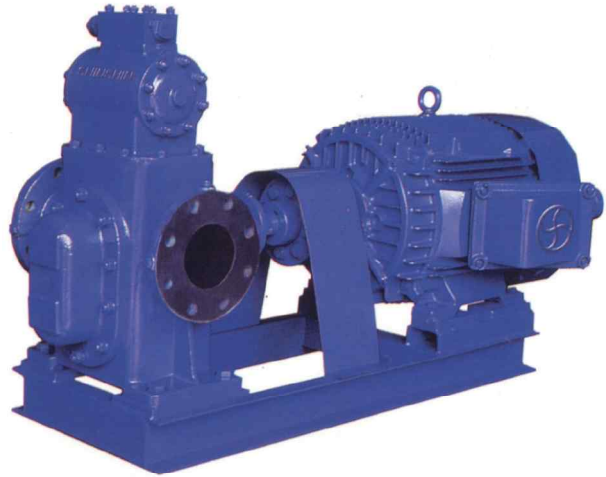


HG

Horizontal, External Gear Pumps with Built-in Relief Valve

횡축, 외치차 기어펌프 안전변 내장식



HG

200m³/h × ~7kg/cm²

용도 및 적용 분야 / Use and applications

01. 용도 : 윤활유, 연료유 등의 유류 및 윤활성을 가지고 있는 점성액체 이송용.
02. 사용압력 : 최고 7kg/cm²
03. 베어링 : 내장식으로서 펌프 자체의 이송액에 의해 자체 윤활된다.
04. 축시일링 : 그랜드 팩킹 또는 메카니칼 씰을 사용.
05. 안전변 : 토출변을 전폐했을때 토출압력 상승한도가 계획 전압력의 132%이하가 되도록 설계되어 있다. 그러나 계획 전압력이 5kg/cm²이하일 때는 압력 상승폭을 1.6kg/cm²이하로 하였다. 설정압력 최저 2.2kg/cm² 최고 7.2kg/cm²
06. 사용온도 : 일반적으로 최고 70°C
07. 플랜지 : KS 또는 JIS 10kg/cm², FF
08. 표준용량 : 표준용량 보정 점도는 25.8cst이며, 하기 도표는 전동기의 슬립을 감안한 실제용량이다.

※ 상기 사양범위를 초과하는 대형 펌프도 제작합니다.

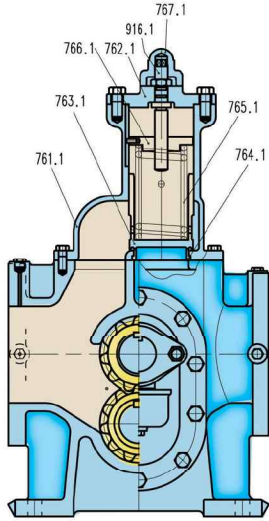
01. Application : Lubrication oil, Fuel oil or other liquids with lubrication property.
 02. Differential pressure : Up to 7kg/cm²
 03. Bearing : Internally setted metal bearing, lubricated by the pumping liquid.
 04. Shaft sealing : Gland packing or mechanical seal.
 05. Relief valve : Built-in type.
Setting pressure : minimum 2.2kg/cm²
maximum 7.2kg/cm²
 06. Pumping temperature : Up to 70°C
 07. Flanges : KS or JIS 10kg/cm², rating, FF.
 08. Standard capacity : Calculated at 25.8cst.
(Rw.No.1, 100sec.)
rpm-slip of motor considered
- *The out of the above range can be supplied according to customer's order placement

형식 표시 방법 / Type nomenclature

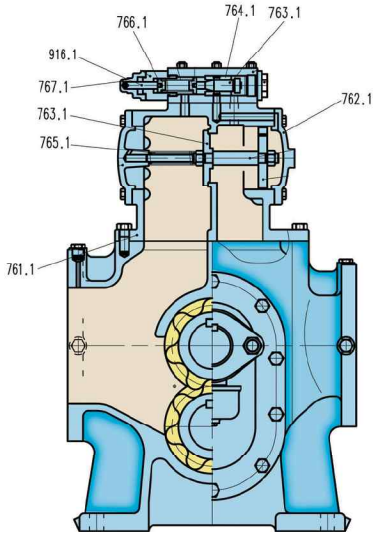
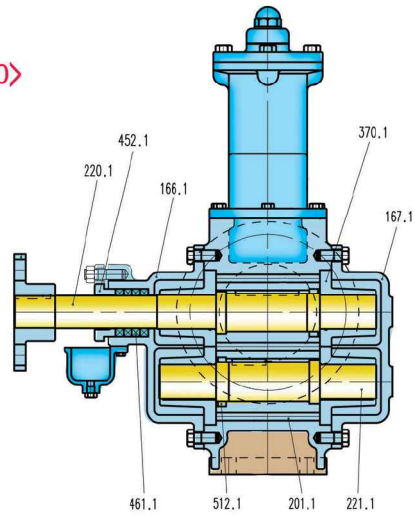
- ▶ 씨리즈 (Series)
- ▶ 표준용량, m³/h (Standard capacity in m³/h)

HG - 40

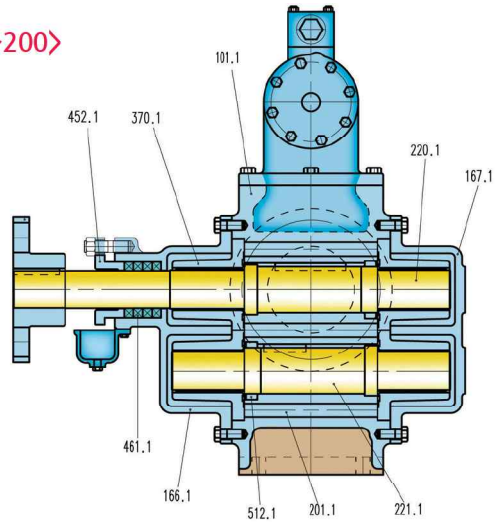
조립 단면도 / Sectional drawing



<HG 40~50>



<HG 65~200>



| No | PART NAME | MATERIAL | | Q'ty |
|-------|-------------------|--------------|---------|------|
| | | GLASS 1 | GLASS 2 | |
| 101.1 | PUMP CASING | GC 200 | GCD 450 | 1 |
| 166.1 | SIDE COVER(INNER) | GC 200 | GCD 450 | 1 |
| 167.1 | SIDE COVER(OUTER) | GC 200 | GCD 450 | 2 |
| 201.1 | GEAR | SM 45C | | 2 |
| 220.1 | DRIVE SHAFT | SM 45C | | 1 |
| 221.1 | DRIVEN SHAFT | SM 45C | | 1 |
| 370.1 | SLIDING BEARING | LBC 4 | | 4 |
| 452.1 | PACKING GLAND | GC 200 | | 1 |
| 461.1 | PACKING | NON-METALLIC | | 1SET |
| 512.1 | GEAR SET RING | SM 45C | | 2 |
| 761.1 | VALVE BODY | GC 200 | GCD 450 | 1 |

| NO. | PART NAME | MATERIAL | | Q'ty |
|-------|----------------|-----------|---------|------|
| | | GLASS 1 | GLASS 2 | |
| 762.1 | VALVE COVER | GC 200 | | 1 |
| 763.1 | SAFETY VALVE | SM 45C | | 1 |
| 764.1 | VALVE SEAT | STS 410J1 | | 1 |
| 765.1 | VALVE SPRING | SPS 6 | | 1 |
| 766.1 | SPRING CARRIER | SS 400 | | 1 |
| 767.1 | VALVE CAP | GC 200 | | 1 |
| 916.1 | ADJUST SCREW | SS 400 | | 1 |

*OPTION

외형치수도 / Outline dimensions

Fig "A"

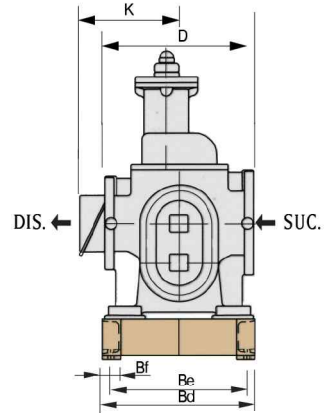
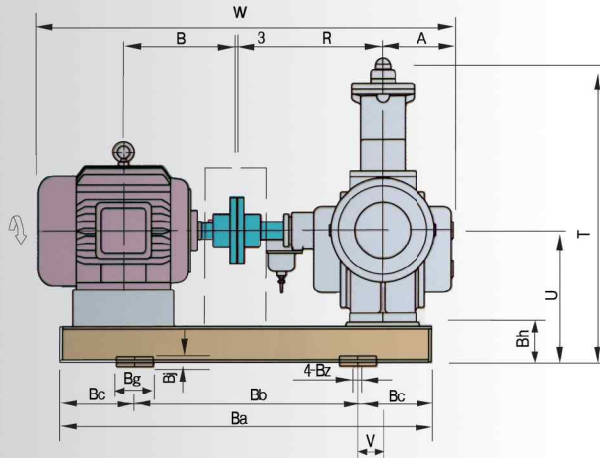
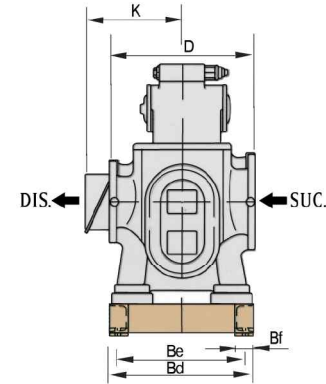
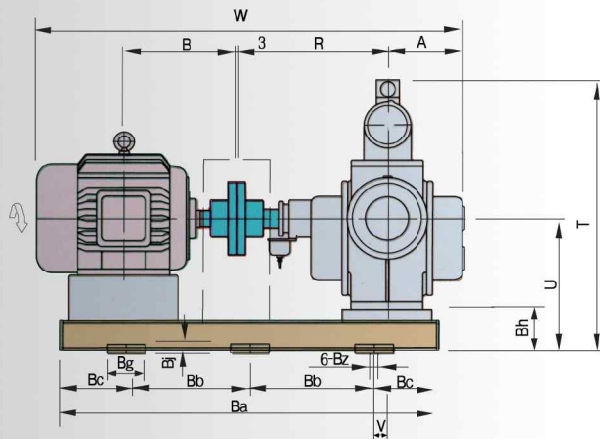


Fig "B"



* Dimensions for the standard unit driven by IEC standard motor.

| TYPE | FIG | MOTOR FRAME NO. | BORE | | PUMP & MOTOR DIMENSIONS(MM) | | | | | | | | | | BASE PLATE DIMENSIONS(MM) | | | | | | WEIGHT(KG) | | | | | | | | | | | | | | |
|-------|-----|-----------------|------|------|-----------------------------|-----|-----|------|------|-----|-----|-----|------|------|---------------------------|------|-----|-----|----|-----|------------|----|-----|------|-------|------|-------|----|-----|-----|----|----|-----|-----|-----|
| | | | SUC. | DIS. | A | B | D | K | R | T | U | V | W | Ba | Bb | Bc | Bd | Be | Bf | Bg | Bh | Bj | Bz | PUMP | MOTOR | BASE | TOTAL | | | | | | | | |
| HG 40 | A | 160M | Ø150 | Ø125 | 190 | 323 | 400 | 280 | 390 | 845 | 370 | 100 | 1176 | 1000 | 600 | 200 | 390 | 345 | 50 | 100 | 28 | 19 | 160 | 109 | 44 | 313 | | | | | | | | | |
| | | 160L | | | | 345 | | 280 | | | | 100 | 1220 | 1000 | 600 | 200 | | | | | | | | 136 | 44 | 340 | | | | | | | | | |
| | B | 180M | | | 352 | 305 | 30 | 1230 | 1050 | 400 | 125 | 161 | 48 | 369 | | | | | | | | | | | | | | | | | | | | | |
| | | 180L | | | 371 | 305 | 30 | 1268 | 1050 | 400 | 125 | 177 | 48 | 385 | | | | | | | | | | | | | | | | | | | | | |
| | | 200L | | | 426 | 362 | 25 | 1384 | 1150 | 450 | 125 | 297 | 53 | 510 | | | | | | | | | | | | | | | | | | | | | |
| HG 50 | B | 160M | Ø150 | Ø125 | 185 | 323 | 400 | 275 | 390 | 845 | 370 | 100 | 1174 | 1000 | 600 | 200 | 390 | 345 | 50 | 100 | 28 | 19 | 155 | 102 | 44 | 301 | | | | | | | | | |
| | | 160L | | | | 345 | | 275 | | | | 100 | 1218 | 1000 | 600 | 200 | | | | | | | | 118 | 44 | 317 | | | | | | | | | |
| | | 180M | | | | 352 | | 305 | | | | 30 | 1225 | 1050 | 400 | 125 | | | | | | | | 161 | 48 | 364 | | | | | | | | | |
| | | 180L | | | | 371 | | 305 | | | | 30 | 1263 | 1050 | 400 | 125 | | | | | | | | 177 | 48 | 380 | | | | | | | | | |
| | | 200L | | | | 428 | | 362 | | | | 25 | 1379 | 1150 | 450 | 125 | | | | | | | | 297 | 51 | 503 | | | | | | | | | |
| | | 225S | | | | 445 | | 407 | | | | 25 | 1432 | 1150 | 450 | 125 | | | | | | | | 345 | 53 | 553 | | | | | | | | | |
| HG 65 | B | 180M | Ø150 | Ø125 | 220 | 307 | 460 | 290 | 445 | 850 | 400 | 0 | 1327 | 1150 | 450 | 125 | 450 | 405 | 50 | 100 | 28 | 19 | 230 | 147 | 53 | 430 | | | | | | | | | |
| | | 180L | | | | 326 | | 290 | | | | 0 | 1365 | 1150 | 450 | 125 | | | | | | | | 159 | 53 | 442 | | | | | | | | | |
| | | 200L | | | | 426 | | 362 | | | | 25 | 1469 | 1200 | 450 | 150 | | | | | | | | 297 | 55 | 582 | | | | | | | | | |
| | | 225S | | | | 445 | | 497 | | | | 0 | 1522 | 1250 | 500 | 125 | | | | | | | | 345 | 98 | 673 | | | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | 880 | 430 | 25 | 1613 | 1300 | | | | | | | | 500 | 150 | 540 | 480 | 65 | 130 | 150 | 30 | 23 | 450 | 100 | 780 |
| | | 250M | | | | 483 | | 497 | | | | 880 | 430 | 25 | 1613 | 1300 | | | | | | | | 500 | 150 | 540 | 480 | 65 | 130 | 150 | 30 | 23 | 505 | 100 | 835 |
| HG 80 | B | 180M | Ø150 | Ø125 | 235 | 352 | 460 | 290 | 445 | 850 | 400 | 0 | 1342 | 1150 | 450 | 125 | 450 | 405 | 50 | 100 | 28 | 23 | 230 | 147 | 53 | 430 | | | | | | | | | |
| | | 180L | | | | 326 | | 290 | | | | 0 | 1380 | 1150 | 450 | 125 | | | | | | | | 159 | 53 | 442 | | | | | | | | | |
| | | 200L | | | | 376 | | 362 | | | | 25 | 1484 | 1200 | 450 | 125 | | | | | | | | 297 | 55 | 582 | | | | | | | | | |
| | | 225S | | | | 445 | | 407 | | | | 0 | 1537 | 1250 | 500 | 125 | | | | | | | | 345 | 98 | 673 | | | | | | | | | |
| | | 250S | | | | 463 | | 497 | | | | 880 | 430 | 25 | 1628 | 1300 | | | | | | | | 500 | 150 | 540 | 480 | 65 | 130 | 150 | 30 | 23 | 450 | 100 | 780 |
| | | 250M | | | | 463 | | 497 | | | | 880 | 430 | 25 | 1628 | 1300 | | | | | | | | 500 | 150 | 540 | 480 | 65 | 130 | 150 | 30 | 23 | 505 | 100 | 835 |

• 치수는 참고용임.



HG

* Dimensions for the standard unit driven by IEC standard motor.

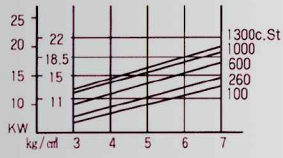
| TYPE | FIG | MOTOR FRAME NO. | BORE | | PUMP & MOTOR DIMENSIONS(MM) | | | | | | | | | BASE PLATE DIMENSIONS(MM) | | | | | | | | | WEIGHT(KG) | | | | | | | | | | | | | |
|--------|-----|-----------------|------|------|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|---------------------------|------|------|-----|-----|----|-----|-----|----|------------|------|-------|------|-------|-----|------|-----|-----|----|----|-----|-----|-----|
| | | | SUC. | DIS. | A | B | D | K | R | T | U | V | W | Ba | Bb | Bc | Bd | Be | Bf | Bg | Bh | Bj | Bz | PUMP | MOTOR | BASE | TOTAL | | | | | | | | | |
| HG 90 | B | 180M | Ø150 | Ø125 | 235 | 352 | 460 | 290 | 445 | 850 | 400 | 0 | 1342 | 1150 | 450 | 125 | 450 | 405 | 50 | 100 | 120 | 28 | 23 | 230 | 147 | 53 | 430 | | | | | | | | | |
| | | 180L | | | | 371 | | 290 | | | | 0 | 1380 | 1150 | 450 | 125 | | | | | | | | | 159 | 53 | 442 | | | | | | | | | |
| | | 200L | | | | 376 | | 362 | | | | 25 | 1484 | 1200 | 450 | 150 | | | | | | | | | 297 | 55 | 582 | | | | | | | | | |
| | | 225S | | | | 445 | | 407 | | | | 0 | 1537 | 1250 | 500 | 125 | | | | | | | | | 505 | 445 | 345 | 98 | 673 | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | 880 | 430 | 25 | 1628 | 1300 | | | | | | | | | 500 | 150 | 540 | 480 | 65 | 130 | 150 | 30 | 23 | 450 | 100 | 780 |
| | | 250M | | | | 483 | | 497 | | | | 880 | 430 | 25 | 1628 | 1300 | | | | | | | | | 500 | 150 | 540 | 480 | 65 | 130 | 150 | 30 | 23 | 505 | 100 | 835 |
| HG 100 | B | 200L | Ø150 | Ø150 | 265 | 426 | 500 | 362 | 515 | 950 | 470 | 15 | 1574 | 1300 | 500 | 150 | 500 | 445 | 65 | 130 | 150 | 30 | 23 | 320 | 297 | 100 | 717 | | | | | | | | | |
| | | 225S | | | | 445 | | 407 | | | | 15 | 1637 | 1300 | 500 | 150 | | | | | | | | | 345 | 100 | 765 | | | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | -10 | 1728 | 1350 | 550 | 125 | | | | | | | | | 450 | 105 | 875 | | | | | | | | | |
| | | 250M | | | | 483 | | 497 | | | | -10 | 1728 | 1350 | 550 | 125 | | | | | | | | | 505 | 490 | 505 | 105 | 930 | | | | | | | |
| | | 280S | | | | 570 | | 527 | | | | 65 | 1874 | 1500 | 550 | 200 | | | | | | | | | 550 | 510 | 655 | 110 | 1085 | | | | | | | |
| | | 280M | | | | 570 | | 527 | | | | 65 | 1874 | 1500 | 550 | 200 | | | | | | | | | 550 | 510 | 770 | 110 | 1200 | | | | | | | |
| HG 110 | B | 200L | Ø200 | Ø150 | 265 | 426 | 500 | 362 | 515 | 950 | 470 | 15 | 1584 | 1300 | 500 | 150 | 505 | 445 | 65 | 130 | 150 | 30 | 23 | 320 | 297 | 100 | 717 | | | | | | | | | |
| | | 225S | | | | 445 | | 407 | | | | 15 | 1637 | 1300 | 500 | 150 | | | | | | | | | 345 | 100 | 765 | | | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | -10 | 1728 | 1350 | 550 | 125 | | | | | | | | | 450 | 105 | 875 | | | | | | | | | |
| | | 250M | | | | 483 | | 497 | | | | -10 | 1728 | 1350 | 550 | 125 | | | | | | | | | 505 | 490 | 505 | 105 | 930 | | | | | | | |
| | | 280S | | | | 570 | | 527 | | | | 65 | 1874 | 1500 | 550 | 200 | | | | | | | | | 550 | 510 | 655 | 110 | 1085 | | | | | | | |
| | | 280M | | | | 570 | | 527 | | | | 65 | 1874 | 1500 | 550 | 200 | | | | | | | | | 550 | 510 | 770 | 110 | 1200 | | | | | | | |
| HG 120 | B | 200L | Ø200 | Ø150 | 265 | 426 | 500 | 362 | 515 | 950 | 470 | 15 | 1584 | 1300 | 500 | 150 | 505 | 445 | 65 | 130 | 150 | 30 | 23 | 320 | 297 | 100 | 717 | | | | | | | | | |
| | | 225S | | | | 445 | | 407 | | | | 15 | 1637 | 1300 | 500 | 150 | | | | | | | | | 345 | 100 | 765 | | | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | -10 | 1728 | 1350 | 550 | 125 | | | | | | | | | 450 | 105 | 875 | | | | | | | | | |
| | | 250M | | | | 483 | | 497 | | | | -10 | 1728 | 1350 | 550 | 125 | | | | | | | | | 505 | 490 | 505 | 105 | 930 | | | | | | | |
| | | 280S | | | | 570 | | 527 | | | | 65 | 1874 | 1500 | 550 | 200 | | | | | | | | | 570 | 510 | 655 | 110 | 1085 | | | | | | | |
| | | 280M | | | | 570 | | 527 | | | | 65 | 1874 | 1500 | 550 | 200 | | | | | | | | | 570 | 510 | 770 | 110 | 1200 | | | | | | | |
| HG 135 | B | 225S | Ø200 | Ø175 | 285 | 445 | 500 | 407 | 550 | 960 | 470 | -10 | 1692 | 1350 | 550 | 125 | 505 | 445 | 65 | 130 | 150 | 30 | 23 | 380 | 345 | 102 | 827 | | | | | | | | | |
| | | 250S | | | | 463 | | 497 | | | | 15 | 1783 | 1400 | 550 | 150 | 450 | 107 | | | | | | | 937 | | | | | | | | | | | |
| | | 250M | | | | 463 | | 497 | | | | 15 | 1783 | 1400 | 550 | 150 | 505 | 490 | | | | | | | 505 | 107 | 992 | | | | | | | | | |
| | | 280S | | | | 522 | | 527 | | | | 40 | 1929 | 1550 | 600 | 175 | 570 | 510 | | | | | | | 655 | 112 | 1147 | | | | | | | | | |
| | | 280M | | | | 522 | | 527 | | | | 40 | 1929 | 1550 | 600 | 175 | 770 | 112 | | | | | | | 1262 | | | | | | | | | | | |
| HG 150 | B | 225S | Ø250 | Ø175 | 285 | 445 | 500 | 407 | 550 | 960 | 470 | -10 | 1692 | 1350 | 550 | 125 | 505 | 445 | 65 | 130 | 150 | 30 | 23 | 380 | 345 | 102 | 827 | | | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | 15 | 1783 | 1400 | 550 | 150 | 450 | 107 | | | | | | | 937 | | | | | | | | | | | |
| | | 250M | | | | 483 | | 497 | | | | 15 | 1783 | 1400 | 550 | 150 | 505 | 490 | | | | | | | 505 | 107 | 992 | | | | | | | | | |
| | | 280S | | | | 570 | | 527 | | | | 40 | 1929 | 1550 | 600 | 175 | 570 | 510 | | | | | | | 655 | 112 | 1147 | | | | | | | | | |
| | | 280M | | | | 570 | | 527 | | | | 40 | 1929 | 1550 | 600 | 175 | 770 | 112 | | | | | | | 1262 | | | | | | | | | | | |
| HG 175 | B | 225S | Ø250 | Ø175 | 325 | 445 | 600 | 407 | 650 | 995 | 505 | 15 | 1832 | 1450 | 550 | 175 | 570 | 510 | 65 | 130 | 150 | 30 | 23 | 475 | 345 | 112 | 932 | | | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | 15 | 1923 | 1550 | 600 | 175 | | | | | | | | | 450 | 115 | 1040 | | | | | | | | | |
| | | 250M | | | | 483 | | 497 | | | | 15 | 1923 | 1550 | 600 | 175 | | | | | | | | | 505 | 115 | 1095 | | | | | | | | | |
| | | 280S | | | | 570 | | 527 | | | | 15 | 2069 | 1650 | 650 | 175 | | | | | | | | | 655 | 152 | 1282 | | | | | | | | | |
| | | 280M | | | | 570 | | 527 | | | | 1025 | 535 | 15 | 2069 | 1650 | | | | | | | | | 650 | 175 | 770 | 152 | 1397 | | | | | | | |
| | | 280L | | | | 614 | | 527 | | | | 65 | 2158 | 1750 | 650 | 225 | | | | | | | | | 865 | 156 | 1496 | | | | | | | | | |
| HG 200 | B | 225S | Ø250 | Ø175 | 325 | 445 | 600 | 407 | 650 | 995 | 505 | 15 | 1832 | 1450 | 550 | 175 | 570 | 510 | 65 | 130 | 150 | 30 | 23 | 475 | 345 | 112 | 932 | | | | | | | | | |
| | | 250S | | | | 483 | | 497 | | | | 15 | 1923 | 1550 | 600 | 175 | | | | | | | | | 450 | 115 | 1040 | | | | | | | | | |
| | | 250M | | | | 483 | | 497 | | | | 15 | 1923 | 1550 | 600 | 175 | | | | | | | | | 505 | 115 | 1095 | | | | | | | | | |
| | | 280S | | | | 570 | | 527 | | | | 15 | 2069 | 1650 | 650 | 175 | | | | | | | | | 655 | 152 | 1282 | | | | | | | | | |
| | | 280M | | | | 570 | | 527 | | | | 1025 | 535 | 15 | 2069 | 1650 | | | | | | | | | 650 | 175 | 770 | 152 | 1397 | | | | | | | |
| | | 280L | | | | 614 | | 527 | | | | 65 | 2158 | 1750 | 650 | 225 | | | | | | | | | 865 | 156 | 1496 | | | | | | | | | |

• 치수는 참고용임.

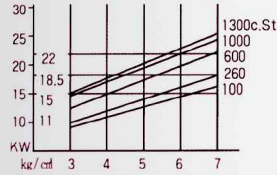
선정표 / General performance selection chart

For 60Hz

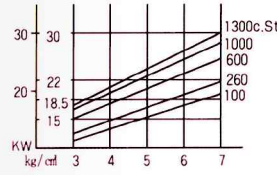
HG - 40 40m³/h × 1200r/min



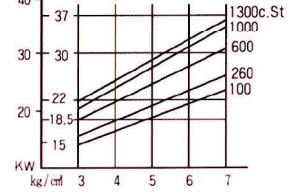
HG - 50 50m³/h × 1200r/min



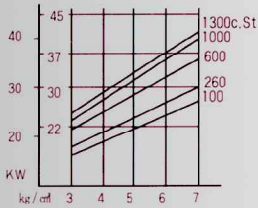
HG - 65 65m³/h × 900r/min



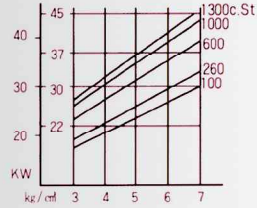
HG - 80 80m³/h × 900r/min



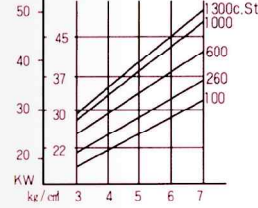
HG - 90 90m³/h × 900r/min



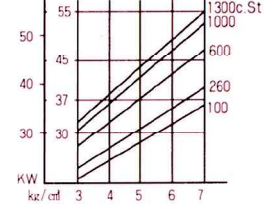
HG - 100 100m³/h × 900r/min



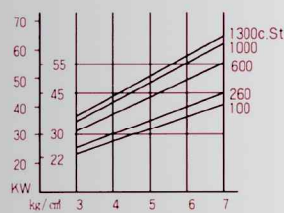
HG - 110 110m³/h × 900r/min



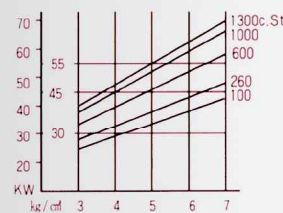
HG - 120 120m³/h × 900r/min



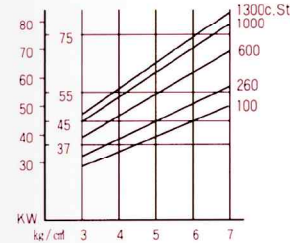
HG - 135 135m³/h × 900r/min



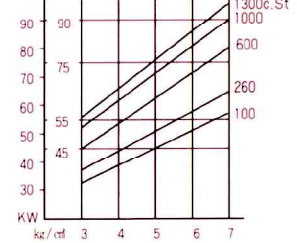
HG - 150 150m³/h × 900r/min



HG - 175 175m³/h × 900r/min

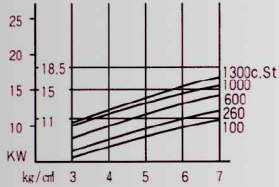


HG - 200 200m³/h × 900r/min

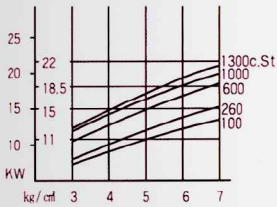


For 50Hz

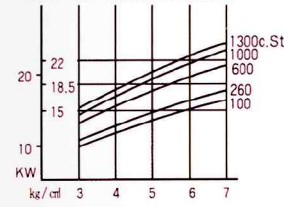
HG - 40 33m³/h × 1000r/min



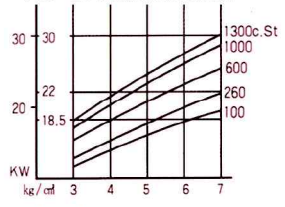
HG - 50 40m³/h × 1000r/min



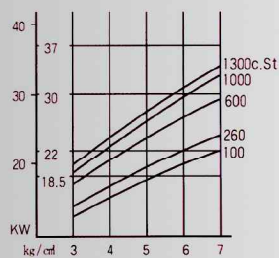
HG - 65 55m³/h × 750r/min



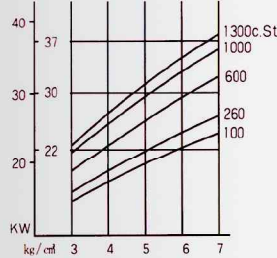
HG - 80 65m³/h × 750r/min



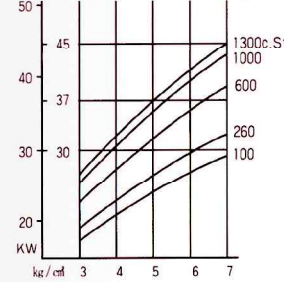
HG - 90 75m³/h × 750r/min



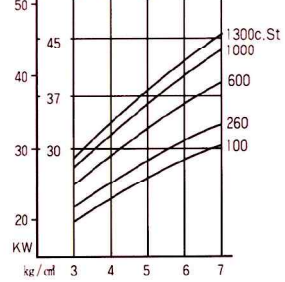
HG - 100 85m³/h × 750r/min



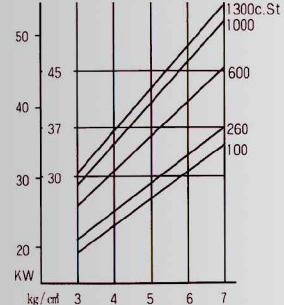
HG - 110 90m³/h × 750r/min



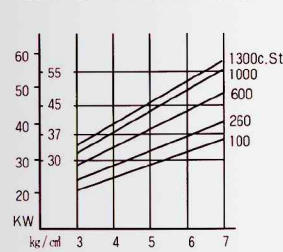
HG - 120 100m³/h × 750r/min



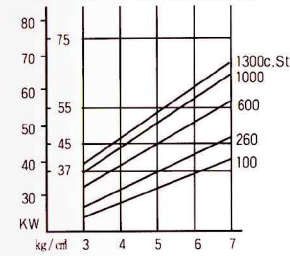
HG - 135 110m³/h × 750r/min



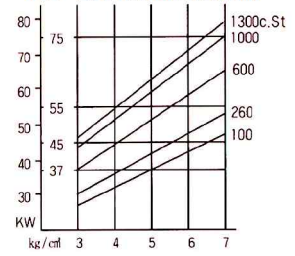
HG - 150 125m³/h × 750r/min



HG - 175 145m³/h × 750r/min



HG - 200 165m³/h × 750r/min



HG

Comparison With Involute Gear Pump

Fig 1 Involute Gear

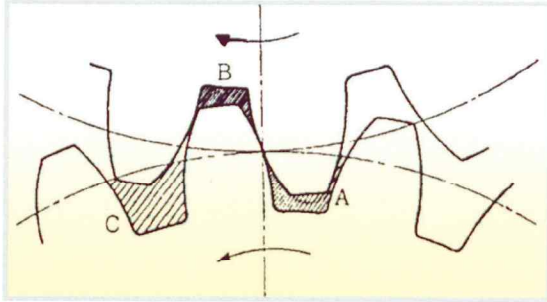
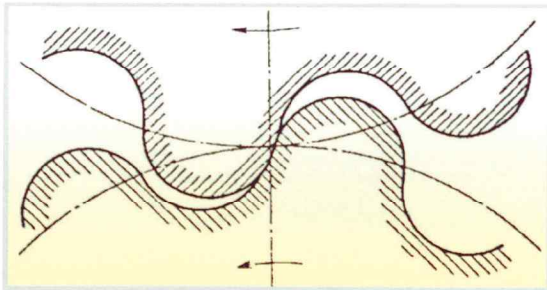


Fig 2 Shin Shin Gear



Demerits of Involute Pump(Fig.1)

1. Closed volume between the engaging teeth of the both gears will change with the rotation and incase of the volume decrease an extreme high pressure may arise to give an unreasonable force to the bearing and cause a vibration and noise.(Fig. 1-B)
2. On the contrary, at the portion shown in Fig. 1-C there arises a vacuum(cavitation) and many air bubbles therefrom.
3. Further, as self-evident from the comparison between Fig. 1 and Fig. 2, in case of the involute gear, space between both teeth near the meeting point has a narrow inlet, which makes a resistance for fluid flowing in, and during high speed rotation that space goes to the delivery side with unfilled fluid, and causes a violent noise and vibration, thus the gear material will be corroded. or bronze for variety of operating conditions
4. Large slip ratio in engaging will expedite the wearing of gear, shorten the life and cause the power loss.

Merits of SHIN SHIN-Type Gear Pump(Fig.2)

1. The gears are one point contact type originally design for gear pump application, therefore, neither cavitation nor noise will arise.
2. Smooth rotation and slip ratio of only 1/10 against the ordinary gear teeth.
3. Compact size with large capacity.
4. Longer life of bearings.
5. Constant suction and delivery volume.
6. Suitable even for fluid of high viscosity.
7. Changing the delivery pressure and capacity is almost nil.
8. High efficiency and less power consumption.