

# Cup Type Harmonic Drive Rated Parameter :

| Model | Reduction ratio | Rated torque at 2000r/min input |      | Permissible peak torque at start and stop |      | Permissible maximum value for average load torque |      | Permissible maximum momentary torque |      | Permissible maximum input rotational speed (Grease) | Permissible average input rotational speed (Grease) | Backlash | Desian life |
|-------|-----------------|---------------------------------|------|-------------------------------------------|------|---------------------------------------------------|------|--------------------------------------|------|-----------------------------------------------------|-----------------------------------------------------|----------|-------------|
|       |                 | Nm                              | kgfm | Nm                                        | kgfm | Nm                                                | kgfm | Nm                                   | kgfm | r/min                                               | r/min                                               | Arc Sec  | Hour        |
| 14    | 50              | 5.4                             | 0.55 | 18                                        | 1.8  | 6.9                                               | 0.70 | 35                                   | 3.6  | 8500                                                | 3500                                                | ≤20      | 10000       |
|       | 80              | 7.8                             | 0.80 | 23                                        | 2.4  | 11                                                | 1.1  | 47                                   | 4.8  |                                                     |                                                     |          | 15000       |
|       | 100             | 7.8                             | 0.80 | 28                                        | 2.9  | 11                                                | 1.1  | 54                                   | 5.5  |                                                     |                                                     |          | 15000       |
|       | 120             | 7.8                             | 0.80 | 28                                        | 2.9  | 11                                                | 1.1  | 54                                   | 5.5  |                                                     |                                                     |          | 15000       |
| 17    | 50              | 16                              | 1.6  | 34                                        | 3.5  | 26                                                | 2.6  | 70                                   | 7.1  | 7300                                                | 3500                                                | ≤20      | 10000       |
|       | 80              | 22                              | 2.2  | 43                                        | 4.4  | 27                                                | 2.7  | 87                                   | 8.9  |                                                     |                                                     |          | 15000       |
|       | 100             | 24                              | 2.4  | 54                                        | 5.5  | 39                                                | 4.0  | 108                                  | 11   |                                                     |                                                     |          | 15000       |
|       | 120             | 24                              | 2.4  | 54                                        | 5.5  | 39                                                | 4.0  | 86                                   | 8.8  |                                                     |                                                     |          | 15000       |
| 20    | 50              | 25                              | 2.5  | 56                                        | 5.7  | 34                                                | 3.5  | 98                                   | 10   | 6500                                                | 3500                                                | ≤20      | 10000       |
|       | 80              | 34                              | 3.5  | 74                                        | 7.5  | 47                                                | 4.8  | 127                                  | 13   |                                                     |                                                     |          | 15000       |
|       | 100             | 40                              | 4.1  | 82                                        | 8.4  | 49                                                | 5.0  | 147                                  | 15   |                                                     |                                                     |          | 15000       |
|       | 120             | 40                              | 4.1  | 87                                        | 8.9  | 49                                                | 5.0  | 147                                  | 15   |                                                     |                                                     |          | 15000       |
|       | 160             | 40                              | 4.1  | 92                                        | 9.4  | 49                                                | 5.0  | 147                                  | 15   |                                                     |                                                     |          | 15000       |
| 25    | 50              | 39                              | 4.0  | 98                                        | 10   | 55                                                | 5.6  | 186                                  | 19   | 5600                                                | 3500                                                | ≤20      | 10000       |
|       | 80              | 63                              | 6.4  | 137                                       | 14   | 87                                                | 8.9  | 255                                  | 26   |                                                     |                                                     |          | 15000       |
|       | 100             | 67                              | 6.8  | 157                                       | 16   | 108                                               | 11   | 284                                  | 29   |                                                     |                                                     |          | 15000       |
|       | 120             | 67                              | 6.8  | 167                                       | 17   | 108                                               | 11   | 304                                  | 31   |                                                     |                                                     |          | 15000       |
| 32    | 50              | 76                              | 7.8  | 216                                       | 22   | 108                                               | 11   | 382                                  | 39   | 4800                                                | 3500                                                | ≤20      | 10000       |
|       | 80              | 118                             | 12   | 304                                       | 31   | 167                                               | 17   | 568                                  | 58   |                                                     |                                                     |          | 15000       |
|       | 100             | 137                             | 14   | 333                                       | 34   | 216                                               | 22   | 647                                  | 66   |                                                     |                                                     |          | 15000       |
|       | 120             | 137                             | 14   | 353                                       | 36   | 216                                               | 22   | 686                                  | 70   |                                                     |                                                     |          | 15000       |
| 40    | 50              | 137                             | 14   | 402                                       | 41   | 196                                               | 20   | 686                                  | 70   | 4000                                                | 3000                                                | ≤20      | 10000       |
|       | 80              | 206                             | 21   | 519                                       | 53   | 284                                               | 29   | 980                                  | 100  |                                                     |                                                     |          | 15000       |
|       | 100             | 265                             | 27   | 568                                       | 58   | 372                                               | 35   | 1080                                 | 110  |                                                     |                                                     |          | 15000       |
|       | 120             | 294                             | 30   | 617                                       | 63   | 451                                               | 46   | 1180                                 | 120  |                                                     |                                                     |          | 15000       |



# Cup Type Harmonic Drive Specification

Each product is assembled with precise cross roller bearing for supporting external loading(Output flange).

| Type | Basic rated load            |      |                            |      | Allowable static moment Mc |      | Weight |
|------|-----------------------------|------|----------------------------|------|----------------------------|------|--------|
|      | Basic rated dynamic load Cr |      | Basic rated static load Cr |      |                            |      |        |
|      | KN                          | kgf  | KN                         | kgf  | Nm                         | Kgfm | kg     |
| 14   | 4.7                         | 480  | 6.07                       | 620  | 41                         | 4.2  | 0.22   |
| 17   | 5.3                         | 540  | 7.55                       | 770  | 64                         | 6.5  | 0.3    |
| 20   | 5.8                         | 590  | 9.0                        | 920  | 91                         | 9.3  | 0.38   |
| 25   | 9.6                         | 980  | 15.1                       | 1540 | 156                        | 16   | 0.6    |
| 32   | 15                          | 1530 | 25.0                       | 2550 | 313                        | 32   | 1.1    |

※Basic rated dynamic load refers to static radial load that makes dynamic rated life of bearing reach up to 1 million rotations.

※Basic rated static load refers to static load that exerts a certain level of contact stress(4K/mm<sup>2</sup> ) on the central location between rotor of bearing maximum load and contact part of pathway.

※Allowable static moment refers to the value of the maximum torque exerting on output bearing, within the scope of which, it's workable and the basic performance is possible.

## Cup Type Harmonic Drive Starting torque unit: cNm

| 减速比<br>Reduction ratio | 型号<br>Type | 11  | 14  | 17  | 20  | 25  | 32 |
|------------------------|------------|-----|-----|-----|-----|-----|----|
| 50                     |            | 2.0 | 4.1 | 6.1 | 7.8 | 15  | 31 |
| 80                     |            | 1.8 | 2.8 | 4   | 4.9 | 9.2 | 19 |
| 100                    |            | 1.5 | 2.5 | 3.4 | 4.3 | 8   | 18 |
| 120                    |            | -   | 2.3 | 3.1 | 3.8 | 7.3 | 15 |
| 160                    |            | -   | -   | -   | 3.3 | -   | -  |

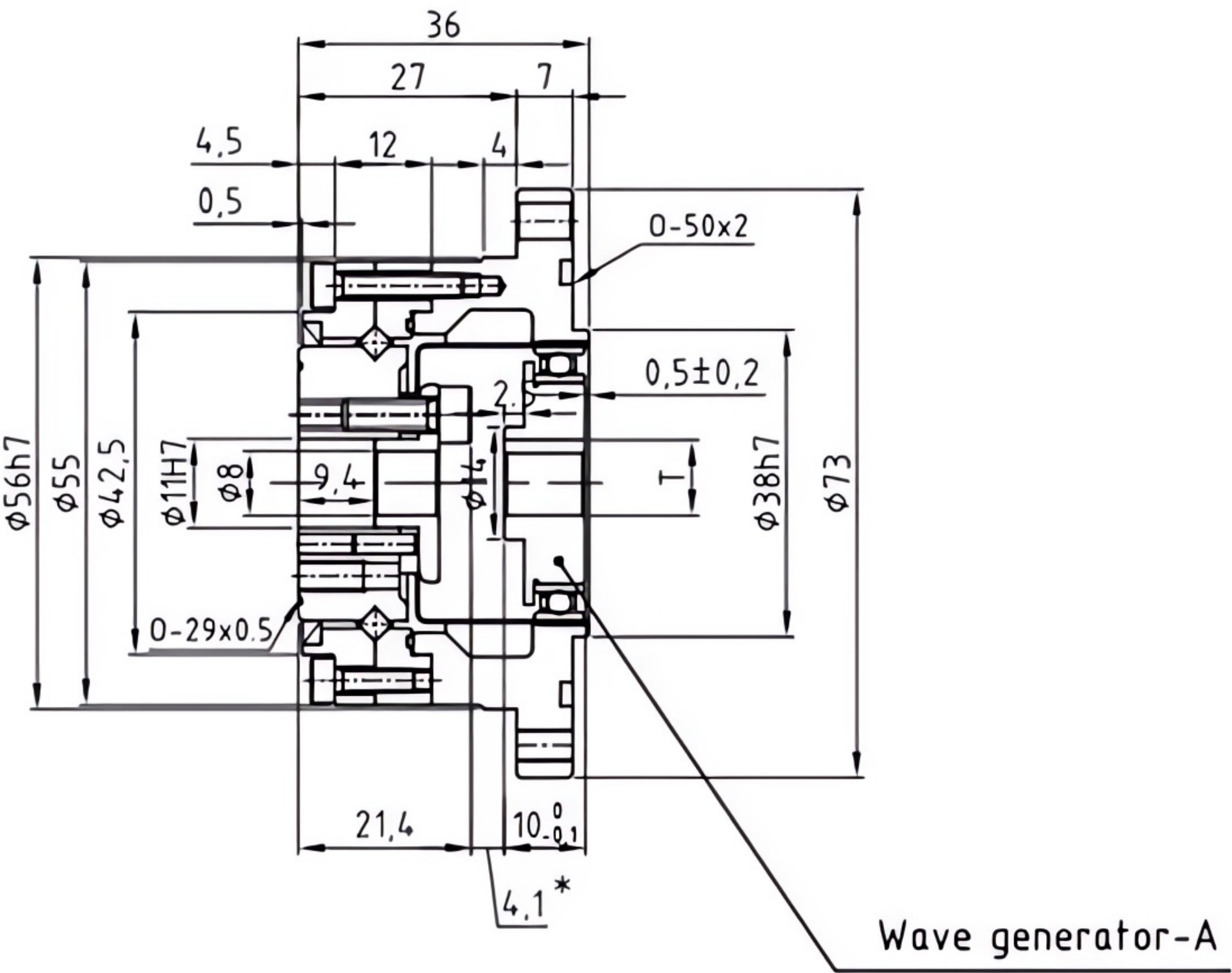
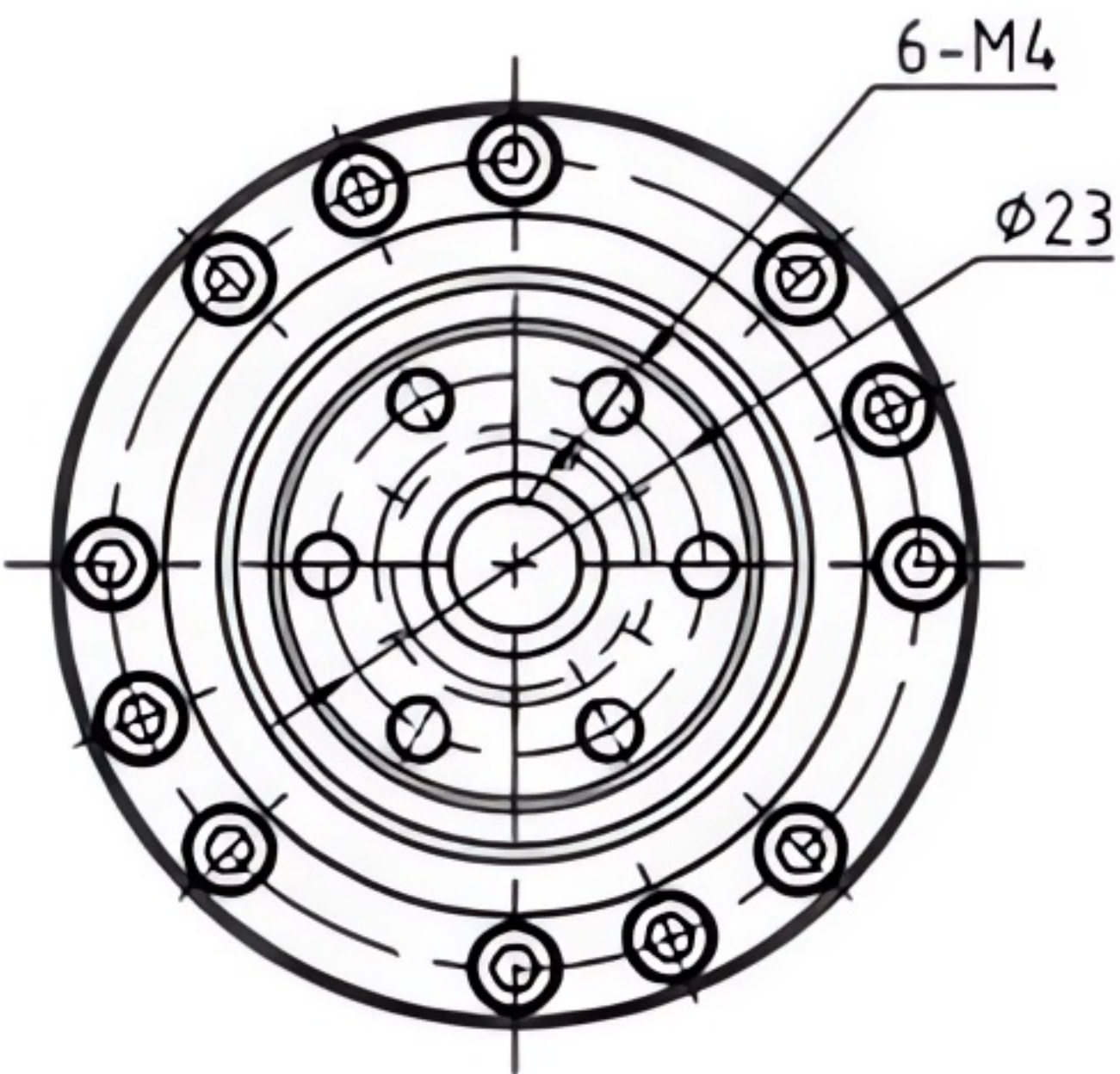
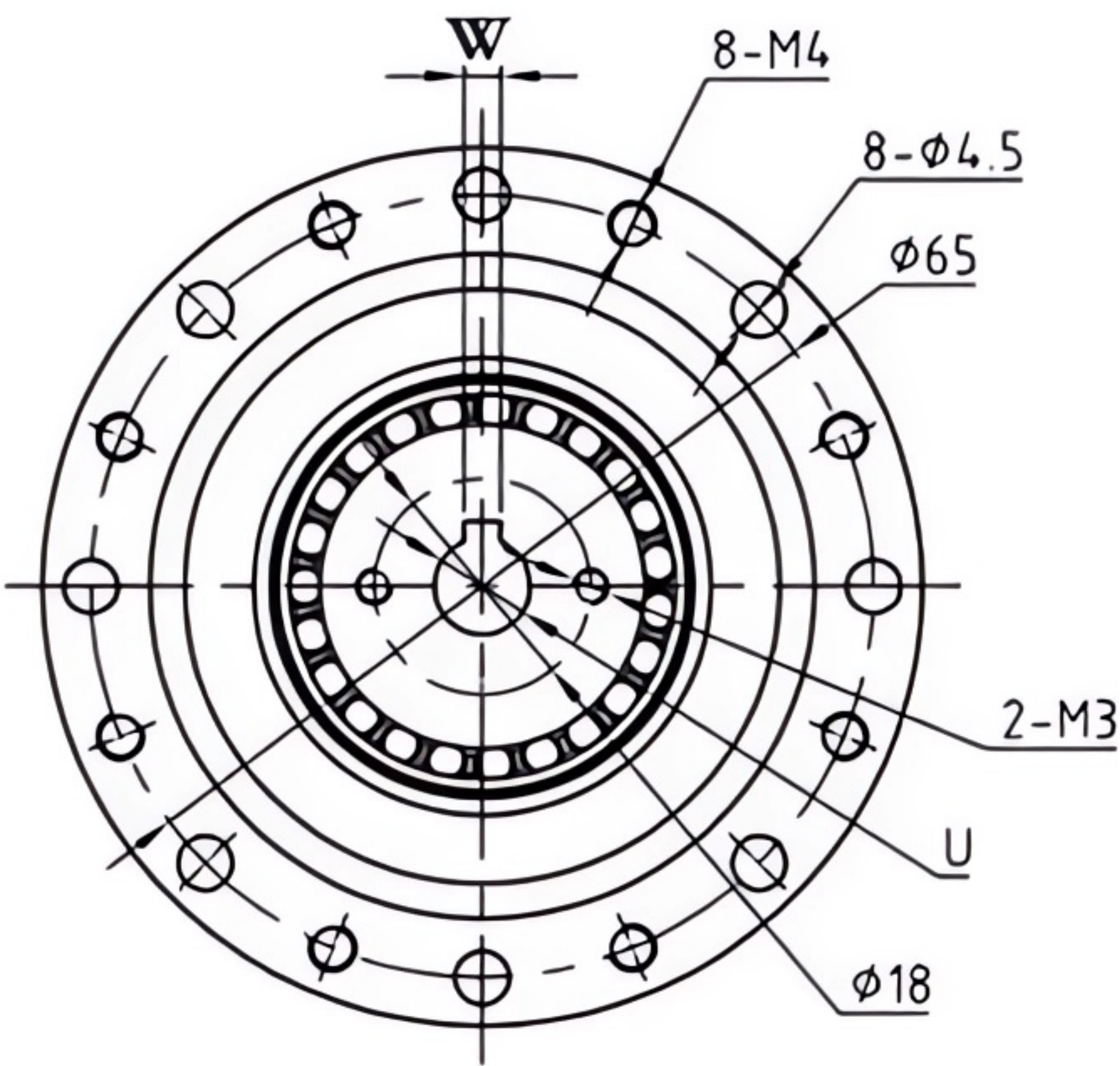


# Cup Type Harmonic Drive Moment load

| Model          | Design value | Permissible value at start and stop | Instant permissible value |
|----------------|--------------|-------------------------------------|---------------------------|
| HCS/HCN/HCG-14 | M b di 20Nm  | M b peak 40Nm                       | M b max 80Nm              |
|                | F t di 180N  | F t peak 320N                       | F t max 560N              |
|                | F a di 180N  | F a peak 320N                       | F a max 560N              |
| HCS/HCN/HCG-17 | M b di 30Nm  | M b peak 60Nm                       | M b max 120Nm             |
|                | F t di 230N  | F t peak 400N                       | F t max 700N              |
|                | F a di 230N  | F a peak 400N                       | F a max 700N              |
| HCS/HCN/HCG-20 | M b di 42Nm  | M b peak 80Nm                       | M b max 168Nm             |
|                | F t di 270N  | F t peak 480N                       | F t max 830N              |
|                | F a di 270N  | F a peak 480N                       | F a max 830N              |
| HCS/HCN/HCG-25 | M b di 80Nm  | M b peak 160Nm                      | M b max 313Nm             |
|                | F t di 440N  | F t peak 770N                       | F t max 1320N             |
|                | F a di 440N  | F a peak 770N                       | F a max 1320N             |
| HCS/HCN/HCG-32 | M b di 220Nm | M b peak 440Nm                      | M b max 890Nm             |
|                | F t di 900N  | F t peak 1600N                      | F t max 2700N             |
|                | F a di 900N  | F a peak 1600N                      | F a max 2700N             |



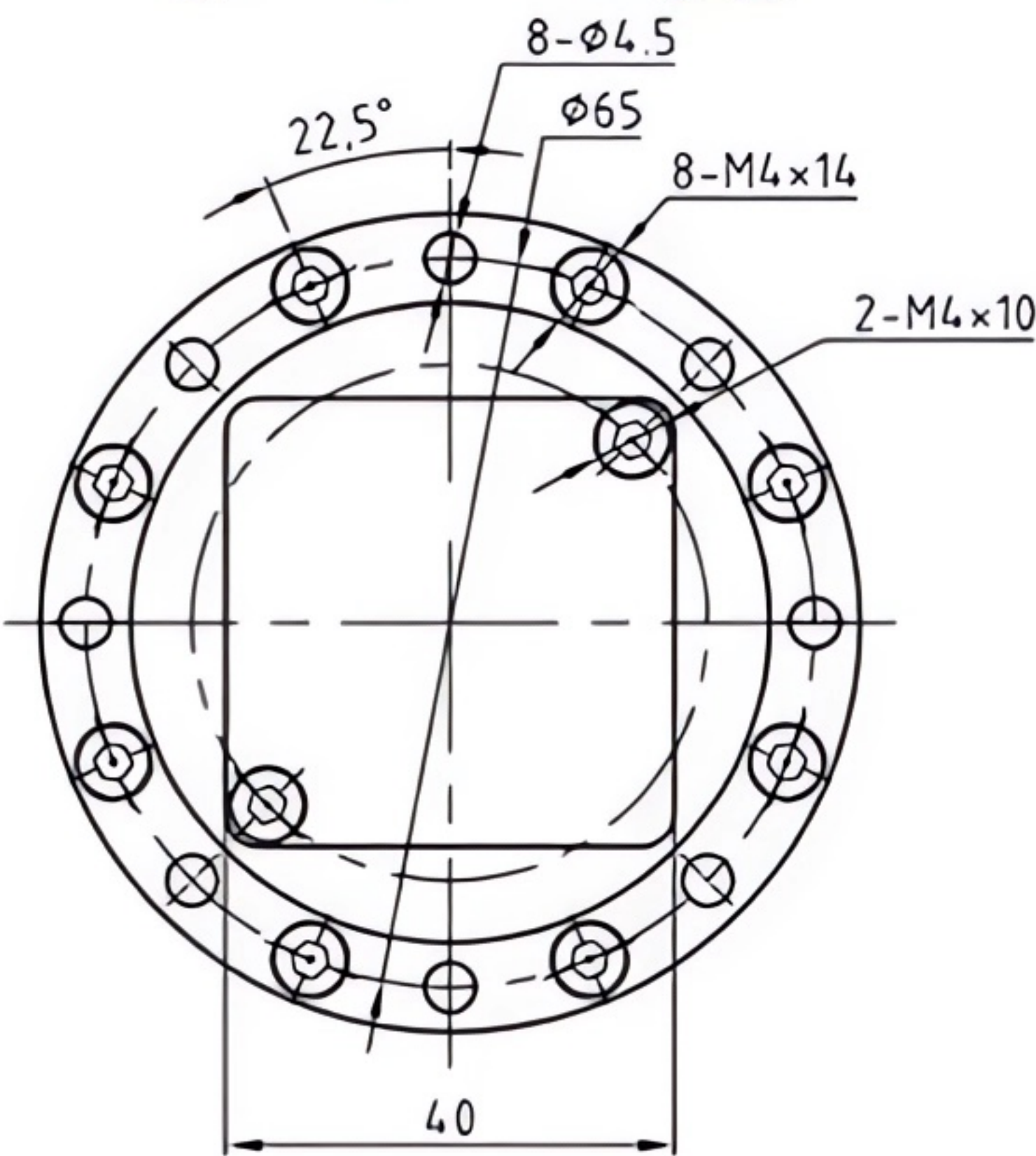
# HCS14-I Harmonic Reducer



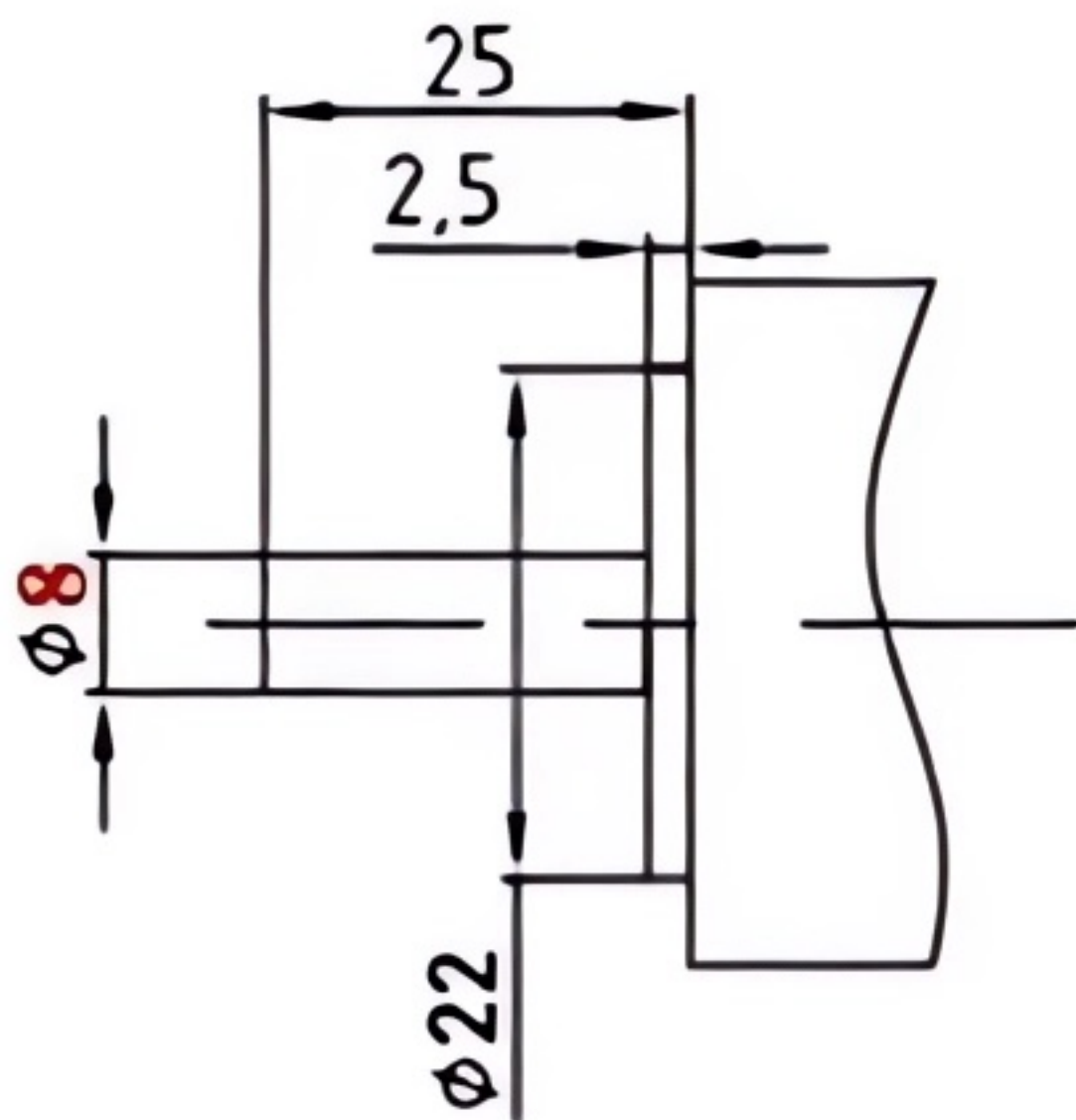
| 型号/MODEL            | U    | T                                | W       |
|---------------------|------|----------------------------------|---------|
| Wave generator-A φ8 | φ8H7 | 9.4 <sup>+0.1</sup> <sub>0</sub> | 3P9/JS9 |

Same model as Hamonic CSG-14-2UH

## Motor flange mounting plate



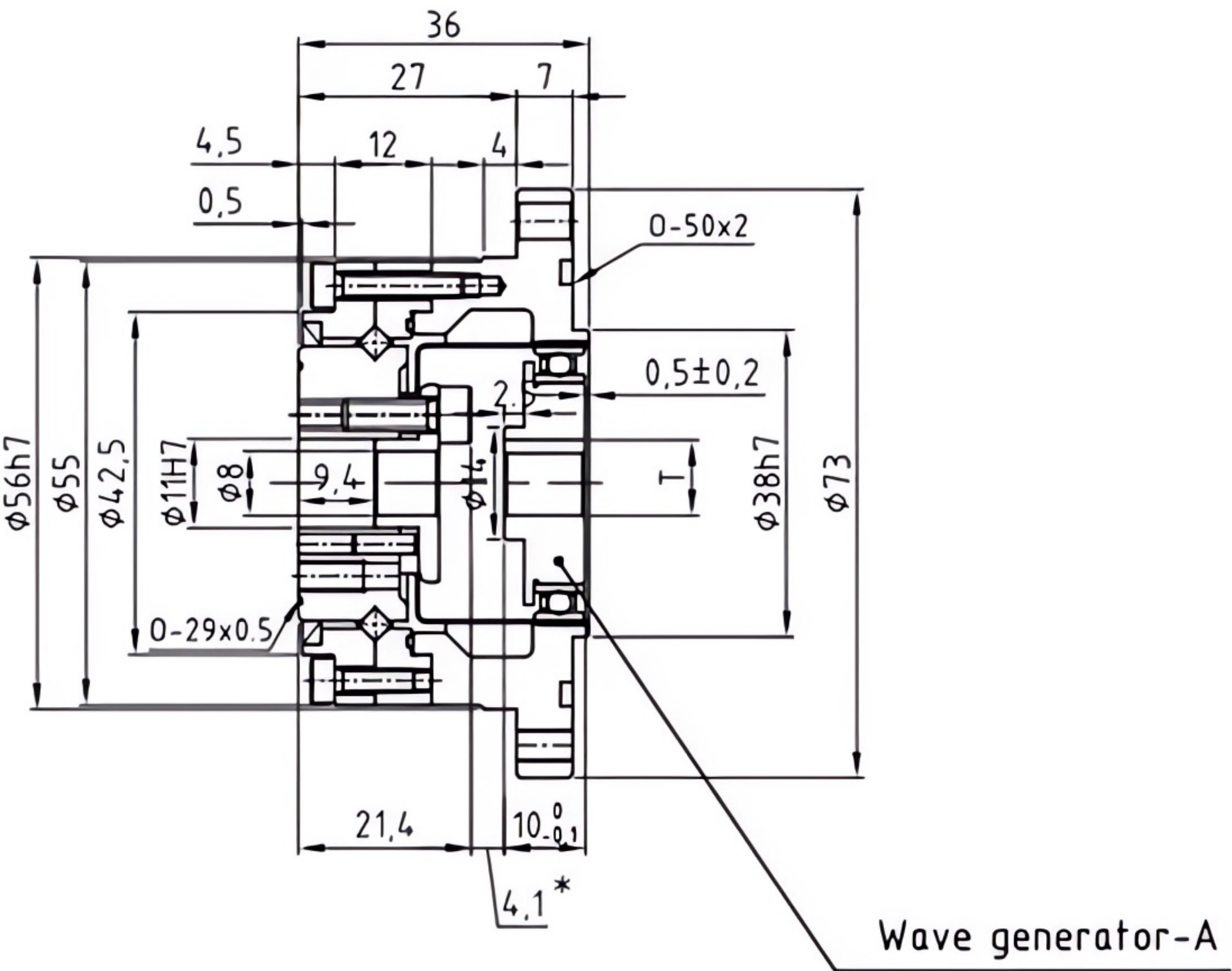
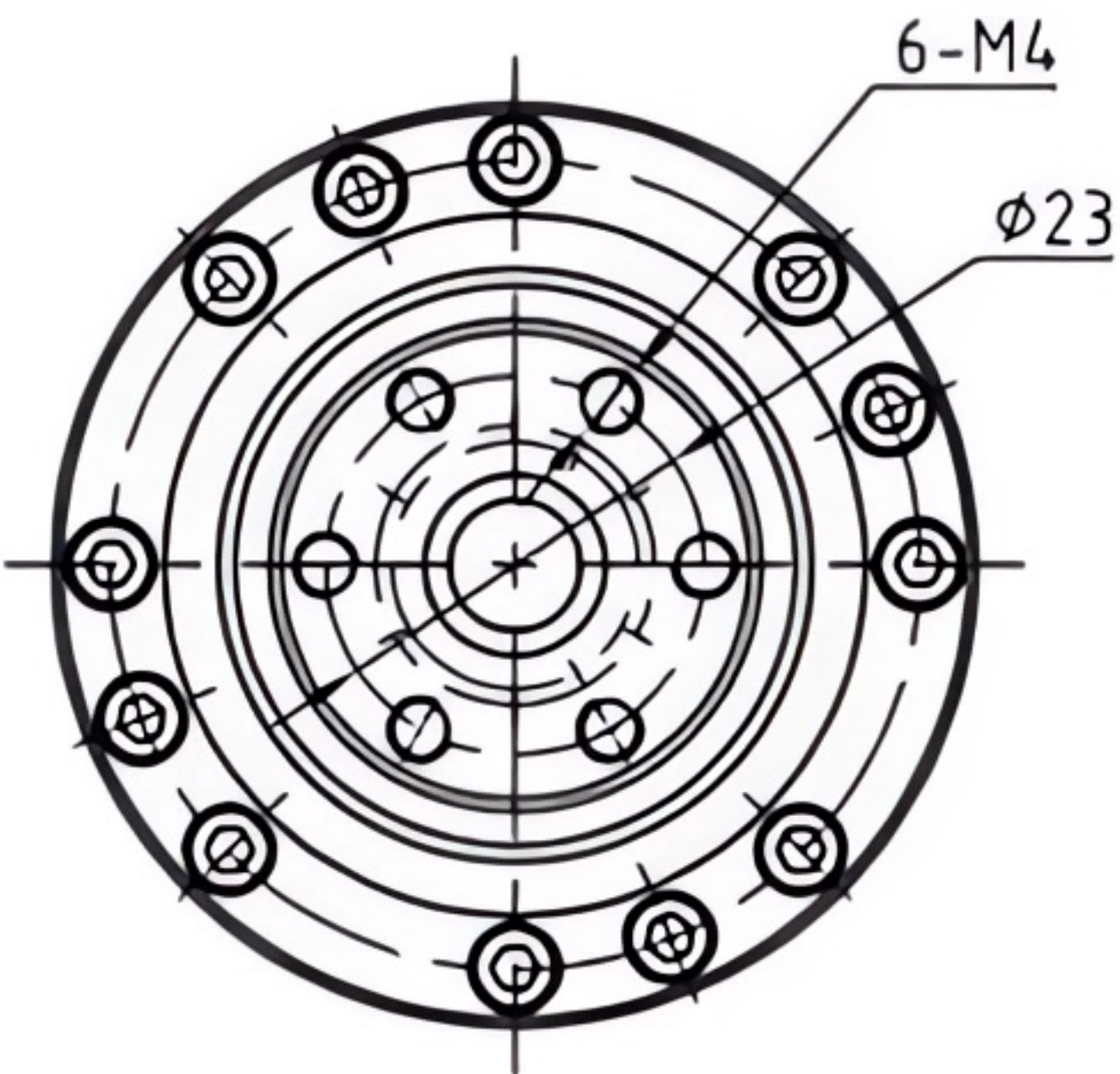
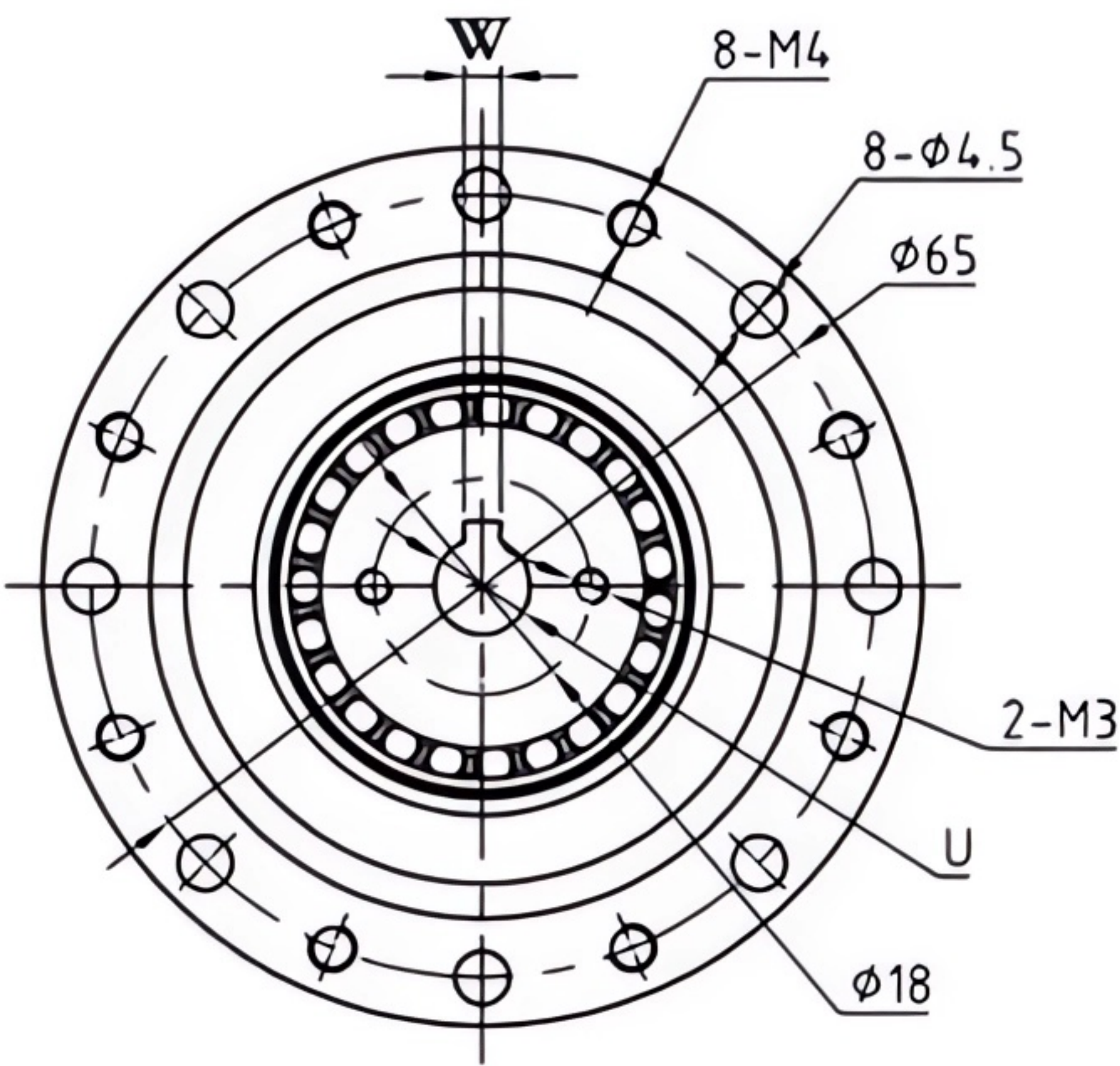
## Adapted motor size



For Nema 17 42mm  
Flange Stepper Motor



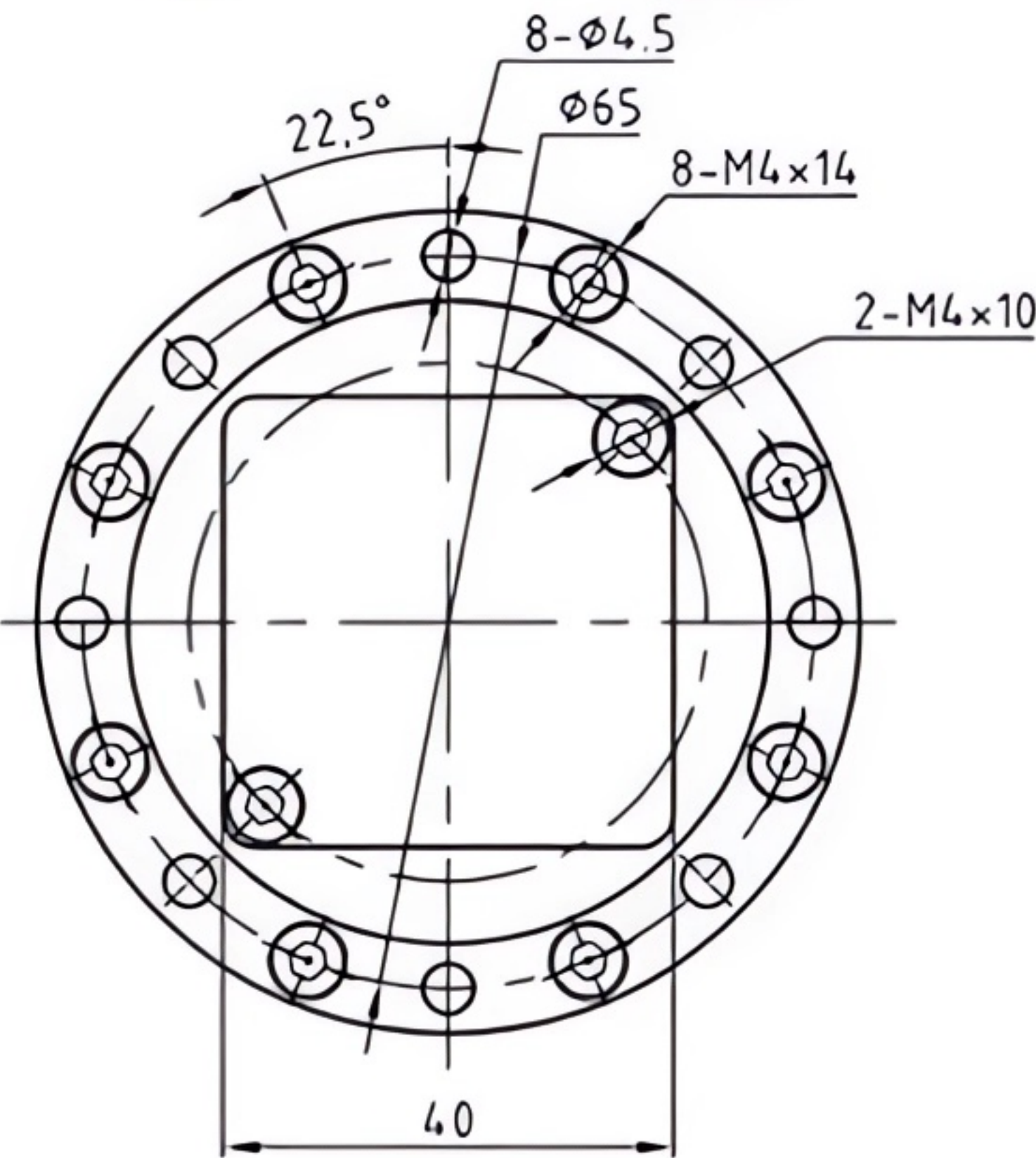
# HCS14-I Harmonic Reducer



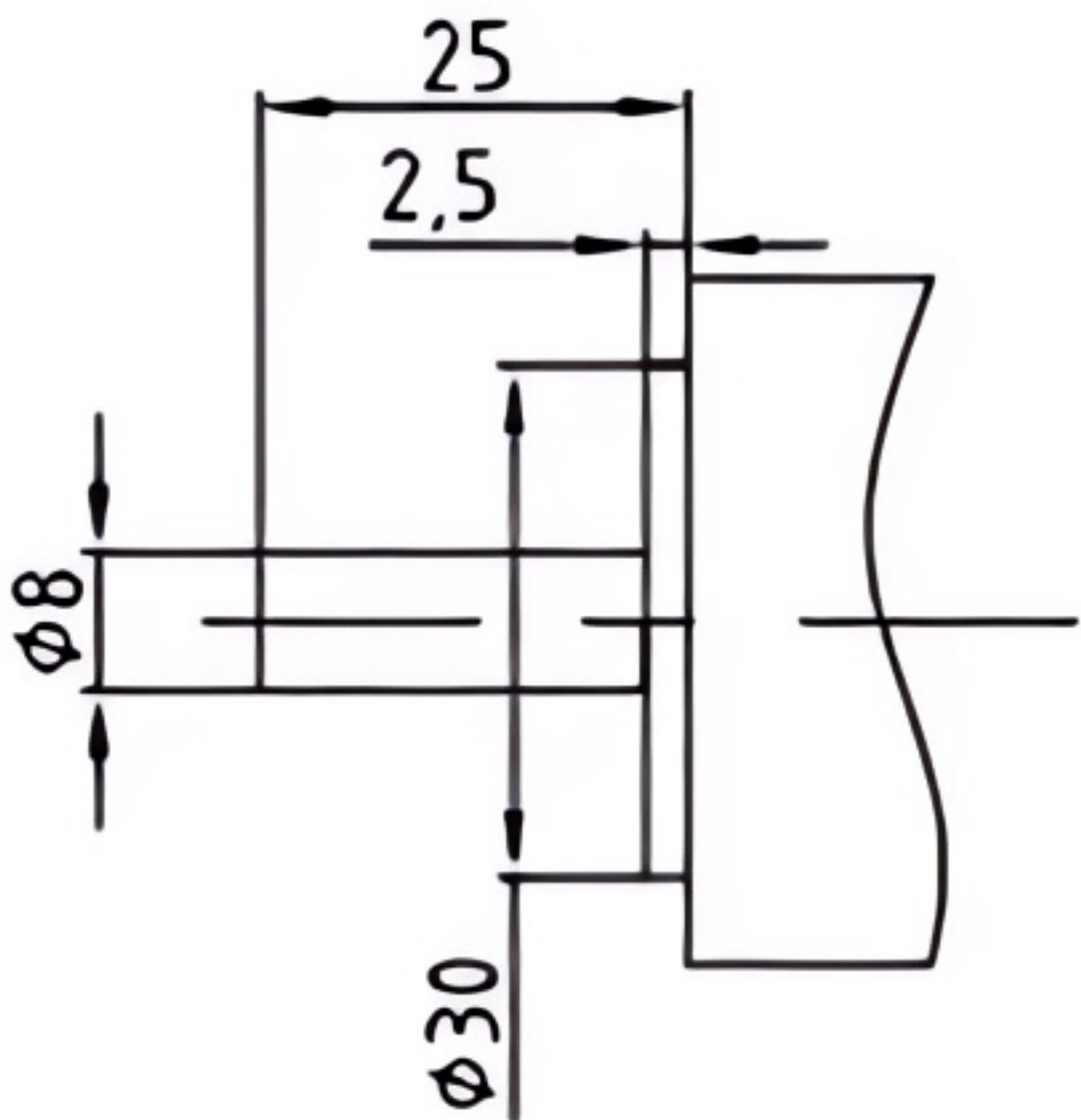
| 型号/MODEL            | U    | T                                | W       |
|---------------------|------|----------------------------------|---------|
| Wave generator-A φ8 | φ8H7 | 9.4 <sup>+0.1</sup> <sub>0</sub> | 3P9/JS9 |

Same model as Hamonic CSG-14-2UH

## Motor flange mounting plate



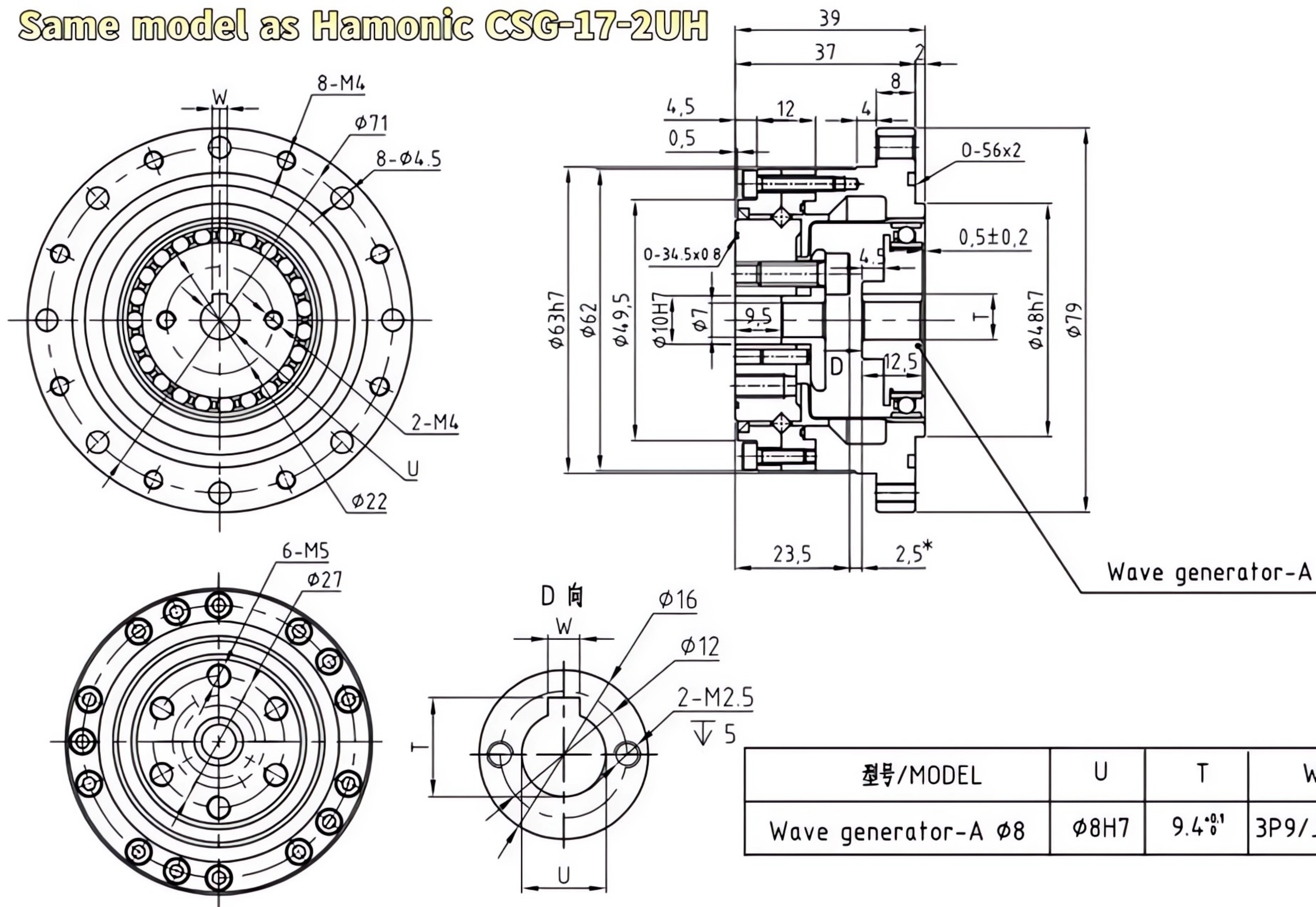
## Adapted motor size



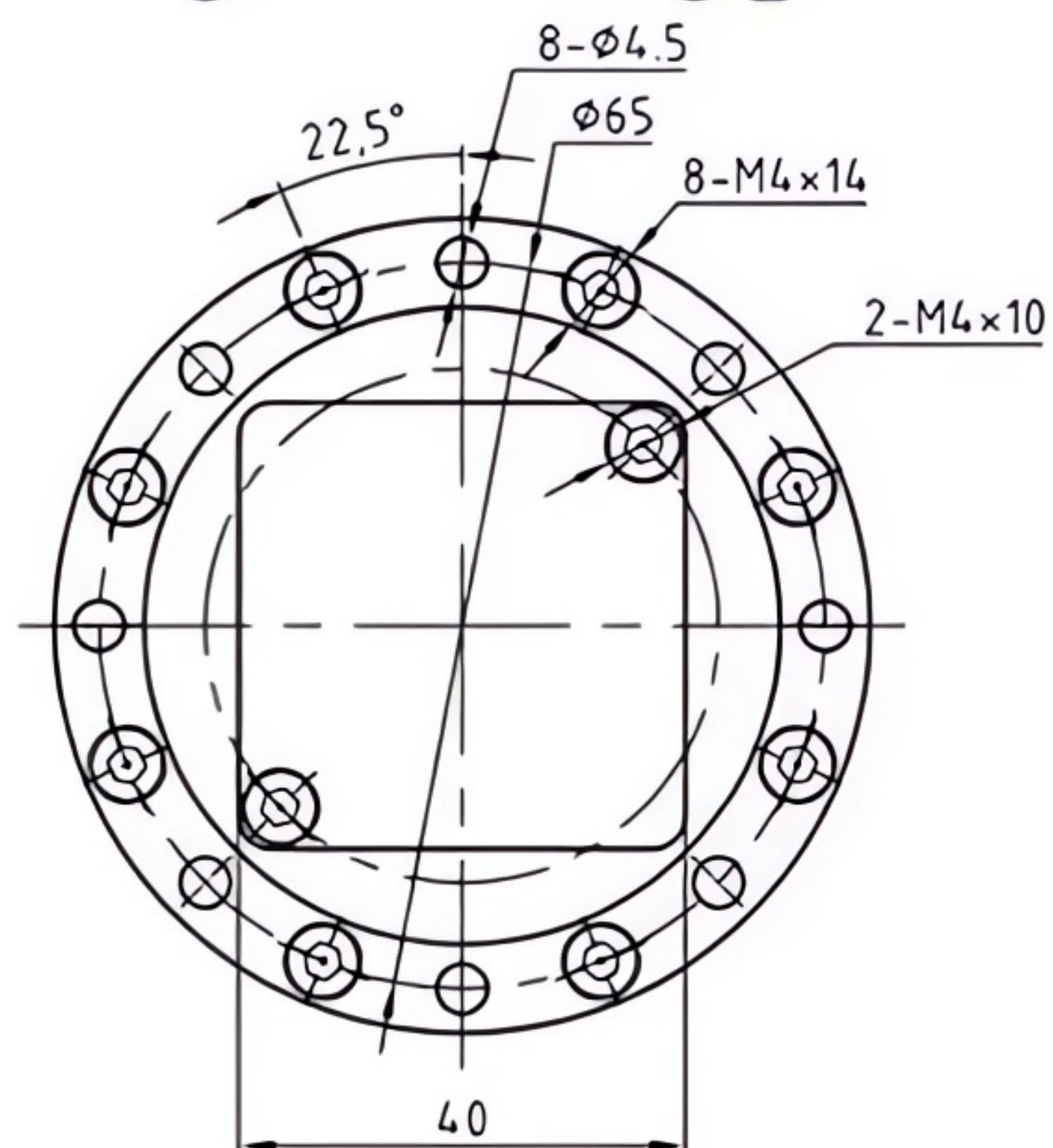
For 100W 40mm  
Flange Servo Motor



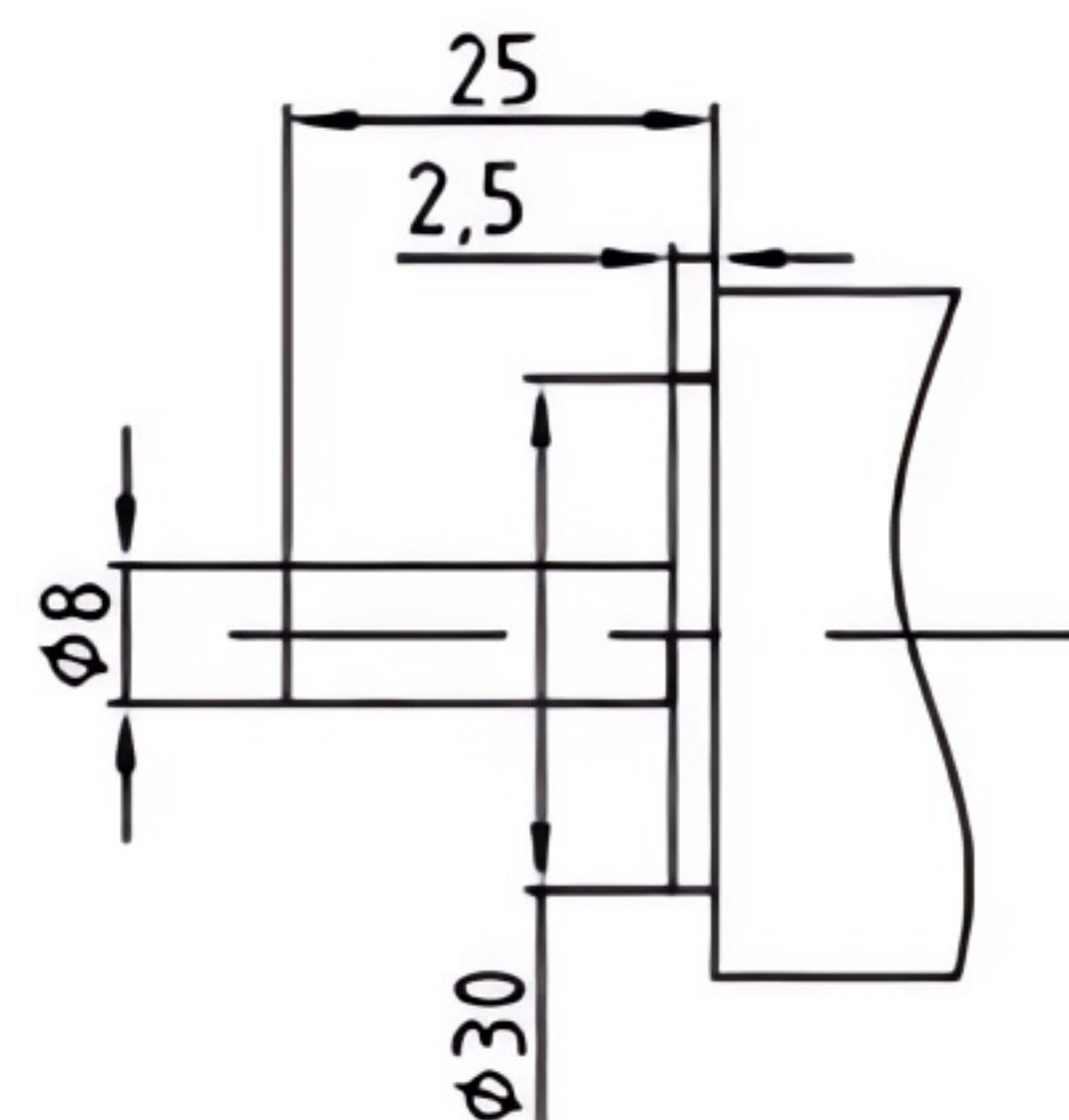
Same model as Hamonic CSG-17-2UH



## Motor flange mounting plate



## Adapted motor size

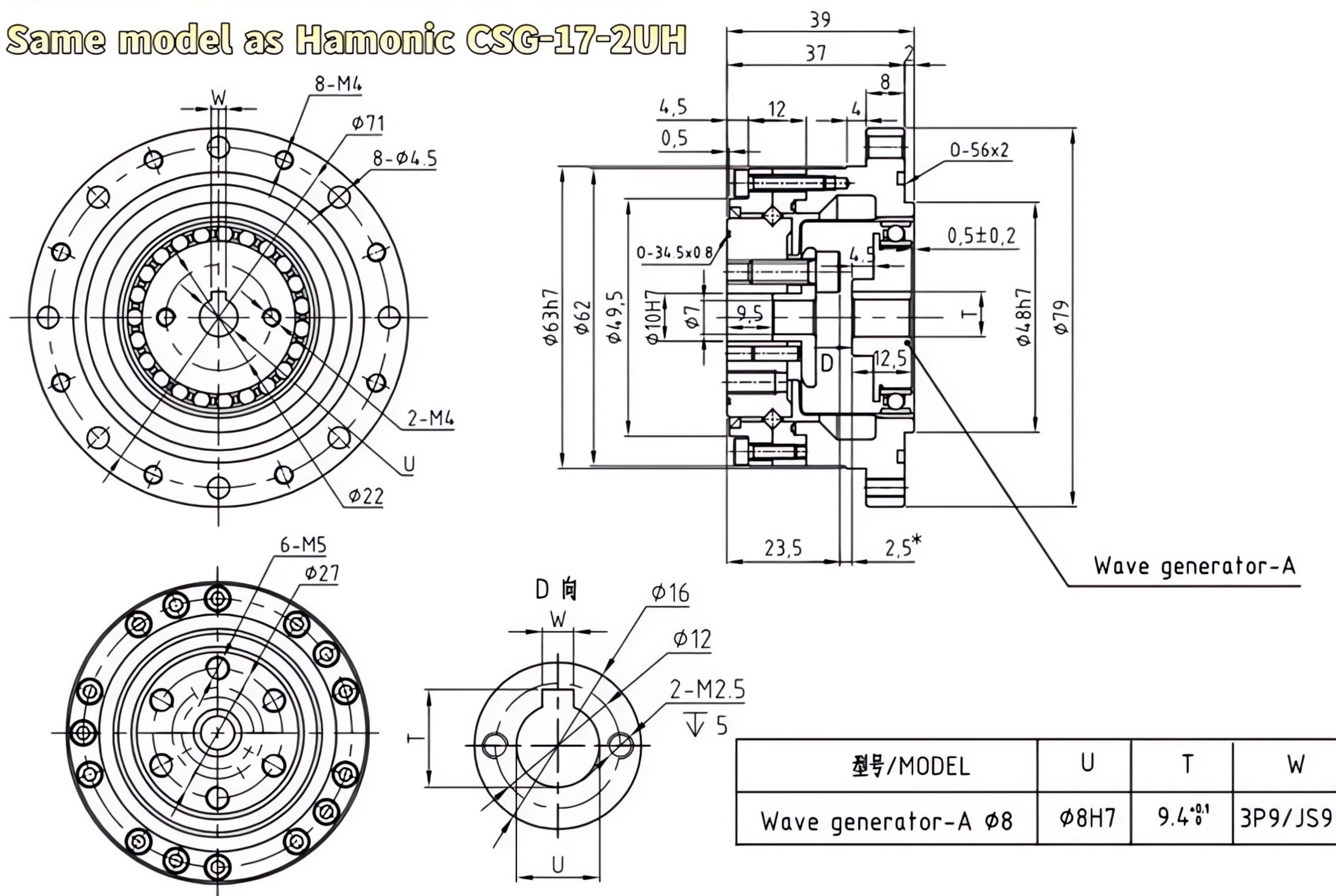


## For 100W 40mm Flange Servo Motor

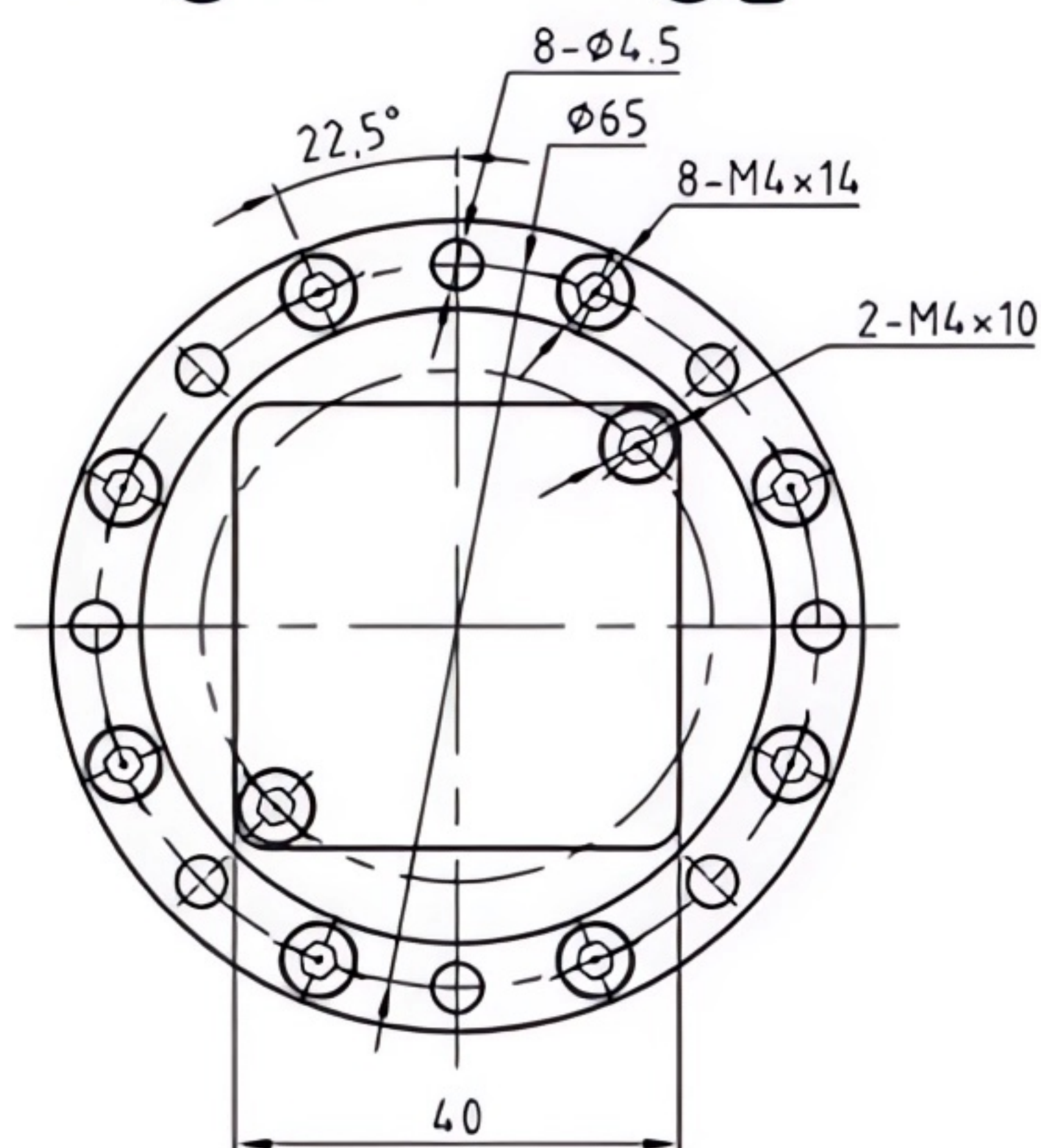


# HCS17-I Harmonic Reducer

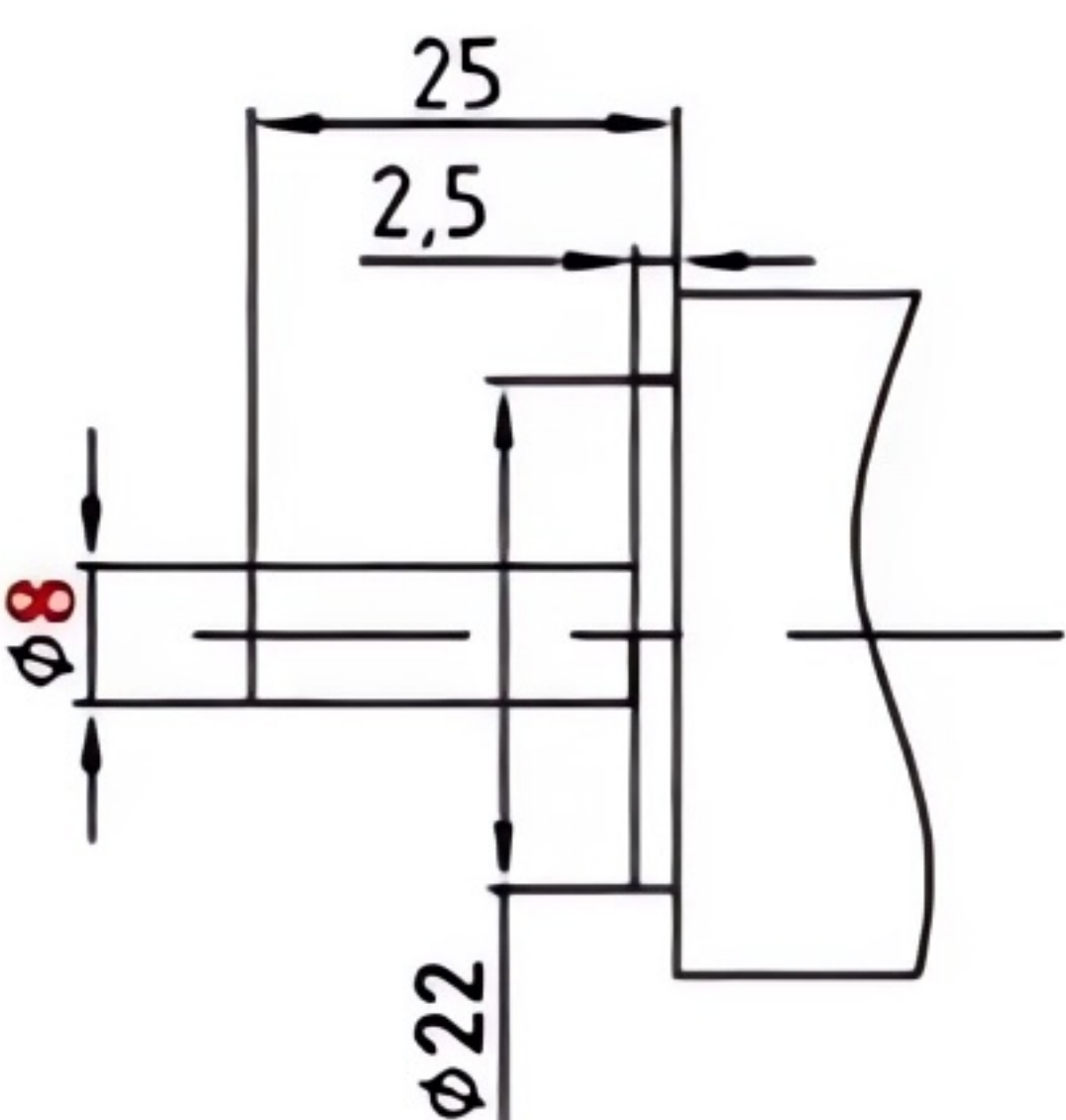
Same model as Hamonic CSG-17-2UH



## Motor flange mounting plate



## Adapted motor size

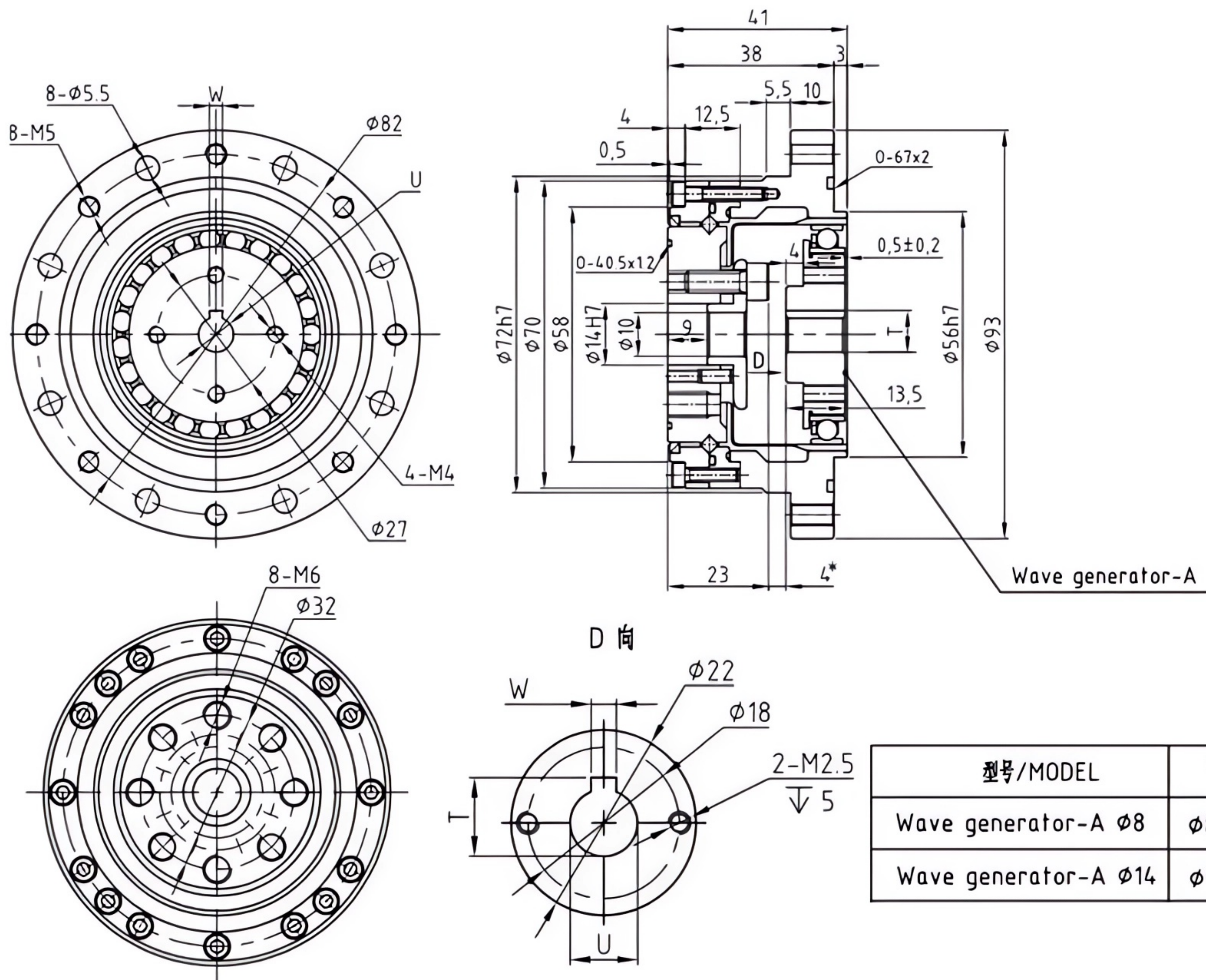


For Nema 17 42mm  
Flange Stepper Motor



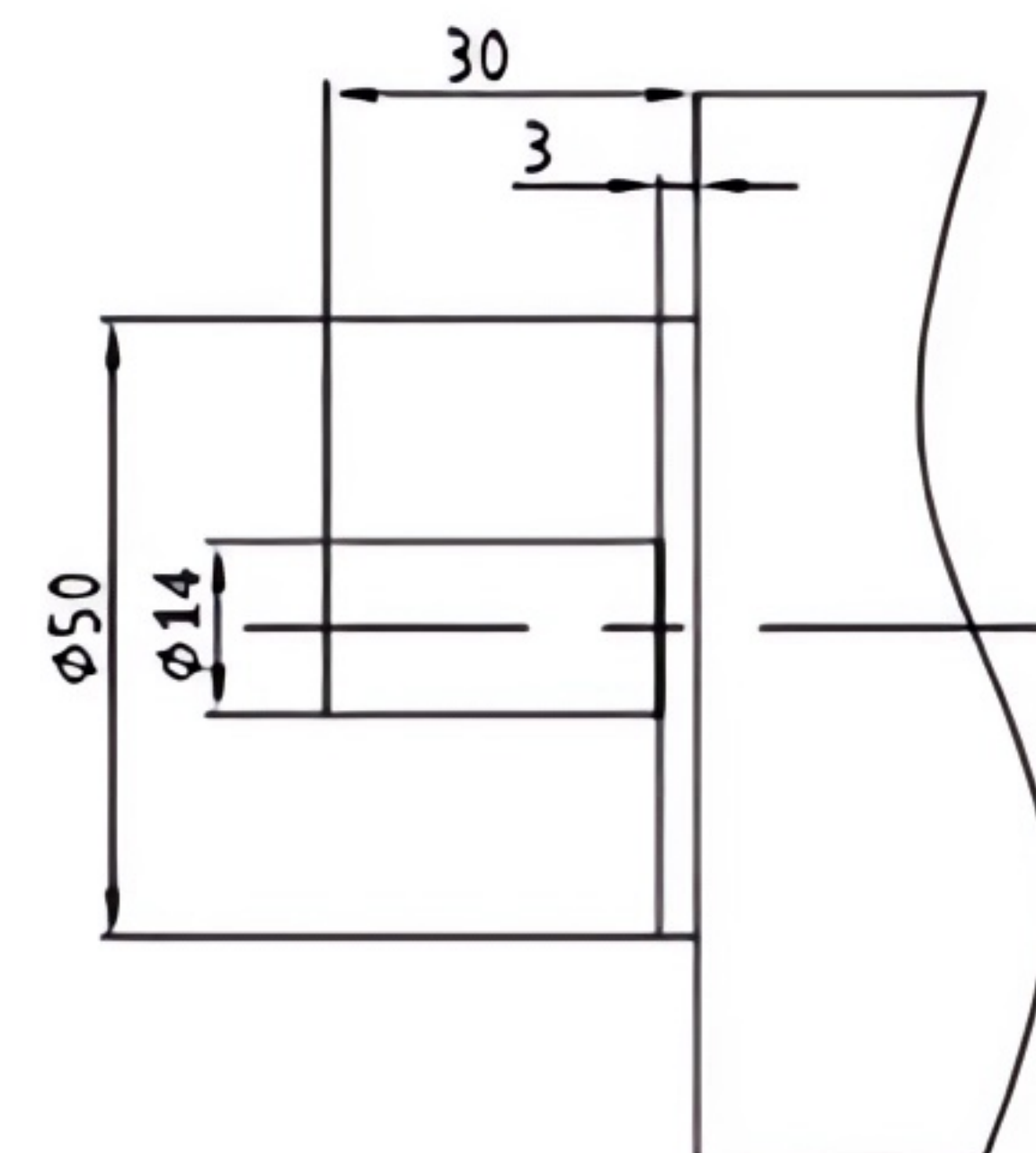
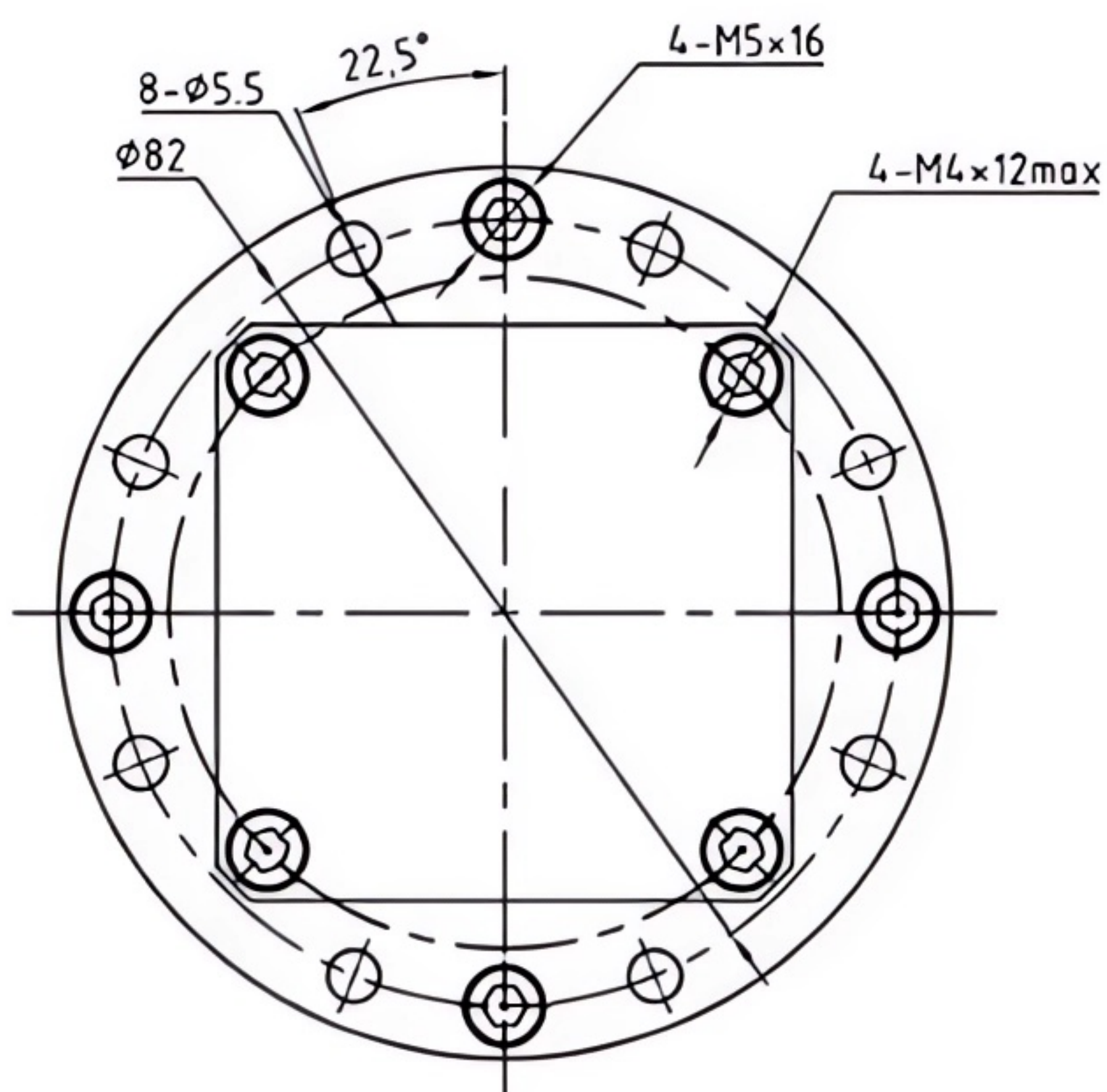
# HCS20-I Harmonic Reducer

Same model as Hamonic CSG-20-2UH



## Motor flange mounting plate

## Adapted motor size

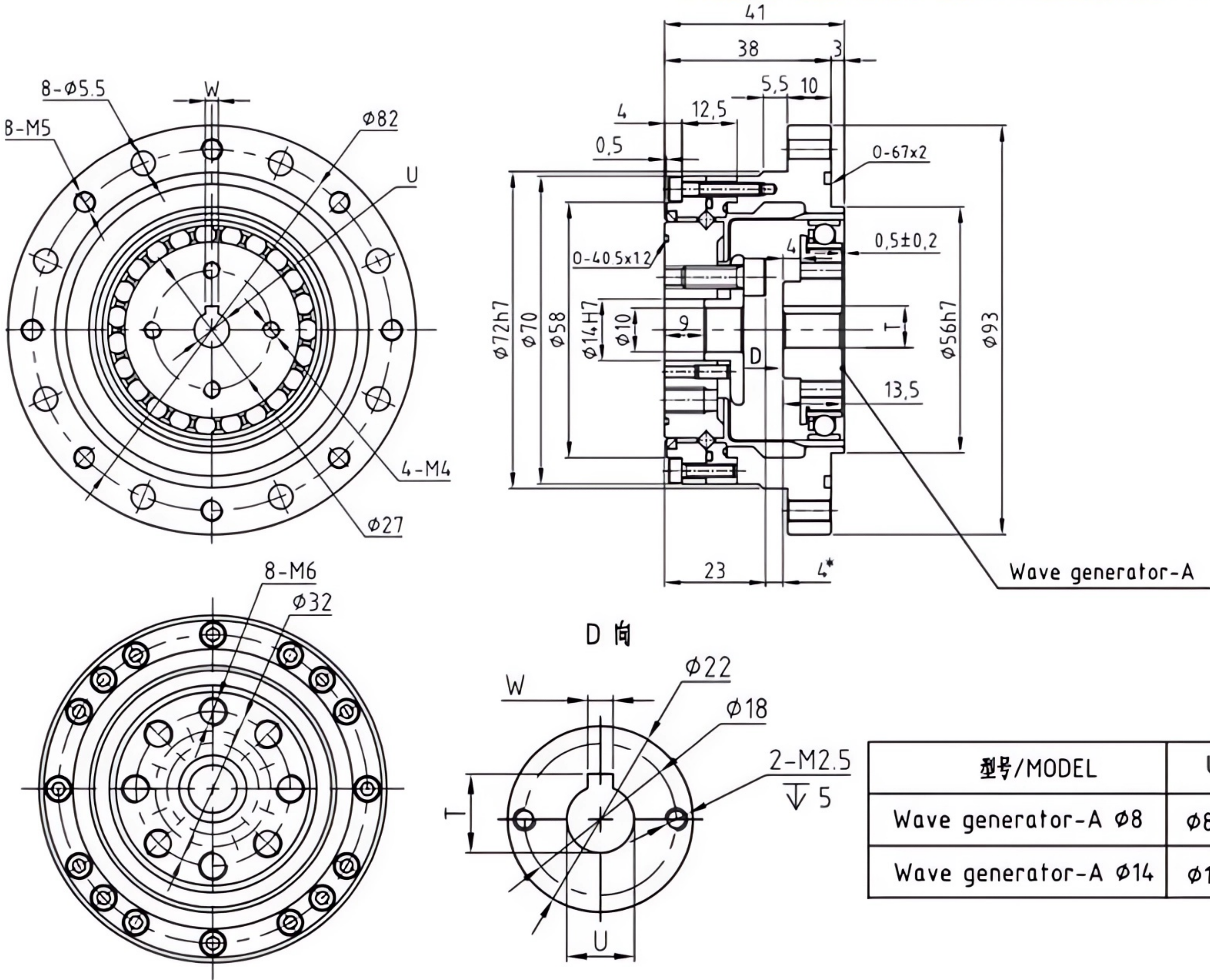


For 60mm Flange  
Servo Motor



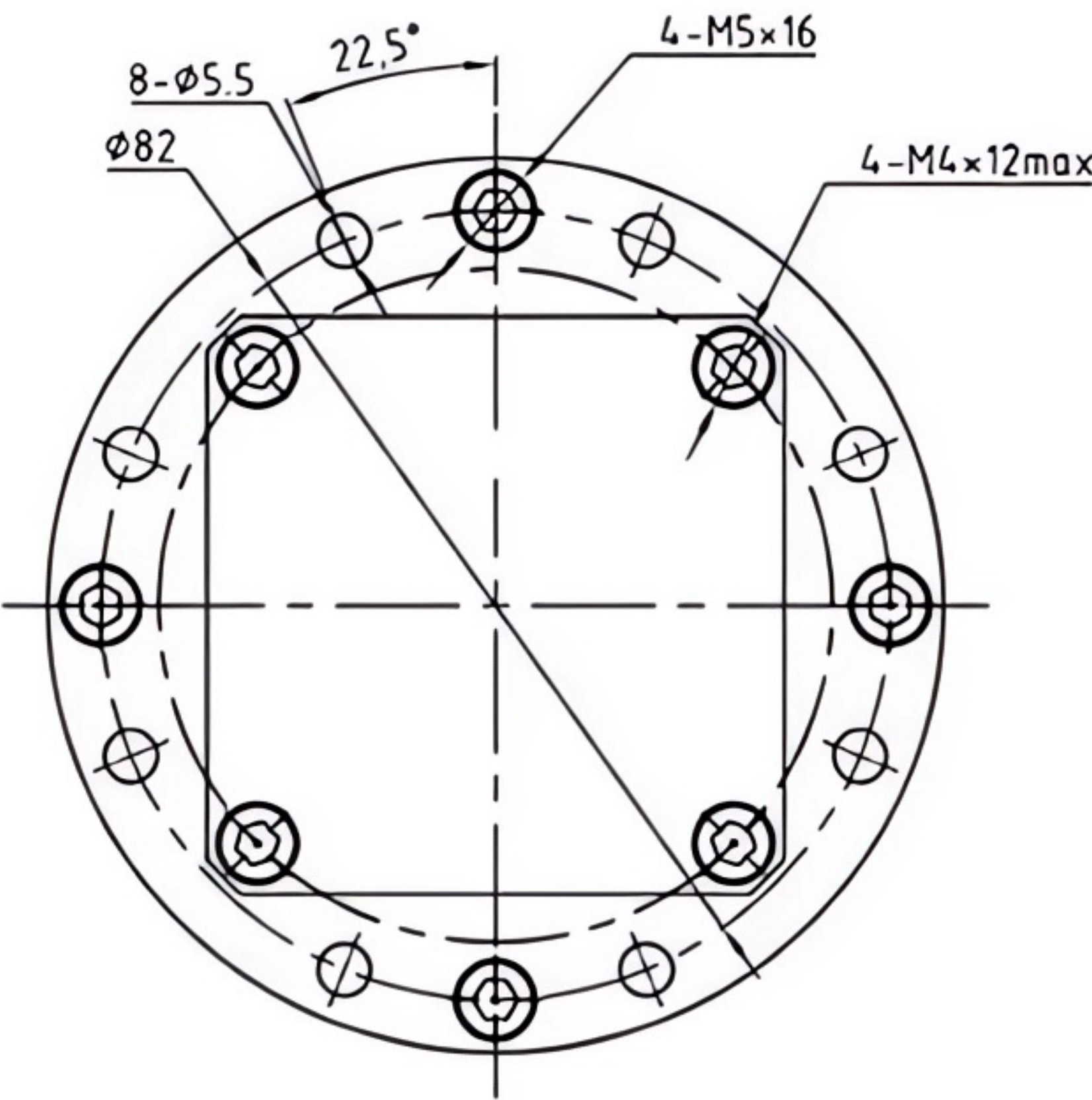
# HCS20-I Harmonic Reducer

Same model as Hamonic CSG-20-2UH

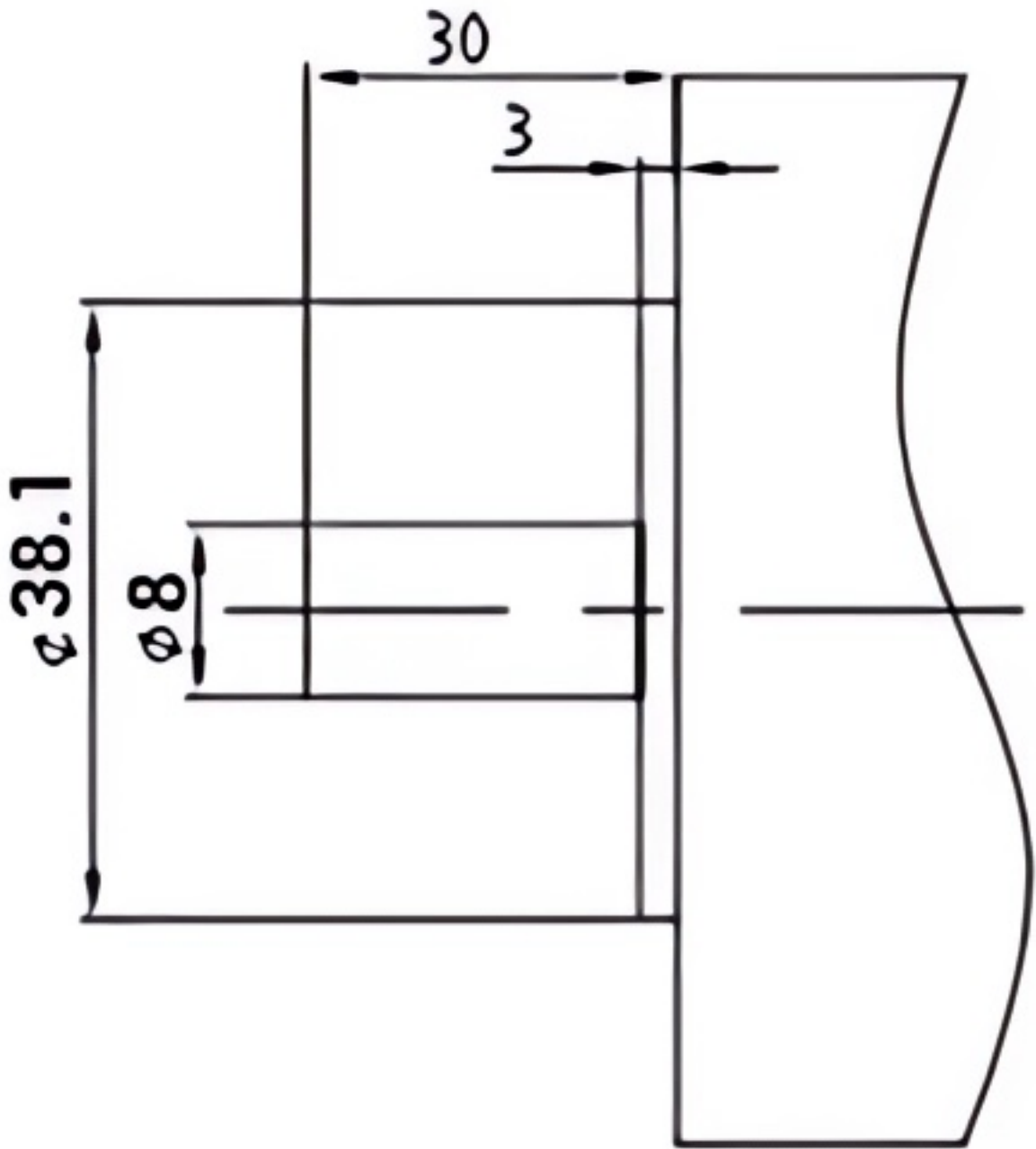


| 型号/MODEL                   | U           | T                   | W       |
|----------------------------|-------------|---------------------|---------|
| Wave generator-A $\phi 8$  | $\phi 8H7$  | 9.4 $^{+0.1}_{-0}$  | 3P9/JS9 |
| Wave generator-A $\phi 14$ | $\phi 14H7$ | 16.3 $^{+0.1}_{-0}$ | 5P9/JS9 |

## Motor flange mounting plate



## Adapted motor size

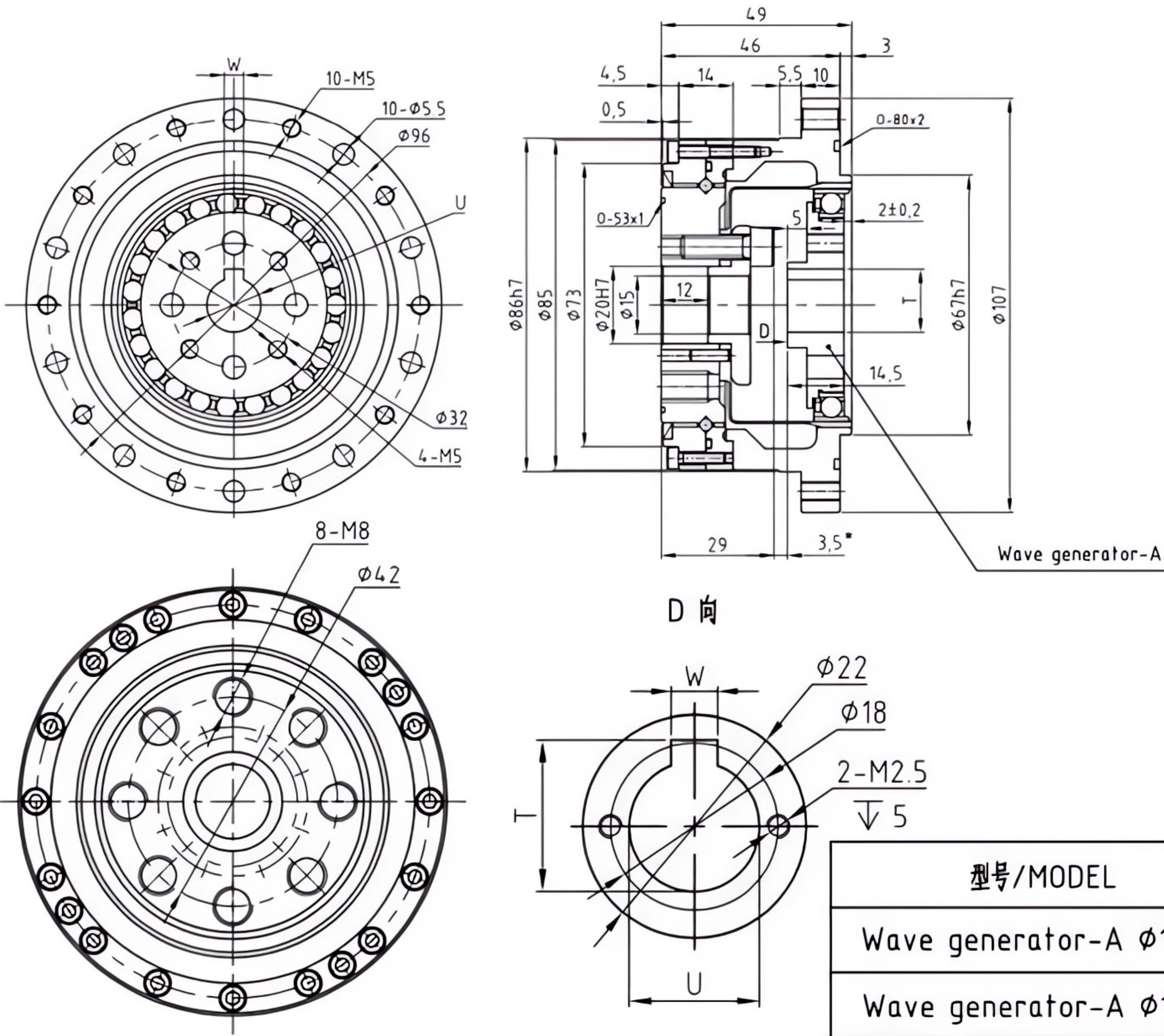


For Nema 23 57mm  
Flange Stepper Motor



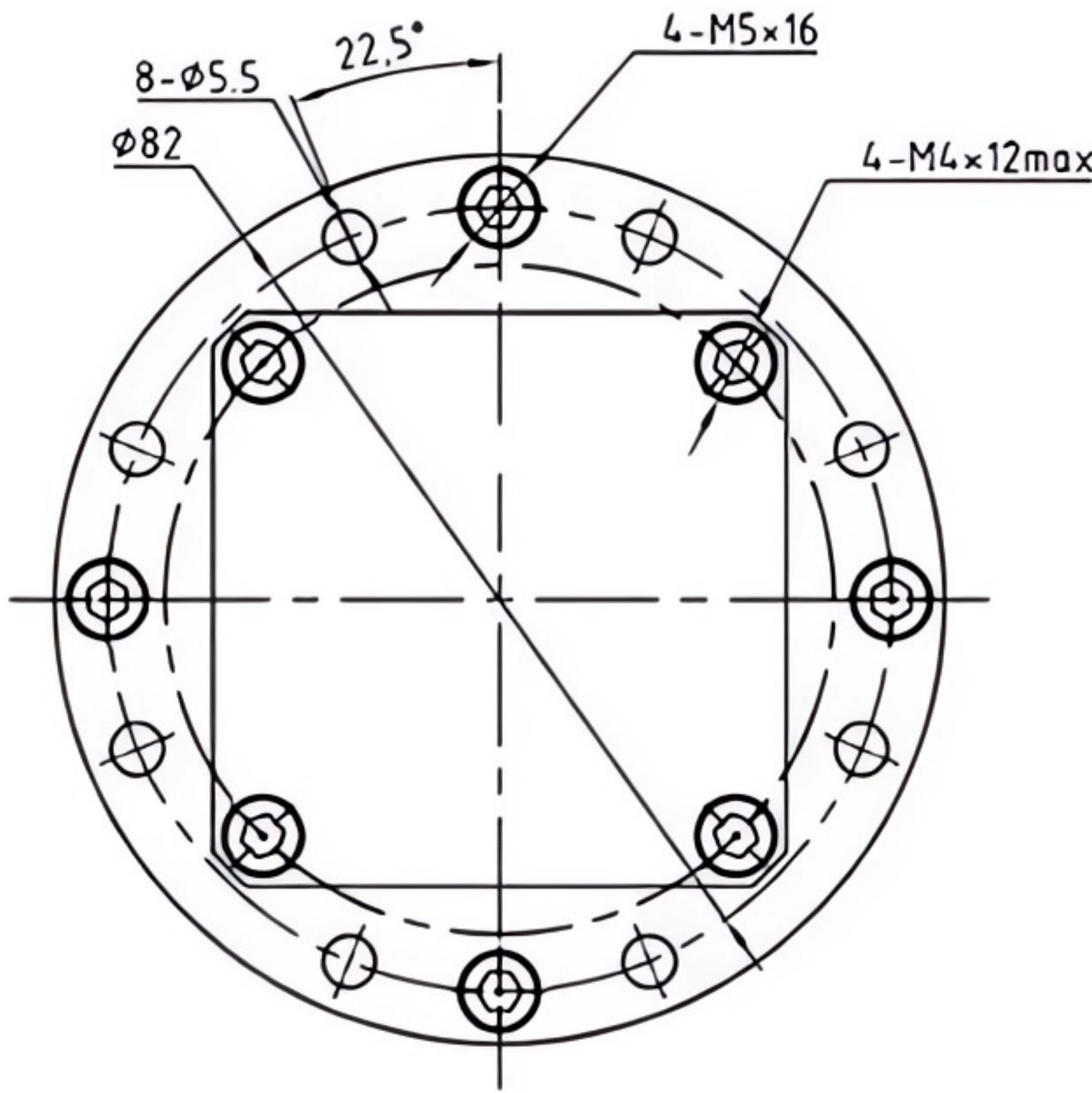
# HCS25-I Harmonic Reducer

Same model as Hamonic CSG-25-2UH

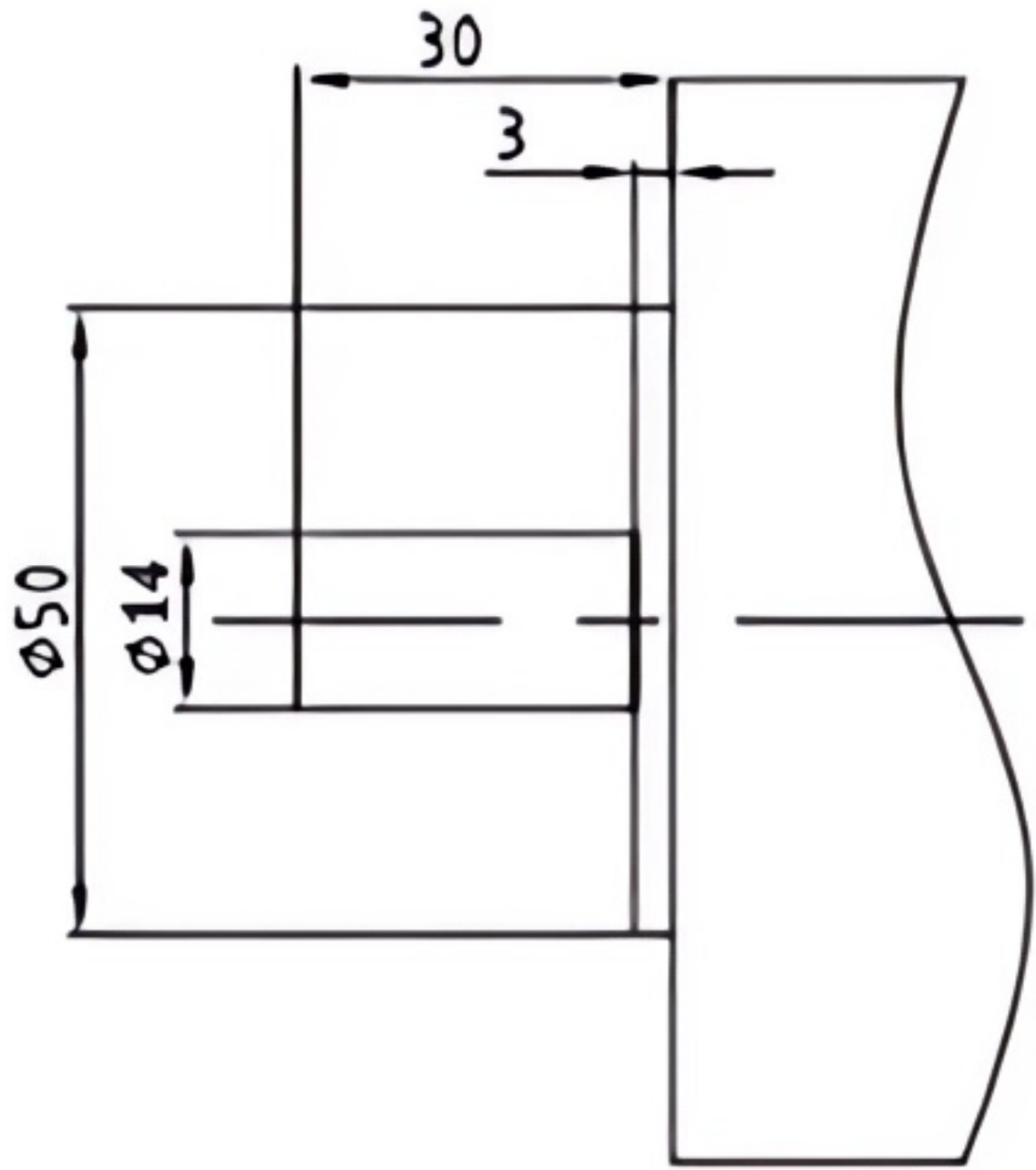


| 型号/MODEL                   | U           | T                  | W       |
|----------------------------|-------------|--------------------|---------|
| Wave generator-A $\phi 11$ | $\phi 11H7$ | $12.8^{+0.1}_{-0}$ | 4P9/JS9 |
| Wave generator-A $\phi 14$ | $\phi 14H7$ | $16.3^{+0.1}_{-0}$ | 5P9/JS9 |

## Motor flange mounting plate



## Adapted motor size

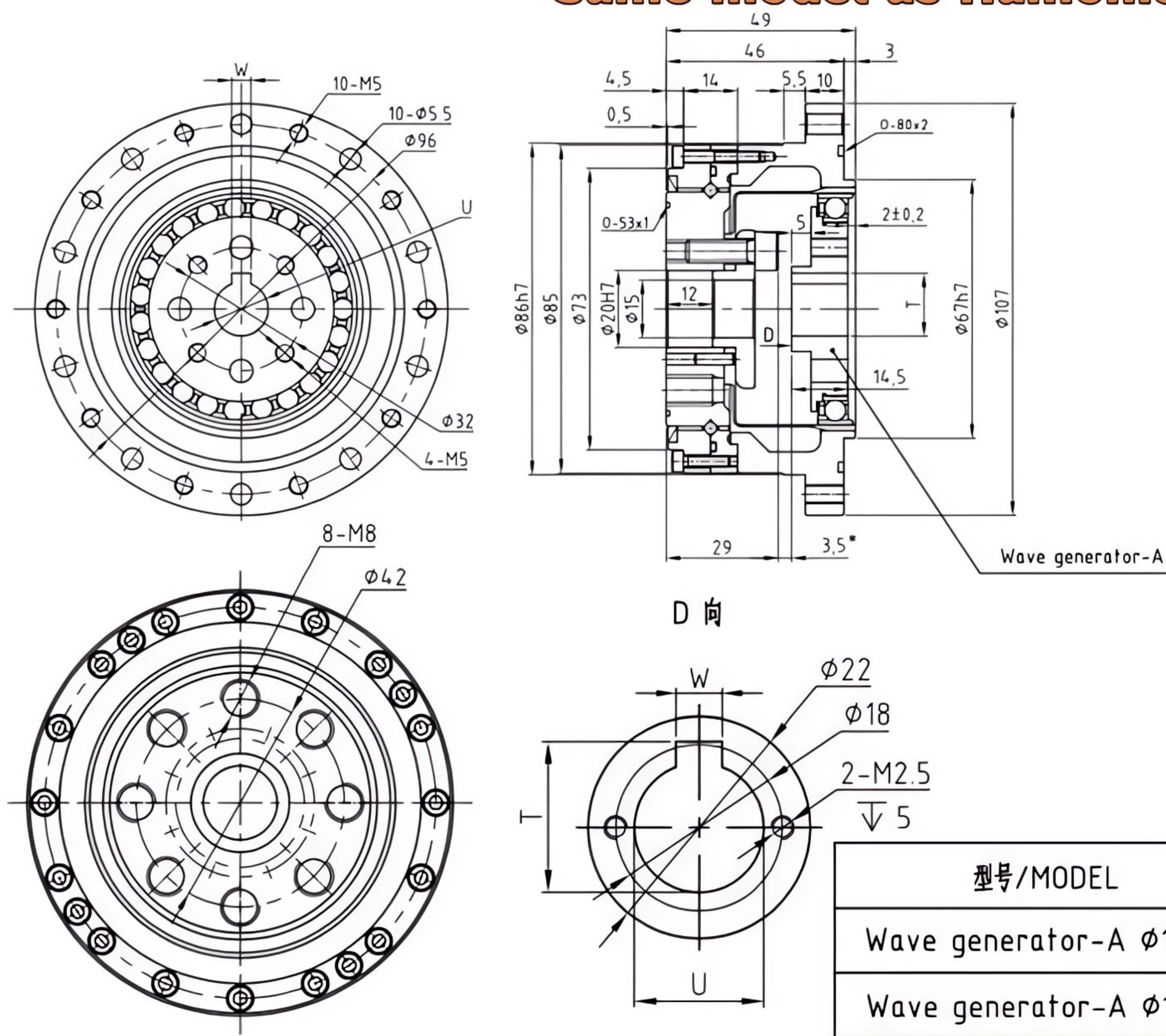


For 60mm Flange Servo Motor



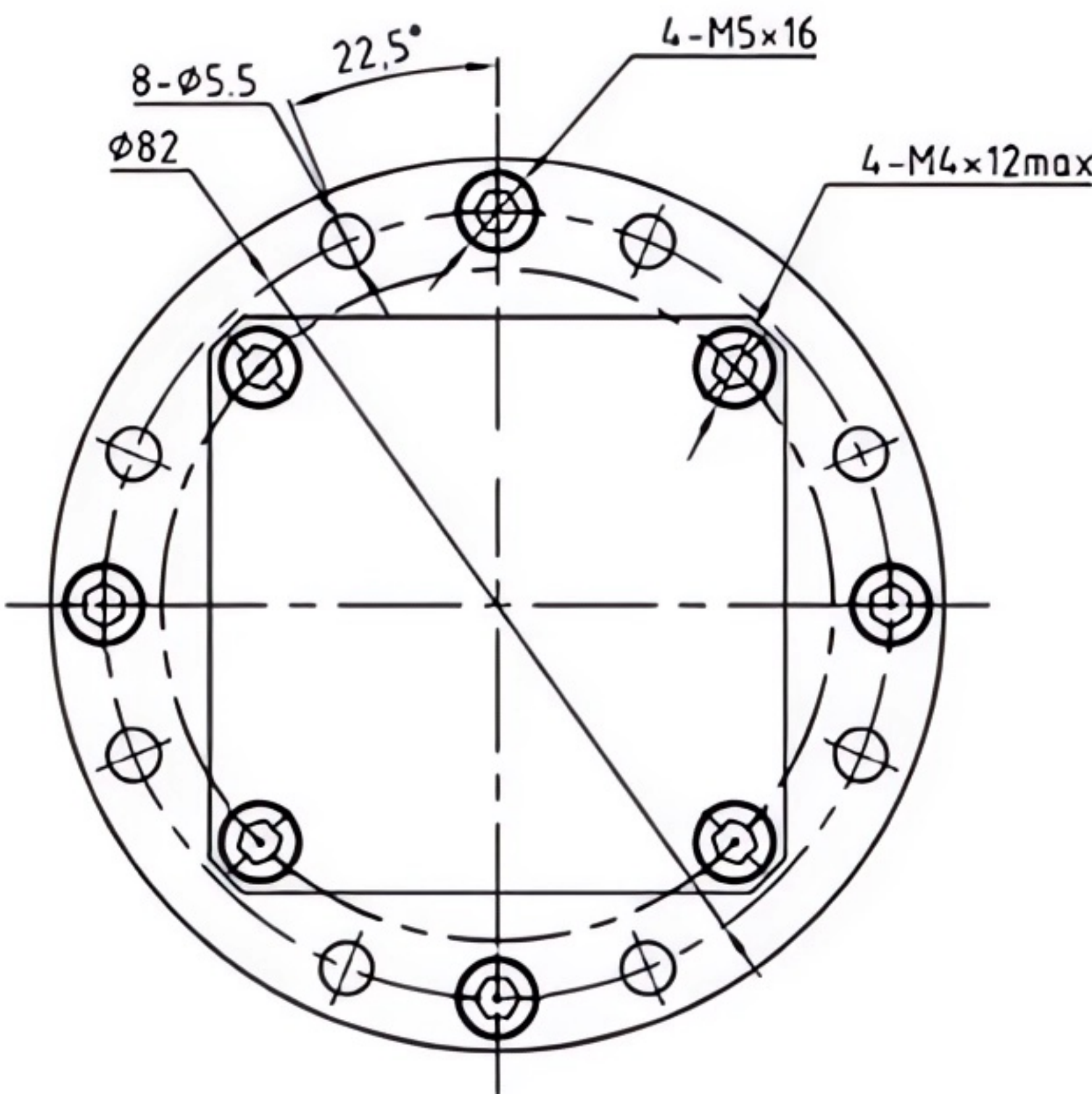
# HCS25-I Harmonic Reducer

Same model as Hamonic CSG-25-2UH

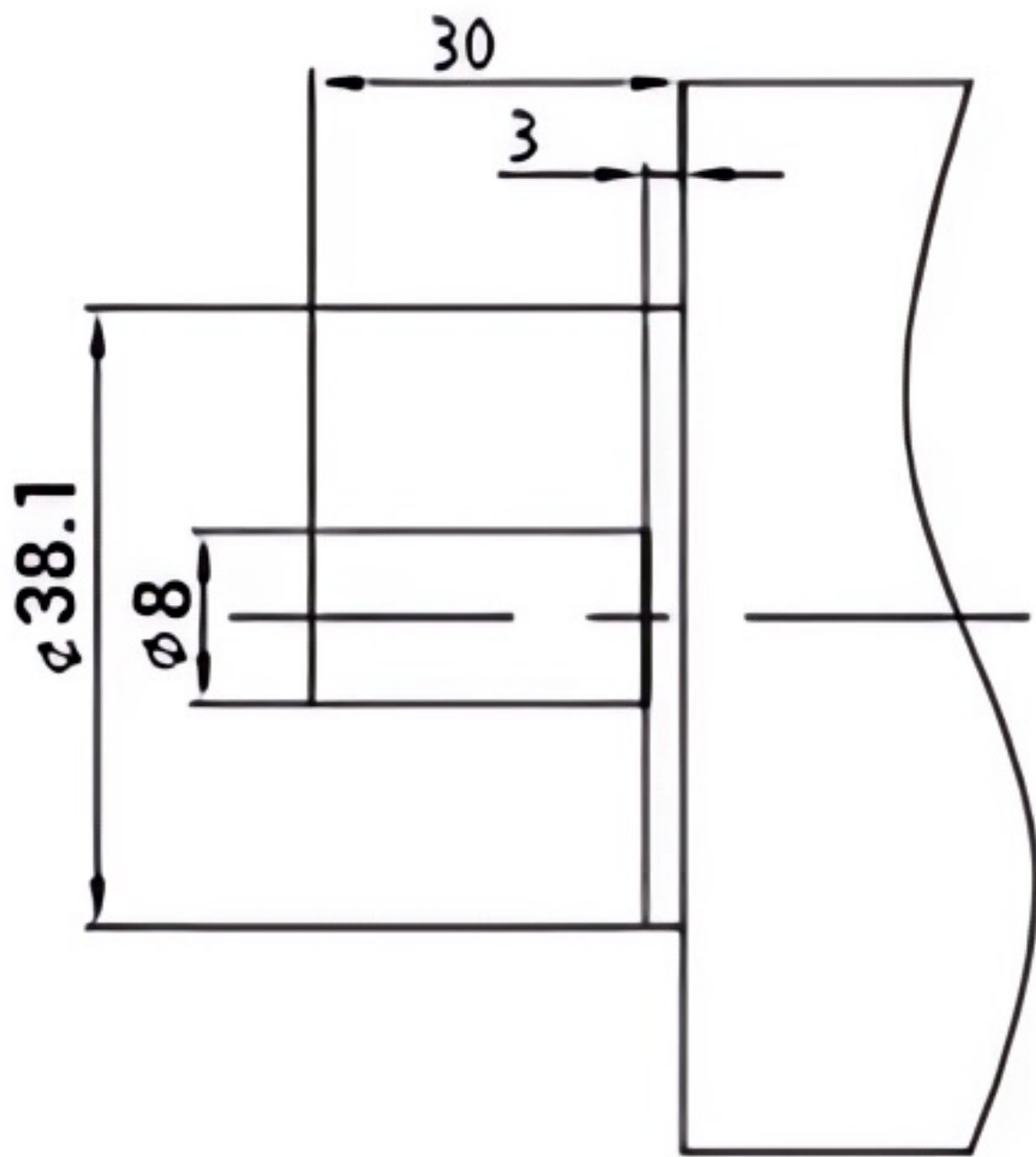


| 型号/MODEL                   | U           | T                  | W       |
|----------------------------|-------------|--------------------|---------|
| Wave generator-A $\phi 11$ | $\phi 11H7$ | $12.8^{+0.1}_{-0}$ | 4P9/JS9 |
| Wave generator-A $\phi 14$ | $\phi 14H7$ | $16.3^{+0.1}_{-0}$ | 5P9/JS9 |

## Motor flange mounting plate



## Adapted motor size

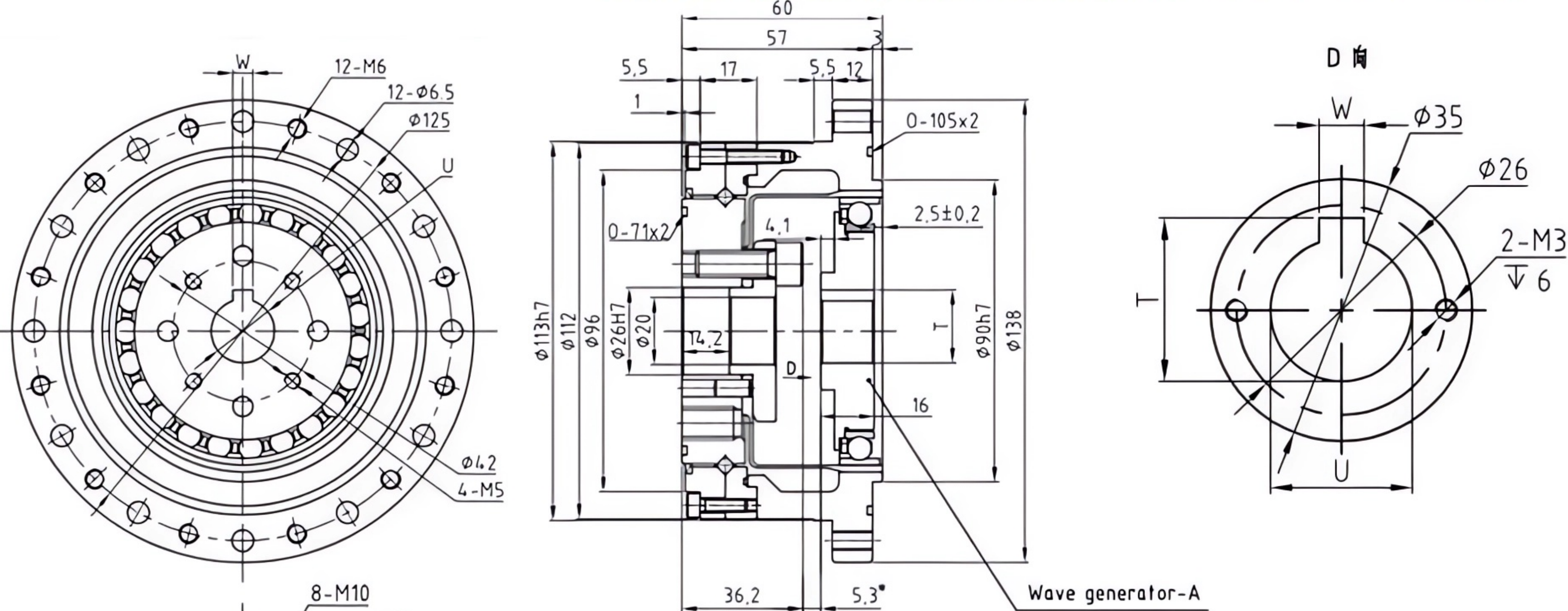


For Nema 23 57mm  
Flange Stepper Motor



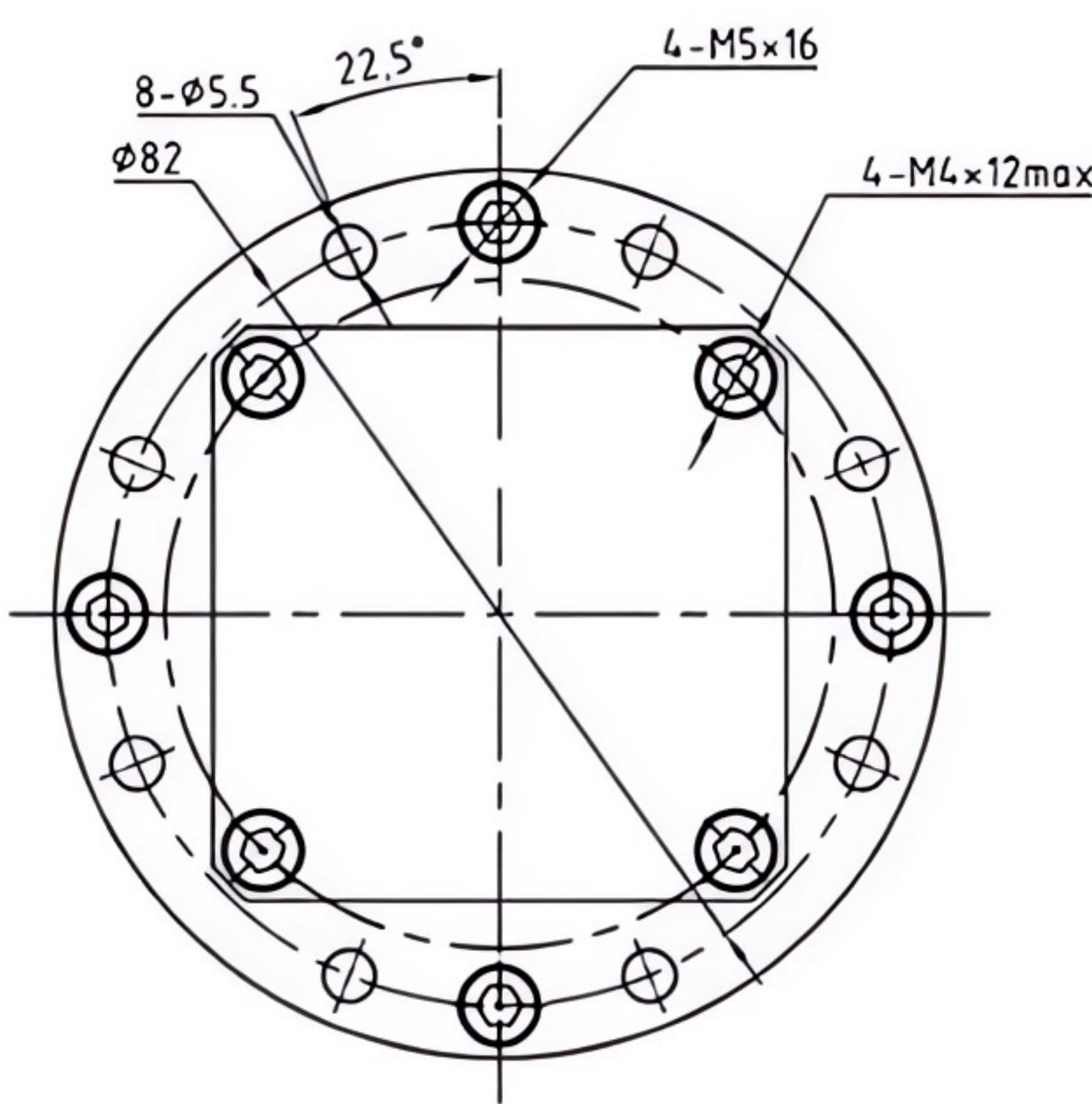
# HCS32-I Harmonic Reducer

Same model as Hamonic CSG-32-2UH

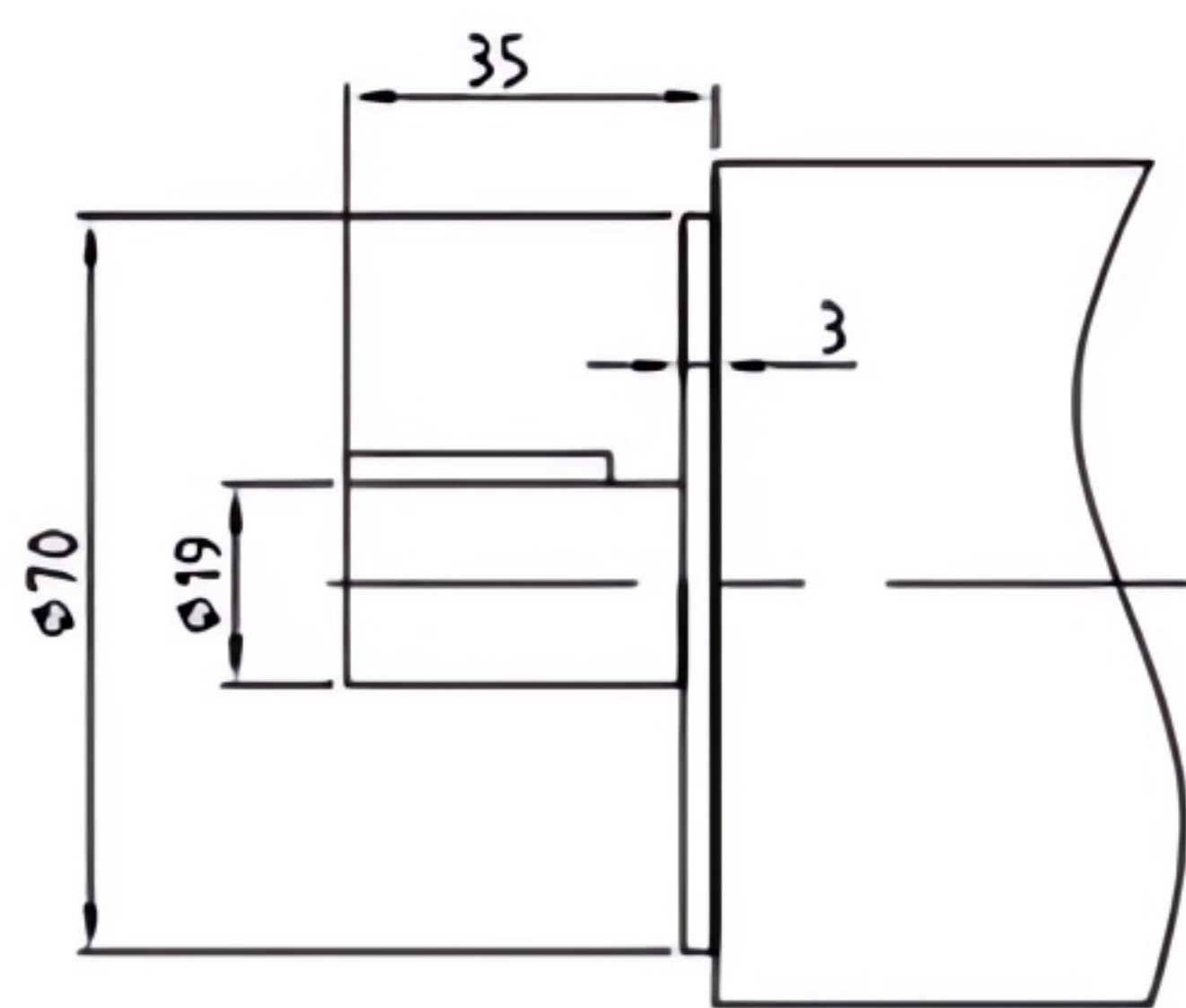


| 型号/MODEL             | U     | T                                 | W       |
|----------------------|-------|-----------------------------------|---------|
| Wave generator-A ø14 | ø14H7 | 16.3 <sup>+0.1</sup> <sub>0</sub> | 5P9/JS9 |
| Wave generator-A ø19 | ø19H7 | 21.8 <sup>+0.1</sup> <sub>0</sub> | 6P9/JS9 |
| Wave generator-A ø22 | ø22H7 | 25.3 <sup>+0.1</sup> <sub>0</sub> | 8P9/JS9 |

## Motor flange mounting plate



## Adapted motor size

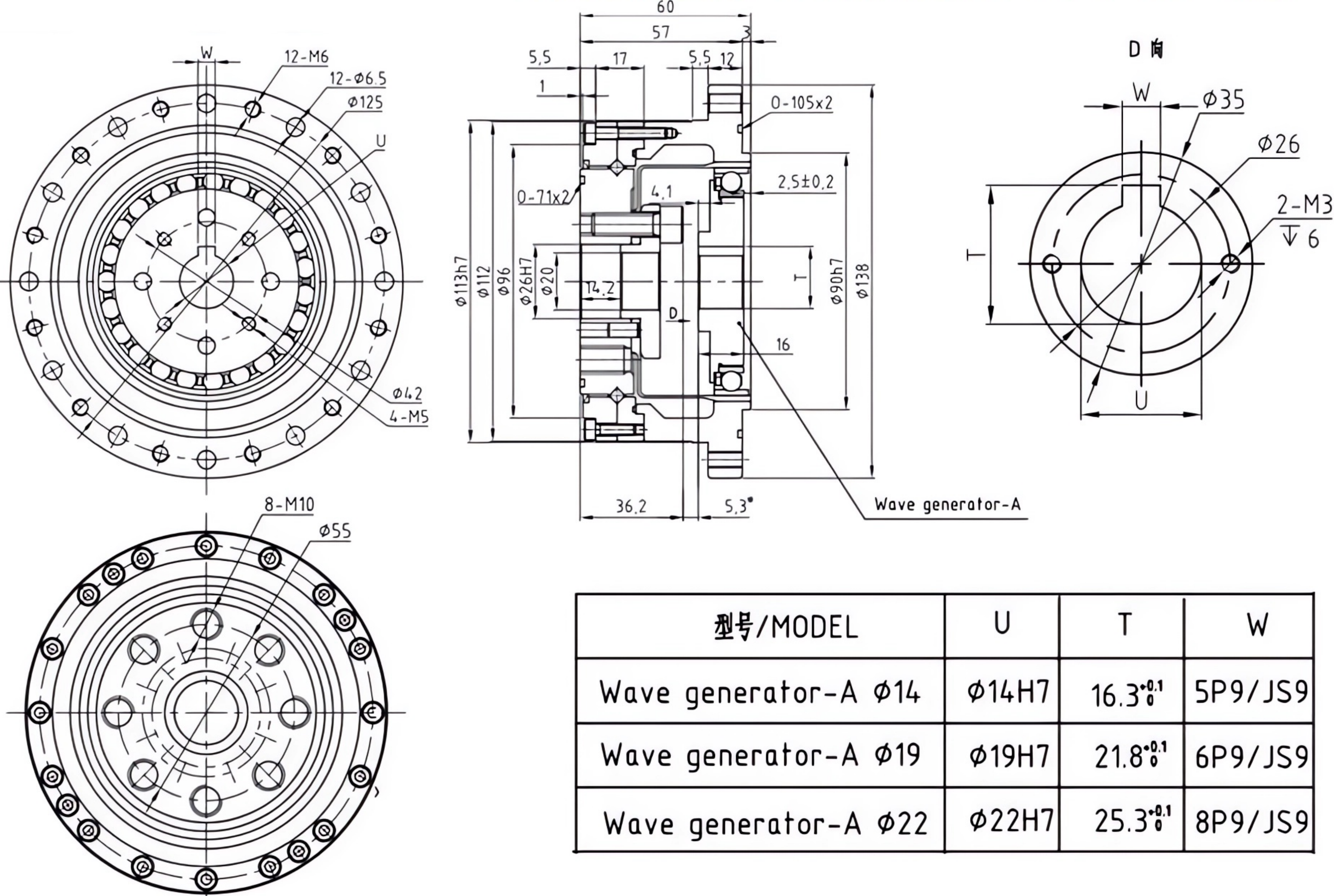


For 80mm Flange Servo Motor



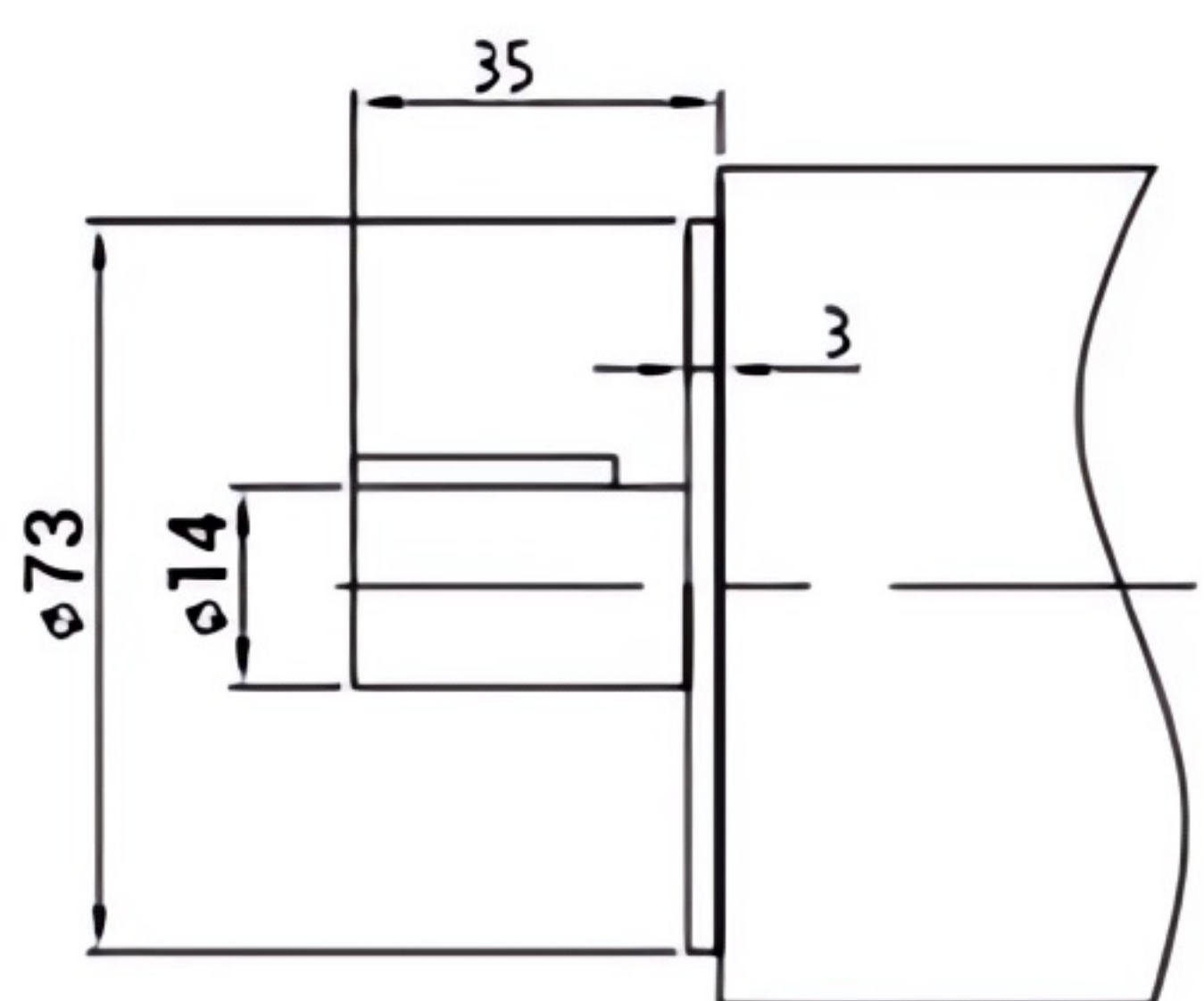
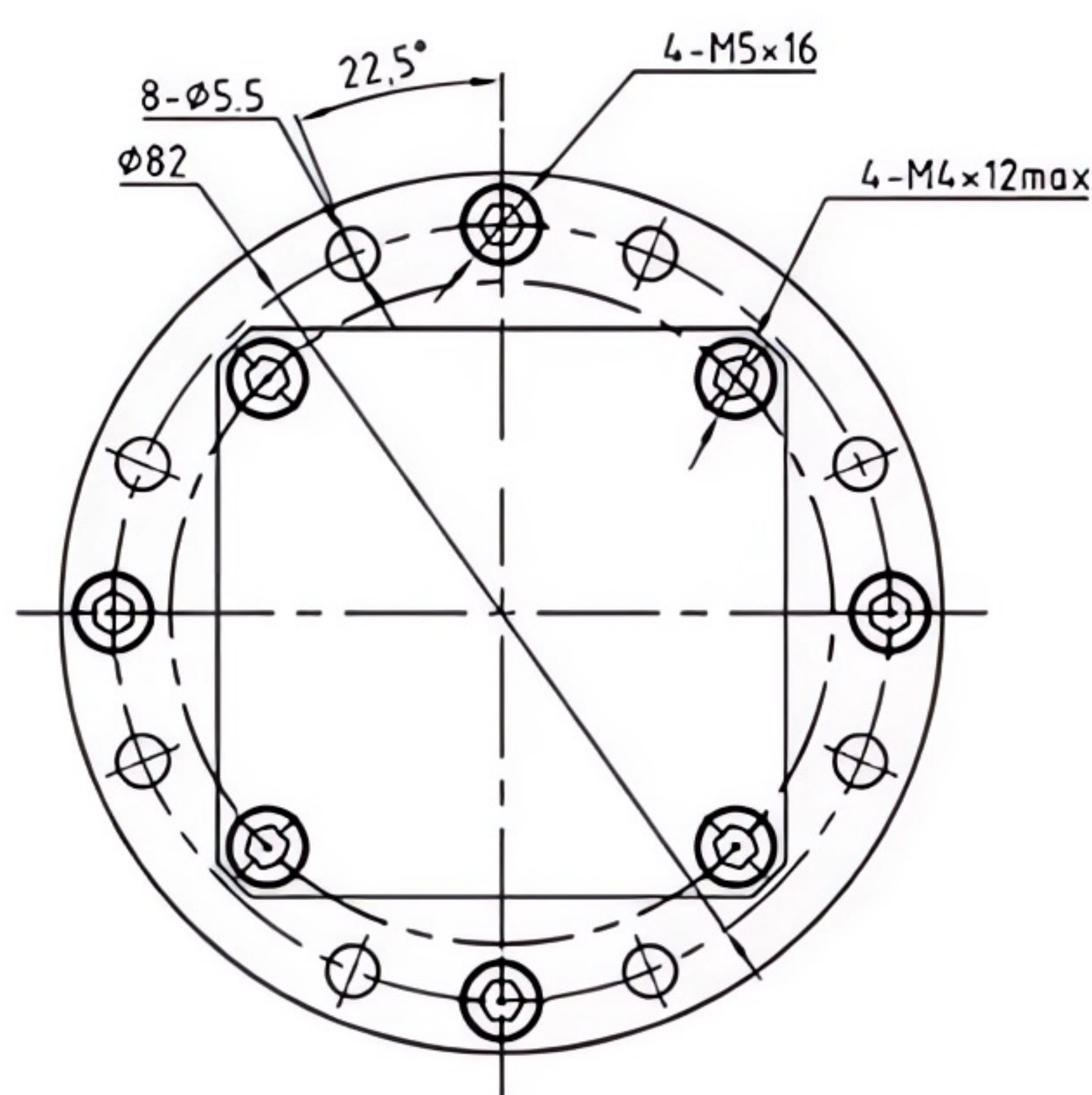
# HCS32-I Harmonic Reducer

Same model as Hamonic CSG-32-2UH



## Motor flange mounting plate

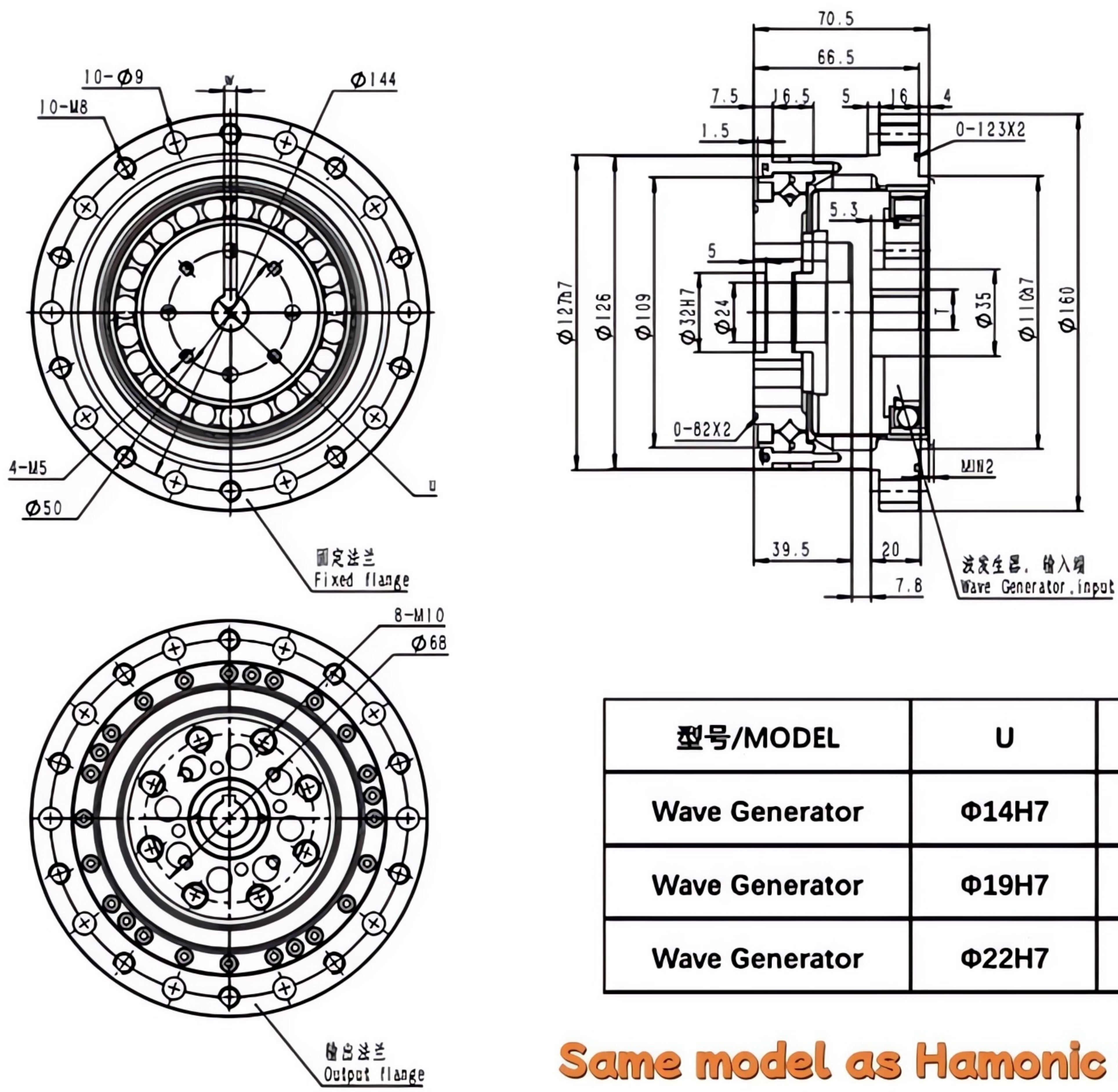
## Adapted motor size



For Nema 34 86mm  
Flange Stepper Motor

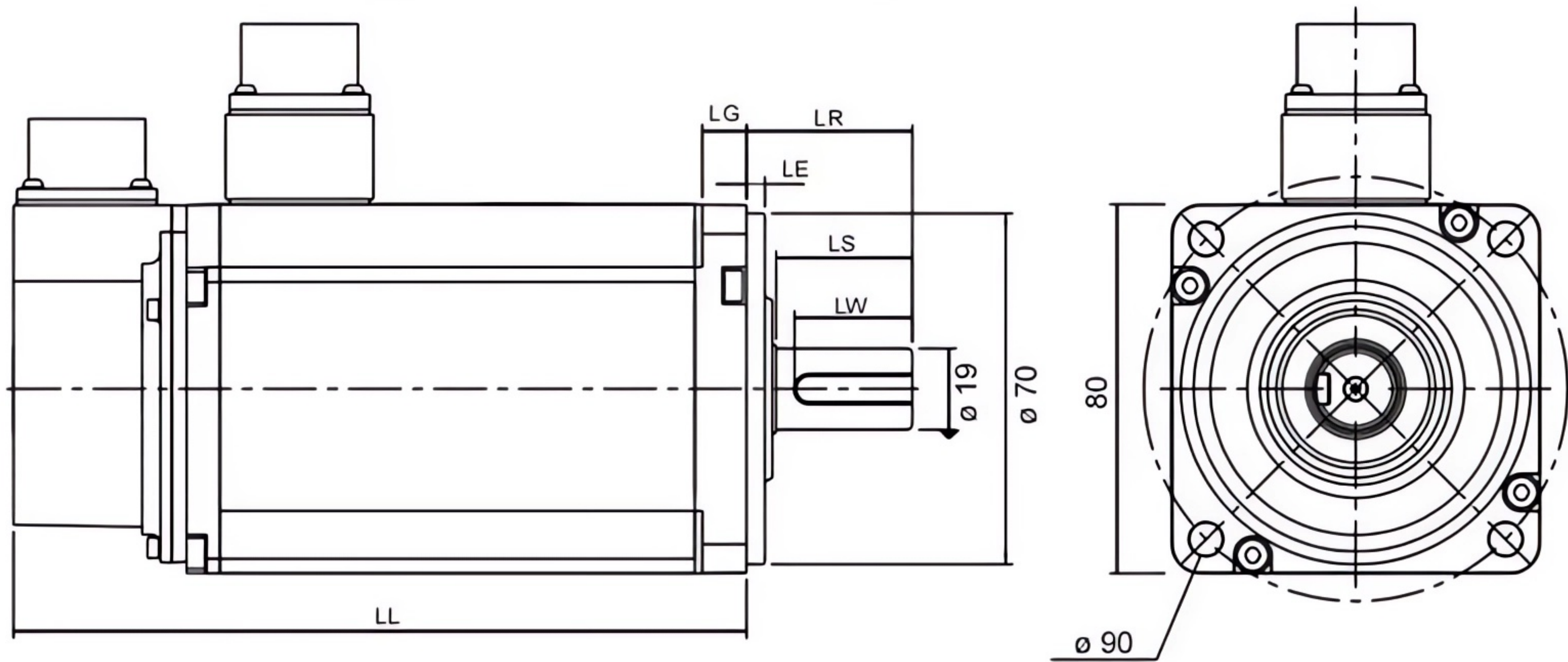


# HCS40 Harmonic Reducer



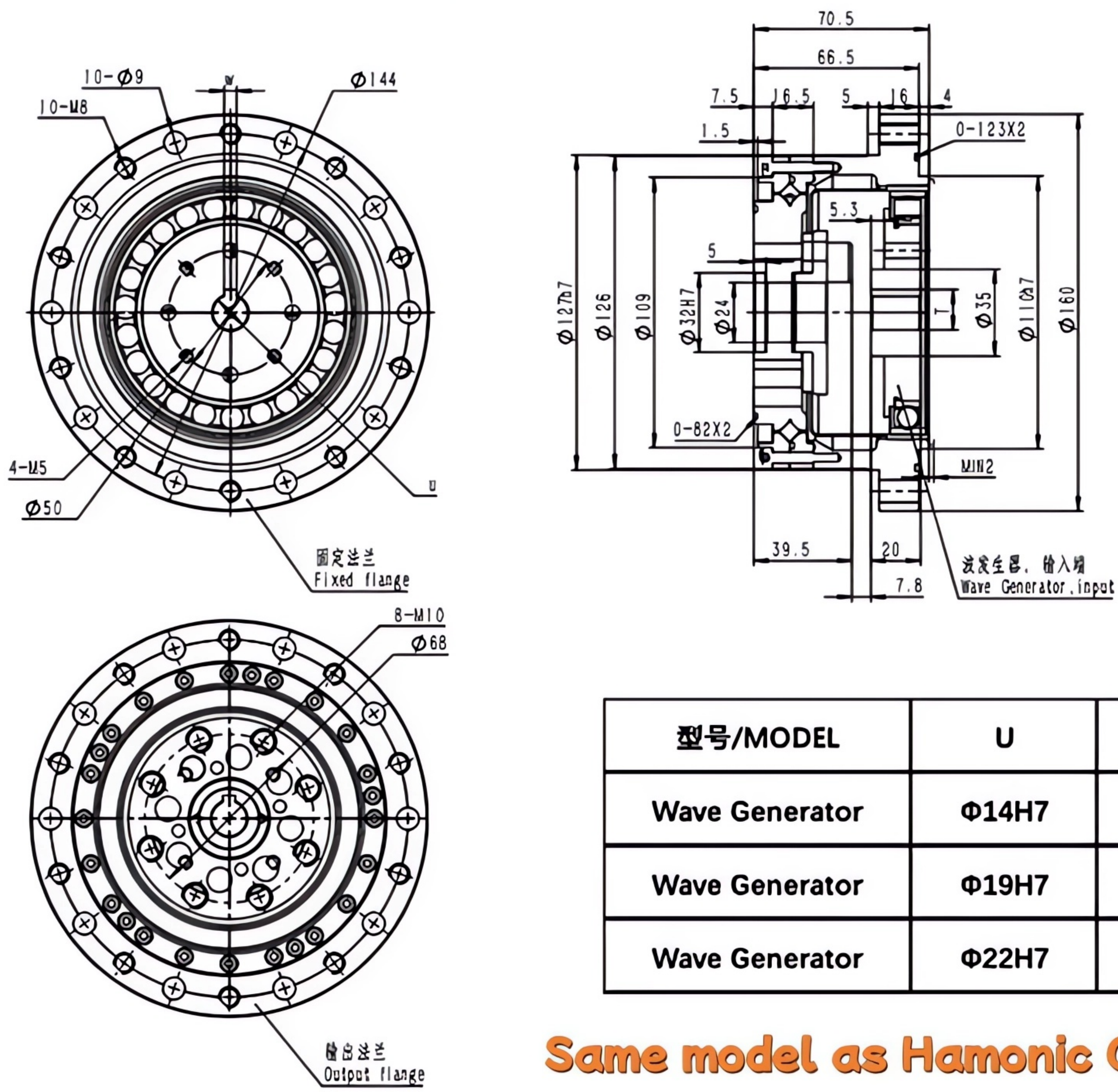
Same model as Hamonic CSG-40-2UH

## Adapted motor size-19mm Shaft 80mm Flange Servo Motor





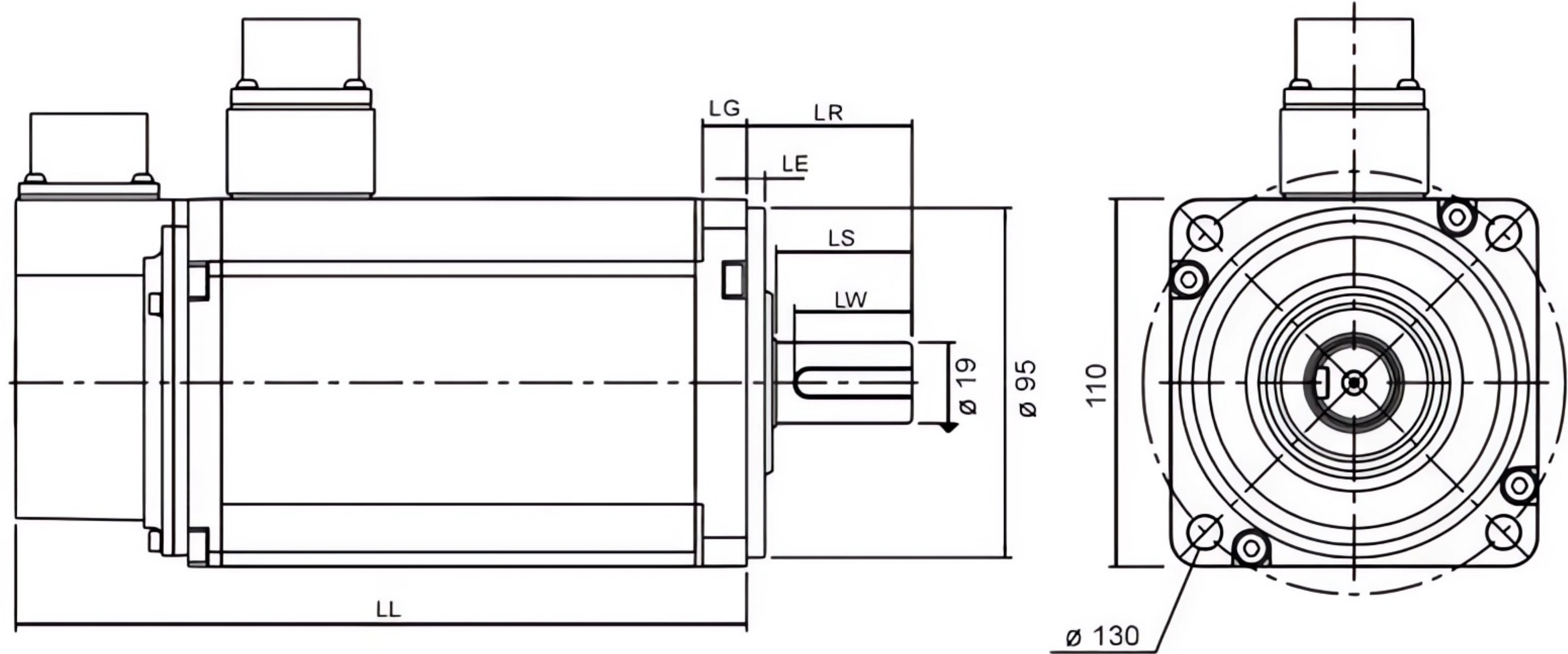
# HCS40 Harmonic Reducer



| 型号/MODEL       | U     | T                                 | W       |
|----------------|-------|-----------------------------------|---------|
| Wave Generator | Ø14H7 | 16.3 <sup>+0.1</sup> <sub>0</sub> | 5P9/JS9 |
| Wave Generator | Ø19H7 | 21.8 <sup>+0.1</sup> <sub>0</sub> | 6P9/JS9 |
| Wave Generator | Ø22H7 | 25.3 <sup>+0.1</sup> <sub>0</sub> | 8P9/JS9 |

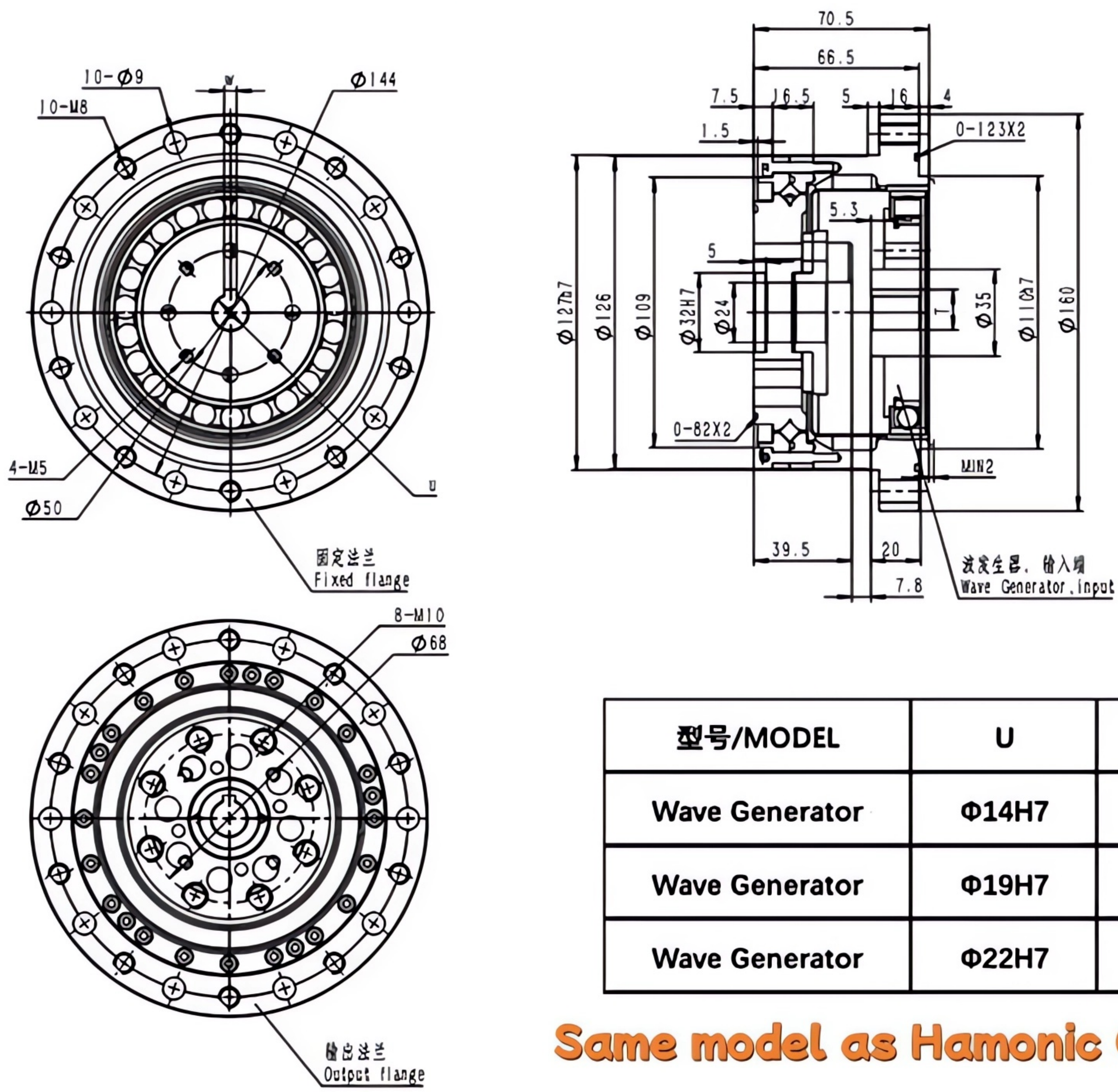
Same model as Hamonic CSG-40-2UH

## Adapted motor size-19mm Shaft 110mm Flange Servo Motor





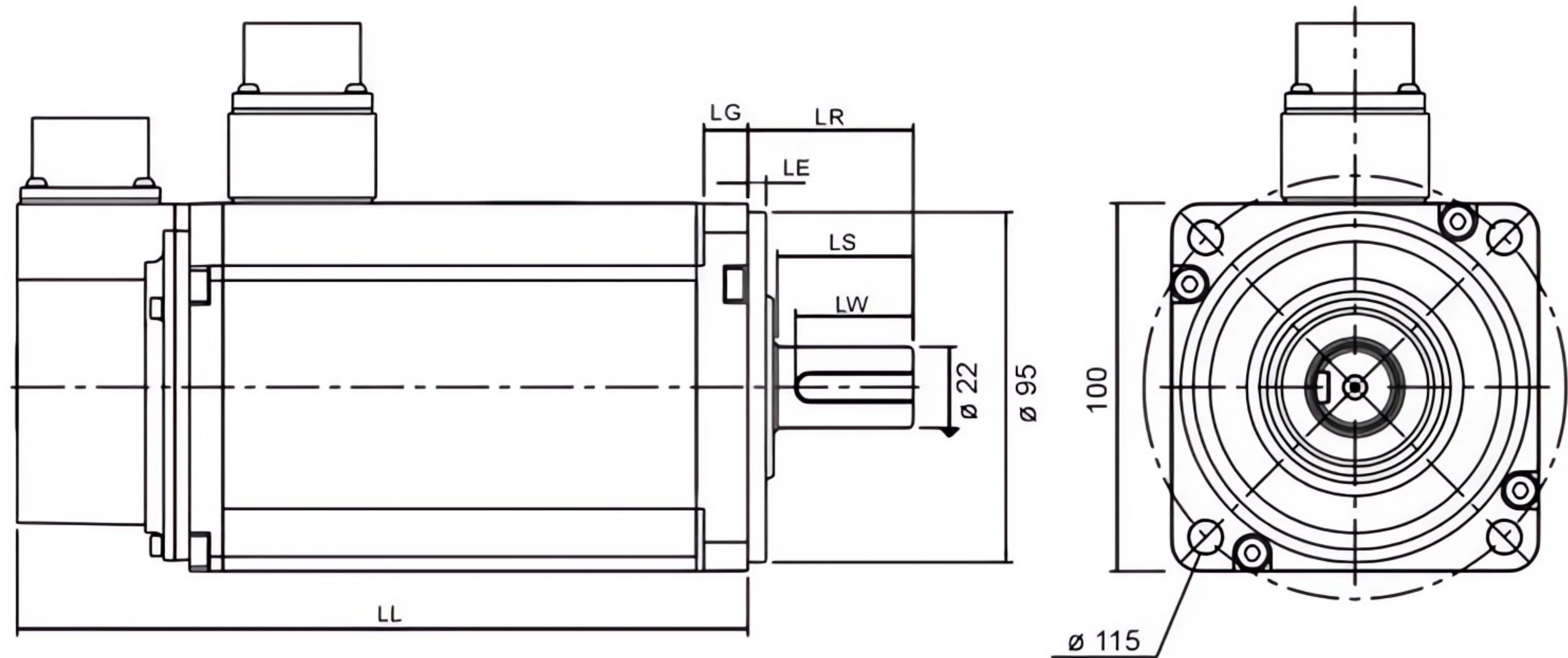
# HCS40 Harmonic Reducer



| 型号/MODEL       | U     | T               | W       |
|----------------|-------|-----------------|---------|
| Wave Generator | Ø14H7 | $16.3^{+0.1}_0$ | 5P9/JS9 |
| Wave Generator | Ø19H7 | $21.8^{+0.1}_0$ | 6P9/JS9 |
| Wave Generator | Ø22H7 | $25.3^{+0.1}_0$ | 8P9/JS9 |

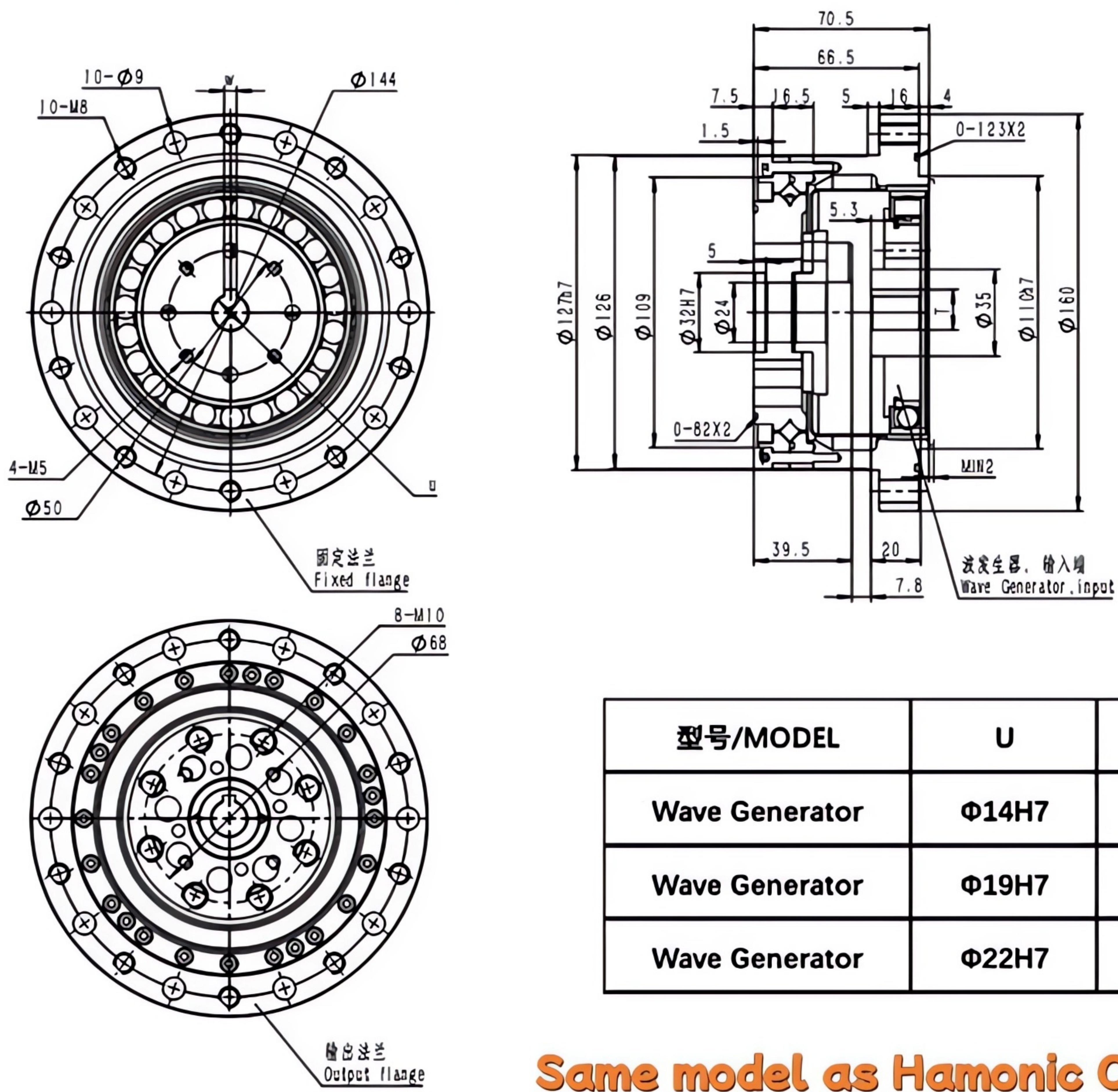
Same model as Hamonic CSG-40-2UH

## Adapted motor size-22mm Shaft 100mm Flange Servo Motor





# HCS40 Harmonic Reducer



Same model as Hamonic CSG-40-2UH

## Adapted motor size-22mm Shaft 130mm Flange Servo Motor

