어의 윤활은 구리스 방식이며 행정구간내에 편리한 위치에 역회전 제어장치가 가능합니다.(그림1)

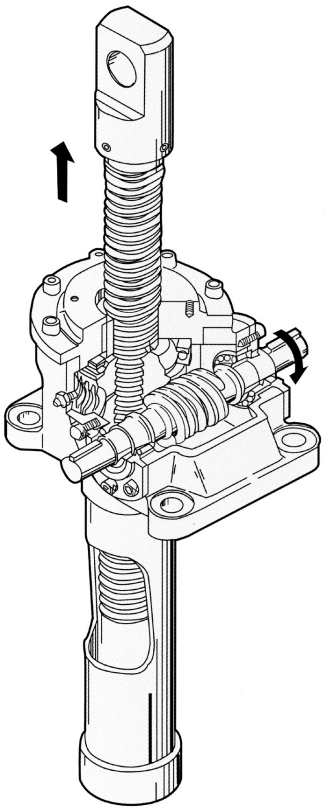
Wormgear part is greased, SELF-LOCKING is possible at point of storke.(Fig1)

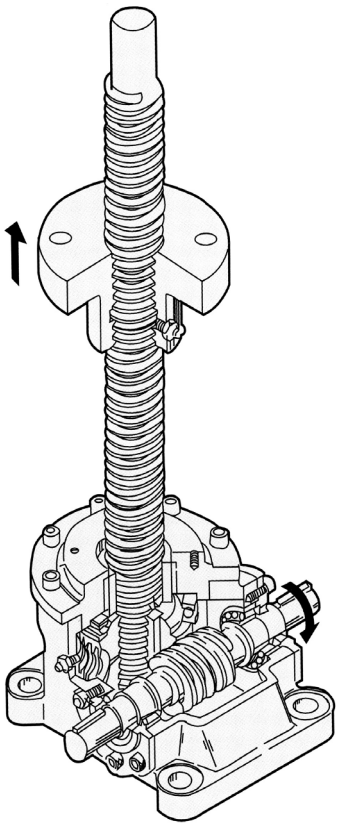
• 주요구성 부품재질

| PART'S | MATERIAL |
|---|---|
| 케이스, 카바 CASE / COVER | FCD45 |
| 워엄휘일 WORM WHEEL | ALBC2 |
| 워엄나사 WORM | S45C |
| 스크류축 TM SCREW | S45C |
| 볼스크류축 BALL SCREW | S55C |
| 볼스크류너트 BALL NUT | SCM415 |

**Fig1. 역회전 방지장치** Self-Locking







## ■ TM너트 승강형

• 나사축이 회전하면 너트가 직선운동하는 형태의 너트 승강형 잭입니다.

The jack with traveling nut and turning screw shaft is called Traveling Nut type.

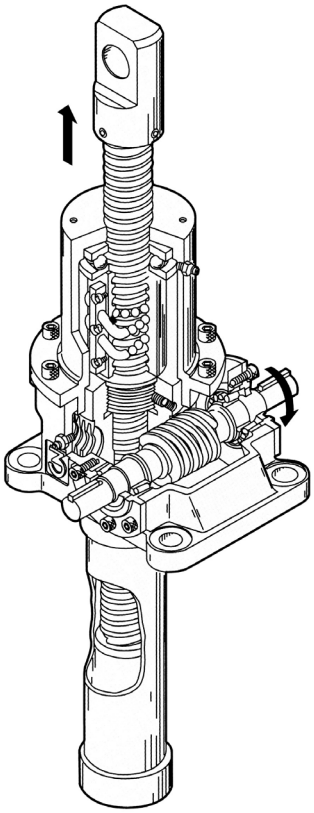
• 나사축의 승하강 공간을 필요로 하지 않으므로 행정(Stroke)을 끝까지 유효하게 사용 할 수 있고 특히 공간이 제한되어 있는 경우에 편리합니다.

Since it is not necessary for the lifting room of screw shaft, one can effectively use the stroke to the end point and it is convenient for use in limited space.

• 긴 행정(Stroke)의 경우에도 안정된 승하강을 가능하게 하기 때문에 나사축 선단 지지가 쉽고 나사축 선단에 축수용의 원통형 마무리 부분으로 설계되어 있습니다. 나사축 선단지지에 통상 사용되는 래디얼 베어링 대신 트러스트 베어링을 채용하여 축단 형상을 일부 변형하는 것으로 긴 행정(Stroke) 의 경우에도 좌굴을 피할 수 있습니다.

Since a steady movement is possible even for a longstorke, it is easy to support screw shaft. Shaft end is finished in round. Instead of using commonly using redial bearing, a trust bearing is adopted in screw shaft support. This design is a partially modified for reducing the side force even in a long stroke.

# 볼스크류잭의 구조와 특징



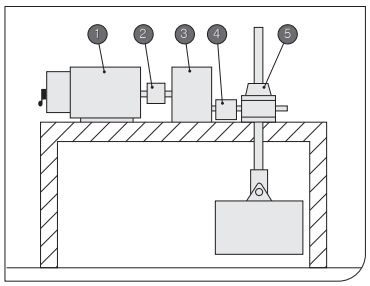
## ■ 볼(BALL) 스크류형

• SMJB표준 볼스크류잭은 저소음, 고속장치에 적합한 정밀볼나사축과 너트를 사용합니다.
It possible to manufactured high precision SMJ standard ball screw jack.

• 볼스크류잭은 효율이 높은 반면 자동조임(정지)장치가 작동하지 않으므로 브레이크부착 모터를 권장합니다.
Ball screw jacks have very high efficiency, but are not self-locking, so motors with brake or other braking device aer indispensable for them.

• 잭의 운동을 정확히 정지시키기 위해서는 브레이크가 필요합니다.
스크류잭은 자동조임장치가 작용하기 때문에 브레이크가 필요없는 경우가 있습니다만 고정밀의 정확한 칫수동작이나 정지시의 하중유지를 확실하게 하기 위해서는 브레이크를 설치 하십시오.
Brakes are necellary for accurately stopping the motion of jacks. Screw jacks do not require the use of brakes in some cases because they are selflocking.
However, brakes must be used for high-accuracy operation and for positive retention of loads at the time of stop.

**Fig2. 브레이크장치 사례**




❶ 브레이크가 부착된 모터 Moter with brake
❷ 모터측 커플링 Motor side coupling
❸ 중간 감속기 Intermediate Speed reducer
❹ 잭슨커플링 Jack Side Coupling
❺ 잭 Jack

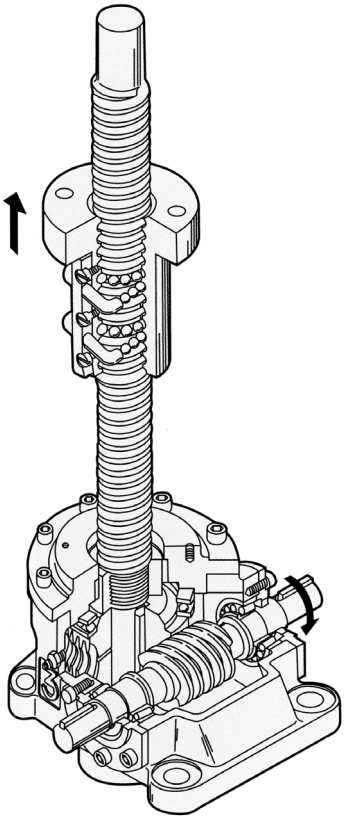
## ■ 볼(BALL)너트형

• 나사축이 회전하면 너트가 직선운동하는 형태의 너트 승강형 볼스크류잭입니다.
The jack with traveling nut and turning screw shaft is called Traveling Nut type.

• 나사축의 승하강 공간을 필요로 하지 않으므로 행정(Stroke)을 끝까지 유효하게 사용할 수 있고 특히 공간이 제한되어 있는 경우에 편리합니다.
Since it is not necessary for the lifting room of screw shaft, one can effectively use the stroke to the end point and it is convenient for use in limitde space.

• 긴 행정(Stroke)의 경우에도 안정된 승하강을 가능하게 하기 때문에 나사축 선단 지지가 쉽고 나사 선단에 축수용의 원통형 마무리 부분으로 설계되어 있습니다. 나사축 선단지지에 통상 사용되는 래디얼 베어링 대신 트러스트 베어링을 채용하여 축단 형상을 일부 변형하는 것으로 긴 행정(Stroke)의 경우에도 좌굴을 피할 수 있습니다.

■ 주의 : 볼스크류잭의 경우 재고상황에 따라 너트 등의 치수가 일부 변할 수 있으므로 반드시 당사와 협의 후 사양을 확정하시기 바랍니다.



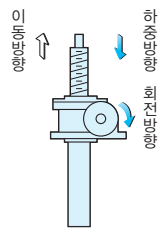
# 제품기호표기 Product Code System

| SMJ | B | 56 | H | U | B | 400 | F |
|---|---|---|---|---|---|---|---|
| 스크류잭 Screw Jack | 볼스크류잭 Ball Screw | 규 격 Type | 웜감속비 Worm Ratio | 외 형 Profile | 축보호커버 Bellows | 행정거리 Stroke | 나사축과 너트형태 Screw and Nut |

| 규 격 TYPE | 용 량 TONf | 고 속 HIGH | 저 속 LOW |
|---|---|---|---|
| SMJ32 | 1 | 5 | 24 |
| SMJ44 | 2.5 | 6 | 24 |
| SMJ50 | 3.5 | 6 | 12 |
| SMJ56 | 5 | 6 | 24 |
| SMJ66 | 10 | 8 | 24 |
| SMJ66S | 15 | 8 | 24 |
| SMJ73 | 20 | 8 | 24 |
| SMJ95 | 30 | 10 | 32 |
| SMJ135 | 50 | 10 | 32 |
| SMJ155 | 75 | 12 | 36 |
| SMJ190 | 100 | 12 | 36 |

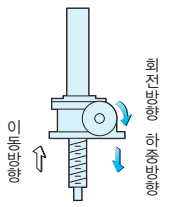
## 외 형 Profile

U



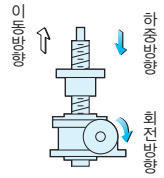

상방향형

D



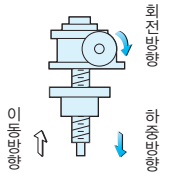

하방향형

NU




상방향형

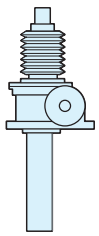
ND




하방향형

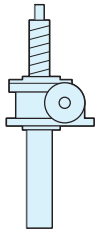
## 축보호커버 Bellows

B



축보호카바 부착

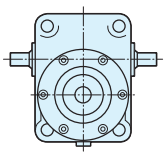
N



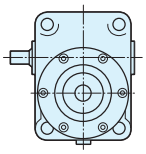
축보호카바 없음

## 입력축방향 Input Shaft

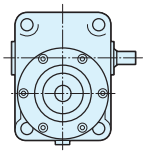
A



B



C



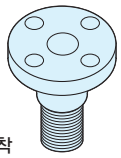
## 나사축과 너트형태 Screw and Nut

S



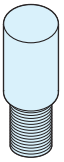
기본형

F



플랜지 너트 부착

P

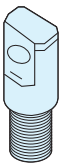


플레인너트부착

K

회전방지키 부착
Prevent Key

C



크레비스 너트 부착

# 잭의 선택자료 How To Choose Screw Jack

## ■ 사용자 자료

• 기기장치에 필요한 잭 1대당 의 작동하중을 기입하십시요.

ⓐ 승강시 하중 : TONf

• 기기 장치에 필요한 승강속도를 기입하십시요.

ⓑ 승강속도 : mm/min

• 아래표의 ① 하중용량을 참조하여 필요하중 조건에 적합한 잭 형번을 임의로 선정하십시요.

잭형번 :

• 계 산 : 1

아래표의 ② 속도계수로부터 입력축 회전수를 계산하십시요.

$$\text{입력축 회전수} = \frac{\text{자 료 ⓑ}}{\text{자 료 ②}}$$

ⓒ 입력축 회전수 : RPM

• 계 산 : 2

아래표의 ③ 토르크계수, ④ 입력축 부하 토르크로 부터 소요 입력축 토르크를 계산하십시요.

소요입력축 토르크 = 자료 ③ × 자료 ⓐ + 자료 ④

ⓓ 소요입력축 토르크 : kgf-m

• 계 산 : 3

이제까지의 계산 결과로 부터 소요동력을 계산하십시요.

$$\text{소요동력} = \frac{\text{자 료 ⓒ} \times \text{ⓓ}}{974}$$

ⓔ 소요동력 : kw

• 검 토 :

아래표의 ⑤ 최대동력을 참조하여 ⓔ 소요동력이 최대동력을 초과하지 않는지를 확인하십시요. 초과시에는 다음 형번의 형번을 임의로 선정하십시요. 다시 최대 동력이 초월할 시에는 잭 형번을 다음 형번의 것으로 하여 다시 계산하십시요.

## ■ User Date

• Enter the necessary operational load per jack:

(a) Lifting Load : ton

• Enter required lifting speed.

b) Lifting Speed : mm/min

• Enter an appropriate jack type from Table ① below forrequired load in (a).

Jack Type :

• Calculation 1 :

Computer Input Shaft RPM using(b) and speed coefficient from Table ②.

Input Shaft RPM = Data from(b) ÷ Data from Table ②

(c) Input Shaft RPM RPM

• Calculation 2 :

Using torque coefficient from Table 3 and Input Shaft Load Torque from Table ④, Compute input shaft torque

Input shaft torque = data from Table ③×data from(a)+data fromTable ④

(d) Necessary Input Shaft Torque kgf-m

• Calculation 3 :

Required power = (data from (c) × data from(d)) ÷ 974

(e) Required Power kw

• Note :

Make sure that computed required power (e) does not exceed the maximum power listed in Table 5. If it exceeds, choose next type and compute the required power (e) again. Repeat this procedure until computed required power meets the maximum power listed in Table ⑤.

## ■ 제조업체 자료 Manufacturer's Date

| 형 번 Type | ① 하중용량 Load Capacity | ② C속도계수 C Speed Coefficient | | ③ a토르크계수 a Torpue Coefficient | | ④ d입력축 무부하 토르크 d Input Shaft No Load Torque | ⑤ 최대동력 Max Power |
|---|---|---|---|---|---|---|---|
| | TONf | H | L | H | L | kgf-m | kw |
| SMJ32 | 1 | 0.8 | 0.17 | 0.6 | 0.21 | 0.03 | 0.5 |
| SMJ44 | 2.5 | 0.83 | 0.21 | 0.64 | 0.27 | 0.1 | 1.0 |
| SMJ56 | 5 | 1.33 | 0.33 | 1 | 0.45 | 0.2 | 2.0 |
| SMJ66 | 10 | 1.25 | 0.42 | 1 | 0.46 | 0.3 | 2.8 |
| SMJ66S | 15 | 1.25 | 0.42 | 1.07 | 0.5 | 0.4 | 3.1 |
| SMJ73 | 20 | 1.5 | 0.5 | 1.22 | 0.55 | 0.5 | 5 |
| SMJ95 | 30 | 1.5 | 0.5 | 1.22 | 0.62 | 1 | 8.4 |
| SMJ135 | 50 | 1.5 | 0.5 | 1.6 | 0.84 | 2 | 13.4 |
| SMJB32 | 1 | 1 | 0.21 | 0.27 | 0.09 | 0.03 | 0.75 |
| SMJB44 | 2.5 | 1.33 | 0.33 | 0.35 | 0.12 | 0.1 | 1.3 |
| SMJB56 | 5 | 1.67 | 0.42 | 0.44 | 0.20 | 0.2 | 2.5 |
| SMJB66 | 10 | 1.5 | 0.50 | 0.42 | 0.19 | 0.3 | 3.7 |
| SMJB73 | 20 | 2 | 0.67 | 0.55 | 0.25 | 0.5 | 6 |
| SMJB95 | 30 | 1.87 | 0.63 | 0.51 | 0.26 | 1 | 9.5 |

# 스크류잭 표준규격표

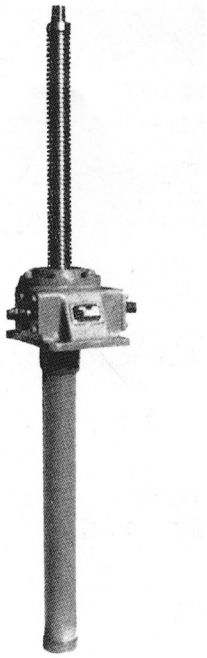
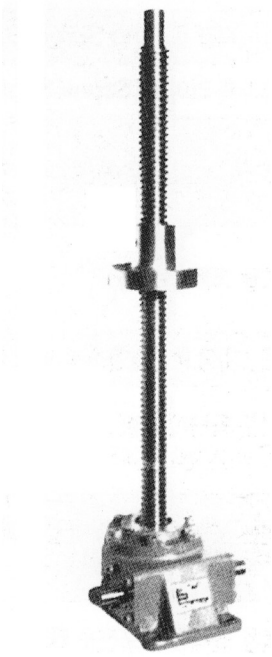
기호참조 : H = HIGH SPEED  L = LOW SPEED

| 형 번 TYPE | | SMJ32 | SMJ44 | SMJ50 | SMJ56 | SMJ66 | SMJ66S |
|---|---|---|---|---|---|---|---|
| 기본용량 Basic Capacity | TONf | 1 | 2.5 | 3.5 | 5 | 10 | 15 |
| | KN | 9.8 | 24.5 | 34.3 | 49 | 98 | 147 |
| 스크류외경 Outer Screw Diameter | mm | 20 | 25 | 32 | 40 | 50 | 55 |
| 스크류리이드 Screw Lead | mm | 4 | 5 | 6 | 8 | 10 | 10 |
| 워엄감속비 Worm Ratio | H | 5 | 6 | 6 | 6 | 8 | 8 |
| | L | 24 | 24 | 12 | 24 | 24 | 24 |
| 행정거리(입력축1회전시) mm Screw Movement | H | 0.8 | 0.83 | 1 | 1.33 | 1.25 | 1.25 |
| | L | 0.17 | 0.21 | 0.50 | 0.33 | 0.42 | 0.42 |
| 개략효율 % Overall Efficiency | H | 25 | 25 | 25 | 25 | 25 | 20 |
| | L | 15 | 15 | 15 | 15 | 15 | 14 |
| 권장허용동력(최대) KW MAX.Allowable power | H | 0.49 | 1.0 | 1.5 | 2.0 | 2.8 | 3.1 |
| | L | 0.36 | 0.46 | 0.55 | 0.63 | 1.4 | 2.2 |
| 권장입력회전속도(최대) rev/min MAX. Allowable Input RPM | H | 750 | 600 | 500 | 400 | 300 | 300 |
| | L | 1125 | 900 | 750 | 600 | 400 | 400 |
| 기본용량에 대한 소요입력 토오크 Kg.m Required Input Torque | H | 0.64 | 1.6 | 3.2 | 5.0 | 9.2 | 15.2 |
| | L | 0.3 | 0.75 | 1.6 | 2.0 | 4.6 | 7.4 |
| 입력축 허용 토오크 Kg.m | | 2 | 5 | 10 | 15.7 | 29.8 | 29.8 |
| 기준중량 Weight Stroke100mm일때 | Kgf | 3.6 | 9 | 12 | 16 | 30 | 35 |
| 그리이스 주입량 | kgf | 0.1 | 0.4 | 0.5 | 0.6 | 1.0 | 1.5 |
| 스크류가공형태 Lifting Screw Form | | 기계절삭 Cutting | | | | | |
| 적정사용온도 Operation Temperature Range | | -15℃~40℃ | | | | | |

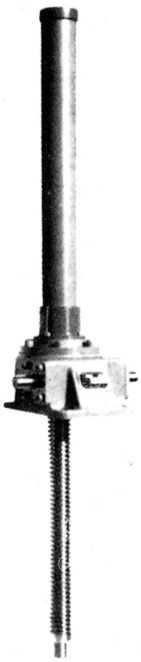
# Standard Specifications SCREW JACK

| SMJ73 | SMJ95 | SMJ135 | SMJ155 | SMJ190 |
|---|---|---|---|---|
| 20 | 30 | 50 | 75 | 100 |
| 196 | 294 | 490 | 735 | 980 |
| 63 | 85 | 118 | 132 | 150 |
| 12 | 16 | 16 | 16 | 20 |
| 8 | 10.5 | 10 | 12 | 12 |
| 24 | 32 | 32 | 36 | 36 |
| 1.5 | 1.6 | 1.6 | 1.33 | 1.67 |
| 0.50 | 0.50 | 0.50 | 0.44 | 0.56 |
| 20 | 20 | 15 | 15 | 15 |
| 14 | 12 | 12 | 10 | 10 |
| 5.0 | 8.4 | 13.4 | 14.4 | 21.4 |
| 3.2 | 4.6 | 5.7 | 7.2 | 9.4 |
| 200 | 200 | 150 | 100 | 100 |
| 300 | 300 | 220 | 150 | 150 |
| 24.3 | 40.8 | 87.3 | 140.7 | 208 |
| 12.6 | 24.9 | 46.2 | 77.6 | 130 |
| 29.8 | 75 | 140 | 180 | 250 |
| 48 | 80 | 190 | 290 | 500 |
| 2.0 | 3.0 | 4.0 | 6.0 | 8.0 |
| 기계절삭 Cutting | | | | |
| −15℃~40℃ | | | | |

## ■ 상방향형 Upright Type

| 축승강형 Traveling Shaft Type | 너트승강형 Traveling Nut Type |
|---|---|
|  |  |

## ■ 하방향형 Inverted Type

| 축승강형 Traveling Shaft Type | 너트승강형 Traveling Nut Type |
|---|---|
|  |  |

# 볼스크류잭 표준규격표

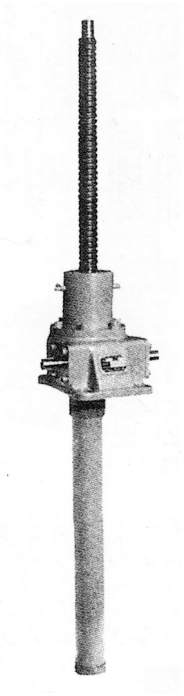
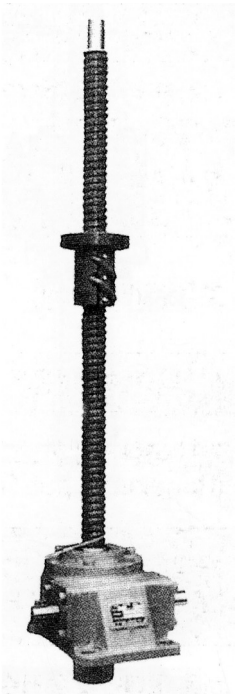
기호참조 : H = HIGH SPEED  L = LOW SPEED

| 형 번 TYPE | | SMJ B32 | SMJ B44 | SMJ B50 | SMJ B56 |
|---|---|---|---|---|---|
| 기본용량 Basic Capacity | TON | 1 | 2.5 | 3.5 | 5 |
| | KN | 9.8 | 24.5 | 34.3 | 122.5 |
| 스크류외경 Outer Screw Diameter | mm | 20 | 25 | 32 | 40 |
| 스크류리이드 Screw Lead | mm | 5 | 10 | 10 | 10 |
| 워엄감속비 Worm Ratio | H | 5 | 6 | 6 | 6 |
| | L | 24 | 24 | 12 | 24 |
| 행정거리(입력축1회전시) mm Screw Movement | H | 1 | 1.67 | 1.67 | 1.67 |
| | L | 0.21 | 0.42 | 0.83 | 0.42 |
| 개략효율 % Overall Efficiency | H | 60 | 60 | 60 | 60 |
| | L | 36 | 36 | 36 | 36 |
| 권장허용동력(최대) KW MAX. Allowable power | H | 0.5 | 1.3 | 1.8 | 2.2 |
| | L | 0.3 | 0.6 | 0.9 | 1.1 |
| 권장입력회전속도(최대) rev/min MAX. Allowable Input RPM | H | 1200 | 900 | 660 | 660 |
| | L | 1800 | 1400 | 1000 | 1000 |
| 기본용량에 대한 소요입력 토오크 Kg.m Required Input Torque | H | 0.27 | 0.88 | 1.9 | 2.2 |
| | L | 0.1 | 0.37 | 0.9 | 1.0 |
| 입력축 허용 토오크 Kg.m | | 2 | 5 | 10 | 15.7 |
| 기준중량 Weight Stroke100mm일때 | Kgf | 5 | 11 | 15 | 21 |
| 그리이스 주입량 | kgf | 0.1 | 0.4 | 0.5 | 0.6 |
| 스크류가공형태 Lifting Screw Form | | 정밀전조 Rolled | | | |
| 적정사용온도 Operation Temperature Range | | -15℃~40℃ | | | |

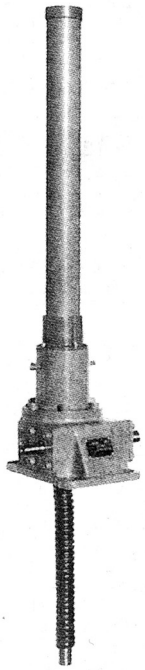
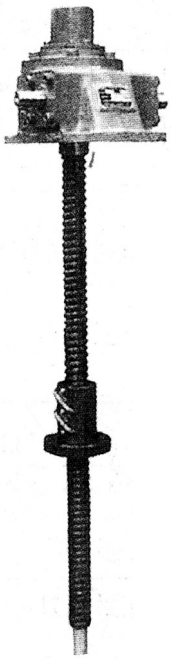
# Standard Specifications BALL SCREW JACK

| SMJ B66 | SMJ B73 | SMJ B95 |
|---|---|---|
| 10 | 20 | 30 |
| 98 | 196 | 294 |
| 50 | 63 | 85 |
| 10 | 20 | 20 |
| 8 | 8 | 10.5 |
| 24 | 24 | 32 |
| 1.25 | 2.5 | 2 |
| 0.42 | 0.83 | 0.63 |
| 58 | 58 | 58 |
| 42 | 42 | 42 |
| 3.6 | 5.4 | 8.9 |
| 1.8 | 2.8 | 4.1 |
| 600 | 400 | 330 |
| 900 | 600 | 500 |
| 4.2 | 11 | 15 |
| 1.9 | 5.0 | 8.0 |
| 29.8 | 29.8 | 75 |
| 40 | 70 | 120 |
| 1.0 | 2.0 | 3.0 |
| 정밀전조 Rolled | | |
| −15℃~40℃ | | |

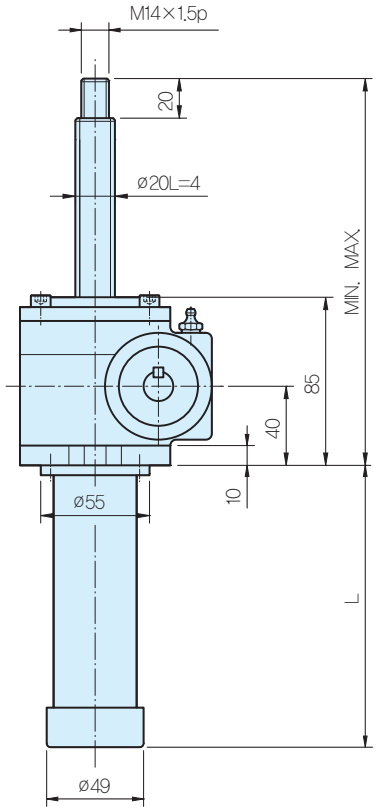
## ■ 상방향형 Upright Type

| 축승강형 Traveling Shaft Type | 너트승강형 Traveling Nut Type |
|---|---|
|  |  |

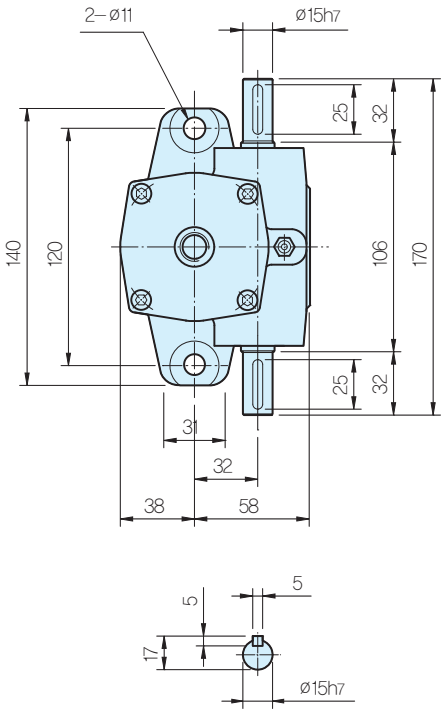
## ■ 하방향형 Inverted Type

| 축승강형 Traveling Shaft Type | 너트승강형 Traveling Nut Type |
|---|---|
|  |  |

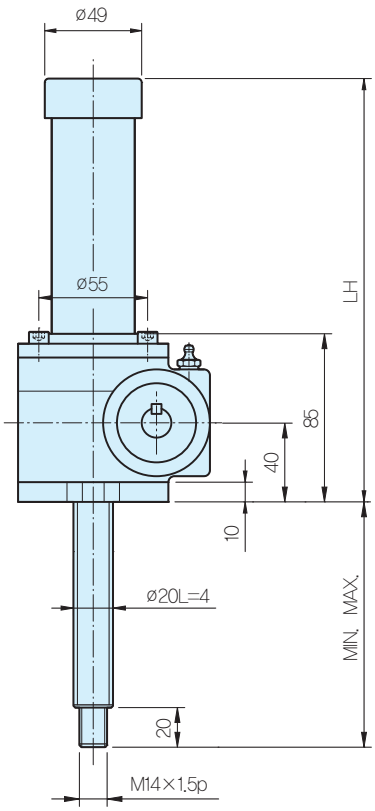
## ■ 상방향형(U)




## ■ 평면도

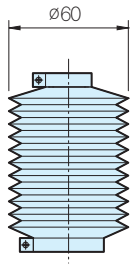



## ■ 하방향형(D)

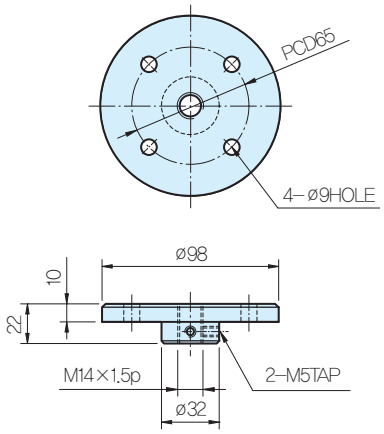



## ■ 스크류축 체결부품 Output Options

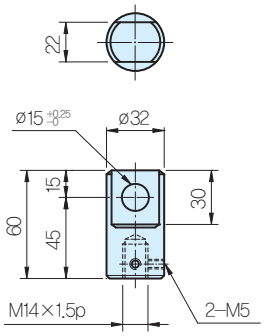
BELLOWS(B)



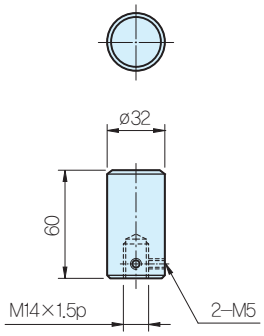

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)




## ■ 행정기준표 SMJ32

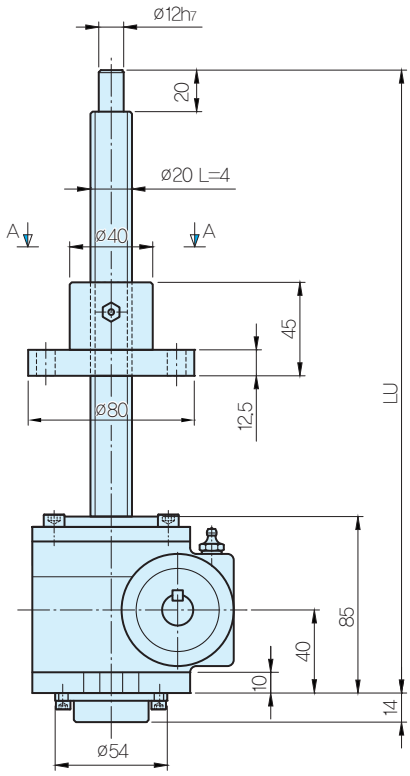
• 개략중량 3.6kg/100st

| 상방향형 U | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L |
| | MIN | MAX | MIN | MAX | |
| 100 | 120 | 220 | 170 | 270 | 150 |
| 200 | 120 | 320 | 180 | 380 | 250 |
| 300 | 120 | 420 | 190 | 490 | 350 |
| 400 | 120 | 520 | 200 | 600 | 450 |
| 500 | 120 | 620 | 210 | 710 | 550 |
| 1000 | 120 | 1120 | 310 | 1310 | 1050 |

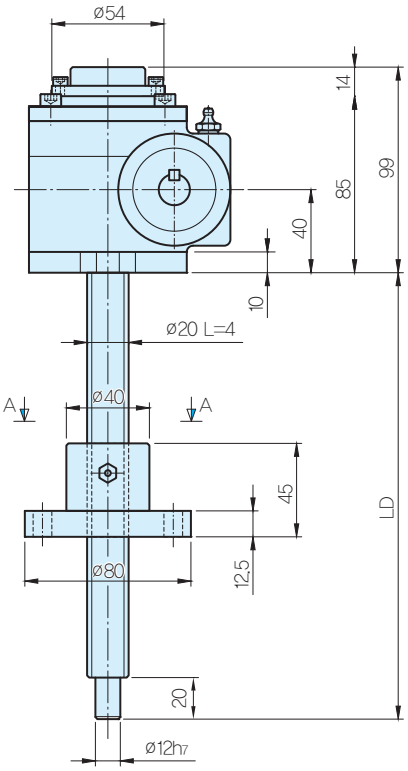
| 하방향형 D | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | |
| 100 | 35 | 135 | 85 | 185 | 230 |
| 200 | 35 | 235 | 95 | 295 | 330 |
| 300 | 35 | 335 | 105 | 405 | 430 |
| 400 | 35 | 435 | 115 | 515 | 530 |
| 500 | 35 | 535 | 125 | 625 | 630 |
| 1000 | 35 | 1035 | 235 | 1235 | 1130 |

# SMJ32N 너트승강형

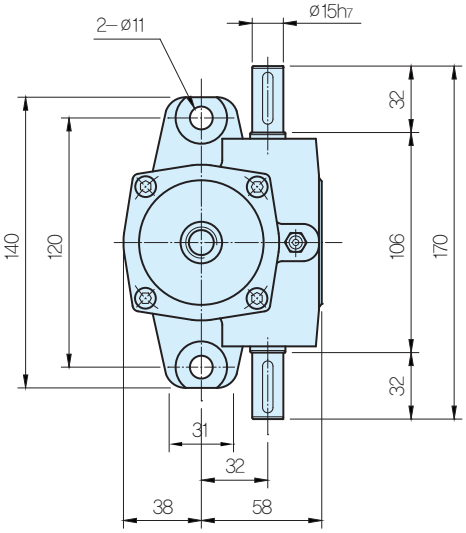
## ■ 상방향형 (NU)

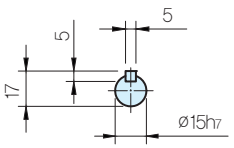



## ■ 하방향형 (ND)

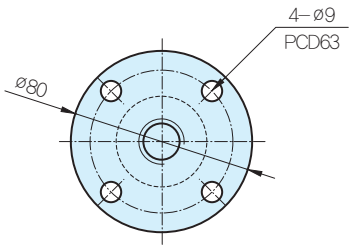



## ■ 평면도



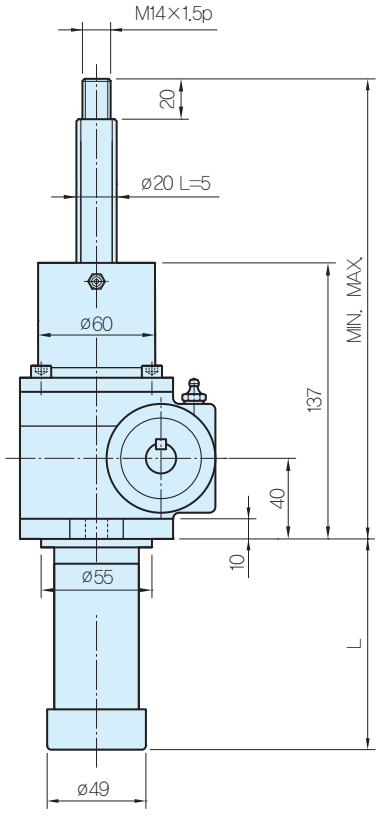

VIEW A-A



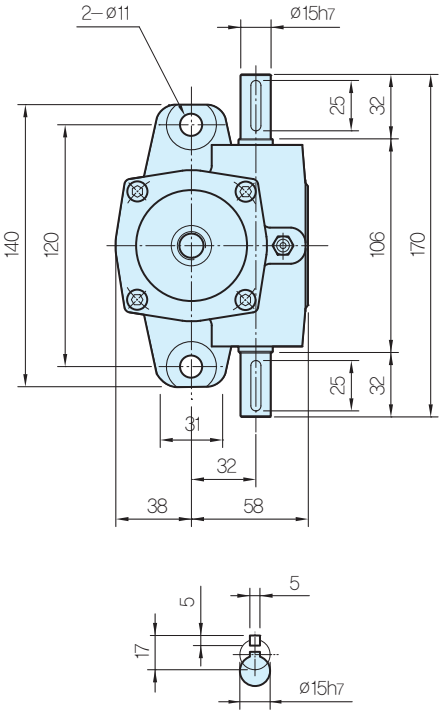

## ■ 행정기준표 SMJ32N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 285 | 200 |
| 200 | 385 | 300 |
| 300 | 485 | 400 |
| 400 | 585 | 500 |
| 500 | 685 | 600 |
| 1000 | 1185 | 1100 |

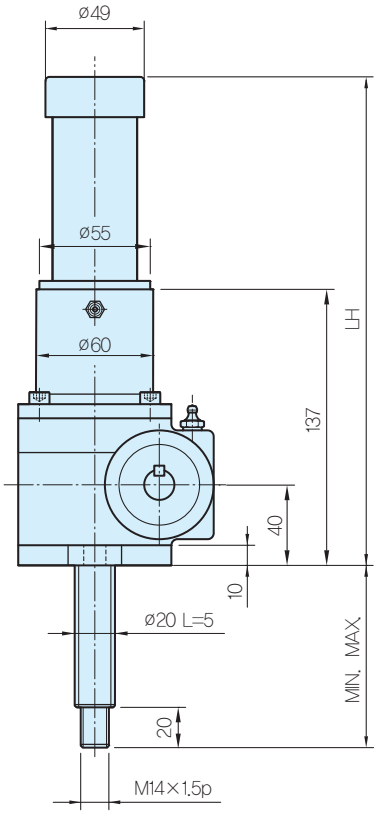
## ■ 상방향형(U)




## ■ 평면도

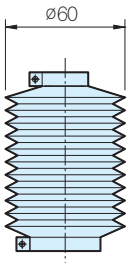



## ■ 하방향형(D)

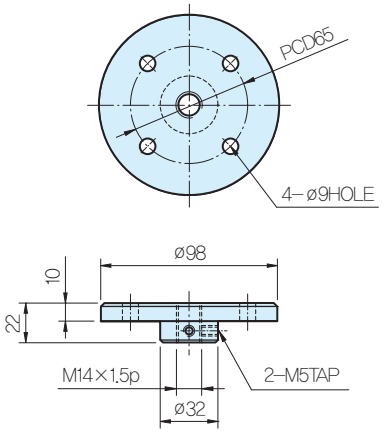



## ■ 스크류축 체결부품 Output Options

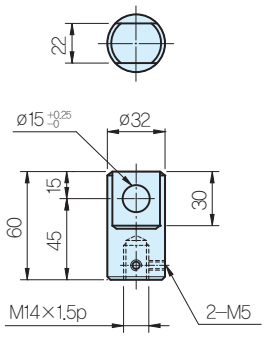
BELLOWS(B)



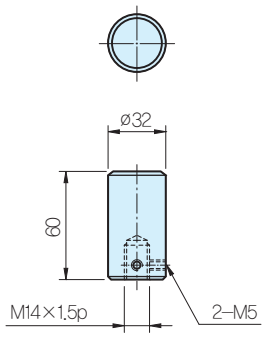

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

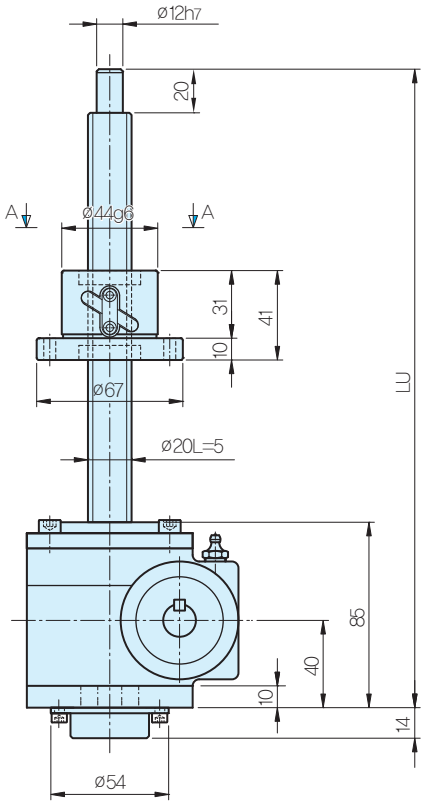



## ■ 행정기준표 SMJ B32

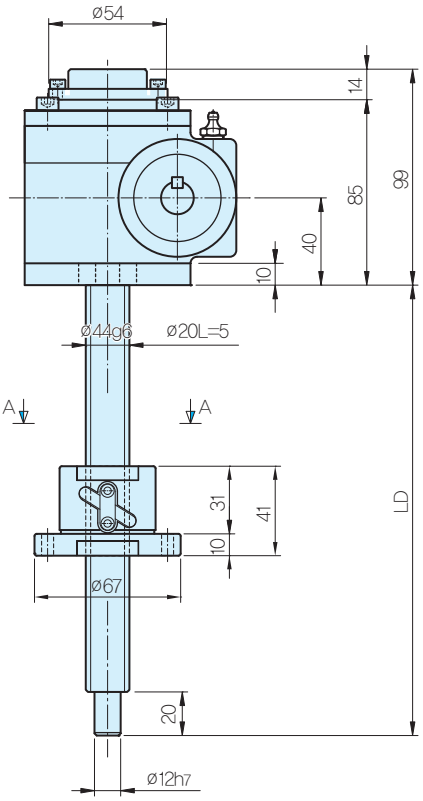
• 개략중량 5kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 175 | 275 | 225 | 325 | 150 | 100 | 35 | 135 | 85 | 185 | 280 |
| 200 | 175 | 375 | 235 | 435 | 250 | 200 | 35 | 235 | 95 | 295 | 380 |
| 300 | 175 | 475 | 245 | 545 | 350 | 300 | 35 | 335 | 105 | 405 | 480 |
| 400 | 175 | 575 | 255 | 655 | 450 | 400 | 35 | 435 | 115 | 515 | 580 |
| 500 | 175 | 675 | 265 | 765 | 550 | 500 | 35 | 535 | 125 | 625 | 680 |
| 1000 | 175 | 1175 | 365 | 1365 | 1050 | 1000 | 35 | 1035 | 235 | 1235 | 1180 |

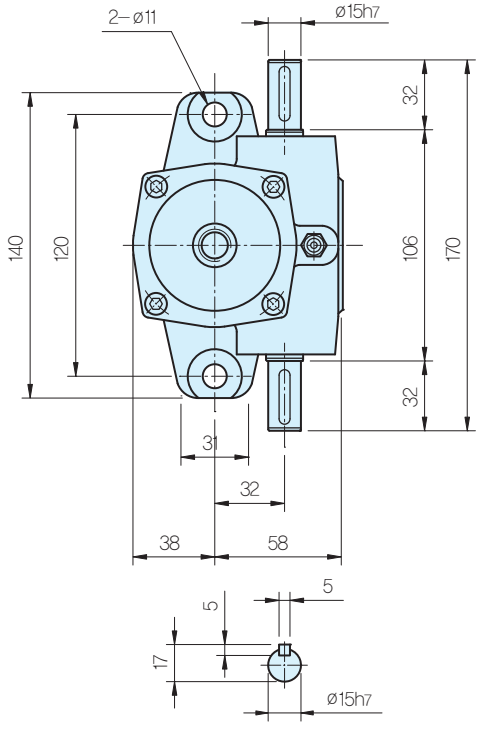
## ■ 상방향형 (NU)



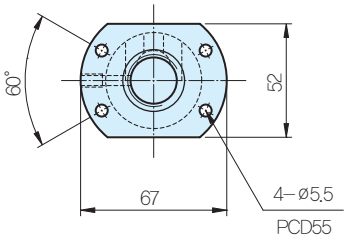

## ■ 하방향형 (ND)




## ■ 평면도




VIEW A-A

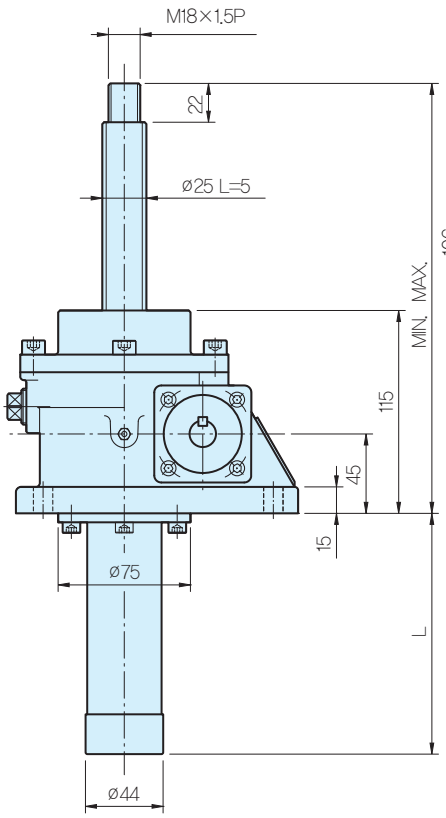



## ■ 행정기준표 SMJ B32N

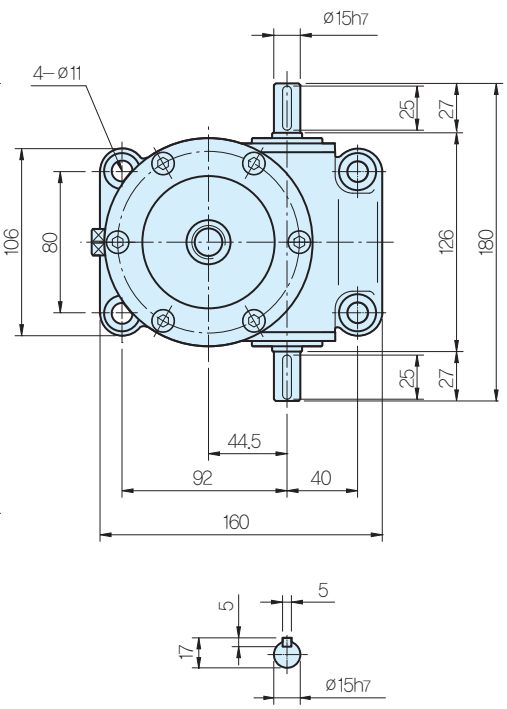
| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 285 | 200 |
| 200 | 385 | 300 |
| 300 | 485 | 400 |
| 400 | 585 | 500 |
| 500 | 685 | 600 |
| 1000 | 1185 | 1100 |

• 참고 : BALL NUT의 치수는 변경될 수 있음.

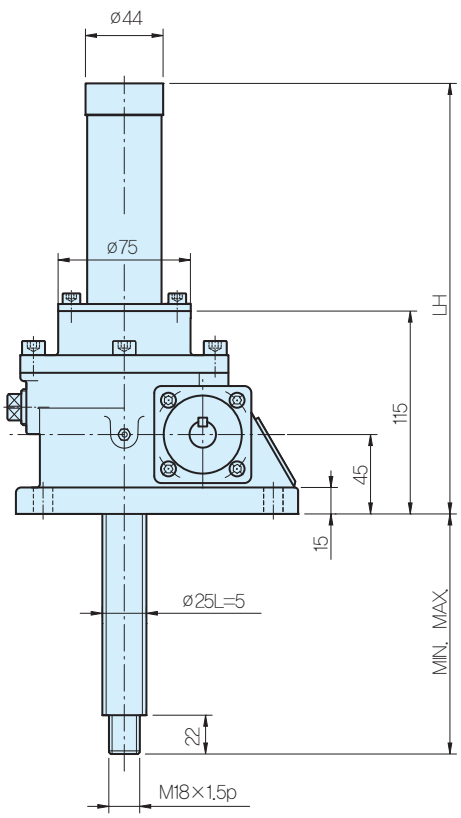
■ 상방향형(U)




■ 평면도

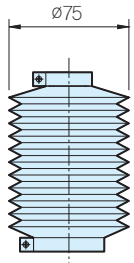



■ 하방향형(D)

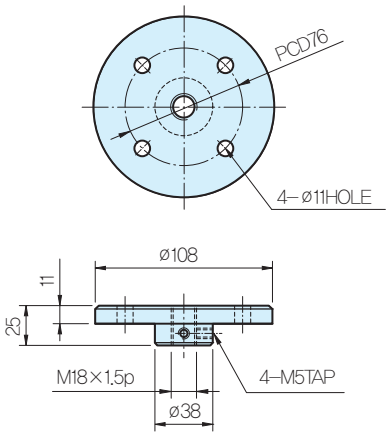



■ 스크류축 체결부품 Output Options

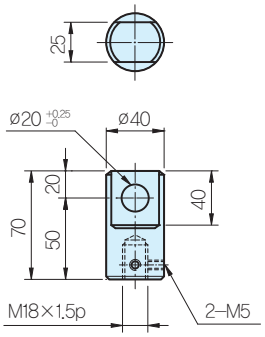
BELLOWS(B)



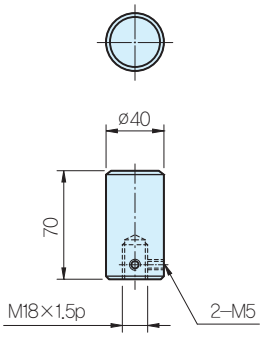

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)




■ 행정기준표 SMJ44

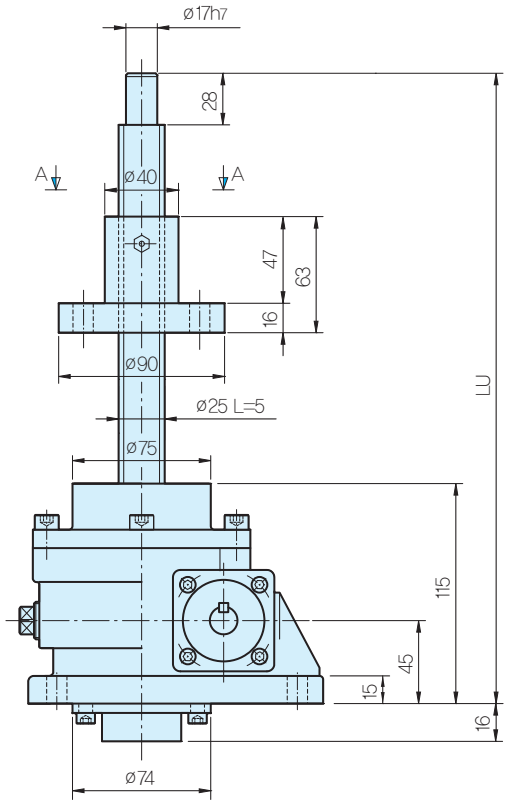
• 개략중량 9kg/100st

| 상방향형 U | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L |
| | MIN | MAX | MIN | MAX | |
| 100 | 155 | 255 | 205 | 305 | 150 |
| 200 | 155 | 355 | 215 | 415 | 250 |
| 300 | 155 | 455 | 225 | 525 | 350 |
| 400 | 155 | 555 | 235 | 635 | 450 |
| 500 | 155 | 655 | 245 | 745 | 550 |
| 1000 | 155 | 1155 | 345 | 1245 | 1050 |

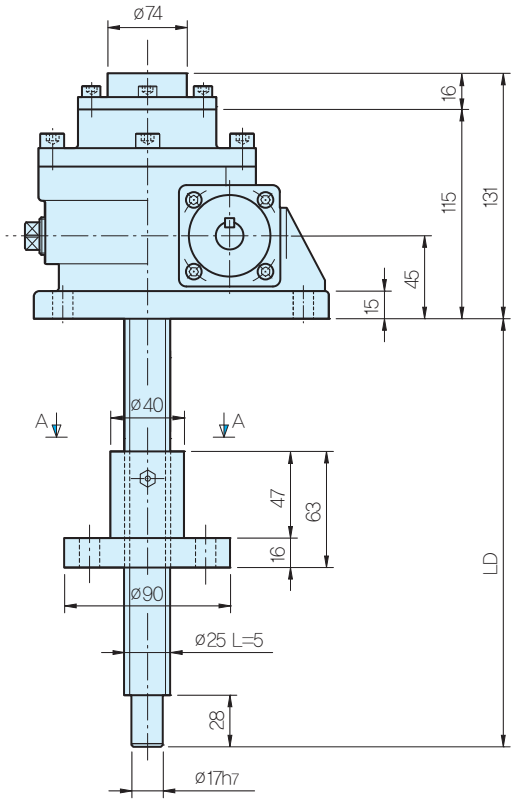
| 하방향형 D | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | |
| 100 | 40 | 140 | 90 | 190 | 270 |
| 200 | 40 | 240 | 100 | 300 | 370 |
| 300 | 40 | 340 | 110 | 410 | 470 |
| 400 | 40 | 440 | 120 | 520 | 570 |
| 500 | 40 | 540 | 130 | 630 | 670 |
| 1000 | 40 | 1040 | 230 | 1230 | 1170 |

# SMJ44N 너트승강형

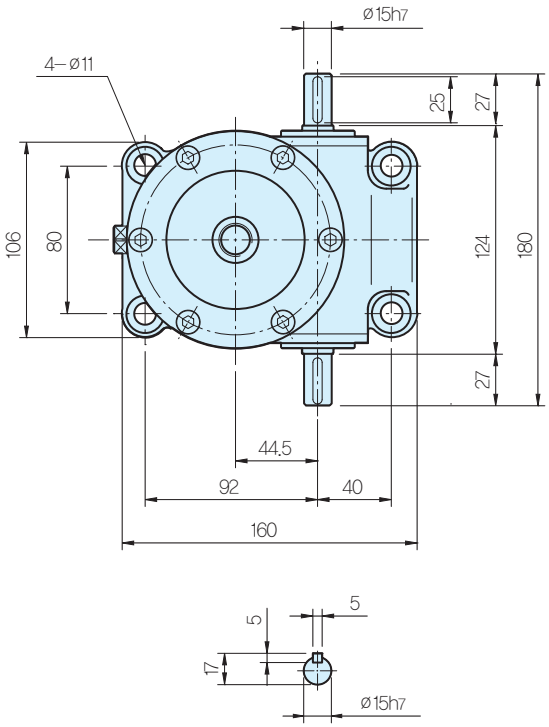
## ■ 상방향형 (NU)




## ■ 하방향형 (ND)



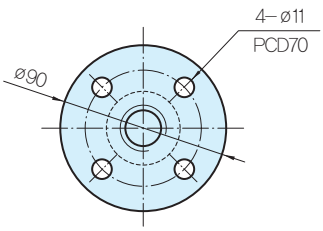

## ■ 평면도







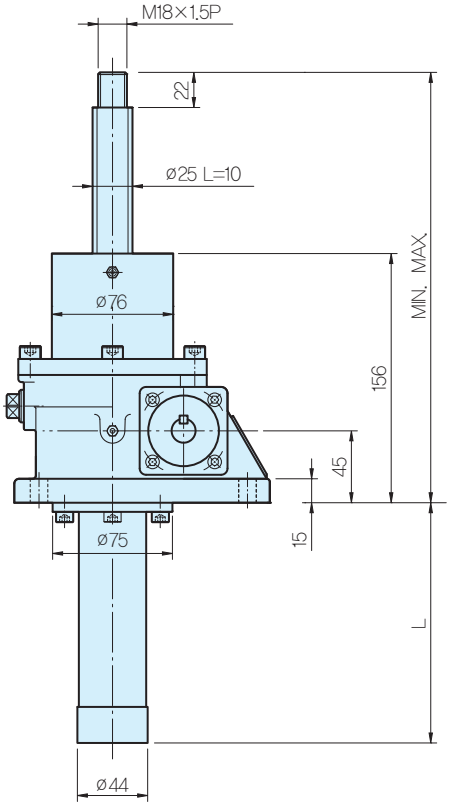
VIEW A-A



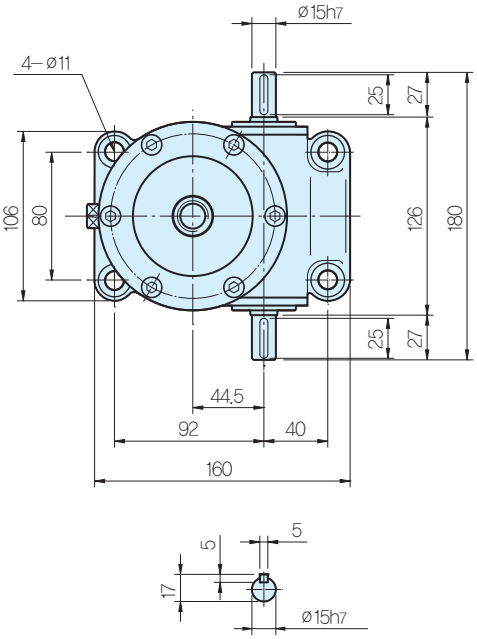

## ■ 행정기준표 SMJ44N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 350 | 235 |
| 200 | 450 | 335 |
| 300 | 550 | 435 |
| 400 | 650 | 535 |
| 500 | 750 | 635 |
| 1000 | 1250 | 1135 |

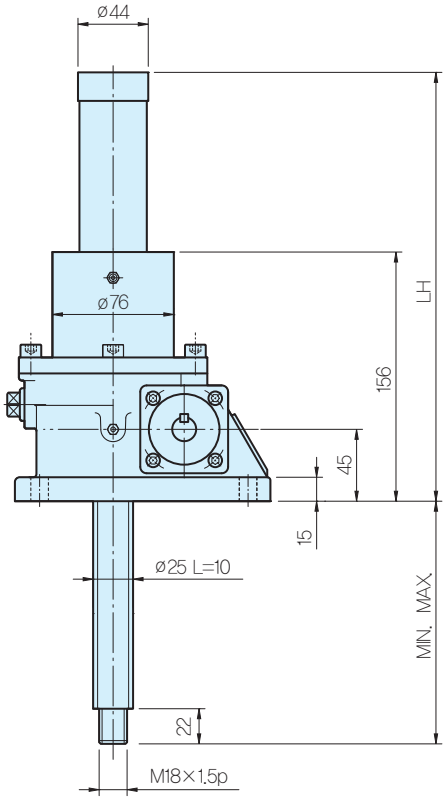
## ■ 상방향형(U)




## ■ 평면도

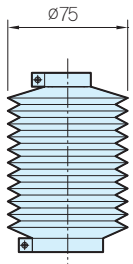



## ■ 하방향형(D)

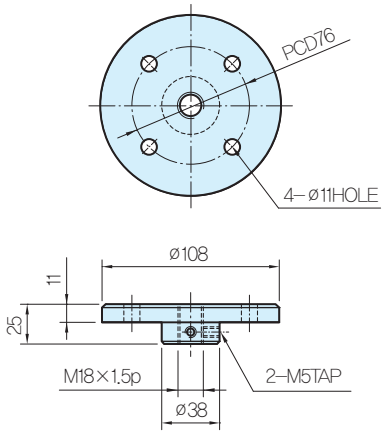



## ■ 스크류축 체결부품 Output Options

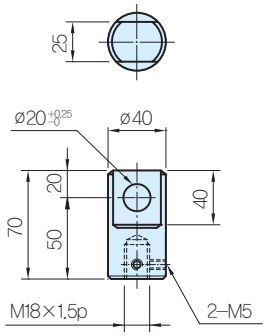
BELLOWS(B)



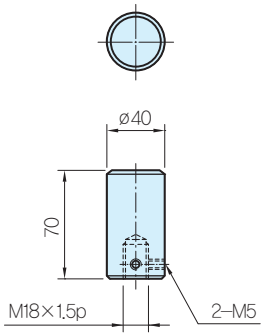

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

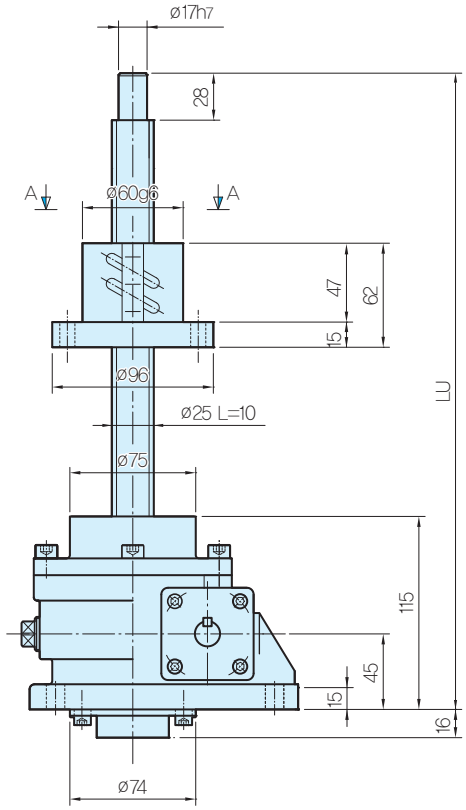



## ■ 행정기준표 SMJ B44

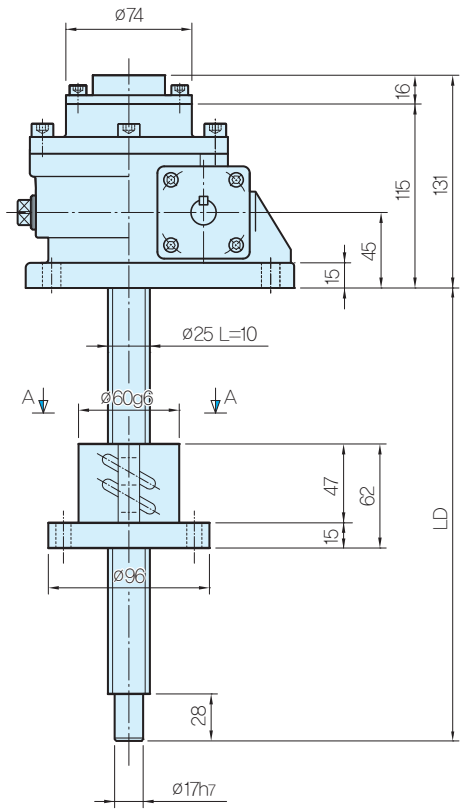
• 개략중량 11kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 200 | 300 | 250 | 350 | 150 | 100 | 40 | 140 | 90 | 190 | 305 |
| 200 | 200 | 400 | 260 | 460 | 250 | 200 | 40 | 240 | 100 | 300 | 405 |
| 300 | 200 | 500 | 270 | 570 | 350 | 300 | 40 | 340 | 110 | 410 | 505 |
| 400 | 200 | 600 | 280 | 680 | 450 | 400 | 40 | 440 | 120 | 520 | 605 |
| 500 | 200 | 700 | 290 | 790 | 550 | 500 | 40 | 540 | 130 | 630 | 705 |
| 1000 | 200 | 1200 | 390 | 1290 | 1050 | 1000 | 40 | 1040 | 230 | 1230 | 1205 |

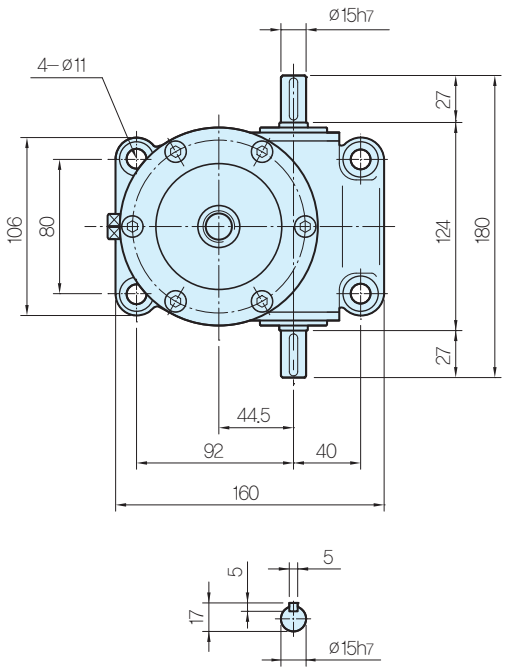
## ■ 상방향형 (NU)



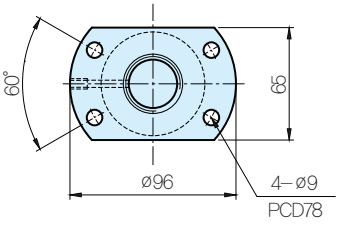

## ■ 하방향형 (ND)




## ■ 평면도




VIEW A–A



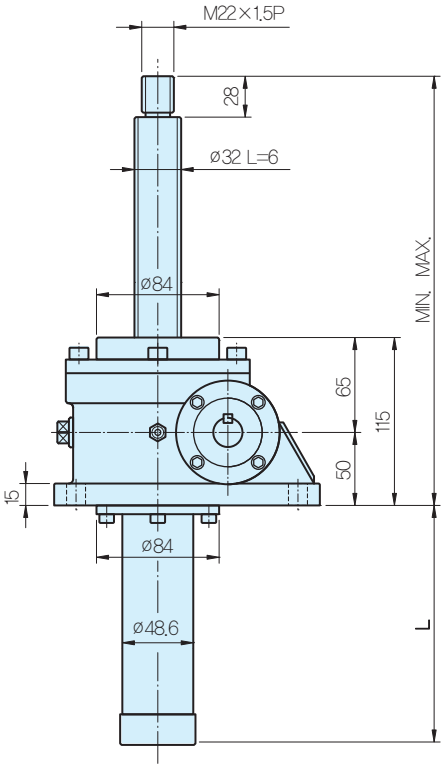

## ■ 행정기준표 SMJ B44N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 350 | 235 |
| 200 | 450 | 335 |
| 300 | 550 | 435 |
| 400 | 650 | 535 |
| 500 | 750 | 635 |
| 1000 | 1250 | 1135 |

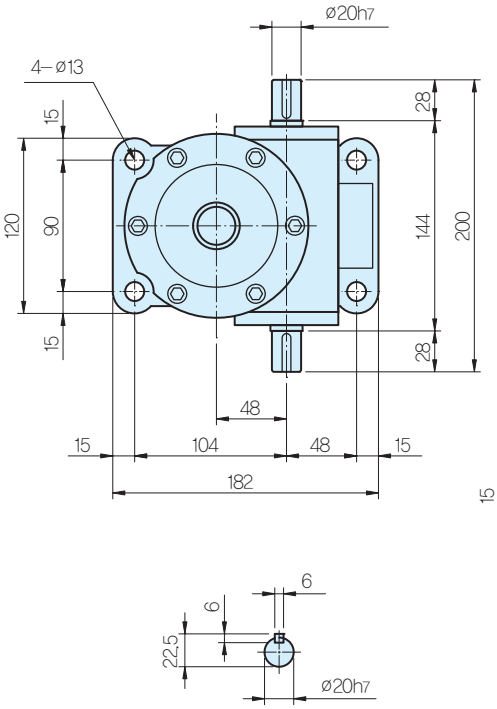
• 참고 : BALL NUT의 치수는 변경될 수 있음.

# SMJ50 축승강형

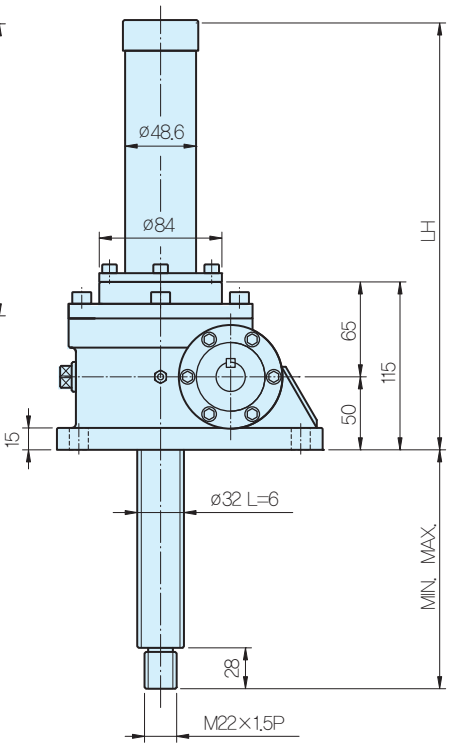
## ■ 상방향형(U)




## ■ 평면도

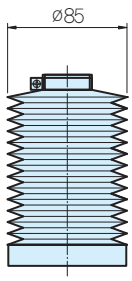



## ■ 하방향형(D)

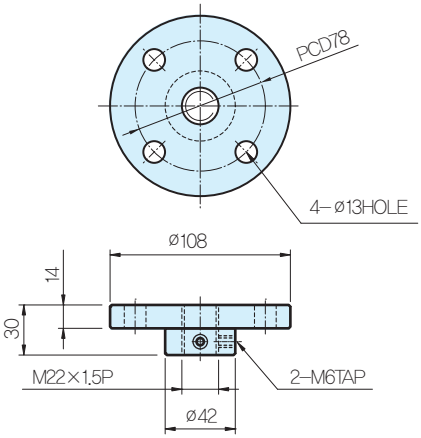



## ■ 스크류축 체결부품 Output Options

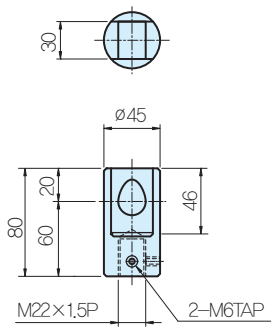
BELLOWS(B)



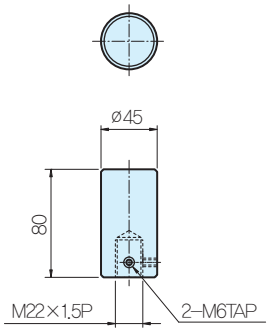

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

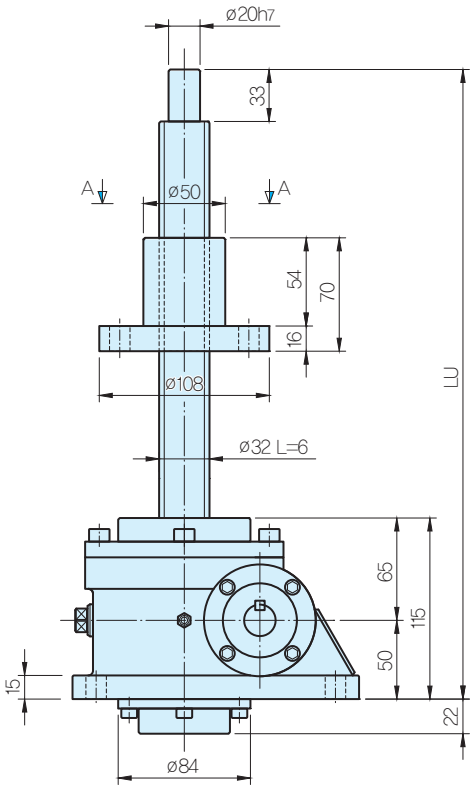



## ■ 행정기준표 SMJ50

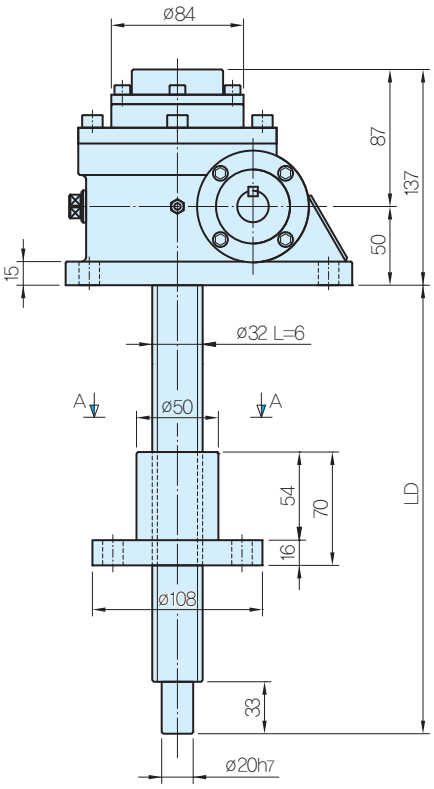
• 개략중량 12kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 165 | 265 | 215 | 315 | 150 | 100 | 45 | 145 | 95 | 195 | 270 |
| 200 | 165 | 365 | 225 | 425 | 250 | 200 | 45 | 245 | 105 | 305 | 370 |
| 300 | 165 | 465 | 235 | 535 | 350 | 300 | 45 | 345 | 115 | 415 | 470 |
| 400 | 165 | 565 | 245 | 645 | 450 | 400 | 45 | 445 | 125 | 525 | 570 |
| 500 | 165 | 665 | 255 | 755 | 550 | 500 | 45 | 545 | 135 | 635 | 670 |
| 1000 | 165 | 1165 | 355 | 1355 | 1050 | 1000 | 45 | 1045 | 235 | 1235 | 1170 |

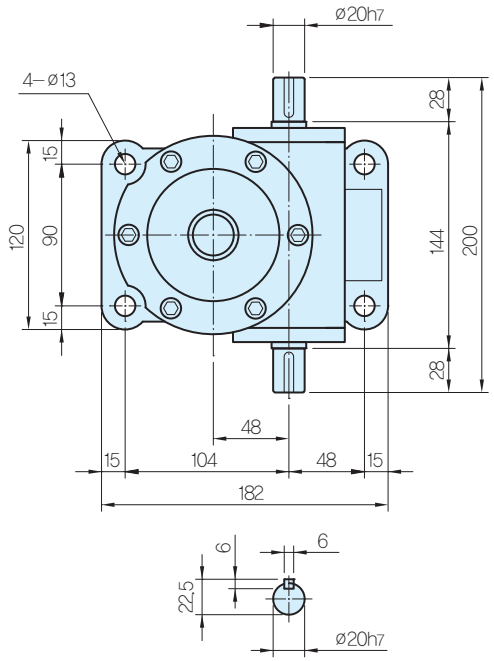
## ■ 상방향형 (NU)



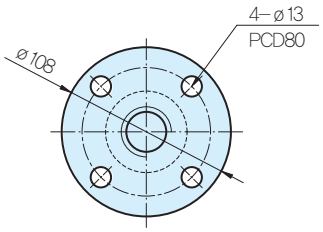

## ■ 하방향형 (ND)




## ■ 평면도



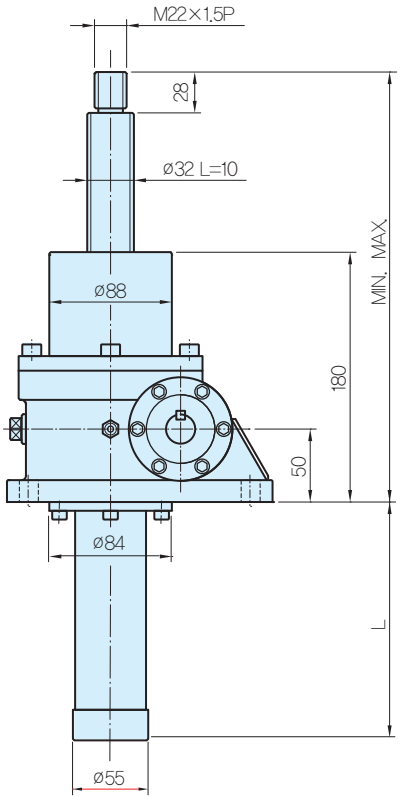

VIEW A–A



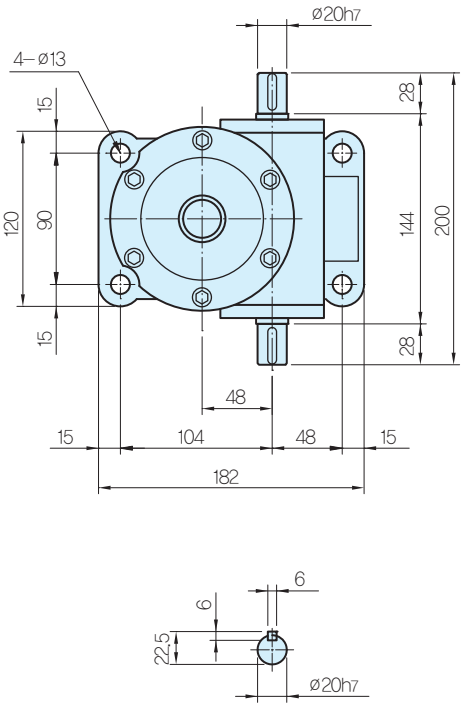

## ■ 행정기준표 SMJ50N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 365 | 250 |
| 200 | 465 | 350 |
| 300 | 565 | 450 |
| 400 | 665 | 550 |
| 500 | 765 | 650 |
| 1000 | 1265 | 1150 |

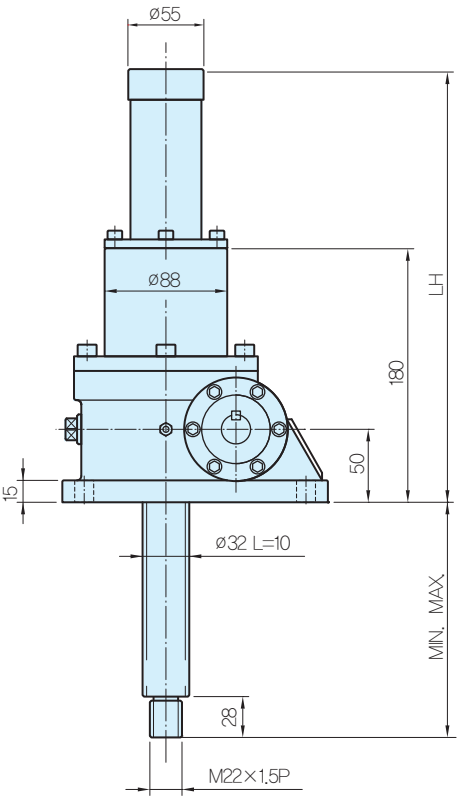
## ■ 상방향형(U)




## ■ 평면도

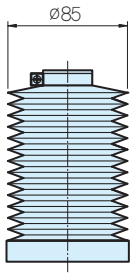



## ■ 하방향형(D)

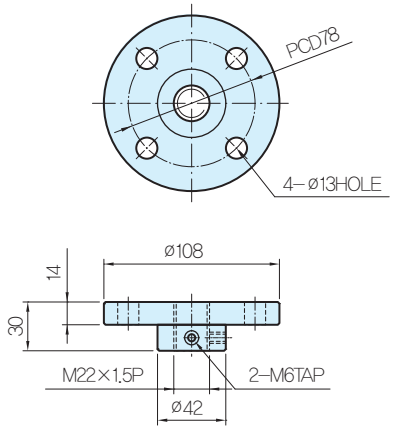



## ■ 스크류축 체결부품 Output Options

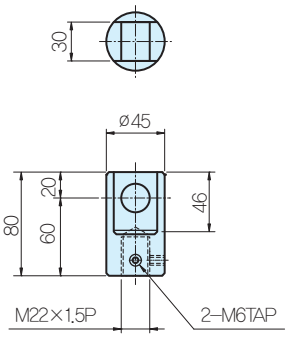
BELLOWS(B)



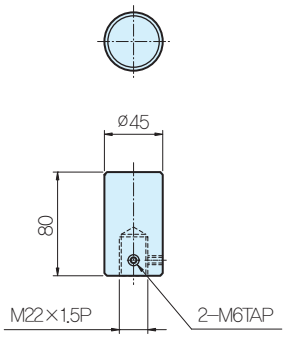

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

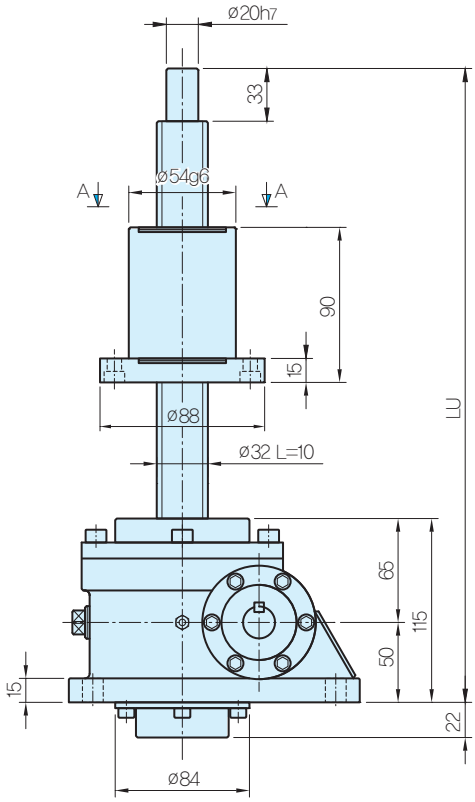



## ■ 행정기준표 SMJ B50

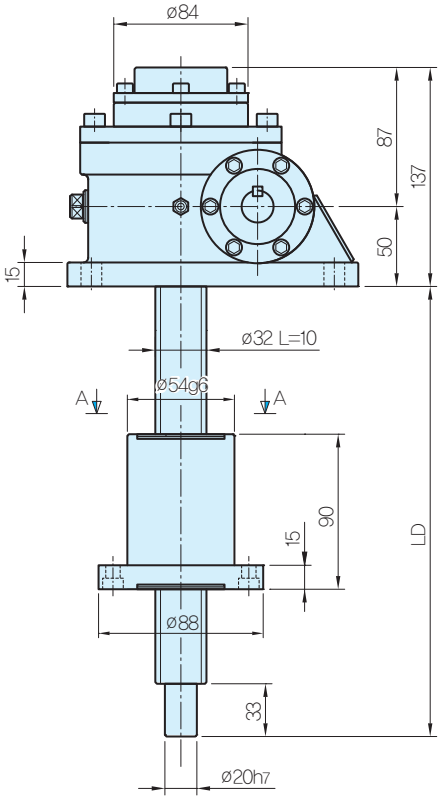
• 개략중량 15kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 230 | 330 | 280 | 380 | 150 | 100 | 45 | 145 | 95 | 195 | 330 |
| 200 | 230 | 430 | 290 | 490 | 250 | 200 | 45 | 245 | 105 | 305 | 430 |
| 300 | 230 | 530 | 300 | 600 | 350 | 300 | 45 | 345 | 115 | 415 | 530 |
| 400 | 230 | 630 | 310 | 710 | 450 | 400 | 45 | 445 | 125 | 525 | 630 |
| 500 | 230 | 730 | 320 | 820 | 550 | 500 | 45 | 545 | 135 | 635 | 730 |
| 1000 | 230 | 1230 | 420 | 1420 | 1050 | 1000 | 45 | 1045 | 235 | 1235 | 1230 |

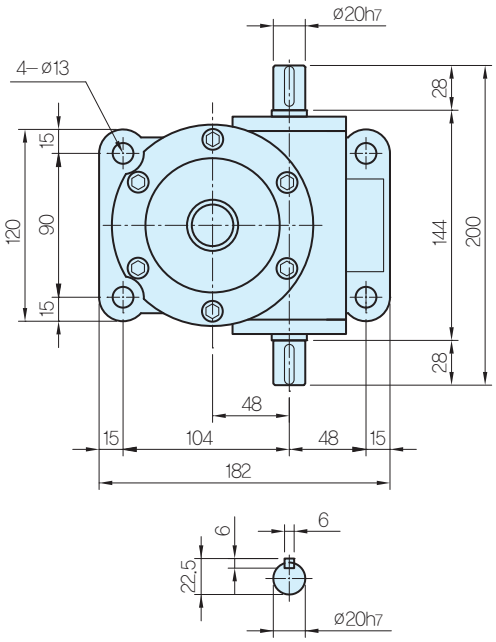
■ 상방향형 (NU)



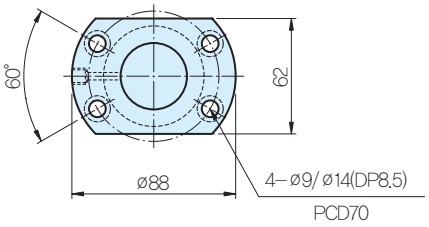

■ 하방향형 (ND)




■ 평면도




VIEW A-A

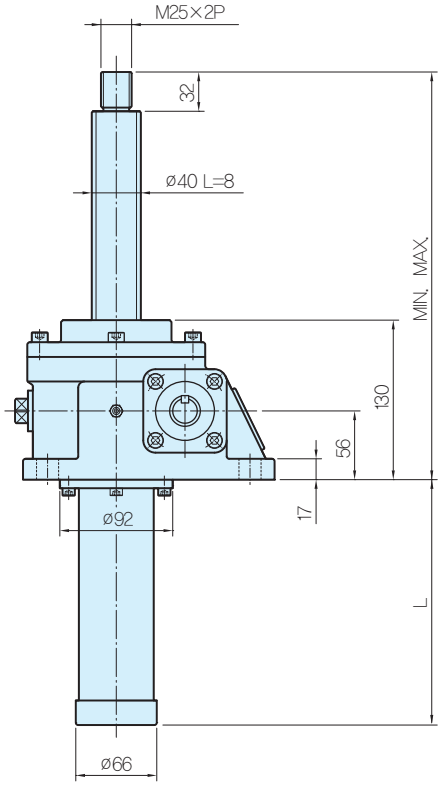



■ 행정기준표 SMJ B50N

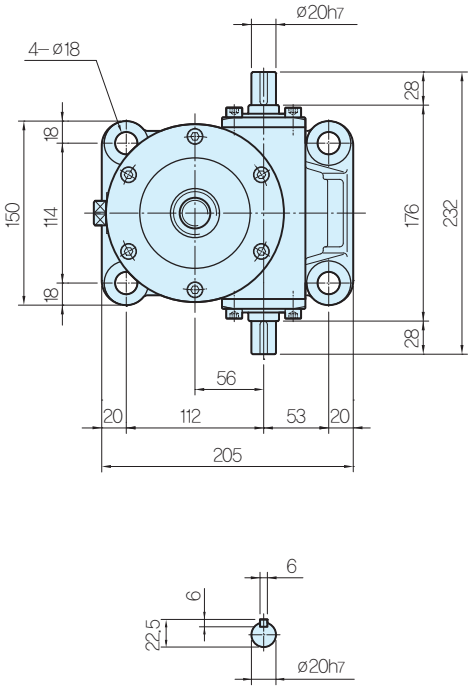
| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 380 | 265 |
| 200 | 480 | 365 |
| 300 | 580 | 465 |
| 400 | 680 | 565 |
| 500 | 780 | 665 |
| 1000 | 1280 | 1165 |

• 참고 : BALL NUT의 치수는 변경될 수 있음.

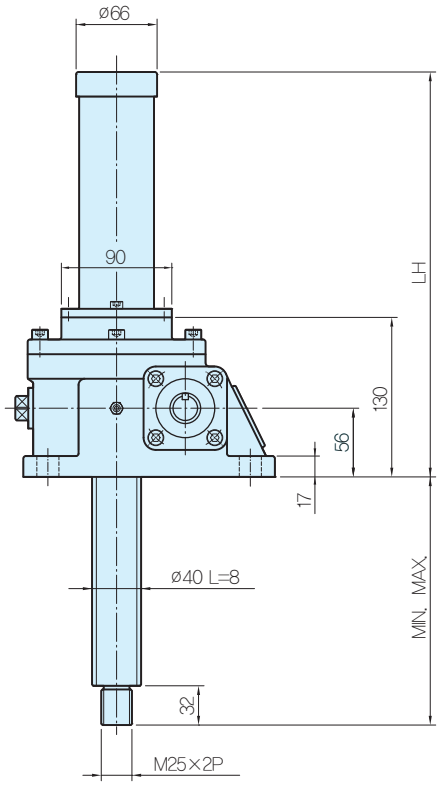
■ 상방향형(U)




■ 평면도

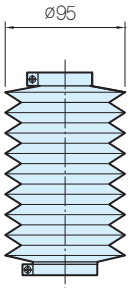



■ 하방향형(D)

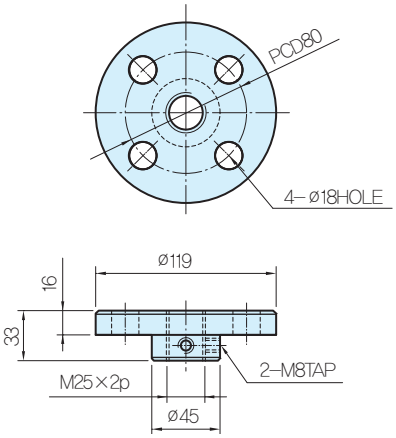



■ 스크류축 체결부품 Output Options

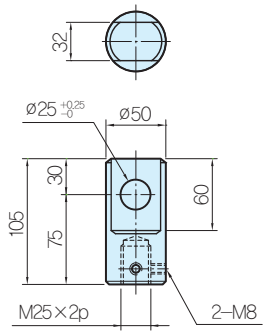
BELLOWS(B)



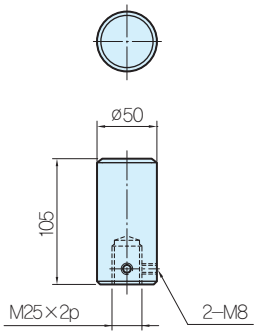

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)



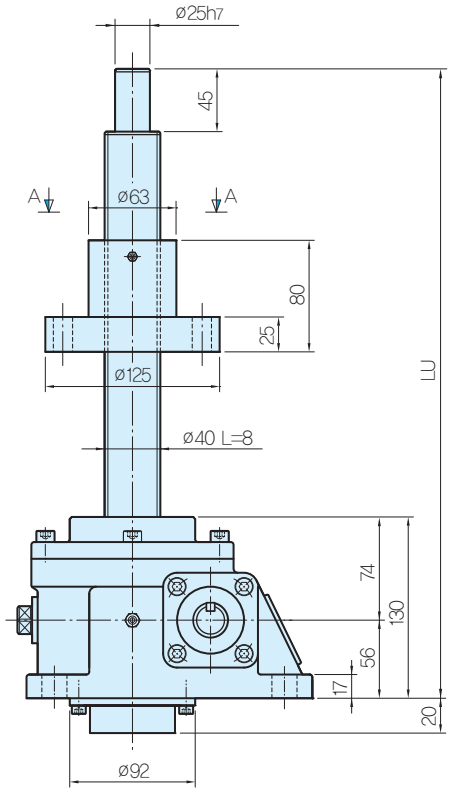

■ 행정기준표 SMJ56

• 개략중량 16kg/100st

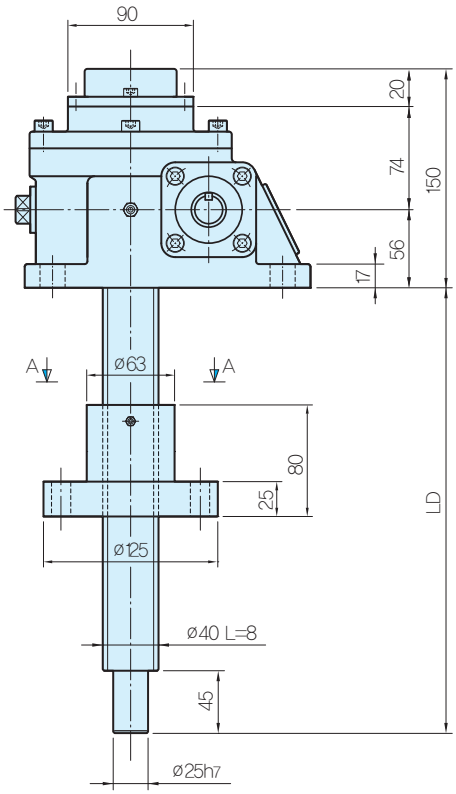
| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 180 | 280 | 230 | 330 | 160 | 100 | 50 | 150 | 100 | 200 | 290 |
| 200 | 180 | 380 | 240 | 440 | 260 | 200 | 50 | 250 | 110 | 210 | 390 |
| 300 | 180 | 480 | 250 | 550 | 360 | 300 | 50 | 350 | 120 | 220 | 490 |
| 400 | 180 | 580 | 260 | 660 | 460 | 400 | 50 | 450 | 130 | 230 | 590 |
| 500 | 180 | 680 | 270 | 770 | 560 | 500 | 50 | 550 | 140 | 240 | 690 |
| 1000 | 180 | 1180 | 270 | 1270 | 1060 | 1000 | 50 | 1050 | 240 | 1240 | 1180 |

# SMJ56N 너트승강형

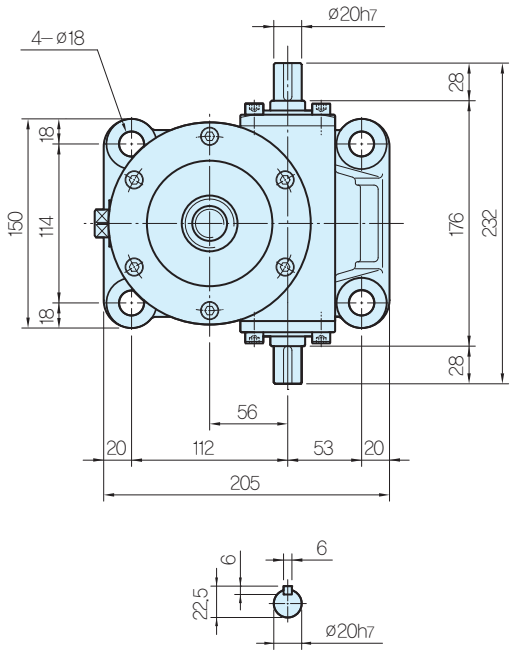
## ■ 상방향형 (NU)



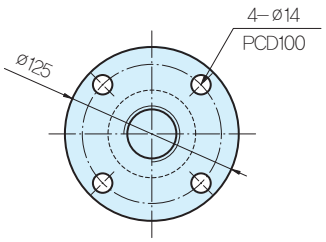

## ■ 하방향형 (ND)




## ■ 평면도



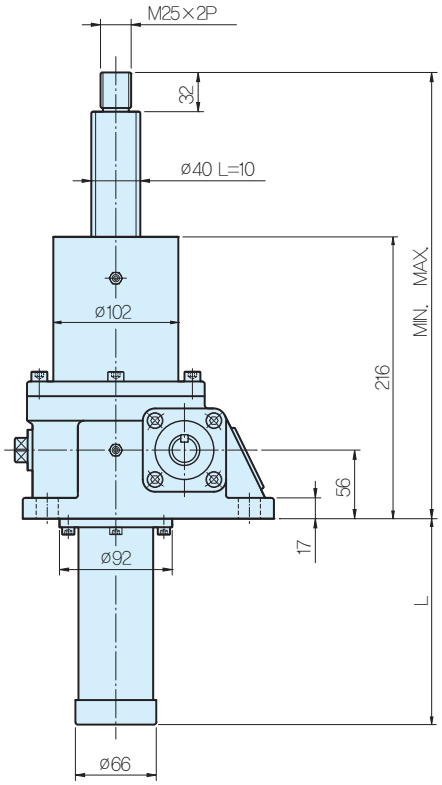

VIEW A-A



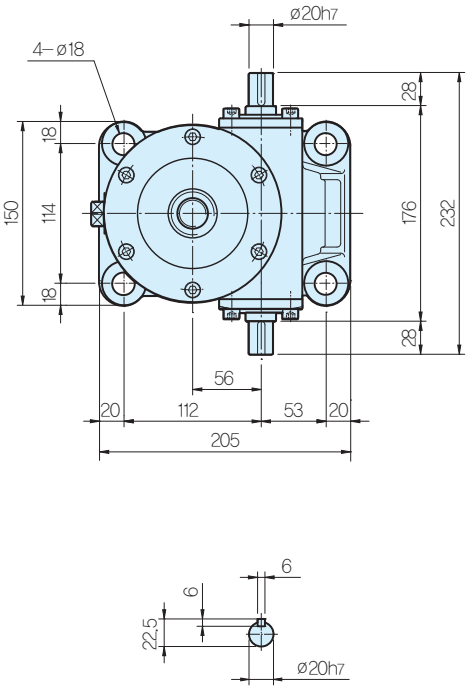

## ■ 행정기준표 SMJ56N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 400 | 270 |
| 200 | 500 | 370 |
| 300 | 600 | 470 |
| 400 | 700 | 570 |
| 500 | 800 | 670 |
| 1000 | 1300 | 1170 |

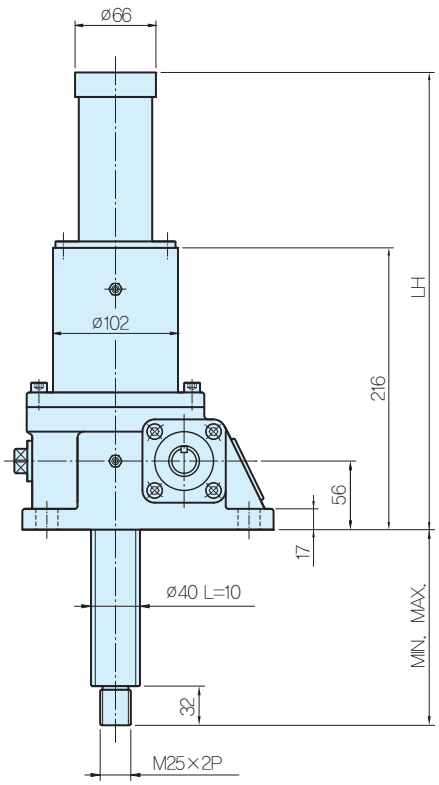
## ■ 상방향형(U)




## ■ 평면도

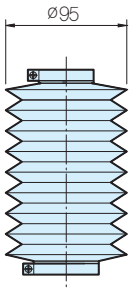



## ■ 하방향형(D)

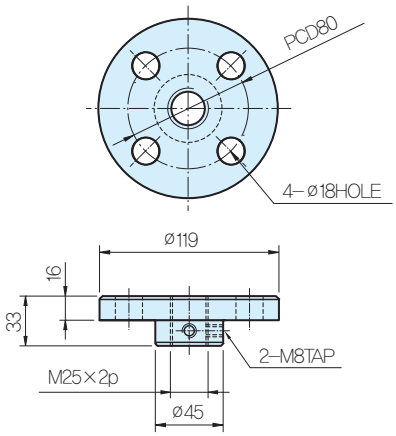



## ■ 스크류축 체결부품 Output Options

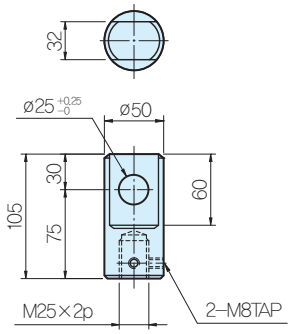
BELLOWS(B)



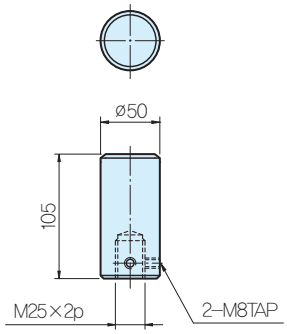

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

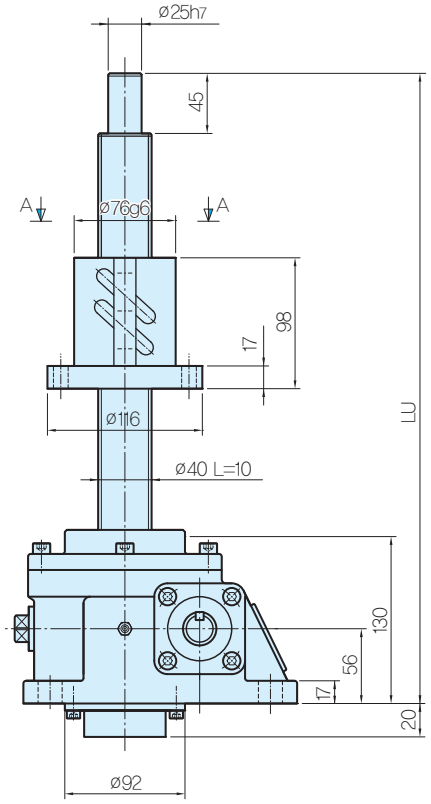



## ■ 행정기준표 SMJ B56

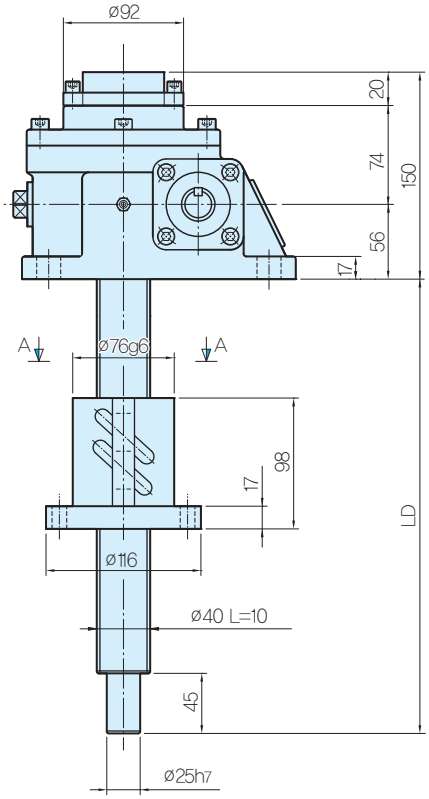
• 개략중량 21kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 270 | 370 | 320 | 420 | 160 | 100 | 50 | 150 | 100 | 200 | 380 |
| 200 | 270 | 470 | 330 | 530 | 260 | 200 | 50 | 250 | 110 | 210 | 480 |
| 300 | 270 | 570 | 340 | 640 | 360 | 300 | 50 | 350 | 120 | 220 | 580 |
| 400 | 270 | 670 | 350 | 750 | 460 | 400 | 50 | 450 | 130 | 230 | 680 |
| 500 | 270 | 770 | 360 | 860 | 560 | 500 | 50 | 550 | 140 | 240 | 780 |
| 1000 | 270 | 1270 | 460 | 1460 | 1060 | 1000 | 50 | 1050 | 240 | 1240 | 1280 |

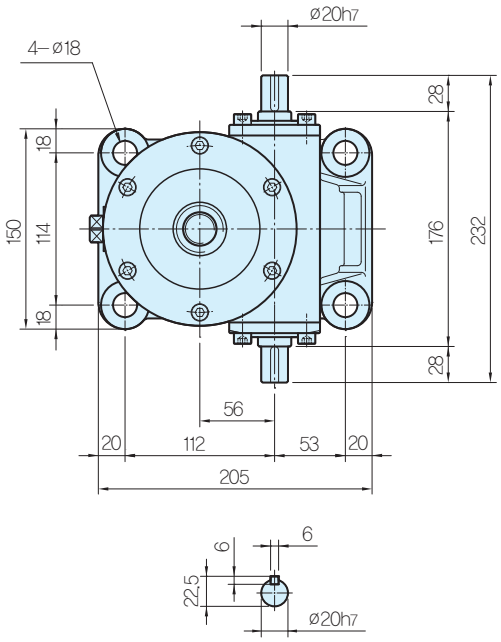
## ■ 상방향형 (NU)




## ■ 하방향형 (ND)



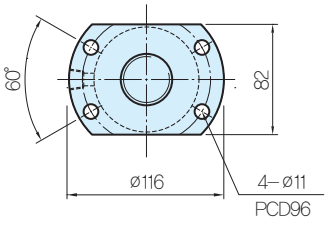

## ■ 평면도







VIEW A–A

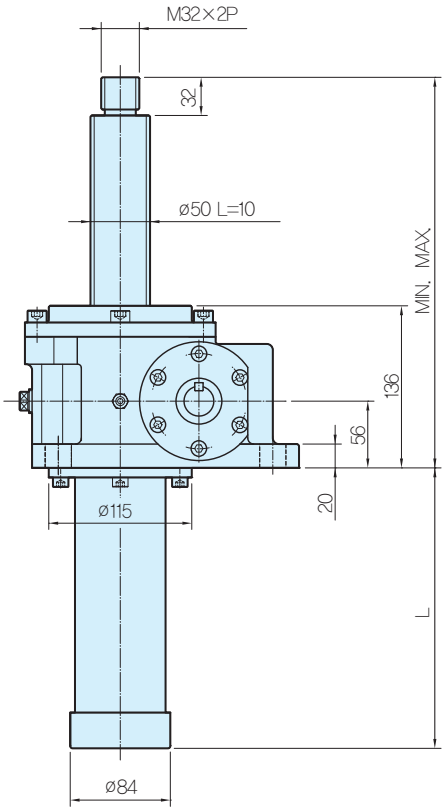



## ■ 행정기준표 SMJ B56N

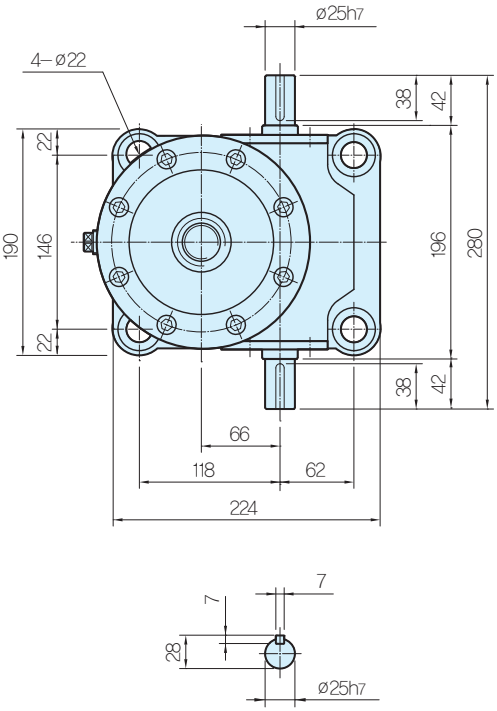
| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 420 | 290 |
| 200 | 520 | 390 |
| 300 | 620 | 490 |
| 400 | 720 | 590 |
| 500 | 820 | 690 |
| 1000 | 1320 | 1190 |

• 참고 : BALL NUT의 치수는 변경될 수 있음.

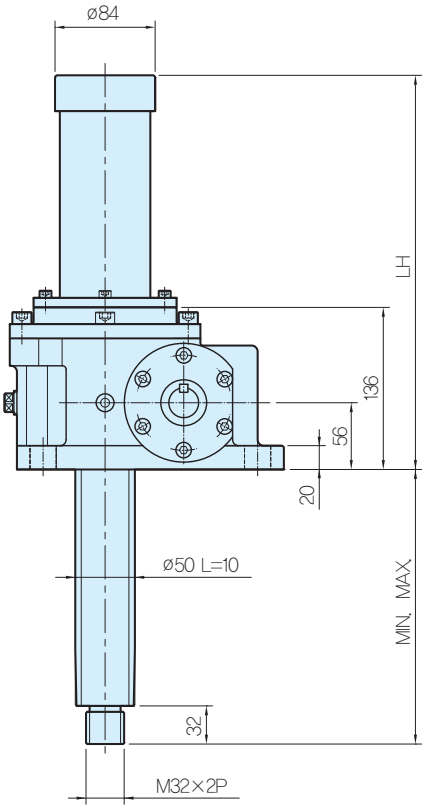
## ■ 상방향형(U)




## ■ 평면도

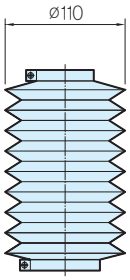



## ■ 하방향형(D)

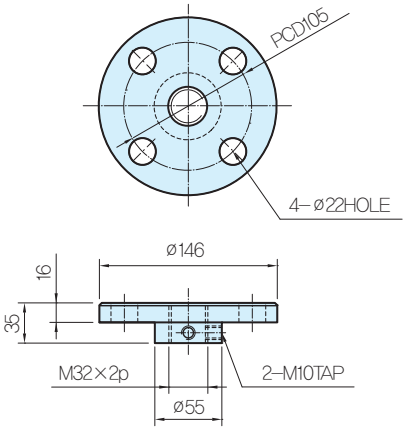



## ■ 스크류축 체결부품 Output Options

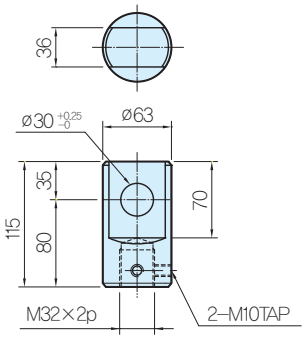
BELLOWS(B)



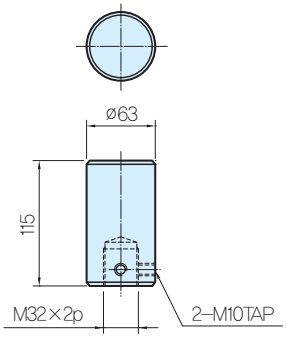

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)



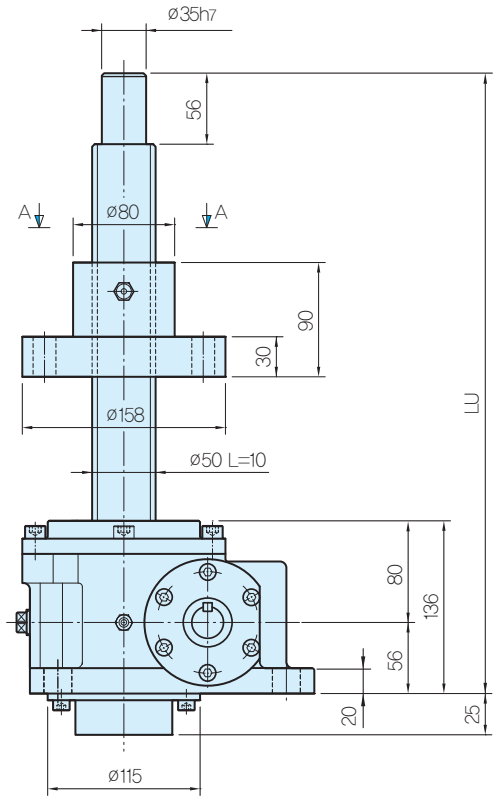

## ■ 행정기준표 SMJ66

• 개략중량 30kg/100st

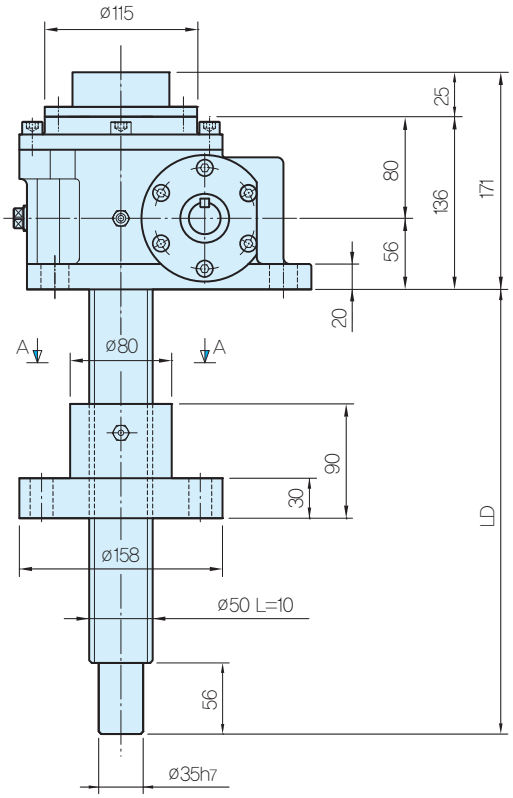
| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 185 | 285 | 235 | 335 | 160 | 100 | 50 | 150 | 100 | 200 | 295 |
| 200 | 185 | 385 | 245 | 445 | 260 | 200 | 50 | 250 | 110 | 310 | 395 |
| 300 | 185 | 485 | 255 | 555 | 360 | 300 | 50 | 350 | 120 | 420 | 495 |
| 400 | 185 | 585 | 265 | 665 | 460 | 400 | 50 | 450 | 130 | 530 | 595 |
| 500 | 185 | 685 | 275 | 775 | 560 | 500 | 50 | 550 | 140 | 640 | 695 |
| 1000 | 185 | 1185 | 375 | 1375 | 1060 | 1000 | 50 | 1050 | 240 | 1240 | 1195 |

# SMJ66N 너트승강형

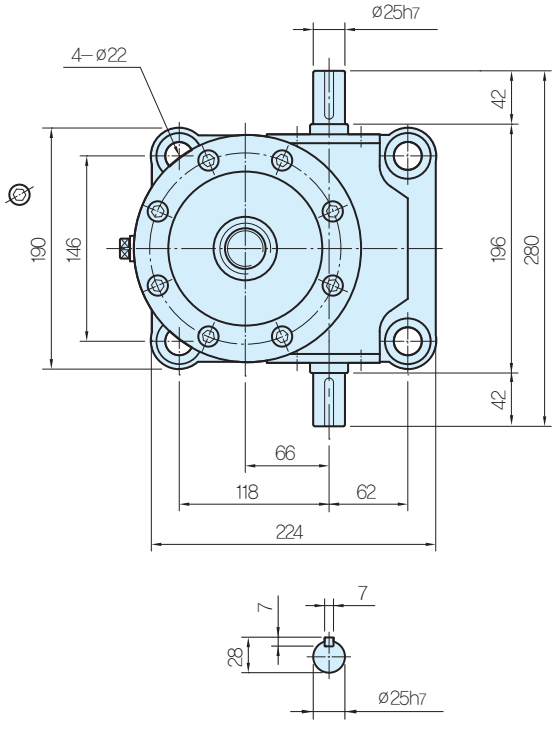
## ■ 상방향형 (NU)

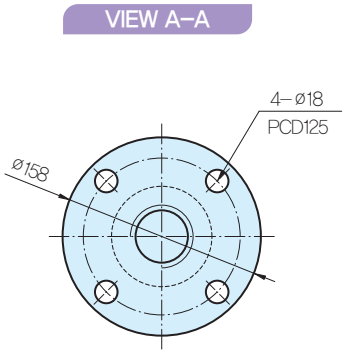



## ■ 하방향형 (ND)




## ■ 평면도

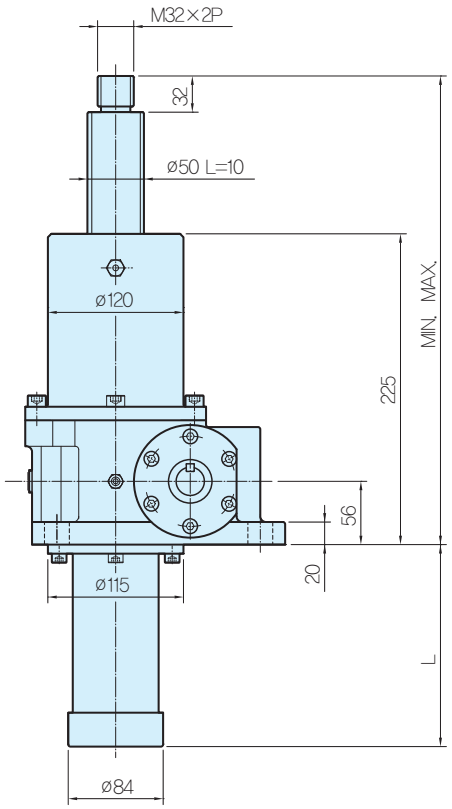


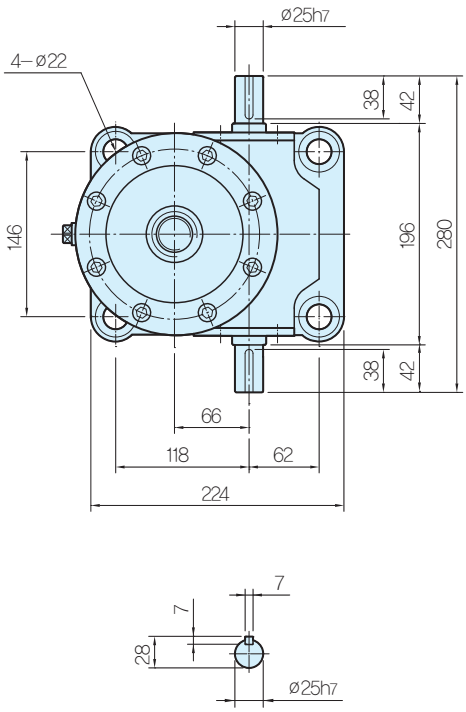

## ■ 행정기준표 SMJ66N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 430 | 300 |
| 200 | 530 | 400 |
| 300 | 630 | 500 |
| 400 | 730 | 600 |
| 500 | 830 | 700 |
| 1000 | 1330 | 1200 |

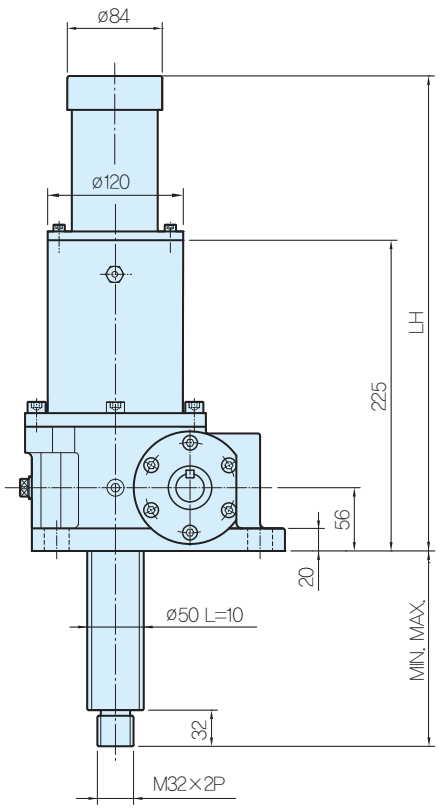
## ■ 상방향형(U)




## ■ 평면도

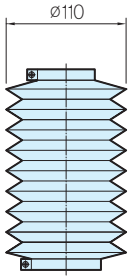



## ■ 하방향형(D)

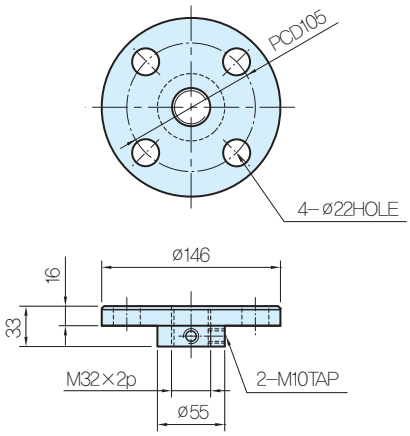



## ■ 스크류축 체결부품 Output Options

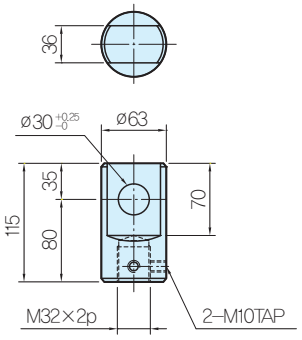
BELLOWS(B)



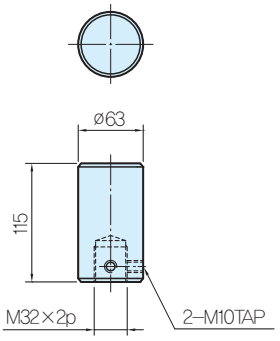

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

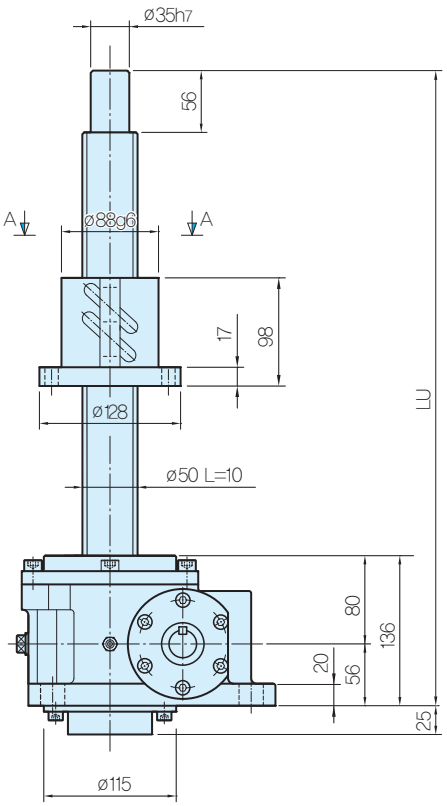



## ■ 행정기준표 SMJ B66

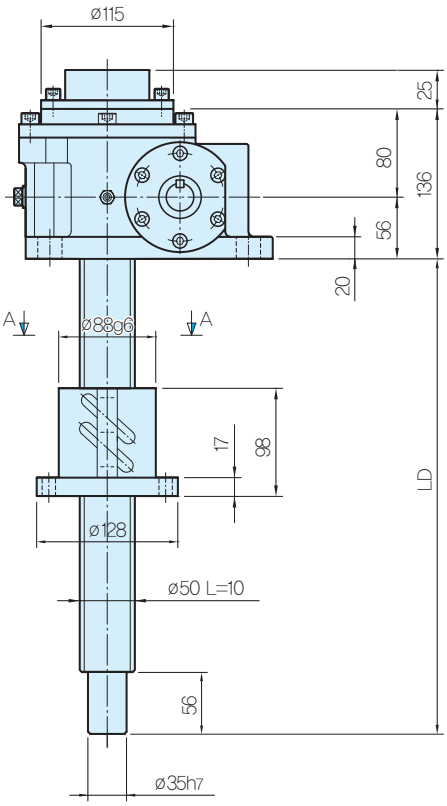
• 개략중량 40kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 300 | 400 | 350 | 450 | 160 | 100 | 50 | 150 | 100 | 200 | 385 |
| 200 | 300 | 500 | 360 | 560 | 260 | 200 | 50 | 250 | 110 | 310 | 485 |
| 300 | 300 | 600 | 370 | 670 | 360 | 300 | 50 | 350 | 120 | 420 | 585 |
| 400 | 300 | 700 | 380 | 780 | 460 | 400 | 50 | 450 | 130 | 530 | 685 |
| 500 | 300 | 800 | 390 | 890 | 560 | 500 | 50 | 550 | 140 | 640 | 785 |
| 1000 | 300 | 1300 | 490 | 1490 | 1060 | 1000 | 50 | 1050 | 240 | 1240 | 1285 |

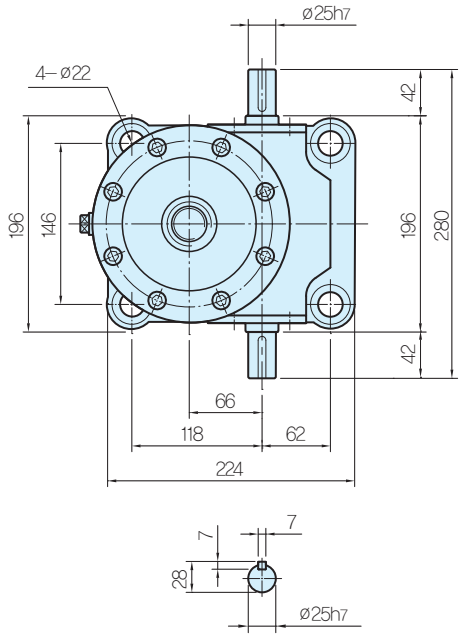
## ■ 상방향형 (NU)



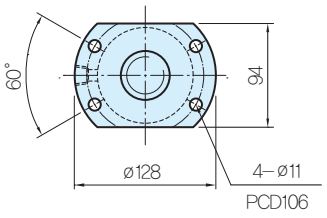

## ■ 하방향형 (ND)




## ■ 평면도




VIEW A-A

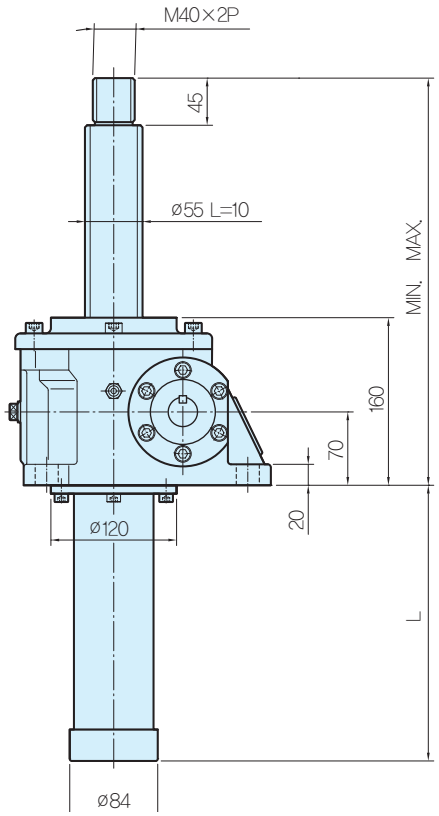



## ■ 행정기준표 SMJ B66N

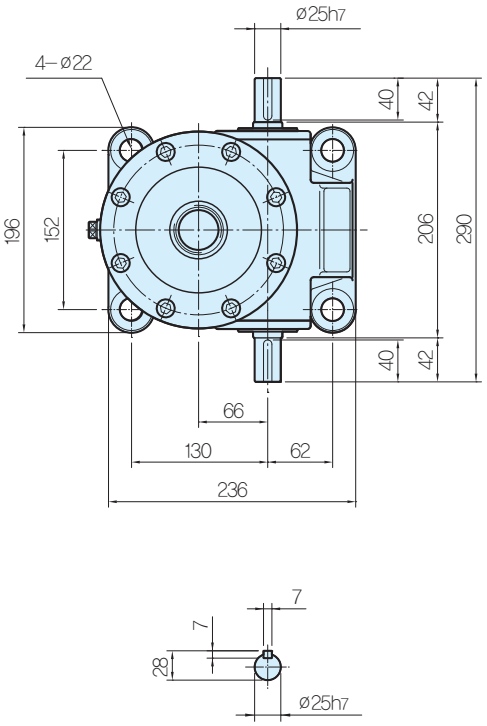
| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 450 | 315 |
| 200 | 550 | 415 |
| 300 | 650 | 515 |
| 400 | 750 | 615 |
| 500 | 850 | 715 |
| 1000 | 1350 | 1215 |

• 참고 : BALL NUT의 치수는 변경될 수 있음.

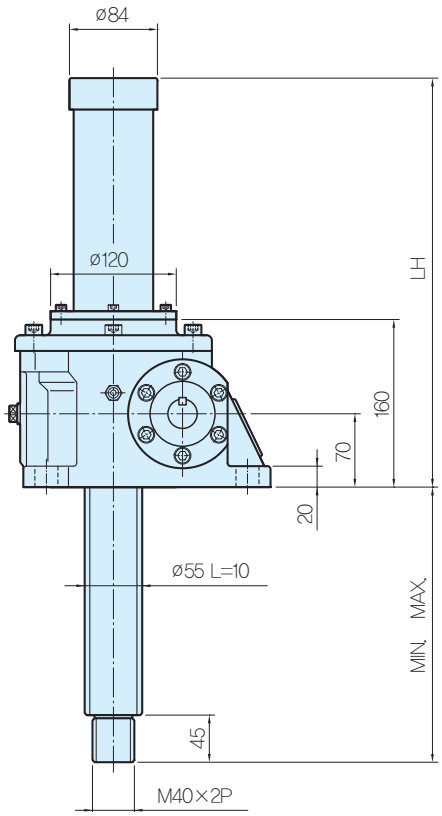
## ■ 상방향형(U)




## ■ 평면도

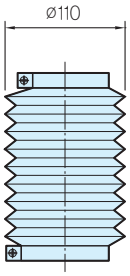



## ■ 하방향형(D)

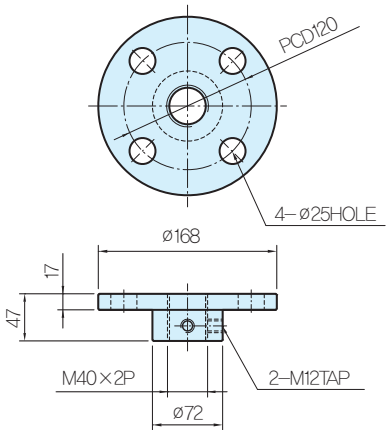



## ■ 스크류축 체결부품 Output Options

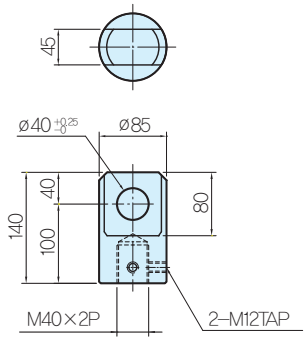
BELLOWS(B)



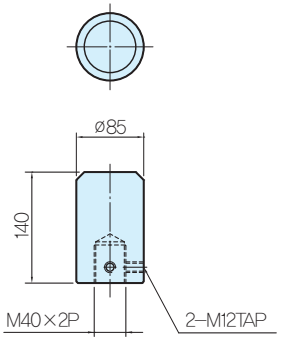

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)




## ■ 행정기준표 SMJ66S

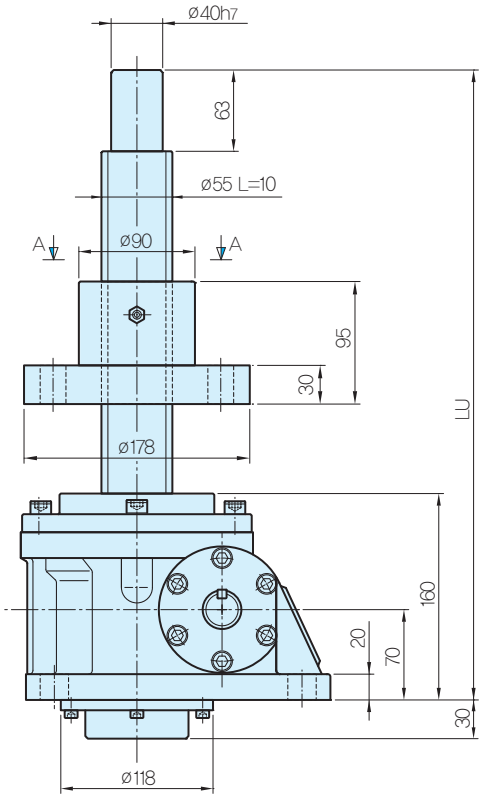
• 개략중량 35kg/100st

| 상방향형 U | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L |
| | MIN | MAX | MIN | MAX | |
| 100 | 220 | 320 | 270 | 370 | 160 |
| 200 | 220 | 420 | 280 | 480 | 260 |
| 300 | 220 | 520 | 290 | 590 | 360 |
| 400 | 220 | 620 | 300 | 700 | 460 |
| 500 | 220 | 720 | 310 | 810 | 560 |
| 1000 | 220 | 1220 | 410 | 1410 | 1060 |

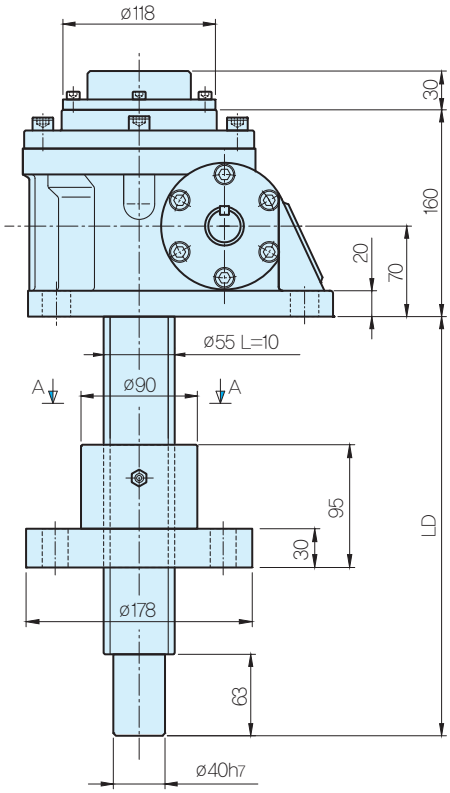
| 하방향형 D | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | |
| 100 | 60 | 160 | 110 | 210 | 320 |
| 200 | 60 | 260 | 120 | 320 | 420 |
| 300 | 60 | 360 | 130 | 430 | 520 |
| 400 | 60 | 460 | 140 | 540 | 620 |
| 500 | 60 | 560 | 150 | 650 | 720 |
| 1000 | 60 | 1060 | 250 | 1250 | 1220 |

# SMJ66SN 너트승강형

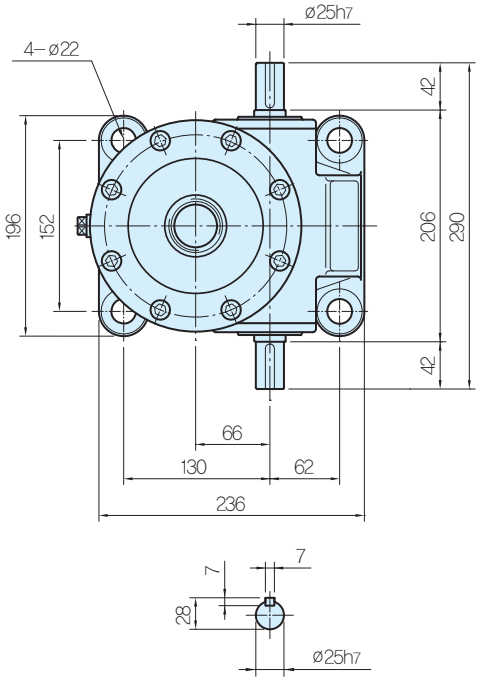
## ■ 상방향형 (NU)



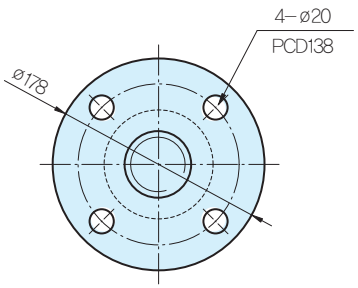

## ■ 하방향형 (ND)




## ■ 평면도



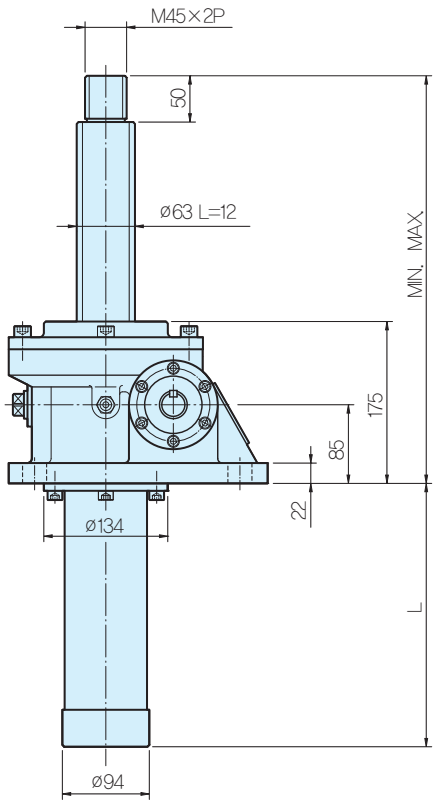

VIEW A-A



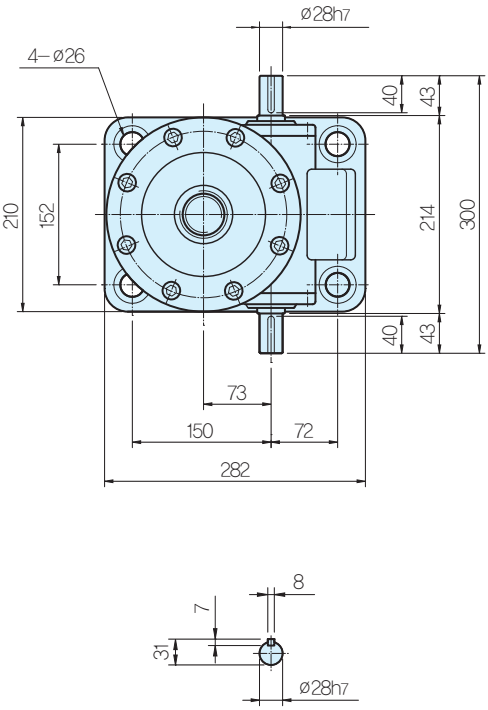

## ■ 행정기준표 SMJ66SN

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 470 | 310 |
| 200 | 570 | 410 |
| 300 | 670 | 510 |
| 400 | 770 | 610 |
| 500 | 870 | 710 |
| 1000 | 1370 | 1210 |

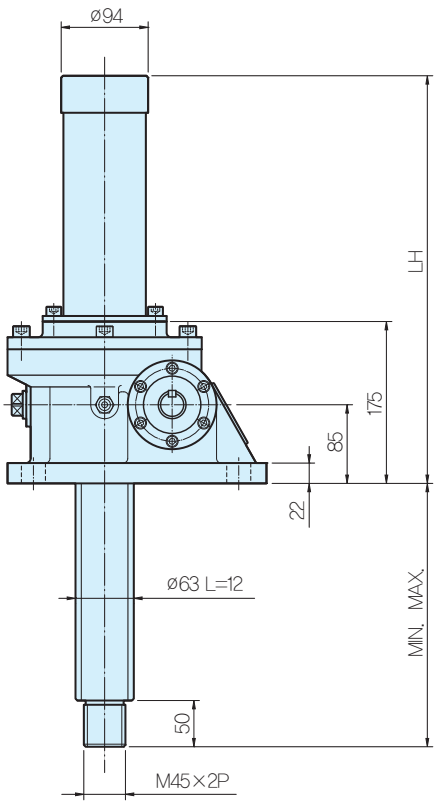
## ■ 상방향형(U)




## ■ 평면도

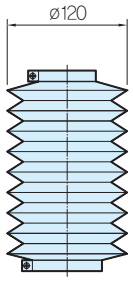



## ■ 하방향형(D)

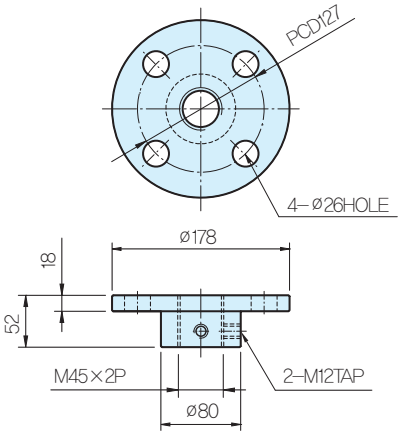



## ■ 스크류축 체결부품 Output Options

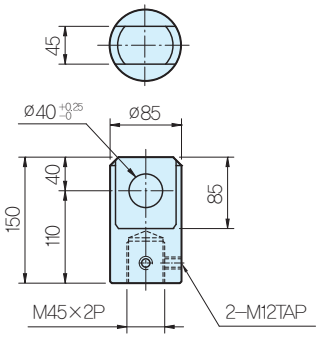
BELLOWS(B)



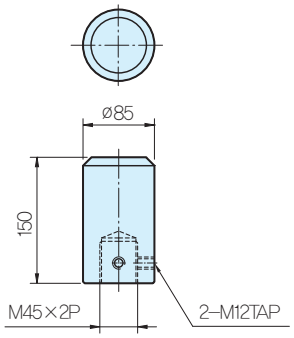

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)



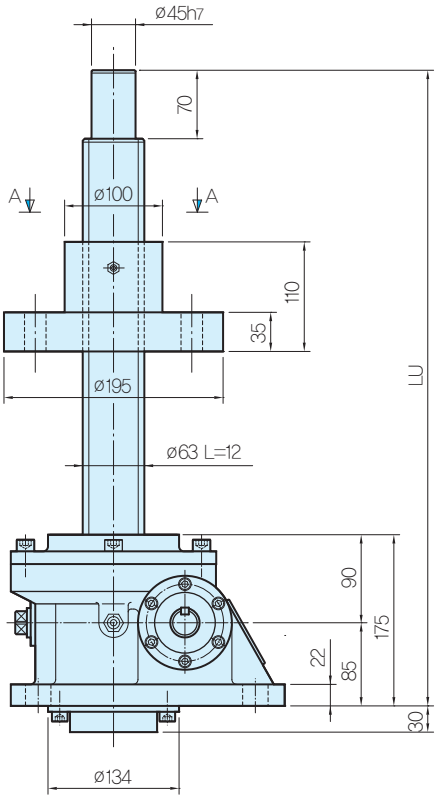

## ■ 행정기준표 SMJ73

• 개략중량 48kg/100st

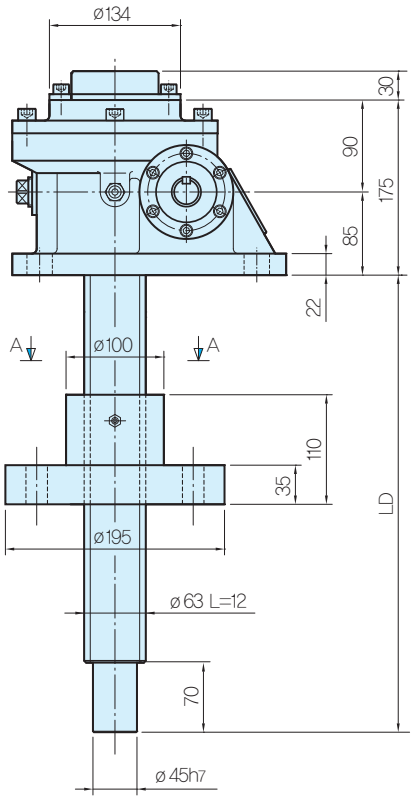
| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 235 | 335 | 295 | 395 | 170 | 100 | 60 | 160 | 120 | 220 | 340 |
| 200 | 235 | 435 | 305 | 505 | 270 | 200 | 60 | 260 | 130 | 330 | 440 |
| 300 | 235 | 535 | 315 | 615 | 370 | 300 | 60 | 360 | 140 | 440 | 540 |
| 400 | 235 | 635 | 325 | 725 | 470 | 400 | 60 | 460 | 150 | 550 | 640 |
| 500 | 235 | 735 | 335 | 835 | 570 | 500 | 60 | 560 | 160 | 660 | 740 |
| 1000 | 235 | 1235 | 435 | 1435 | 1070 | 1000 | 60 | 1060 | 260 | 1260 | 1240 |

# SMJ73N 너트승강형

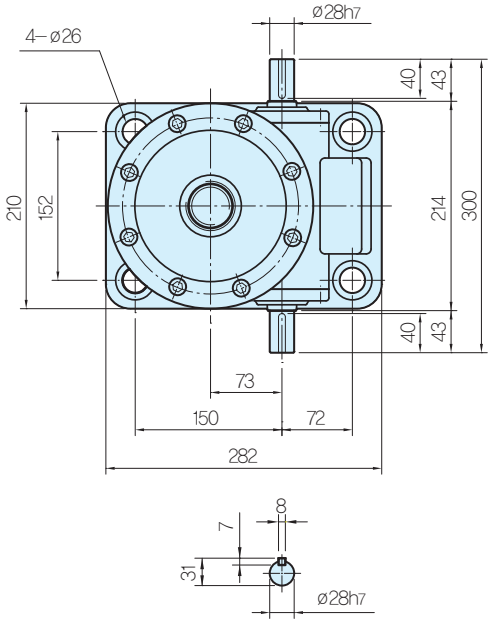
## ■ 상방향형 (NU)



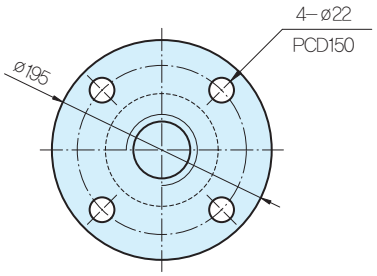

## ■ 하방향형 (ND)




## ■ 평면도



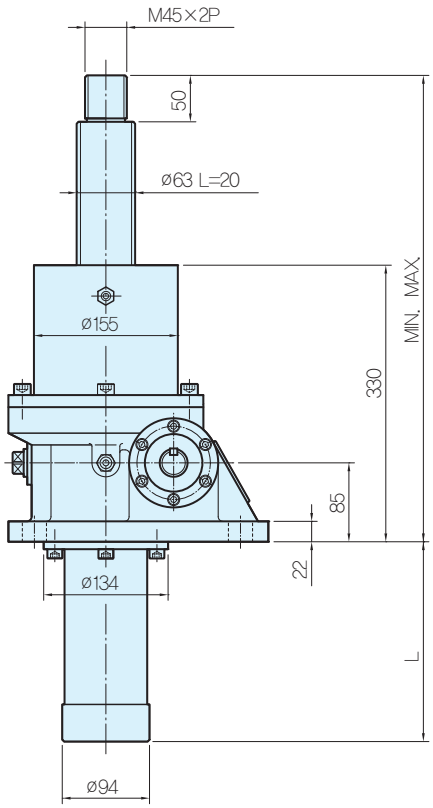

VIEW A-A



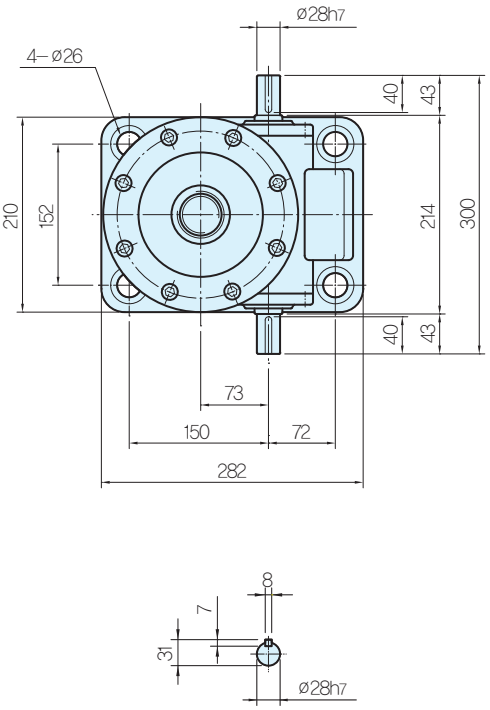

## ■ 행정기준표 SMJ73N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 520 | 345 |
| 200 | 620 | 445 |
| 300 | 720 | 545 |
| 400 | 820 | 645 |
| 500 | 920 | 745 |
| 1000 | 1420 | 1245 |

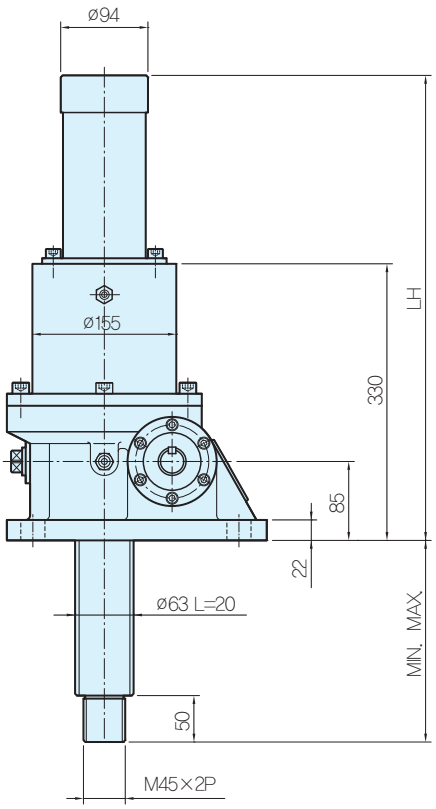
## ■ 상방향형(U)




## ■ 평면도

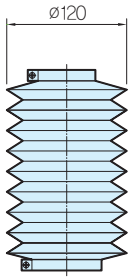



## ■ 하방향형(D)

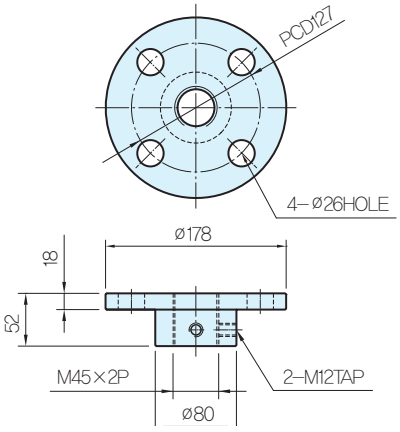



## ■ 스크류축 체결부품 Output Options

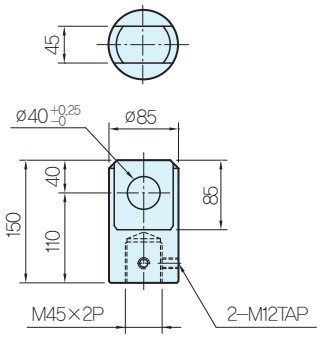
BELLOWS(B)



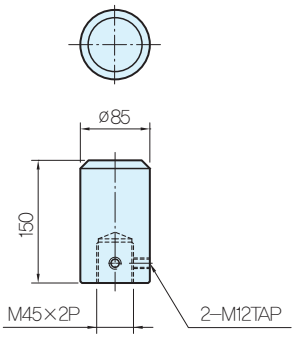

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

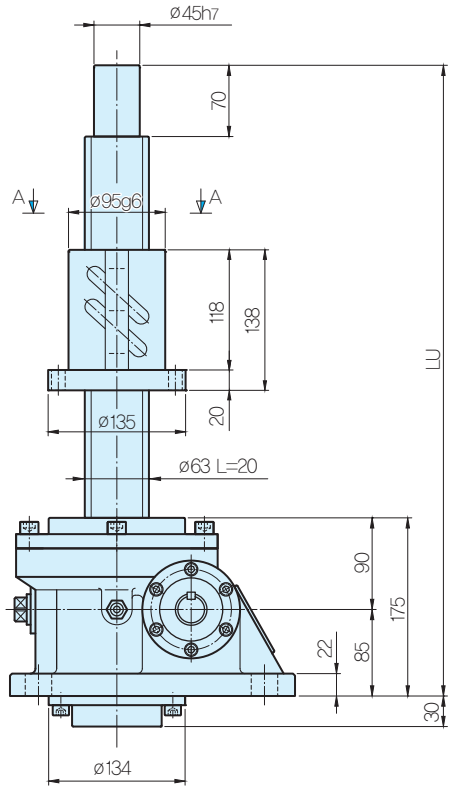



## ■ 행정기준표 SMJ B73

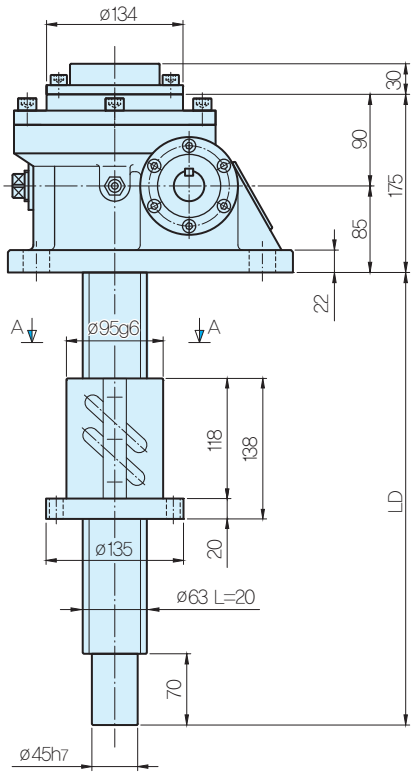
• 개략중량 70kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 430 | 530 | 490 | 590 | 170 | 100 | 60 | 160 | 120 | 220 | 490 |
| 200 | 430 | 630 | 500 | 700 | 270 | 200 | 60 | 260 | 130 | 330 | 590 |
| 300 | 430 | 730 | 510 | 810 | 370 | 300 | 60 | 360 | 140 | 440 | 690 |
| 400 | 430 | 830 | 520 | 920 | 470 | 400 | 60 | 460 | 150 | 550 | 790 |
| 500 | 430 | 930 | 530 | 1030 | 570 | 500 | 60 | 560 | 160 | 660 | 890 |
| 1000 | 430 | 1430 | 630 | 1630 | 1070 | 1000 | 60 | 1060 | 260 | 1260 | 1390 |

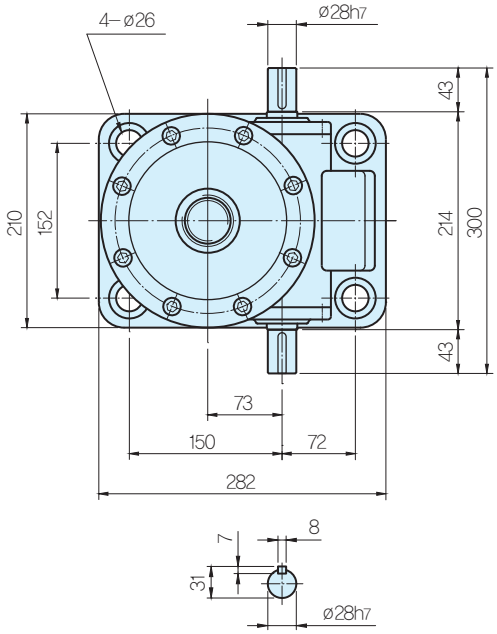
## ■ 상방향형 (NU)



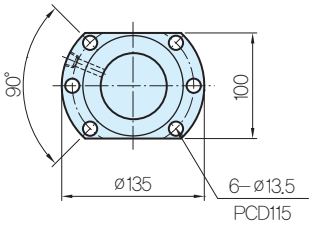

## ■ 하방향형 (ND)




## ■ 평면도




VIEW A-A



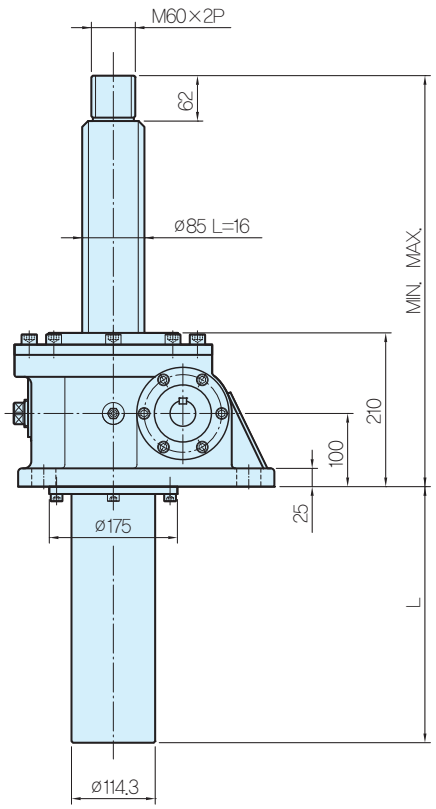

## ■ 행정기준표 SMJ B73N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 550 | 375 |
| 200 | 650 | 475 |
| 300 | 750 | 575 |
| 400 | 850 | 675 |
| 500 | 950 | 775 |
| 1000 | 1450 | 1275 |

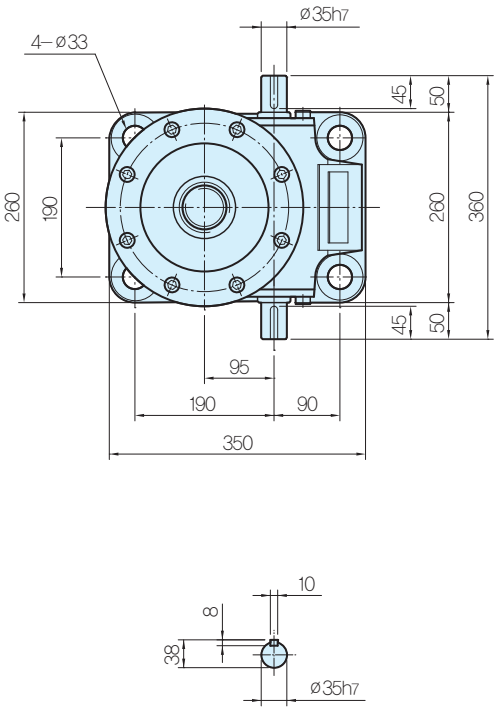
• 참고 : BALL NUT의 치수는 변경될 수 있음.

# SMJ95N 축승강형

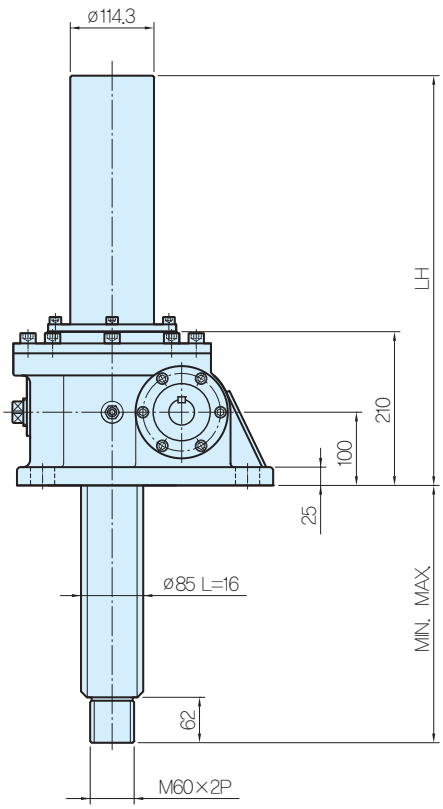
## ■ 상방향형(U)




## ■ 평면도

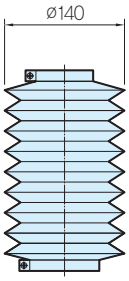



## ■ 하방향형(D)

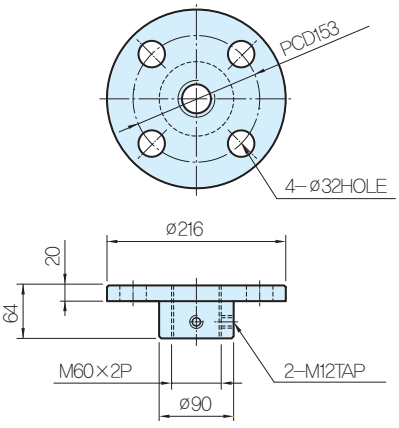



## ■ 스크류축 체결부품 Output Options

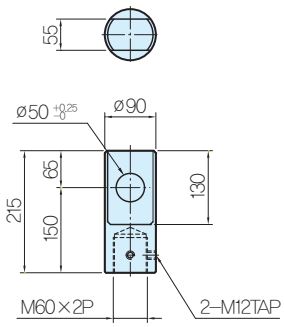
BELLOWS(B)



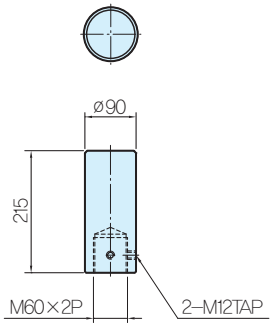

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

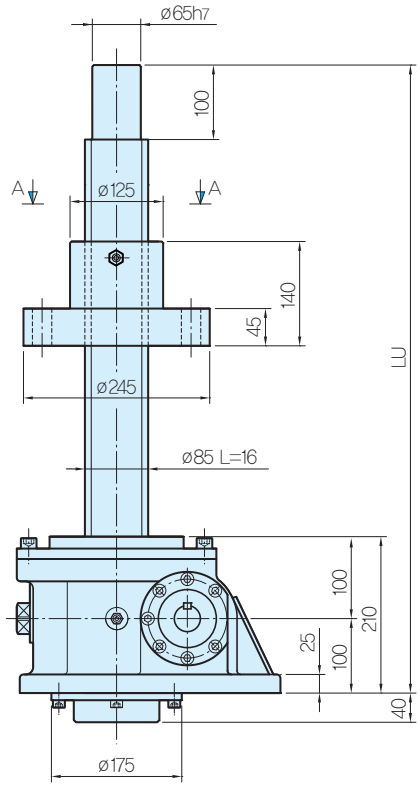



## ■ 행정기준표 SMJ95

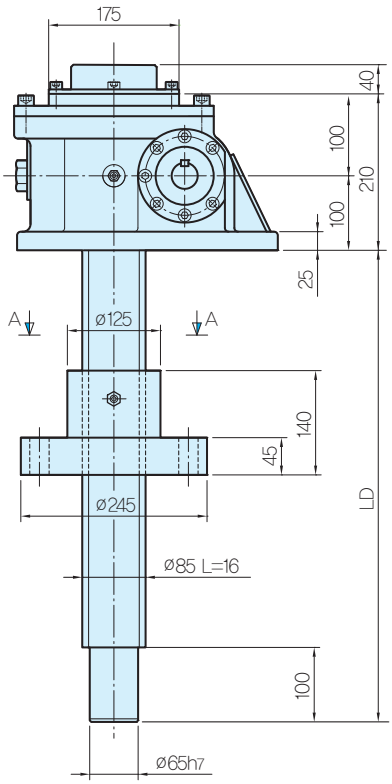
• 개략중량 80kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 290 | 390 | 350 | 450 | 170 | 100 | 80 | 180 | 140 | 240 | 380 |
| 200 | 290 | 490 | 360 | 560 | 270 | 200 | 80 | 280 | 150 | 350 | 480 |
| 300 | 290 | 590 | 370 | 670 | 370 | 300 | 80 | 380 | 160 | 460 | 580 |
| 400 | 290 | 690 | 380 | 780 | 470 | 400 | 80 | 480 | 170 | 570 | 680 |
| 500 | 290 | 790 | 390 | 890 | 570 | 500 | 80 | 580 | 180 | 680 | 780 |
| 1000 | 290 | 1290 | 490 | 1490 | 1070 | 1000 | 80 | 1080 | 280 | 1280 | 1280 |

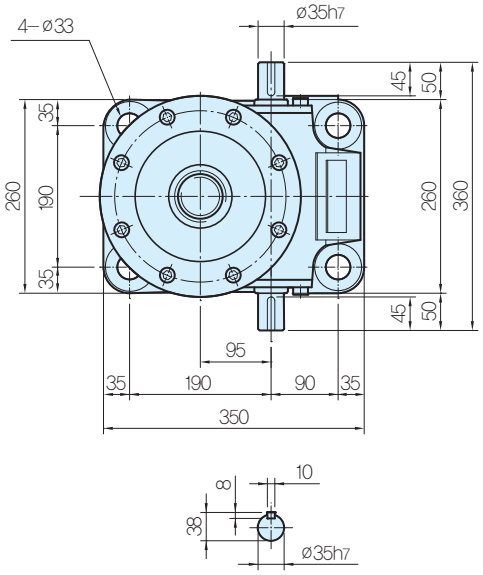
## ■ 상방향형 (NU)




## ■ 하방향형 (ND)



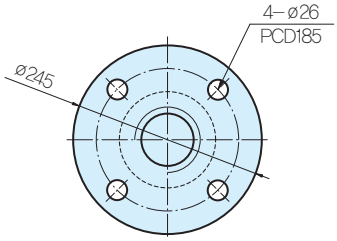

## ■ 평면도







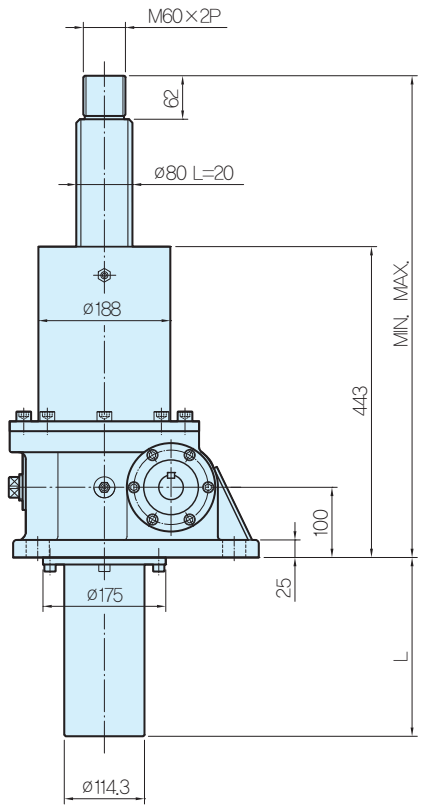
VIEW A-A



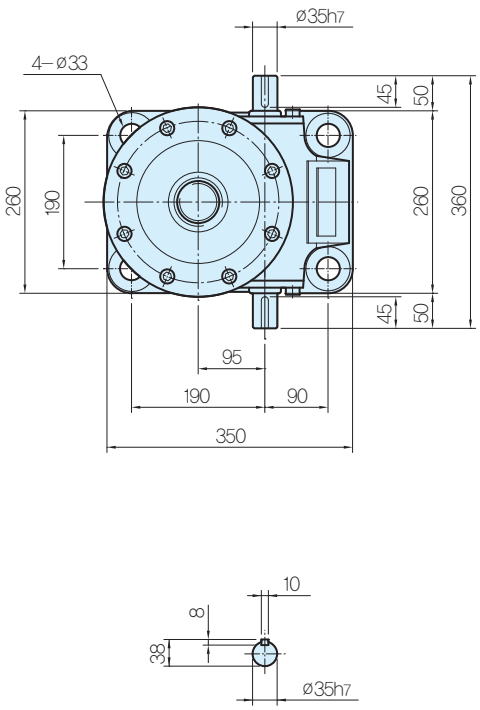

## ■ 행정기준표 SMJ95N

| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 620 | 410 |
| 200 | 720 | 510 |
| 300 | 820 | 610 |
| 400 | 920 | 710 |
| 500 | 1020 | 810 |
| 1000 | 1520 | 1310 |

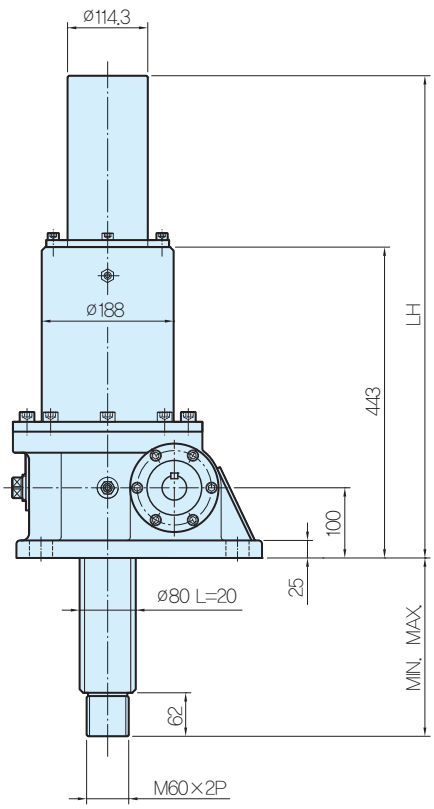
## ■ 상방향형(U)




## ■ 평면도

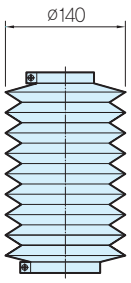



## ■ 하방향형(D)

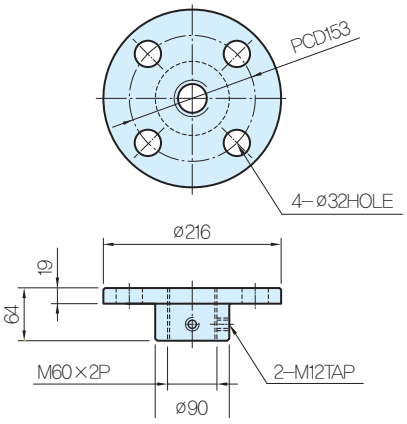



## ■ 스크류축 체결부품 Output Options

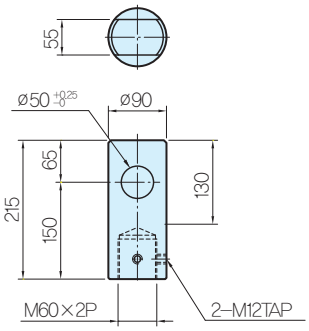
BELLOWS(B)



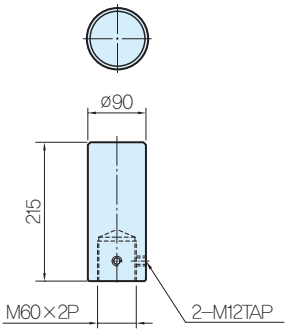

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)

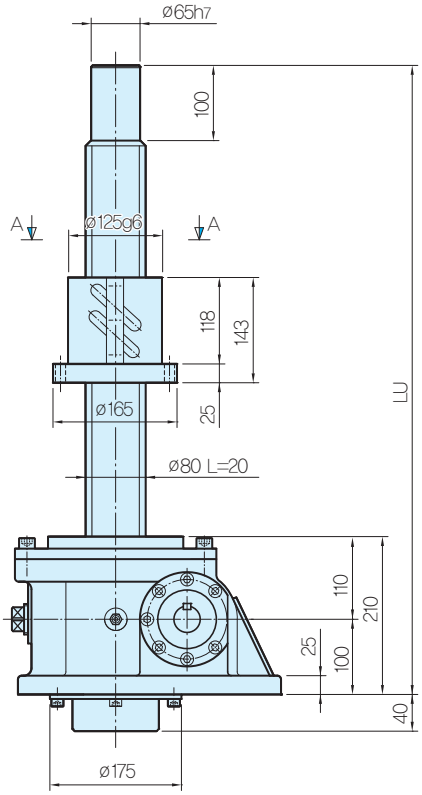



## ■ 행정기준표 SMJ B95

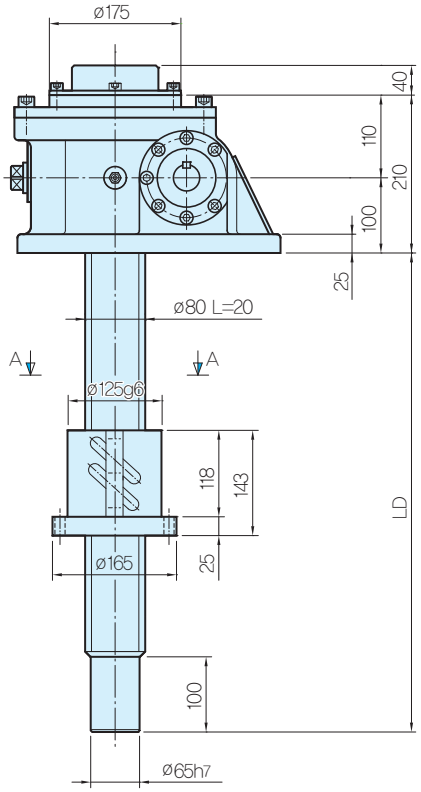
• 개략중량 120kg/100st

| 상방향형 U | | | | | | 하방향형 D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L | 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | | | MIN | MAX | MIN | MAX | |
| 100 | 525 | 625 | 585 | 685 | 170 | 100 | 80 | 180 | 140 | 240 | 620 |
| 200 | 525 | 725 | 595 | 795 | 270 | 200 | 80 | 280 | 150 | 350 | 720 |
| 300 | 525 | 825 | 605 | 905 | 370 | 300 | 80 | 380 | 160 | 460 | 820 |
| 400 | 525 | 925 | 615 | 1015 | 470 | 400 | 80 | 480 | 170 | 570 | 920 |
| 500 | 525 | 1025 | 625 | 1125 | 570 | 500 | 80 | 580 | 180 | 680 | 1020 |
| 1000 | 525 | 1525 | 725 | 1725 | 1070 | 1000 | 80 | 1080 | 280 | 1280 | 1520 |

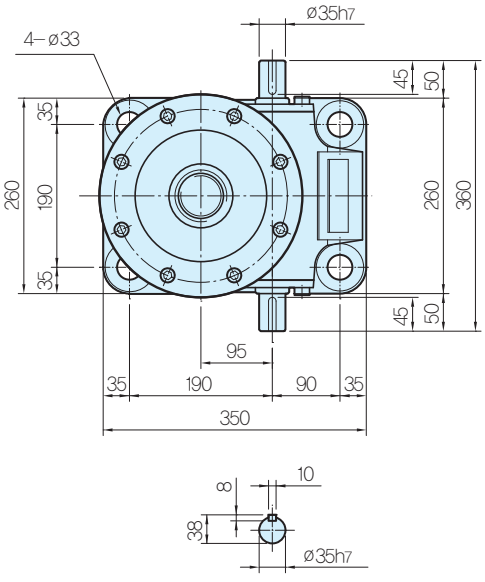
## ■ 상방향형 (NU)



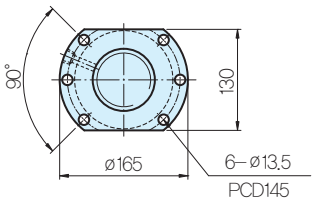

## ■ 하방향형 (ND)




## ■ 평면도




VIEW A-A

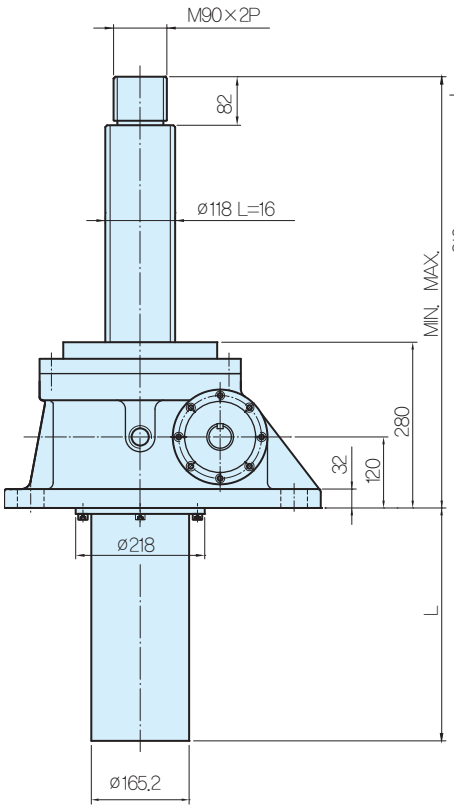



## ■ 행정기준표 SMJ B95N

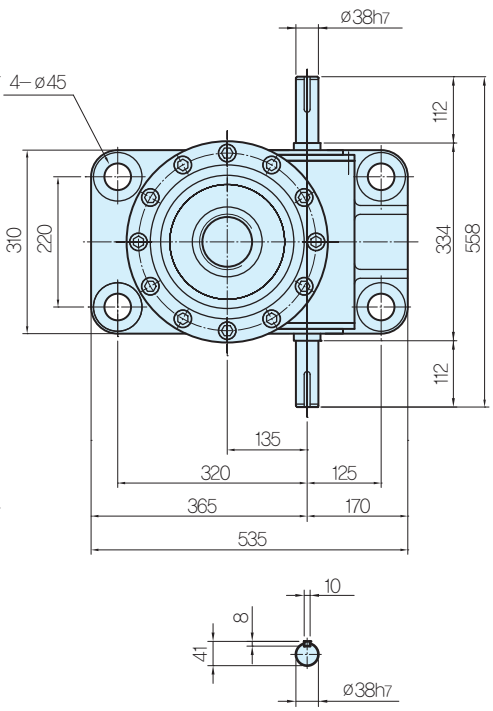
| 행 정 STROKE | 너트 NUT 승강형 | |
|---|---|---|
| | 상방향형 NU | 하방향형 ND |
| | LU | LD |
| 100 | 620 | 410 |
| 200 | 720 | 510 |
| 300 | 820 | 610 |
| 400 | 920 | 710 |
| 500 | 1020 | 810 |
| 1000 | 1520 | 1310 |

• 참고 : BALL NUT의 치수는 변경될 수 있음.

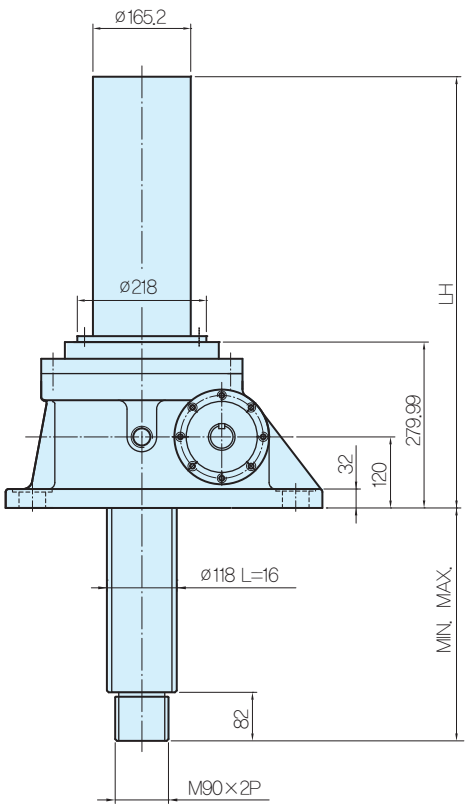
■ 상방향형 (U)




■ 평면도

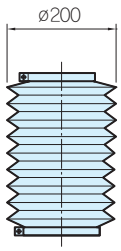



■ 하방향형 (D)

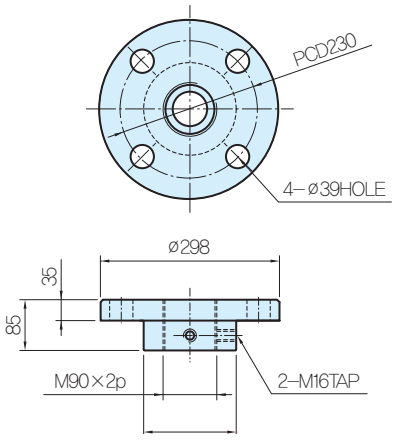



■ 스크류축 체결부품 Output Options

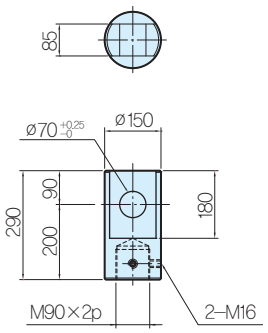
BELLOWS(B)



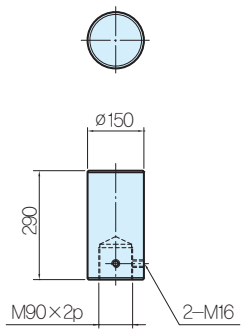

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)




■ 행정기준표 SMJ135

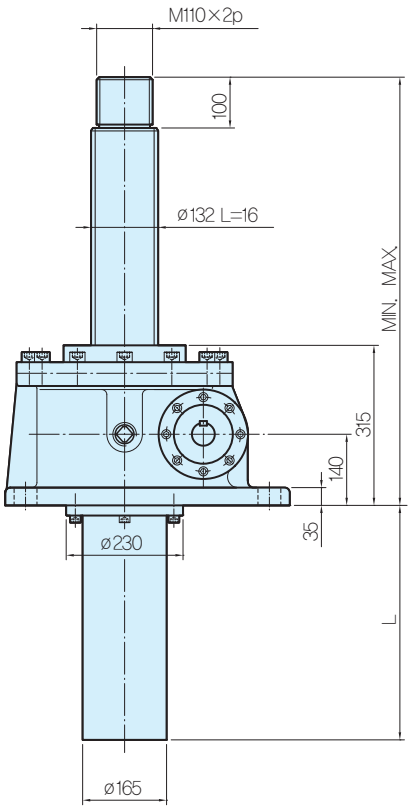
• 개략중량 190kg/100st

| 상방향형 U | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L |
| | MIN | MAX | MIN | MAX | |
| 100 | 380 | 480 | 460 | 560 | 180 |
| 200 | 380 | 580 | 470 | 670 | 280 |
| 300 | 380 | 680 | 480 | 780 | 380 |
| 400 | 380 | 780 | 490 | 890 | 480 |
| 500 | 380 | 880 | 500 | 1000 | 580 |
| 1000 | 380 | 1380 | 600 | 1600 | 1080 |

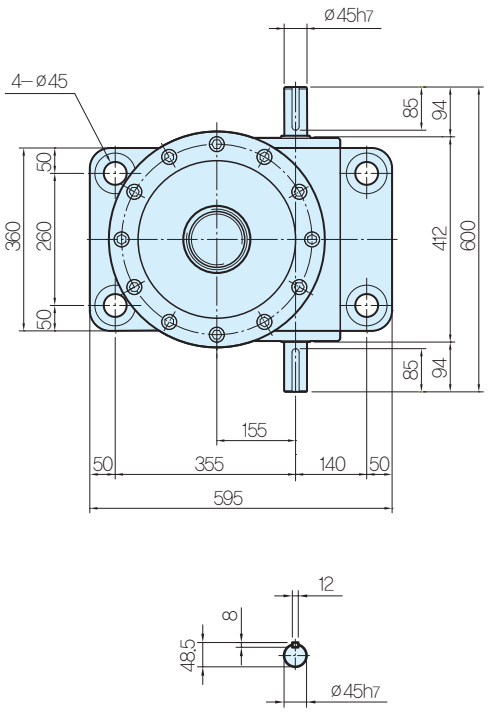
| 하방향형 D | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | |
| 100 | 100 | 200 | 180 | 280 | 460 |
| 200 | 100 | 310 | 190 | 390 | 560 |
| 300 | 100 | 420 | 200 | 500 | 660 |
| 400 | 100 | 530 | 210 | 610 | 760 |
| 500 | 100 | 640 | 220 | 720 | 860 |
| 1000 | 100 | 1140 | 320 | 1320 | 1360 |

# SMJ155 축승강형

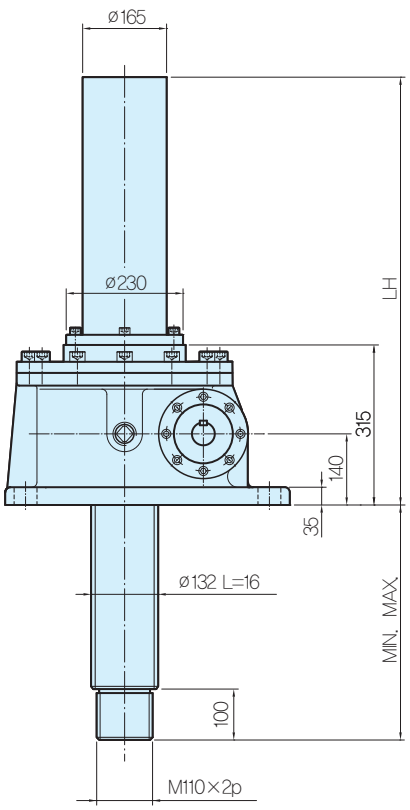
■ 상방향형 (NU)




■평면도

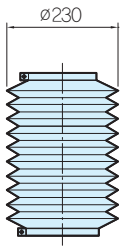



■ 하방향형 (ND)

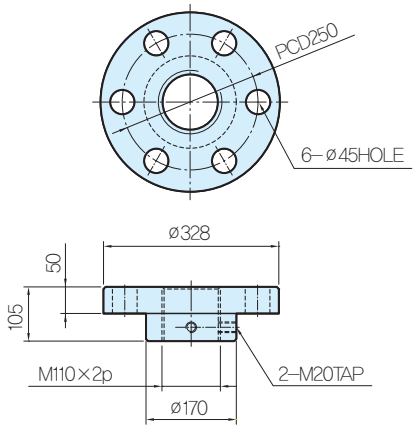



■ 평면도

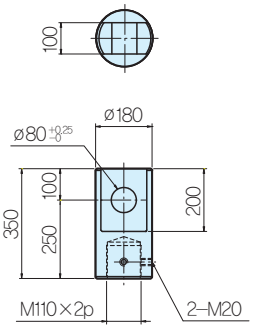
BELLOWS(B)



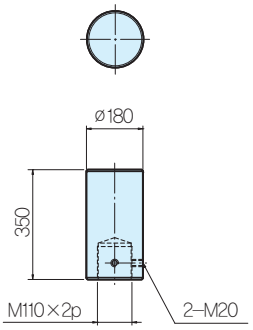

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)




## ■ 행정기준표 SMJ155

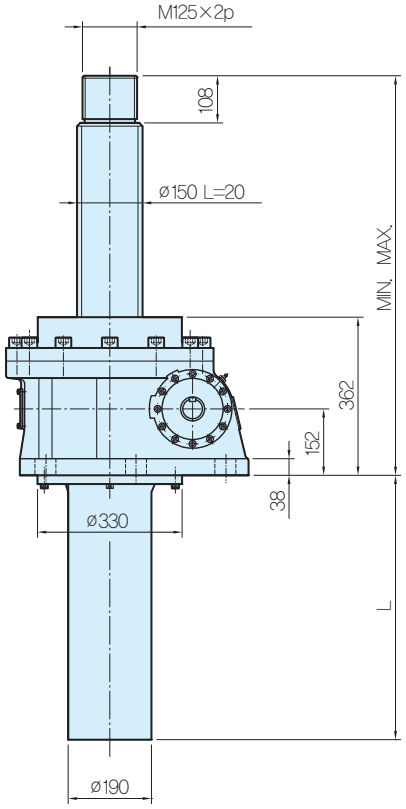
• 개략중량 290kg/100st

| 상방향형 U | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L |
| | MIN | MAX | MIN | MAX | |
| 100 | 430 | 530 | 510 | 610 | 200 |
| 200 | 430 | 630 | 520 | 720 | 300 |
| 300 | 430 | 730 | 530 | 830 | 400 |
| 400 | 430 | 830 | 540 | 940 | 500 |
| 500 | 430 | 930 | 550 | 1050 | 600 |
| 1000 | 430 | 1430 | 650 | 1650 | 1100 |

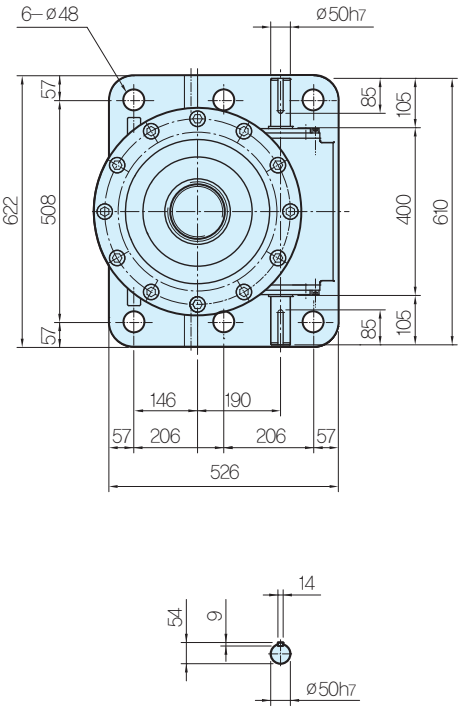
| 하방향형 D | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | |
| 100 | 120 | 220 | 200 | 300 | 515 |
| 200 | 120 | 320 | 210 | 310 | 625 |
| 300 | 120 | 420 | 220 | 320 | 735 |
| 400 | 120 | 520 | 230 | 330 | 845 |
| 500 | 120 | 620 | 240 | 340 | 955 |
| 1000 | 120 | 1120 | 340 | 1340 | 1465 |

# SMJ190 축승강형

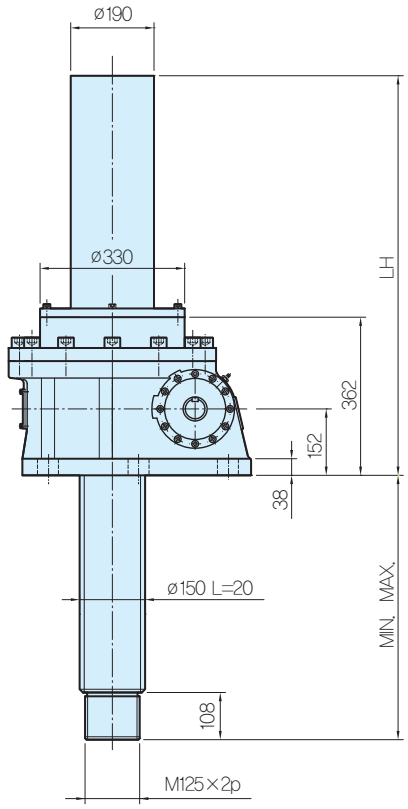
## ■ 상방향형 (U)




## ■ 평면도

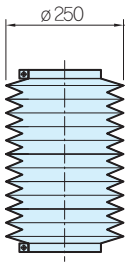



## ■ 하방향형 (D)

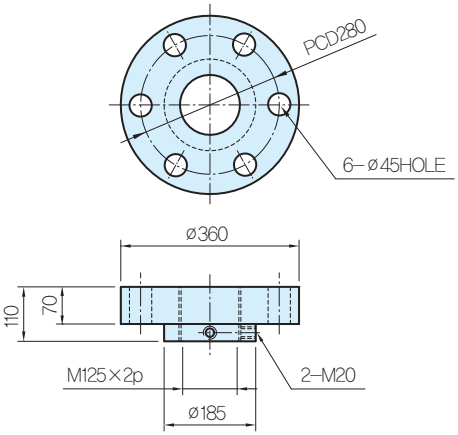



## ■ 스크류축 체결부품 Output Options

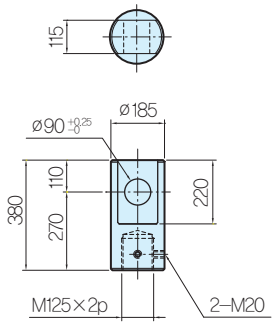
BELLOWS(B)



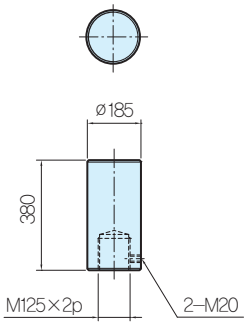

FLANGE NUT(F)




CLEVIS NUT(C)




PLAIN NUT(P)




## ■ 행정기준표 SMJ190

• 개략중량 500kg/100st

| 상방향형 U | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | L |
| | MIN | MAX | MIN | MAX | |
| 100 | 500 | 600 | 600 | 700 | 200 |
| 200 | 500 | 700 | 610 | 810 | 300 |
| 300 | 500 | 800 | 620 | 920 | 400 |
| 400 | 500 | 900 | 630 | 1030 | 500 |
| 500 | 500 | 1000 | 650 | 1150 | 600 |
| 1000 | 500 | 1500 | 750 | 1650 | 1100 |

| 하방향형 D | | | | | |
|---|---|---|---|---|---|
| 행정(mm) STROKE | 축보호카바없음 N | | 축보호카바부착 B | | LH |
| | MIN | MAX | MIN | MAX | |
| 100 | 120 | 220 | 220 | 320 | 560 |
| 200 | 120 | 320 | 230 | 430 | 660 |
| 300 | 120 | 420 | 240 | 540 | 760 |
| 400 | 120 | 520 | 250 | 650 | 860 |
| 500 | 120 | 620 | 260 | 760 | 960 |
| 1000 | 120 | 1120 | 360 | 1360 | 1460 |

# Memo

# 잭과 베벨기어박스 조합사례

## ■ 연동운전시의 소요동력 Cautions

• 복수의 JACK을 연동시켜 사용할 경우는, 아래의 전달효율을 참고하여 소요동력을 결정하여 주십시요.

When multiple jacks are used, Compute necessary power using under part of transfer efficiency.

$$\text{소요동력 Required Power} = \frac{\text{JACK 1대당 소요동력 Required Power per jack} \times \text{사용대수 Number of Jacks}}{\text{전달효율 Transfer Efficiency}}$$

• 기준 : SMJ56

| JACK 연동수 No. of Jacks | 2대 2 Units | 3대 3 Units | 4대 4 Units | n대 n Units |
|---|---|---|---|---|
| 전달효율 Transfer Efficiency | 0.94 | 0.91 | 0.88 | (0.97)n |

## ■ 허용입력축 토로크 Cautions

• kg · m

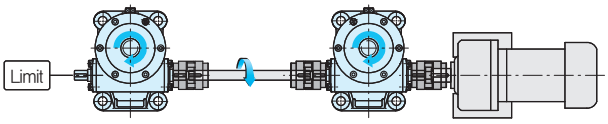
| 형 번 Type Number | 44 | 56 | 66 | 73 | 95 | 135 |
|---|---|---|---|---|---|---|
| 허용입력축 토르크 Input Torque | 4.3 | 7.4 | 13 | 30 | 60 | 85 |

※주 : Jack 연동운동시 입력축 TORQUE가 허용 수치를 넘지 않는 범위내에서 사용하십시요.

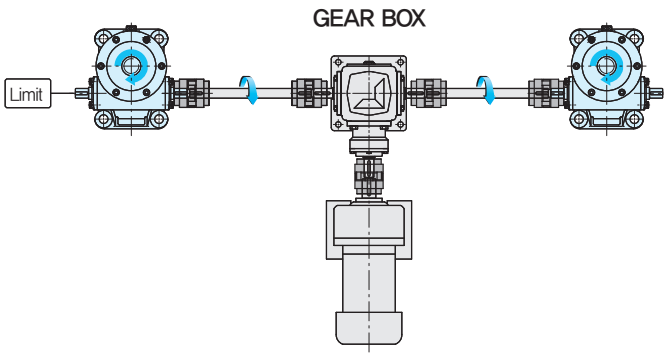
Note : When multiple jacks are daisy chained, input tprque should not exceed the date above table

## ■ JACK과 GEAR BOX의 여러가지 배열그림

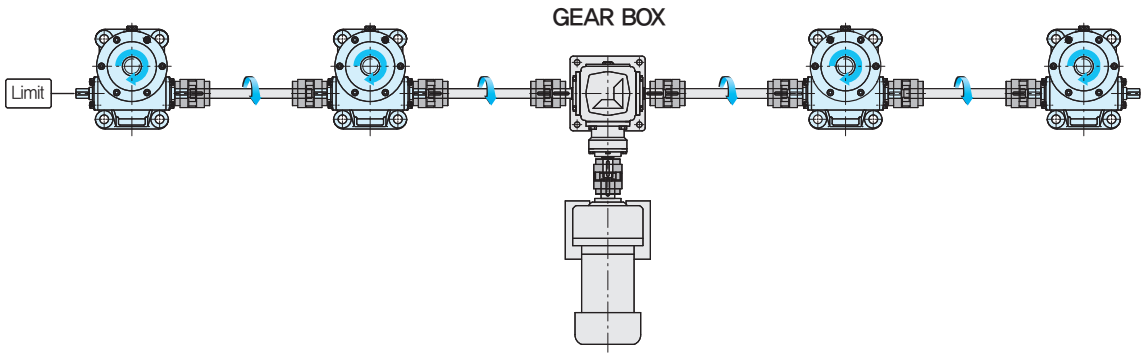
I형 조합




T형 2대 조합

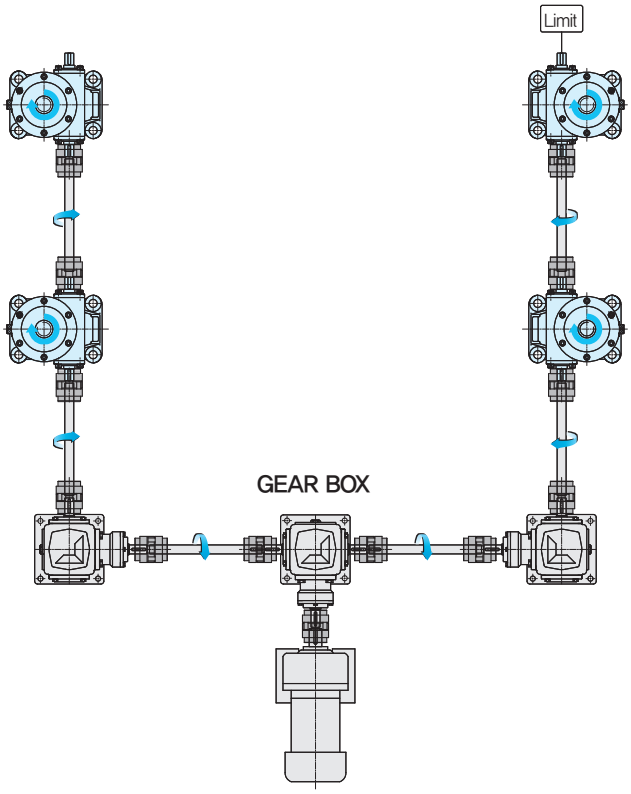



T형 4대 조합

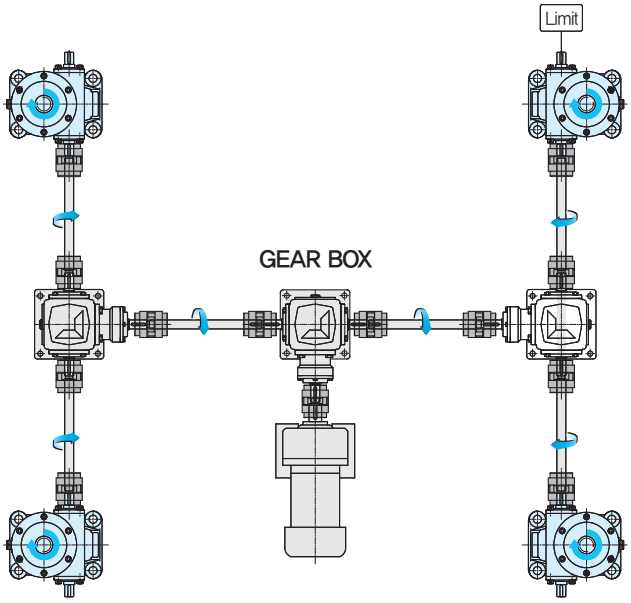



참고_ 화살표 방향대로 조합시 스크류축이 상향이송됩니다.

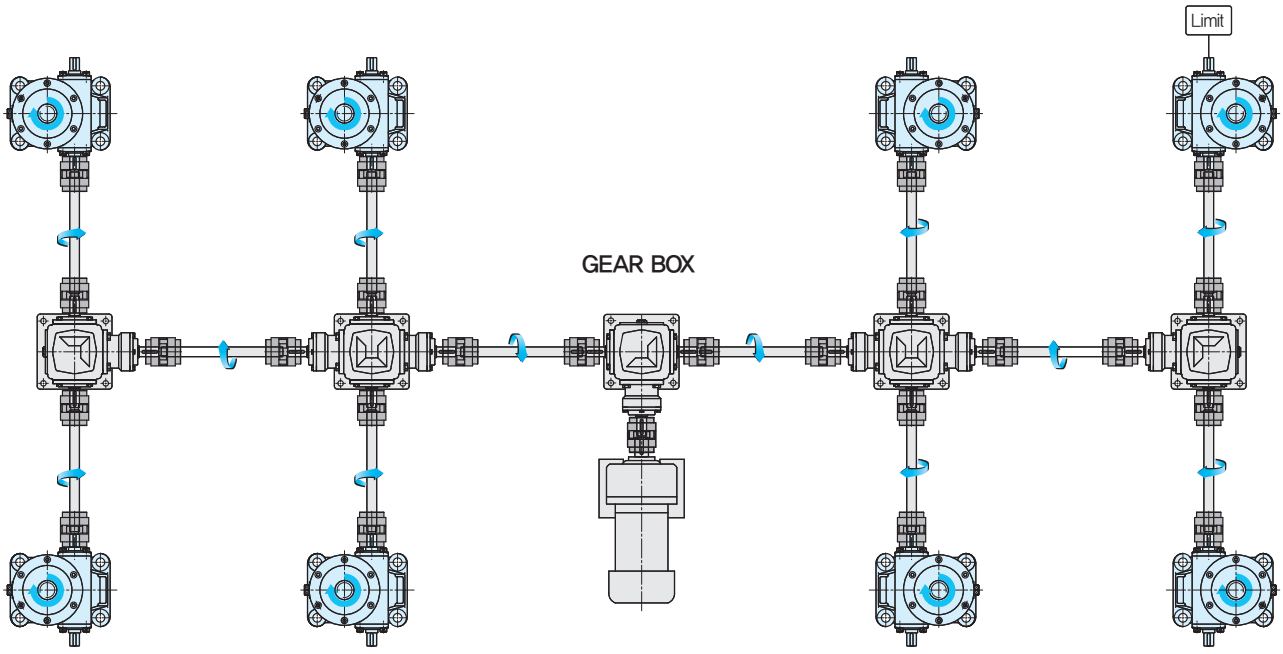
## U형 조합




## H형 조합




## 장방형 조합




참고_ 화살표 방향대로 조합시 스크류축이 상향이송됩니다.

# 사용계산공식

## ■ 좌굴하중의 계산식 Formula for Buckling Load

• 좌굴하중의 계산식

계수 a = 1.00 b = 0.3 c = 1.25

n = 650 ÷ 1.25 = 520RPM

T = 1.00 × 3 + 0.3 = 3.3kgf-m

p = (520 × 3.3) ÷ 974 = 1.75kw

• 재검토 : SMJ66의 최대동력은 1.8kw이므로 채용할 수 있습니다.

SMJ66 Type :

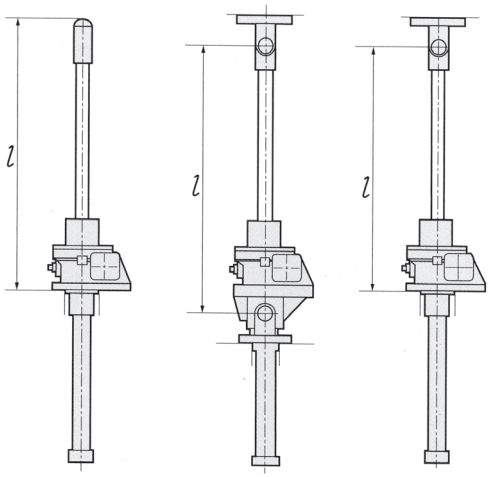
a = 1.0, b = 0.3, c = 1.25

n = 650 ÷ 1.25 = 520RPM

T = (1.0 × 3) + 0.3 = 3.3kgf-m

p = (520 × 3.3) ÷ 974 = 1.75kw

When multiple jacks are used, Compute necessary power using unde part of transfer efficiency




• 잭의 나사축에 미치는 좌중하굴은 나사축경과 행정(Stroke)에 따라 허용 칫수가 결정됩니다. 또 잭 및 나사축단의 취부 상태에 따라서도 허용 칫수가 변합니다.

Buckling load of screw jack is determined by bothshaft length and stroke. Also, end fitting of shaft affects the buckling load capacity.

$Pcr = n\pi^2 E(K\ell)^2 \cdot A \cdot \alpha kgf$

n : 축단지지 계수 Shaft end support

잭고정 – 축단자유 Jack fixed & Shaft End Free : n = 1/4

잭지지 – 축단지지 Jack supports & Shaft End supports : n = 1

잭고정 – 축단지지 Jack fixed & Shaft End supports : n = 2

E : 종탄성 계수 $2.1 \times 10^4 kgf/mm^2$

**d1 : 나사곡경표** Screw curvature

| ■ TM Screw | | ■ BALL Screw | |
|---|---|---|---|
| SMJ32 | 16 | SMJ B32 | 16 |
| SMJ44 | 20 | SMJ B44 | 20 |
| SMJ56 | 32 | SMJ B56 | 32 |
| SMJ66 | 39.5 | SMJ B66 | 39.5 |
| SMJ66S | 45.5 | SMJ B73 | 50.5 |
| SMJ73 | 50.5 | SMJ B95 | 68 |
| SMJ95 | 68 | | |
| SMJ135 | 101 | | |
| SMJ155 | 115 | | |
| SMJ190 | 129 | | |

## ■ Overhang 하중의 계산식 Formula for Overhang Load

잭의 입력축과 동력원과의 연결에 풀리(Pulley)나 스프라켓(Sprocket), 기어 등을 사용하면 입력축에 Overhang 하중이 걸립니다.

When one uses Pulley, Sprocket or gear butween inputshaft and power source, overhang load occurs..

사양표를 참조하여 허용치 이내에 되도록 사용하십시요.

Plase make sure that the overhang load will be within specification.

$$Lr = \frac{T}{R} = f$$

• Where

Lr : Overhang 하중 (kgf) Lr : Overhang Load (kgf)

T : 입력축 Torque (kgf-m) Input Shaft Torque (kgf-m)

R : Pulley, Sprocket 등의 반경 Dimeter of Pulley, Sprocket

f : Overhang Coefficient Overhang Coefficient

Pulley : 1Gear : 1.25

## ■ 소요동력 계산식 Calculation Formula

잭의 형번은 장치, 기기가 필요로 하는 승강시의 하중과 승강속도 등 소요동력을 계산할 때에 각 형번의 사양을 검토하십시요.

When one computes lifting load, lifting speed, required power and so forth, please note of type specifications.

•계산식 보기 Calculation Example

### ▶공식 1 Formula 1

임의로 SJ56형번과 감속비를 H로 선택을 하고 n의 값을 구한다.

We, for instance, use SMJ56 screw jack type and H reduction ratio.

$$n = V \div C$$

• Where

n : 입력축 회전수 n : Input Shaft (RPM)

V : 승강속도 Lifting Speed (mm/min)

C : 속도계수 (사양표 참조) Speed Coefficient (Refer specifications)

– SMJ56형번에서 허용할 수 있는 INPUT RPM은 915RPM이다. 따라서 n은 받아들일 수 있다.
Since SMJ56 type allows maximum 195 input RPM, n(=488.7) is acceptable.

$$\text{Therefor : } n = \frac{650}{1.33} = 488.7 \text{ RPM}$$

### ▶공식 Formula 2

소요입력 토르크 계산식 Required Input Torque

$$T = a \times w + b$$

• Where

T : 소요입력축 트로크 Required Input Shaft Torque (kgf–m)

a : 토르크 계수 (사양표 참조) Torque Coefficient (Refer specifications)

b : 입력축 무부하 토르크 Input Shaft No Load Torque (kgf–m)

W : 승강하중 ton (사양표 참조) Lifting Load (Ton, Refer specifications)

$$\text{Therefor : } T = 1.0 \times 3 + 0.2 = 3.2 \text{kgf–m}$$

### ▶공식 Formula 3

소요동력 kw 계산식 Required Power (kw)

$$P = \frac{(n \times T)}{974}$$

• Where

P : 소요동력 Required Power (kw)

n : 입력축 회전수 Input Shaft RPM

T : 소요입력축 트로크 Required Input Shaft Torque (kgf–m)

$$\text{Therefor } P = \frac{(488.7 \times 3.2)}{974} = 1.61\text{kw}$$

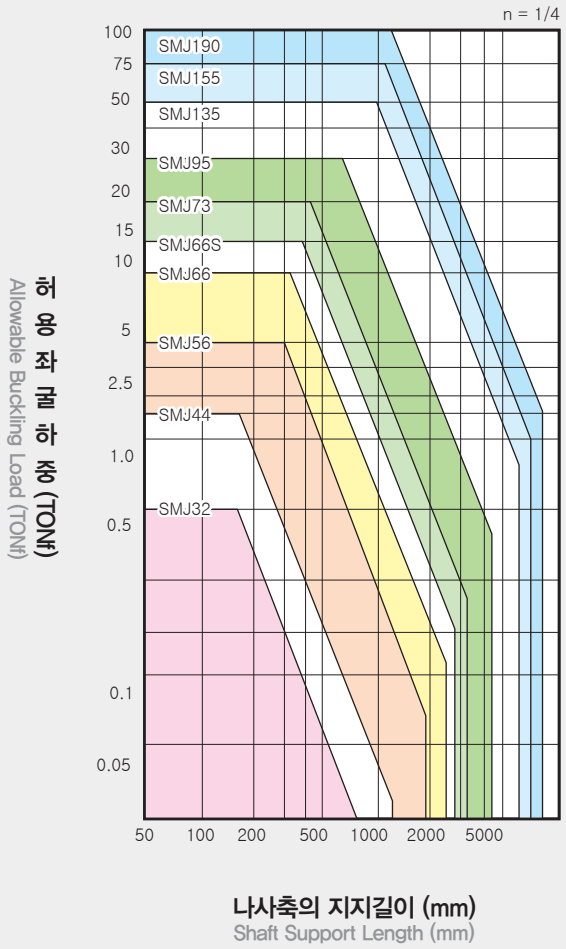
SMJ56형번의 잭당 최대동력은 1.1kw이므로 SMJ56형번 감속비 H는 부적합합니다. 따라서 잭 형번을 SMJ66, 감속비는 H로하여 재검토 하십시요.

Since the required power of SMJ56 is 1.1kw, the reduction ratio H is not appropriate in this case. Therefore, one needs to compute required power using H of SMJ66.

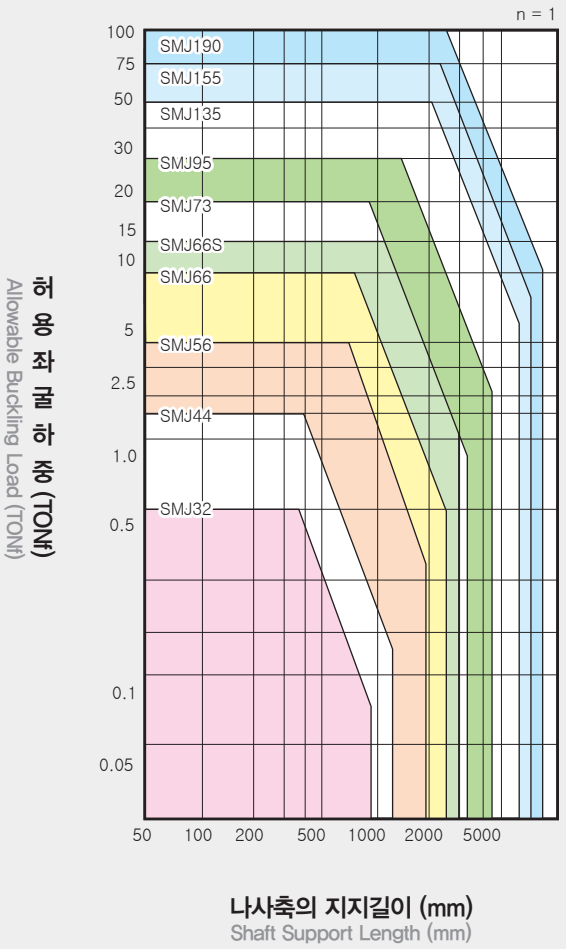
# 허용좌굴하중

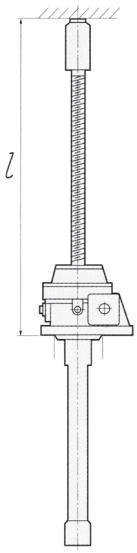
## ■ Allowable Buckling Load

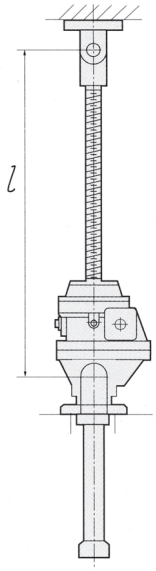
### 축단자유 (플레인 너트)
Shaft End Free (Plain End)




### 축단지지 (크레비스)
Shaft End Support (Clevis)



## ■ 그래프를 사용한 간편한 모델 선정방법
Type Selection Using Graphs

### [1] 좌굴하중 Buckling Load

잭을 압축하중으로 하는 경우, 행정(STROKE)이 긴 경우에도 좌굴 현상이 일어납니다. 좌굴하중은 축단의 지지방법에 따라 다르므로 각각의 그래프를 참조하여 하중(종축)과 축 길이(횡축)의 교점으로부터 그 이상의 형식번호를 선택하여 주십시오.

▶잭을 인장하중으로 사용하는 경우에는 좌굴의 염려가 없습니다.

Jack is used for lifting load. Buckling load occurs in case of long stroke.

The buckling load differs depending on shaft end support.
Refer lift side graphs and one should pick a higher numbered type from the crosspoint of load (vertical coordinate)and Shaft length (horizontal coordinate)

### [2] 승강하중/승강속도관계 그래프
Lifting Load/Lifting Speed

기본 사양이 있는대로 잭 한대당의 최대 허용 동력이 결정됩니다. 최대 동력으로 움직이는 하중이 크면 속도가 제한받고 속도를 높이면 하중이 제한받습니다. 다음 페이지의 그래프의 하중 조건과 필요 속도를 만족시키는 형식 번호를 선택하십시오.

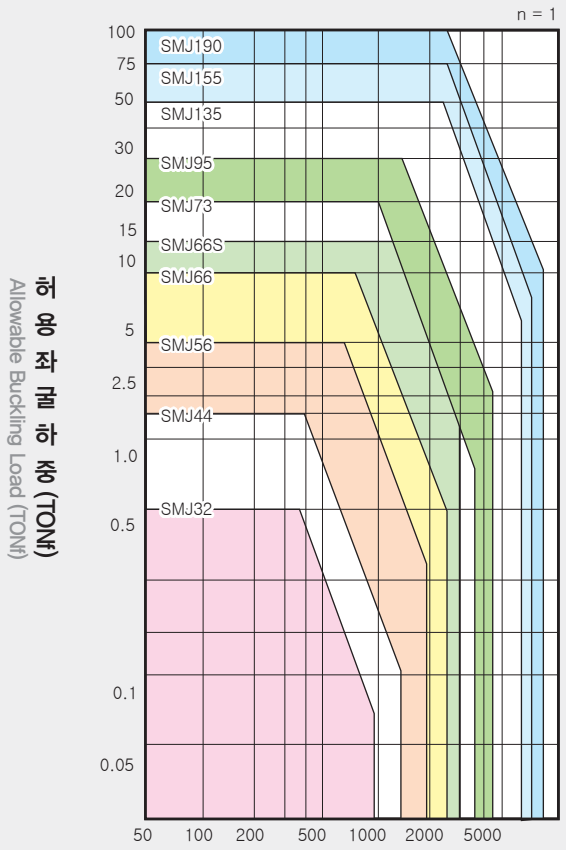
When lifting load get heavier, their lifting speed gets slower, vice verse. Graphs in following page describes the relationship of lifting power and speed for quick type selection.

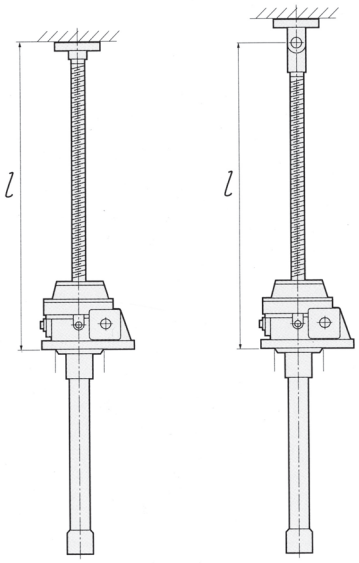
### [3] 허용횡하중 Allowable Side Force

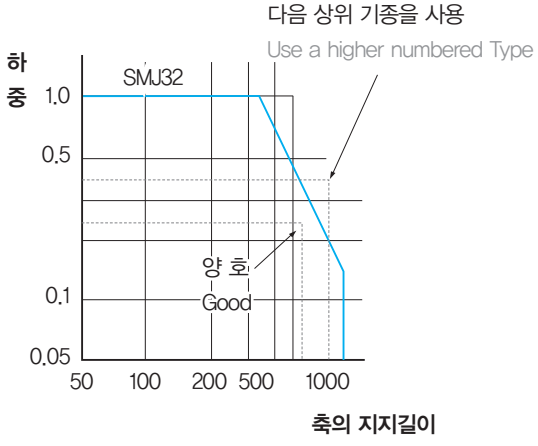
잭은 압축하중, 인장 하중 및 축수직 방향의 하중으로써 설계되면 좋습니다. 어쩔 수 없이 횡으로 하중이 걸리는 경우에는 형식번호를 크게 할 필요가 있는 경우도 있습니다. 허용 횡 하중의 표로써 확인을 하여 주십시오.

If you have to inavoidably use a jack fro side force, you may need to increase type number higher. Please make sure of right type number using Side Force graph.

**축단지지 (플렌지, 크레비스)**
Shaft End Support (Flange, Clevis)

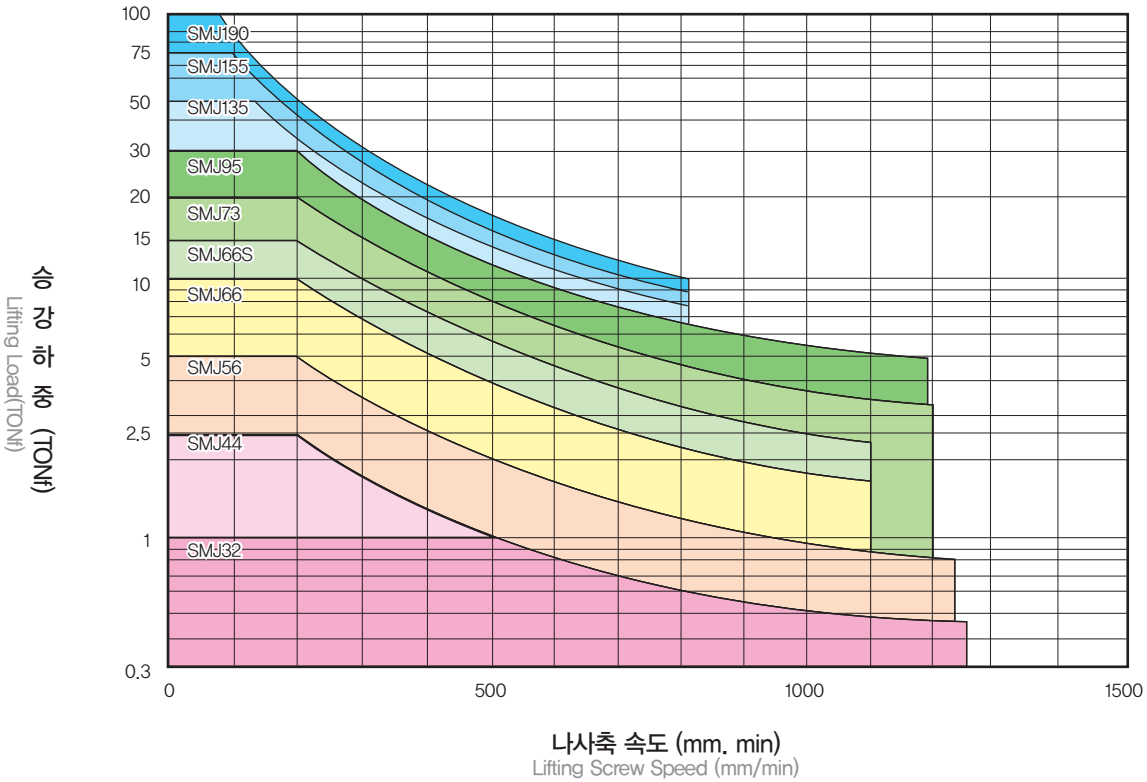


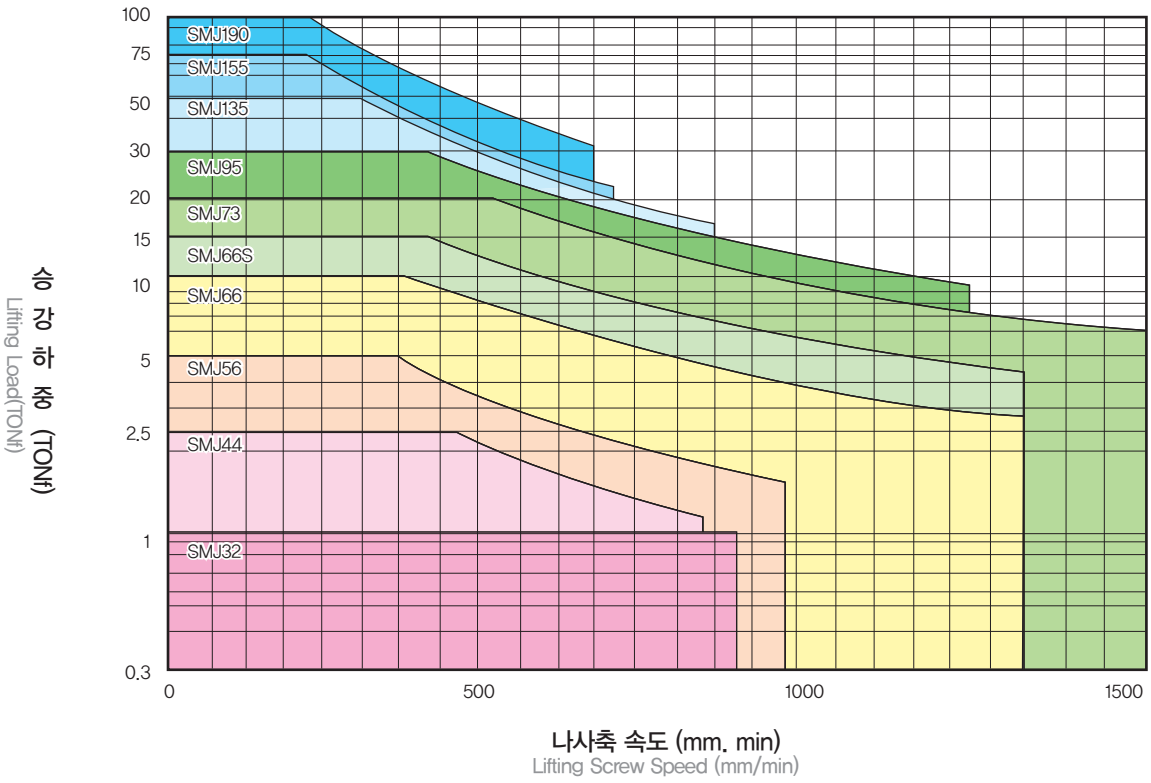



# 승강하중/승강속도 관련 그래프

## ■ 감속비 Reduction Ratio-H

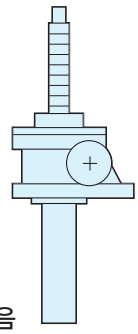



## ■ 감속비 Reduction Ratio-L



# 허용 횡 하중 Allowable Side Force

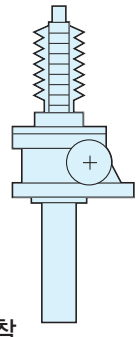
## ■ 상방향형 Upright Lifting Type



축 보호 카바 없음
W/o Dustproof Bellow

(kgf)

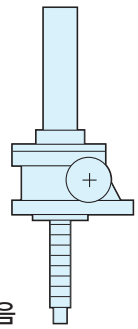
| 형번 Type No. \ 행정(mm) | 100 | 200 | 300 | 400 | 500 | 600 | 800 | 1000 |
|---|---|---|---|---|---|---|---|---|
| SMJ32 | 20 | 15 | 12 | 10 | 8 | – | – | – |
| SMJ44 | 70 | 40 | 30 | 21 | 17 | 14 | 11 | – |
| SMJ56 | 145 | 90 | 60 | 50 | 40 | 35 | 25 | 21 |
| SMJ66 | 130 | 80 | 60 | 45 | 35 | 30 | 24 | 20 |
| SMJ66S | 170 | 110 | 80 | 65 | 50 | 45 | 35 | 30 |
| SMJ73 | 305 | 230 | 190 | 155 | 135 | 120 | 95 | 75 |
| SMJ95 | 475 | 390 | 320 | 270 | 225 | 190 | 150 | 120 |
| SMJ135 | 1265 | 915 | 675 | 565 | 470 | 405 | 320 | 260 |
| SMJ155 | 1590 | 1200 | 930 | 760 | 640 | 555 | 440 | 360 |
| SMJ190 | 1870 | 1375 | 1090 | 900 | 765 | 570 | 530 | 440 |



축 보호 카바 부착
With Dustproof Bellow

| 형번 Type No. \ 행정(mm) | 100 | 200 | 300 | 400 | 500 | 600 | 800 | 1000 |
|---|---|---|---|---|---|---|---|---|
| SMJ32 | 20 | 15 | 12 | 10 | 8 | – | – | – |
| SMJ44 | 40 | 30 | 21 | 17 | 14 | 11 | – | – |
| SMJ56 | 90 | 60 | 50 | 40 | 35 | 25 | 21 | – |
| SMJ66 | 80 | 60 | 45 | 35 | 30 | 24 | 20 | – |
| SMJ66S | 110 | 80 | 65 | 50 | 45 | 35 | 30 | – |
| SMJ73 | 230 | 190 | 155 | 135 | 120 | 95 | 75 | – |
| SMJ95 | 390 | 320 | 270 | 225 | 190 | 150 | 120 | – |
| SMJ135 | 915 | 675 | 565 | 470 | 405 | 320 | 260 | – |
| SMJ155 | 1200 | 930 | 760 | 640 | 555 | 440 | 360 | – |
| SMJ190 | 1375 | 1090 | 900 | 765 | 570 | 530 | 440 | – |

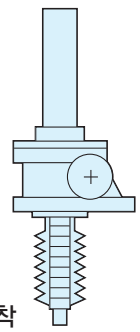
## ■ 하방향형 Inverted Lifting Type



축 보호 카바 없음
W/o Dustproof Bellow

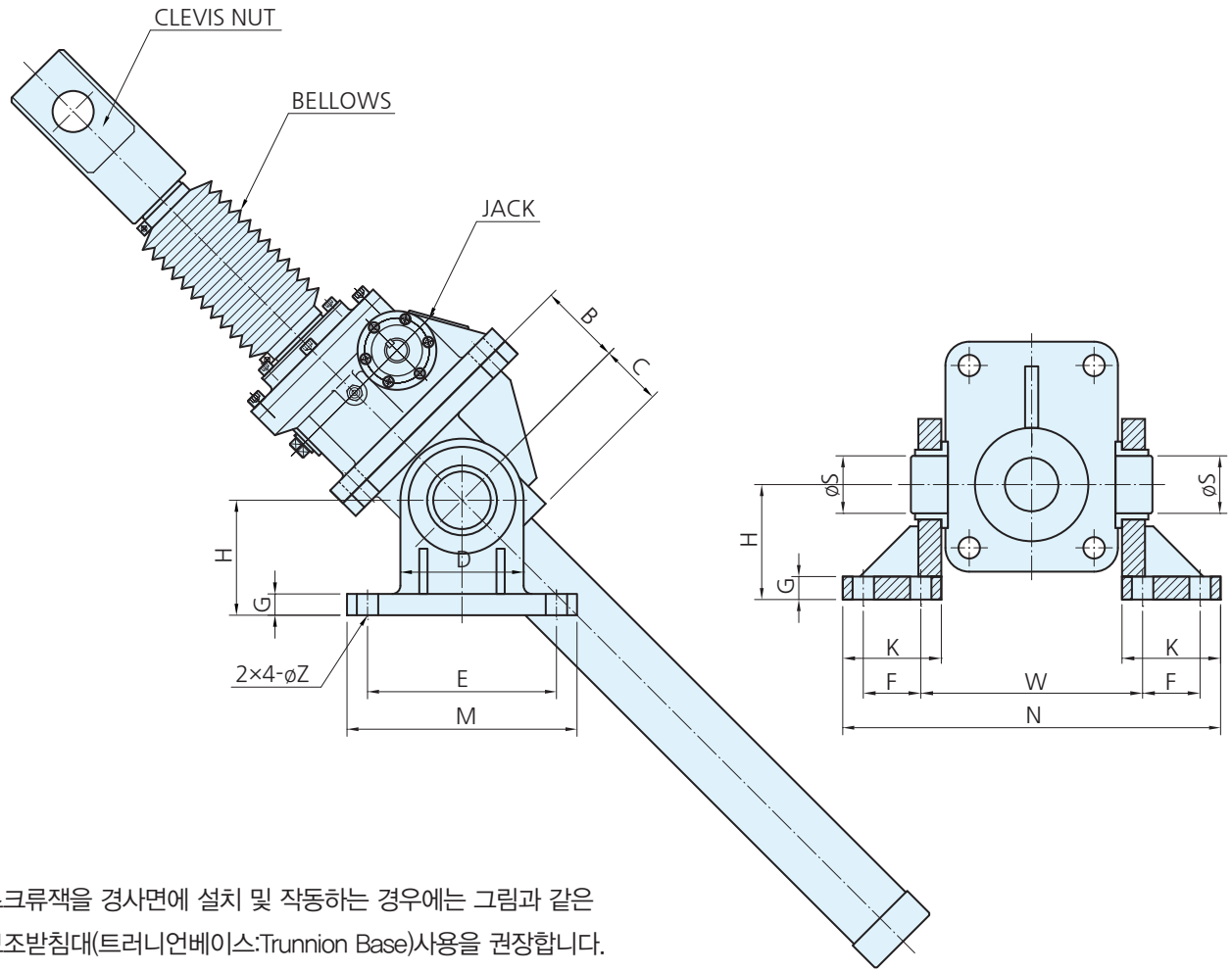
(kgf)

| 형번 Type No. \ 행정(mm) | 100 | 200 | 300 | 400 | 500 | 600 | 800 | 1000 |
|---|---|---|---|---|---|---|---|---|
| SMJ32 | 18 | 14 | 11 | 9 | 8 | – | – | – |
| SMJ44 | 45 | 40 | 25 | 20 | 17 | 14 | 11 | – |
| SMJ56 | 90 | 65 | 50 | 40 | 35 | 30 | 24 | 20 |
| SMJ66 | 80 | 60 | 45 | 35 | 30 | 25 | 22 | 18 |
| SMJ66S | 100 | 75 | 60 | 50 | 45 | 40 | 30 | 25 |
| SMJ73 | 250 | 195 | 155 | 130 | 115 | 100 | 80 | 60 |
| SMJ95 | 365 | 285 | 235 | 200 | 175 | 155 | 125 | 105 |
| SMJ135 | 670 | 545 | 460 | 375 | 350 | 310 | 255 | 220 |
| SMJ155 | 845 | 700 | 600 | 525 | 465 | 420 | 350 | 300 |
| SMJ190 | 895 | 760 | 665 | 595 | 530 | 480 | 405 | 350 |



축 보호 카바 부착
With Dustproof Bellow

| 형번 Type No. \ 행정(mm) | 100 | 200 | 300 | 400 | 500 | 600 | 800 | 1000 |
|---|---|---|---|---|---|---|---|---|
| SMJ32 | 14 | 11 | 9 | 8 | – | – | – | – |
| SMJ44 | 40 | 25 | 20 | 17 | 14 | 11 | – | – |
| SMJ56 | 65 | 50 | 40 | 35 | 30 | 24 | 20 | – |
| SMJ66 | 60 | 45 | 35 | 30 | 25 | 22 | 18 | – |
| SMJ66S | 75 | 60 | 50 | 45 | 40 | 30 | 25 | – |
| SMJ73 | 195 | 155 | 130 | 115 | 100 | 80 | 60 | – |
| SMJ95 | 285 | 235 | 200 | 175 | 155 | 125 | 105 | – |
| SMJ135 | 545 | 460 | 375 | 350 | 310 | 255 | 220 | – |
| SMJ155 | 700 | 600 | 525 | 465 | 420 | 350 | 300 | – |
| SMJ190 | 760 | 665 | 595 | 530 | 480 | 405 | 350 | – |




스크류잭을 경사면에 설치 및 작동하는 경우에는 그림과 같은
보조받침대(트러니언베이스:Trunnion Base)사용을 권장합니다.

## ■ TRUNNION BASE DEMENSIONS

| 기호 \ 규격 | SMJ32 | SMJ44 | SMJ56 | SMJ66 | SMJ66S | SMJ73 | SMJ95 | SMJ135 | SMJ155 | SMJ190 |
|---|---|---|---|---|---|---|---|---|---|---|
| B | 50 | 60 | 70 | 80 | 90 | 100 | 120 | 140 | 140 | 160 |
| C | 22 | 20 | 40 | 55 | 65 | 75 | 90 | 120 | 120 | 140 |
| D | 55 | 70 | 90 | 120 | 140 | 140 | 180 | 220 | 220 | 260 |
| E | 80 | 110 | 150 | 170 | 190 | 230 | 270 | 320 | 400 | 400 |
| F | 30 | 40 | 50 | 60 | 65 | 70 | 90 | 120 | 120 | 140 |
| G | 12 | 12 | 18 | 24 | 26 | 26 | 36 | 50 | 50 | 55 |
| H | 60 | 80 | 85 | 120 | 130 | 140 | 170 | 200 | 310 | 270 |
| K | 54 | 70 | 90 | 100 | 110 | 120 | 150 | 220 | 220 | 250 |
| W | 170 | 140 | 200 | 240 | 250 | 270 | 360 | 620 | 520 | 780 |
| M | 104 | 134 | 186 | 210 | 240 | 280 | 330 | 400 | 500 | 500 |
| N | 254 | 250 | 340 | 400 | 426 | 460 | 600 | 960 | 860 | 1170 |
| øS | 15 | 25 | 35 | 50 | 60 | 70 | 80 | 110 | 110 | 130 |
| 4-øZ | 11 | 11 | 18 | 22 | 22 | 26 | 33 | 45 | 45 | 55 |
| 고정볼트 | M10 | M10 | M16 | M20 | M20 | M24 | M30 | M42 | M42 | M52 |

# 스크류잭 취급 및 보전

## ■ 사용상의 주의 Cautions

**1** 분류번호 선정 시에는 모타 용량, 승강 하중, 나사 축 속도, 허용 좌굴 하중, 허용 횡하중 등에 유의하십시오. 카탈로그 범위 외에서 선정하면 잭뿐만 아니라 장치에도 손상을 줍니다.

When one selects type, motor capacity, factors like lifting load, shaft speed, buckling load and allowable side force are considered. Outer range selection may cause damage to screw jack.

**2** 설치시는 강성이 높은 평판대에 고정하십시오. 또 모타, 감속기 등의 취부에는 적절하게 센터링 (Centering : 중심 내기)하여 주십시오.

Jacks should be installed on durable board. Also, installation of motors and reducers requires a proper centering.

**3** 잭에 가해지는 하중은 나사 축 중심과 동일한 방향으로 배려하고 편심하중이 잭에 가해지면 과대한 굽힘 힘이 발생하여 잭을 손상시킵니다.

Load should be aligned with the direction of shaft. If not, excessive side force may cause damage to jack.

**4** 입력 회전 수가 1,000RPM 이상으로 사용되는 경우는 오일 윤활식이 적용됩니다.

If rotation more than 1,000 RPM is necessary, oil greasing type is recommended.

**5** 스크류 잭(Screw Jack) 사용 시에 충격이나 진동이 있는 경우에는 브레이크 사용을 검토하십시오.

When using screw jack, brake model is recommended for vibrating environment.

**6** Jack은 정해진 행정(Stroke) 범위 밖에서는 사용되지 않도록 하고, 또 사용되는 행정(Stroke)에 대하여 여유가 있도록 선정하십시오.

Jack should be used within specified stroke. Also, some margin of stroke is necessary.

**7** 스크류 잭(Screw Jack)의 표준 사양에는 나사축단의 풀림 방지가 되어 있지 않습니다. 볼스크류잭과 같이 역전방지(Self-Locking) 기능이 없는 잭에서는 풀림 방지가 되어 있지 않으므로 나사 축이 자중에 의해 빠져 떨어지는 것도 있으므로 주의하십시오.

Standard screw jack specification does not include self-locking feature.Jacks without self-locking feature may drop the shaft by its own weight. Please be careful.

**8** 잭을 항상 정상으로 사용하기 위하여 1개월에 한 번 점검하십시오. 또 1~2년마다 윤활유를 교환하고 더구나 윤활 유량이 부족하거나, 윤활유가 노화되어 있는 경우에는 교환 시기가 되지 않았어도 보급 또는 교환하십시오.

Monthly inspection is necessary for proper use of jack. Grease should be charged for every one or two years. If grease is low or old, immediate recharge is recommended even before the period.

**9** 잭 사용 중에 스크류 잭의 나사 부분 백래쉬(Back Lash)가 나사 피치의 1/3을 초월할 때가 신품과 교환하는 기준이 됩니다. 또 기어부에 관하여는 스크류 잭, 볼스크류 잭이든 백래쉬(Back Lash)가 입력 축 회전각 환산으로 H Type은 20˚, L Type은 60˚를 초과한 때가 교환의 기준이 됩니다.

It is time to replace with new one when backlach of screw pitch becomes one third of its original. It is also time to replace of gear part when backlash of screw jack or ball screw jack exceeds 20 degree for H type or 60 degree for L type.

**10** 스크류 너트가 부착된 잭의 경우 정기적으로 느슨해짐의 유무를 점검하여 주십시오.

Jack with screw nut is recommended to regularly check its tightness.

**11** 과부하 용량은 동작하중시에는 10%, 정지 하중 시에는 30% 입니다.

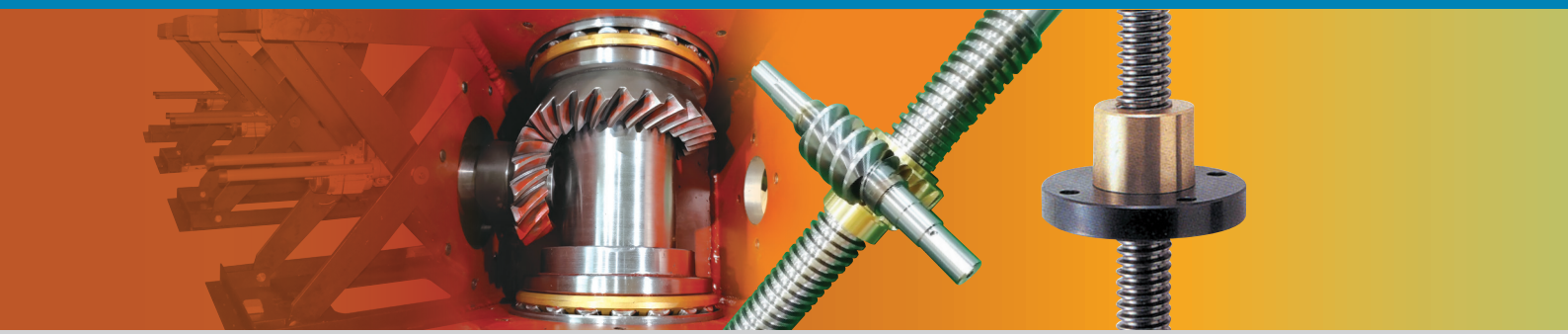
Overhang load is 10 per cent during operation and 30 per cent for idle.

**12** 1일당의 총 운전시간은 3시간 이내, 또 케이스 표면 온도가 「주변 온도 +50℃ 이내, 동시에 최고 온도는 130℃」 비슷한 곳에 사용하십시오.

Daily operation should be less than three hours, and the unit should be kept within 50℃ of surface temperature or 150℃ for cold time.

2023

# SHINHANSM PRODUCT GUIDE BOOK




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