

## Aerial Cam Unit

| Grade  | Working Force [kN (tonf)] |                    | Catalog No. | W   | $\theta$<br>5° increments | Spring Type<br>PS |
|--------|---------------------------|--------------------|-------------|-----|---------------------------|-------------------|
|        | 1,000,000<br>strokes      | 300,000<br>strokes |             |     |                           |                   |
| Yellow | 269.5 (27.5)              | 294.0 (30.0)       | VACYL       | 400 | 00~70                     | GK NGK<br>ISO     |
| Pink   | 377.3 (38.5)              | 411.6 (42.0)       | VACPL       |     |                           |                   |

ISO: Coil Spring GK: Gas Spring (KALLER)  
NGK: Without Gas Spring Parts for spring assembly are included.

|                                                                                            |                |            |   |          |   |           |   |        |
|--------------------------------------------------------------------------------------------|----------------|------------|---|----------|---|-----------|---|--------|
| <br>Order | Catalog No.    | W          | — | $\theta$ | — | PS        | — | Option |
|                                                                                            | VACYL<br>VACPL | 400<br>400 | — | 10<br>10 | — | ISO<br>GK | — | NF — K |

|                                                                                             |             |                                            |
|---------------------------------------------------------------------------------------------|-------------|--------------------------------------------|
| <br>Option | Option Code | Specification                              |
|                                                                                             | NF<br>K     | Nitrogen gas not charged.<br>Key attached. |

 Refer to page 388 for key specification.

### Spring Force & Return Force

● Gas Spring  
Yellow, Pink

| $\theta$ | Spring Force |      | Return Force |        |
|----------|--------------|------|--------------|--------|
|          | Final Load   |      |              |        |
|          | N            | kgf  | N            | kgf    |
| 00       | 27829        | 2840 | 37516        | 3828.2 |
| 05       | 27829        | 2840 | 37435        | 3819.9 |
| 10       | 27829        | 2840 | 37349        | 3811.2 |
| 15       | 27829        | 2840 | 37258        | 3801.9 |
| 20       | 27829        | 2840 | 37164        | 3792.2 |
| 25       | 27829        | 2840 | 37065        | 3782.2 |
| 30       | 27829        | 2840 | 36965        | 3771.9 |
| 35       | 27829        | 2840 | 36862        | 3761.4 |
| 40       | 27829        | 2840 | 36758        | 3750.9 |
| 45       | 27829        | 2840 | 36655        | 3740.3 |
| 50       | 27829        | 2840 | 36551        | 3729.7 |
| 55       | 27829        | 2840 | 39757        | 4056.9 |
| 60       | 27829        | 2840 | 43960        | 4485.7 |
| 65       | 26956        | 2751 | 48001        | 4898.0 |
| 70       | 25384        | 2590 | 52244        | 5331.1 |

● Coil Spring  
Yellow, Pink

| $\theta$ | Spring Force |       |            |        | Return Force |        |
|----------|--------------|-------|------------|--------|--------------|--------|
|          | Initial Load |       | Final Load |        |              |        |
|          | N            | kgf   | N          | kgf    | N            | kgf    |
| 00       | 1745         | 178.1 | 13743      | 1402.4 | 18926        | 1931.3 |
| 05       | 1745         | 178.1 | 13743      | 1402.4 | 18846        | 1923.0 |
| 10       | 1745         | 178.1 | 13743      | 1402.4 | 18760        | 1914.3 |
| 15       | 1745         | 178.1 | 13743      | 1402.4 | 18669        | 1905.0 |
| 20       | 1745         | 178.1 | 13743      | 1402.4 | 18574        | 1895.3 |
| 25       | 1745         | 178.1 | 13743      | 1402.4 | 18476        | 1885.3 |
| 30       | 1745         | 178.1 | 13743      | 1402.4 | 18375        | 1875.0 |
| 35       | 1745         | 178.1 | 13743      | 1402.4 | 18272        | 1864.5 |
| 40       | 1745         | 178.1 | 13743      | 1402.4 | 18169        | 1854.0 |
| 45       | 1745         | 178.1 | 13743      | 1402.4 | 18065        | 1843.4 |
| 50       | 1745         | 178.1 | 13743      | 1402.4 | 17962        | 1832.8 |
| 55       | 1745         | 178.1 | 13743      | 1402.4 | 19533        | 1993.2 |
| 60       | 1745         | 178.1 | 13743      | 1402.4 | 21599        | 2204.0 |
| 65       | 1745         | 178.1 | 12653      | 1291.1 | 22394        | 2285.1 |
| 70       | 1403         | 143.2 | 12911      | 1317.4 | 26419        | 2695.8 |

### Cam Travel

| $\theta$ | Travel<br>mm |
|----------|--------------|
| 00       | 35.4         |
| 05       | 39.0         |
| 10       | 42.8         |
| 15       | 46.6         |
| 20       | 50.7         |
| 25       | 55.0         |
| 30       | 59.7         |
| 35       | 64.9         |
| 40       | 70.7         |
| 45       | 77.5         |
| 50       | 85.6         |
| 55       | 95.9         |
| 60       | 110.0        |
| 65       | 118.3        |
| 70       | 119.9        |

## Aerial Cam Unit

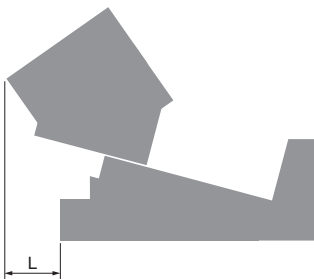
### Weight

| $\theta$ | Total Weight<br>kg | Cam Slider Weight<br>kg | Tool Weight*1<br>kg |
|----------|--------------------|-------------------------|---------------------|
| 00       | 205                | 91                      | 59                  |
| 05       | 205                | 91                      | 59                  |
| 10       | 204                | 91                      | 60                  |
| 15       | 203                | 91                      | 63                  |
| 20       | 201                | 91                      | 64                  |
| 25       | 199                | 91                      | 67                  |
| 30       | 198                | 91                      | 71                  |
| 35       | 198                | 91                      | 76                  |
| 40       | 200                | 91                      | 82                  |
| 45       | 203                | 91                      | 89                  |
| 50       | 208                | 91                      | 89                  |
| 55       | 212                | 95                      | 85                  |
| 60       | 213                | 94                      | 86                  |
| 65       | 219                | 98                      | 82                  |
| 70       | 227                | 103                     | 77                  |

\*1 Tool weight is estimated value. Allowable tool weight varies depending on press speed.

### Rear Removal Space

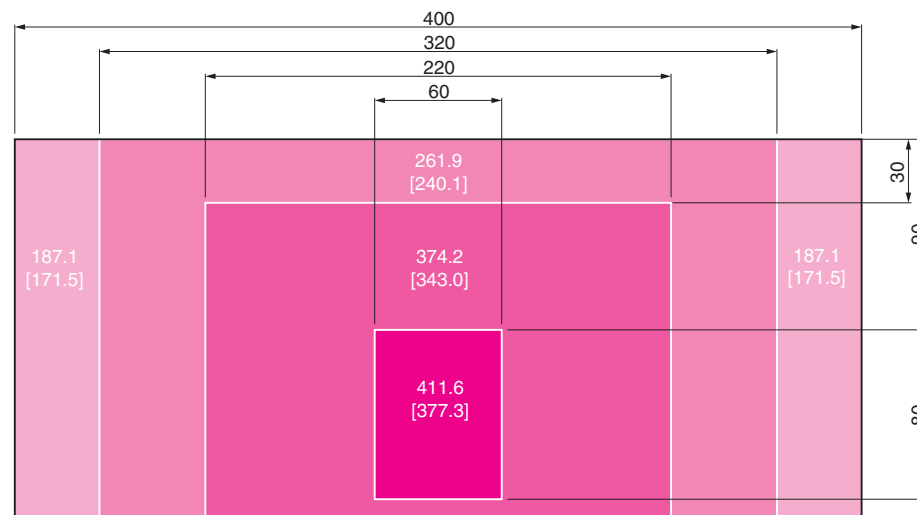
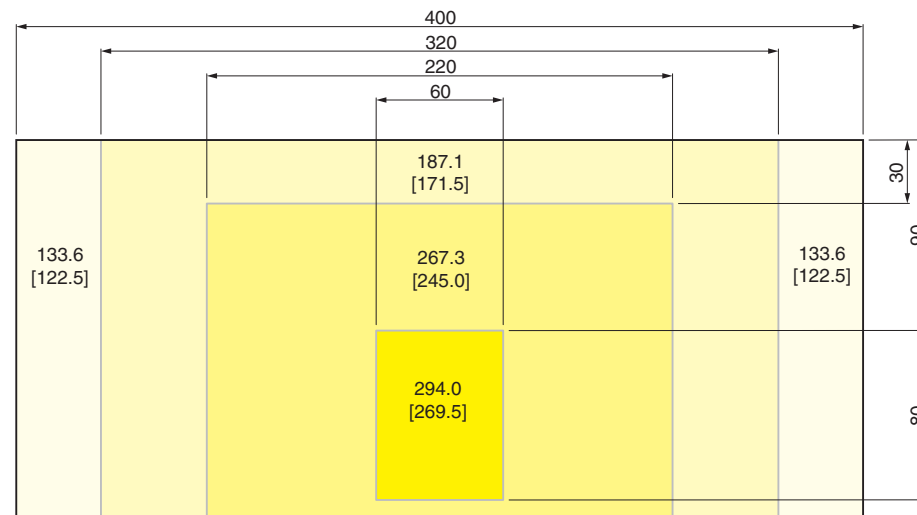
| $\theta$ | L<br>mm |
|----------|---------|
| 00       | 46.9    |
| 05       | 55.7    |
| 10       | 63.0    |
| 15       | 70.7    |
| 20       | 82.9    |
| 25       | 98.6    |
| 30       | 113.6   |
| 35       | 128.5   |
| 40       | 143.1   |
| 45       | 158.4   |
| 50       | 169.2   |
| 55       | 184.3   |
| 60       | 187.1   |
| 65       | 181.2   |
| 70       | 178.1   |



### Working Force Distribution Diagram

The working forces indicated in the mount face distribution diagram are reached by putting the tooling center of gravity within each area for the following pictures.

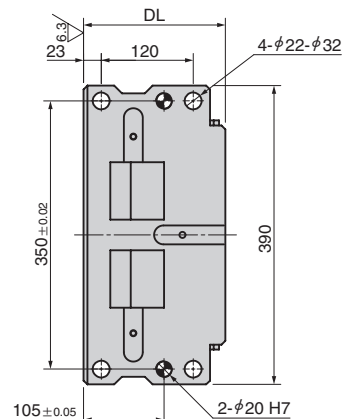
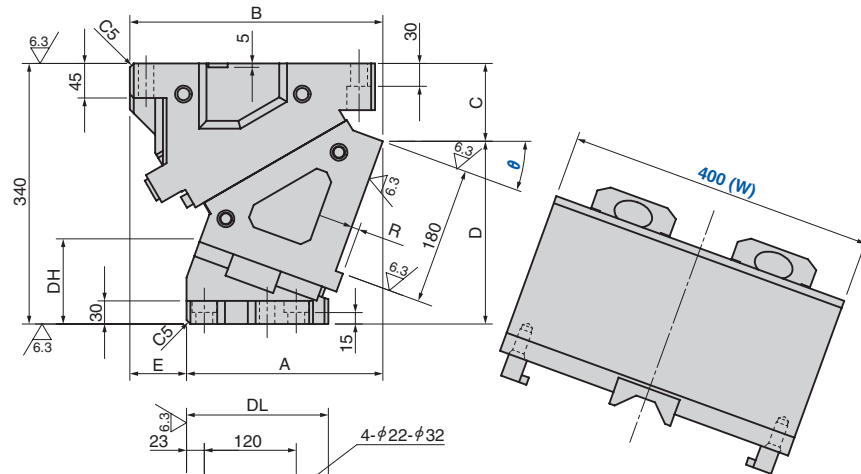
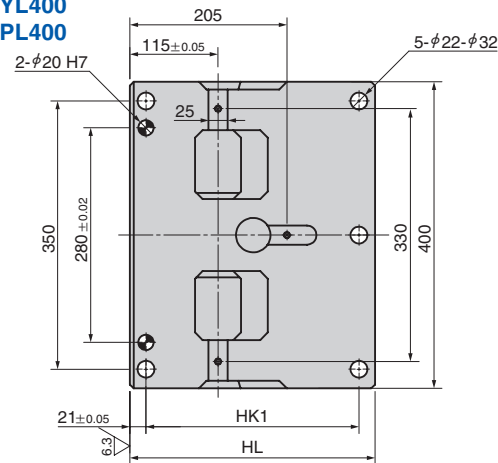
: Working force (kN) allowed for up to 300,000 strokes  
[ ] : Working force (kN) allowed for up to 1,000,000 strokes



## Aerial Cam Unit



VACYL400  
VACPL400



| $\theta$ | A      | B      | C      | D      | E    | HL  | HK1 | DH    | DL  | R  |
|----------|--------|--------|--------|--------|------|-----|-----|-------|-----|----|
| 00       | 180.00 | 303.00 | 68.00  | 272.00 | 123  | 285 | 243 | 71.0  |     |    |
| 05       | 199.13 | 312.13 | 77.72  | 262.28 | 113  | 295 | 253 | 77.7  |     |    |
| 10       | 218.87 | 319.87 | 86.26  | 253.74 | 101  | 305 | 263 | 87.0  |     |    |
| 15       | 238.21 | 327.21 | 94.59  | 245.41 | 89   | 315 | 273 | 97.8  |     |    |
| 20       | 256.18 | 330.18 | 101.67 | 238.33 | 74   | 320 | 278 | 111.0 |     |    |
| 25       | 272.82 | 332.82 | 108.46 | 231.54 | 60   | 325 | 283 | 125.4 | 185 | 10 |
| 30       | 289.13 | 334.13 | 115.95 | 224.05 | 45   | 330 | 288 | 140.0 |     |    |
| 35       | 303.16 | 332.16 | 127.11 | 212.89 | 29   | 330 | 288 | 151.5 |     |    |
| 40       | 325.92 | 326.92 | 138.91 | 201.09 | 1    | 330 | 288 | 162.8 |     |    |
| 45       | 336.46 | 317.46 | 154.33 | 185.67 | -19  | 325 | 283 | 170.8 |     |    |
| 50       | 350.80 | 308.80 | 171.35 | 168.65 | -42  | 325 | 283 | 177.3 |     |    |
| 55       | 364.97 | 299.97 | 179.42 | 160.58 | -65  | 325 | 283 | 181.8 |     |    |
| 60       | 376.72 | 295.72 | 178.36 | 161.64 | -81  | 325 | 283 | 185.6 | 180 | 23 |
| 65       | 392.61 | 298.61 | 187.08 | 152.92 | -94  | 325 | 283 | 188.6 |     | 32 |
| 70       | 409.88 | 295.88 | 197.14 | 142.86 | -114 | 325 | 283 | 191.3 |     | 40 |

### Cam Diagram

