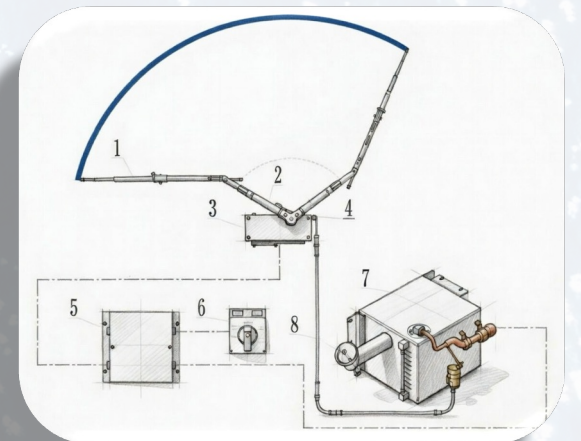


# 船用

## 雨刮系统

### MARINE WIPER SYSTEM



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Safe Voyage, Happy Living

**Fire Welkin** Technology  
Shanghai Fire Welkin Technology Co., Ltd.

平安航程, 快乐人生

**Fire Welkin** Technology

上海孚维勤科技有限公司

# Notes

## About Us

## Applications

## Global

我们专业制造高品质雨刮器总成、雨刮控制系统及直流电机。公司依托 **ISO 9001** 质量管理体系认证，集研发、先进制造与全球销售于一体，致力于为您提供可靠的产品与卓越的售后服务。

We specialize in high-quality wiper assemblies, wiper controller systems, and DC motors. Certified by **ISO 9001**, we integrate R&D, advanced manufacturing, and global sales to deliver reliable products and excellent after-sales service.



工程与港口机械

Engineering & Port Machinery



船舶与游艇

Marine & Yachts



轨道交通

Railway Transit

全球出口：产品远销俄罗斯、韩国、东南亚、中东等国家和地区。  
Global Export: Trusted by clients in Russia, South Korea, Southeast Asia, the Middle East, and beyond.



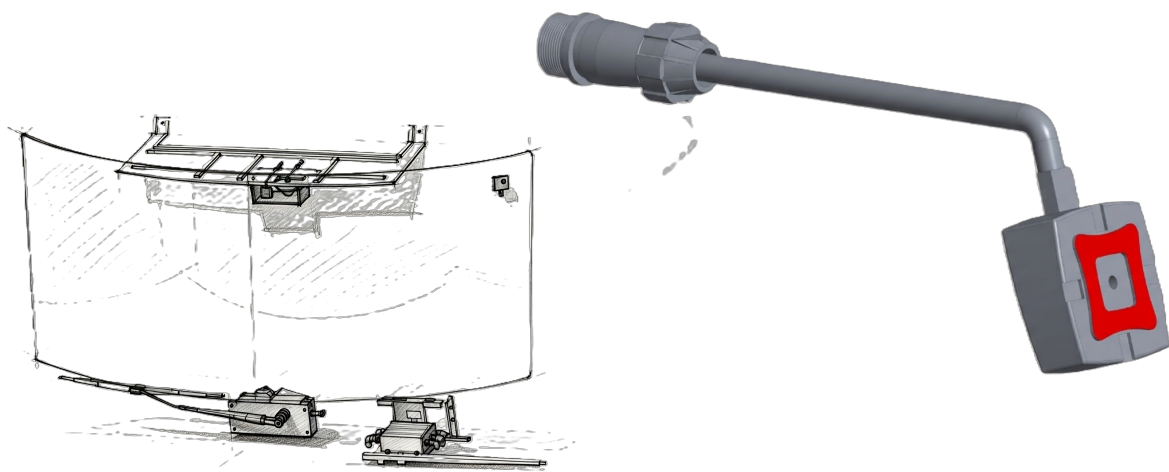


## 雨刮系统控制器 Wiper System Controller (Customization)

FW\_BLC\_005

110V直流无刷电机 BLDC Motor

雨量感应 Rain sensor



## 船用雨刮器 Marine wiper system

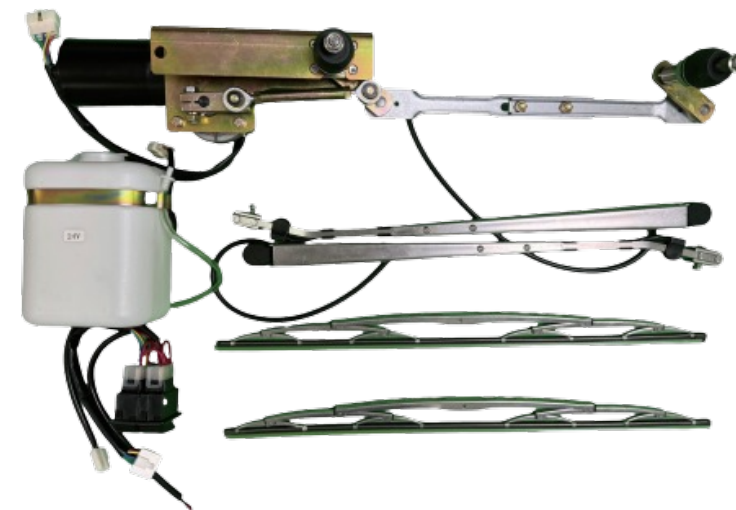
FW\_05\_Wiper assembly

Motor ZD1050R-C/2050 70W

Arm 250mm-550mm

Blade 300mm-550mm

Angle 70-95 °



FW\_06\_Wiper assembly

Motor ZD1733/2733 150W

Arm 1000mm-1300mm

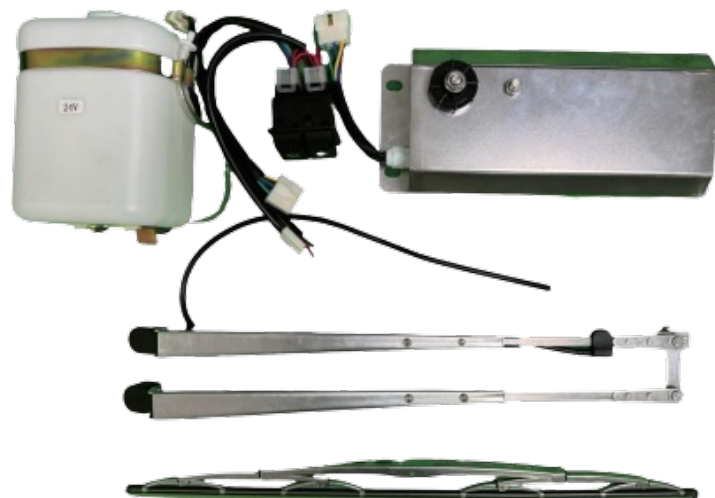
Blade 1000mm-1500mm

Angle 40-95 °

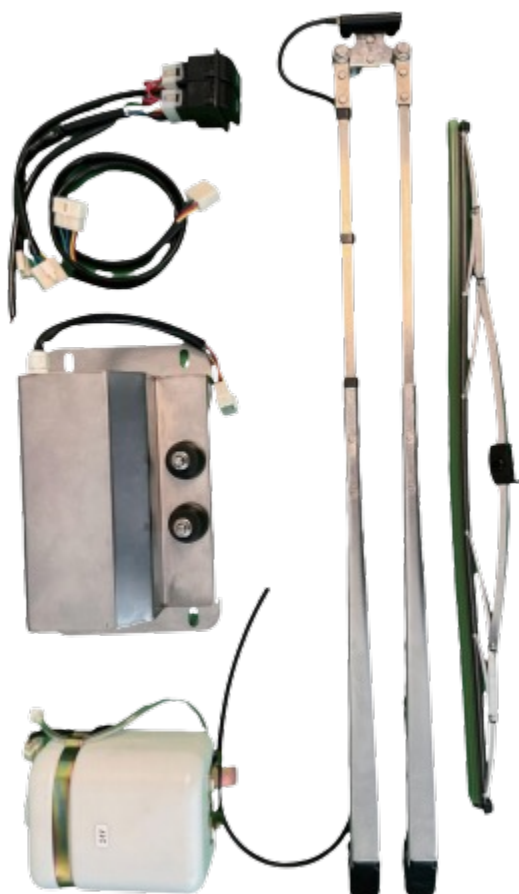


## 船用雨刮器 Marine wiper system

| FW_07_Wiper assembly<br>Water proof |                 |
|-------------------------------------|-----------------|
| Motor                               | ZD1335/2335 40W |
| Arm                                 | 300mm-600mm     |
| Blade                               | 250mm-500mm     |
| Angle                               | 40-95 °         |

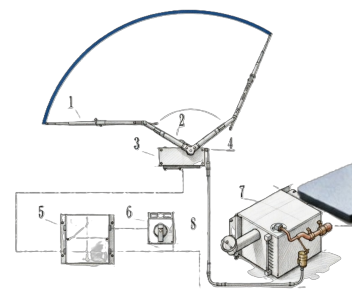



| FW_08_Wiper assembly<br>Water proof |                 |
|-------------------------------------|-----------------|
| Motor                               | ZD1050/2050 70W |
| Arm                                 | 600mm-800mm     |
| Blade                               | 600mm-800mm     |
| Angle                               | 40-95 °         |

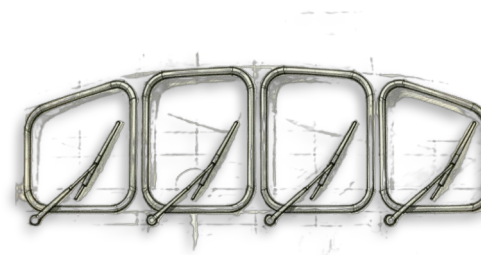



## 雨刮系统控制器 Wiper System Controller (Customization)

|                     |
|---------------------|
| FW_BC_002           |
| 24V直流有刷电机 BDC Motor |
| 180W大功率 High Power  |

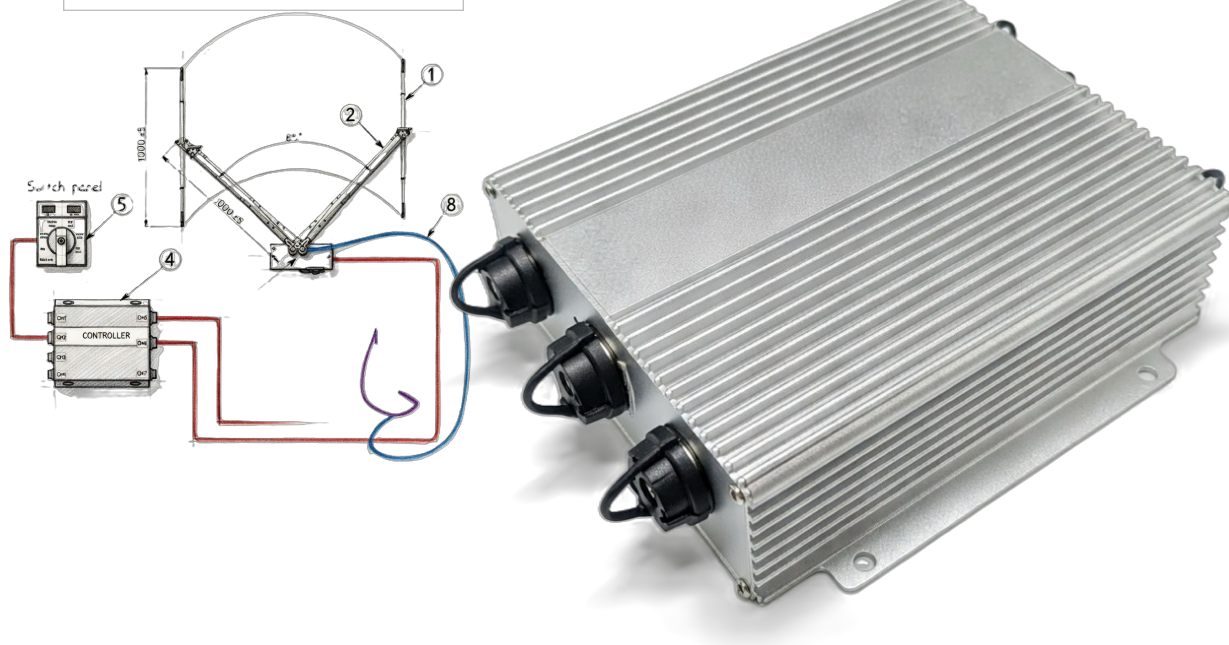


|                                |
|--------------------------------|
| FW_SBC_003                     |
| 24V直流有刷电机 BDC Motor            |
| 四电机同步 Four Motors Synchronized |

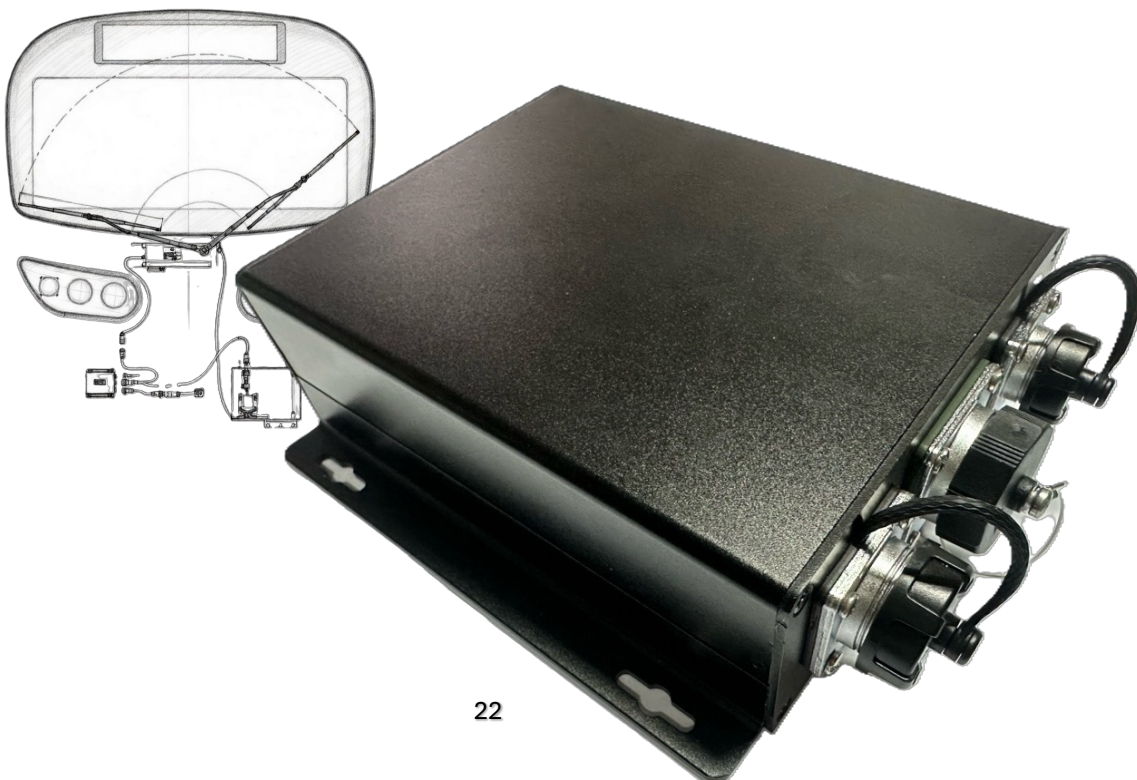


## 雨刮系统控制器 Wiper System Controller (Customization)

FW\_BLC\_007  
24V直流无刷电机 BLDC Motor



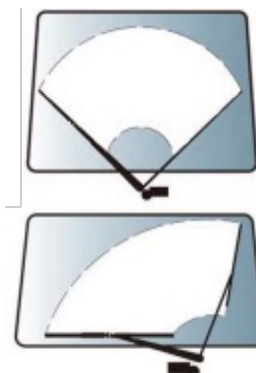
FW\_BLC\_008  
110V直流无刷电机 BLDC Motor



## 船用雨刮器 Marine wiper system

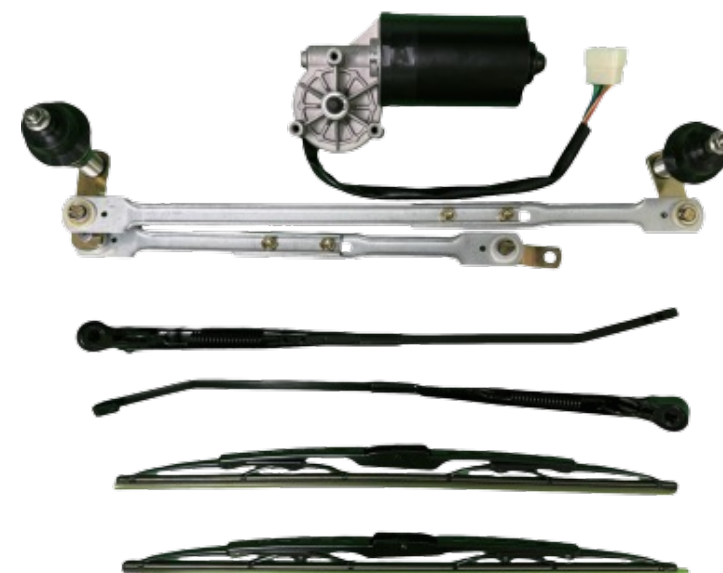
FW\_09\_Wiper assembly

|       |                 |
|-------|-----------------|
| Motor | ZD1050/2050 70W |
| Arm   | 500mm-750mm     |
| Blade | 500mm-800mm     |
| Angle | 45-105°         |



FW\_10\_Wiper assembly

|       |                 |
|-------|-----------------|
| Motor | ZD1050/2050 70W |
| Arm   | 250mm-550mm     |
| Blade | 300mm-550mm     |
| Angle | 70-95°          |



## 船用雨刮器 Marine wiper system

### FW\_11\_Wiper assembly

|       |                 |
|-------|-----------------|
| Motor | ZD1050/2050 70W |
| Arm   | 550mm-750mm     |
| Blade | 550mm-700mm     |
| Angle | 100-175 °       |



### FW\_12\_Wiper assembly

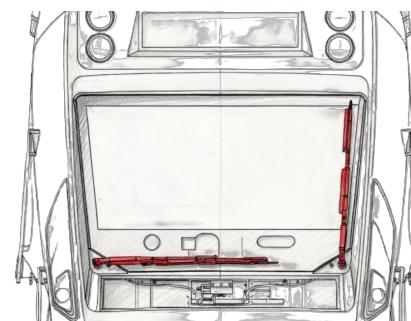
|       |                 |
|-------|-----------------|
| Motor | ZD1050/2050 70W |
| Arm   | 800mm-1200mm    |
| Blade | 800mm-1500mm    |
| Angle | 45-95 °         |



## 雨刮系统控制器 Wiper System Controller (Customization)

### FW\_BLC\_001

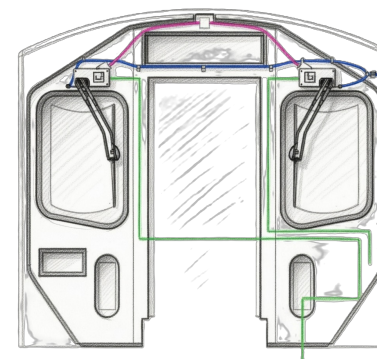
110V直流无刷电机 BLDC Motor



### FW\_SBC\_002

24V直流有刷电机 BDC Motor

双电机同步 Two Motors Synchronization



## 雨刮臂 Wiper Arm



SG238A 500-800



SG318B 450-700



SG188A 250-450



单扁铁 500-800



双杆连接板 450-800



双圆管 650-800



SG458A 800-1200



SG318A 450-700



SG318C 450-600



双杆 450-900

## 船用雨刮器 Marine Wiper System

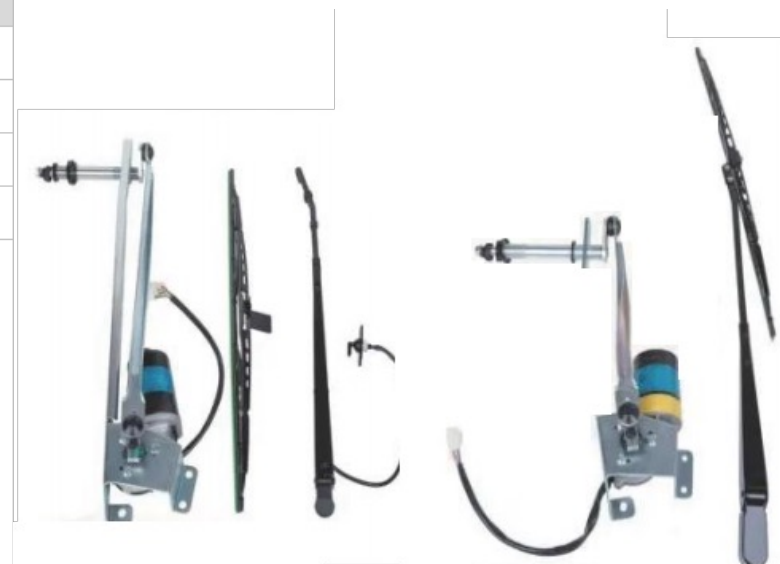
### FW\_13\_Wiper assembly

|       |              |
|-------|--------------|
| Motor | ZD2733 150W  |
| Arm   | 650mm-800mm  |
| Blade | 800mm-1000mm |
| Angle | 80-90 °      |



### FW\_14\_Wiper assembly

|       |              |
|-------|--------------|
| Motor | ZD2030R 35   |
| Arm   | 800mm-1200mm |
| Blade | 800mm-1500mm |
| Angle | 70-85°       |



## 雨刮电机 Wiper Motor



|                            |                |          |
|----------------------------|----------------|----------|
| ZD1330B/ZD2330B<br>12V/24V | Working torque | 5N.m     |
|                            | Power          | 35W      |
|                            | Brake torque   | 25N.m    |
|                            | Angle          | 30°-175° |



|                            |                |          |
|----------------------------|----------------|----------|
| ZD1330C/ZD2330C<br>12V/24V | Working torque | 5N.m     |
|                            | Power          | 35W      |
|                            | Brake torque   | 25N.m    |
|                            | Angle          | 30°-175° |



|                                |                |          |
|--------------------------------|----------------|----------|
| ZD1050R-A/ZD2050R-A<br>12V/24V | Working torque | 9N.m     |
|                                | Power          | 70W      |
|                                | Brake torque   | 45N.m    |
|                                | Angle          | 30°-105° |



|                                |                |           |
|--------------------------------|----------------|-----------|
| ZD1050R-D/ZD2050R-D<br>12V/24V | Working torque | 9N.m      |
|                                | Power          | 70W       |
|                                | Brake torque   | 45N.m     |
|                                | Angle          | 100°-170° |



|                          |                |         |
|--------------------------|----------------|---------|
| ZD1335/ZD2335<br>12V/24V | Working torque | 6N.m    |
|                          | Power          | 40W     |
|                          | Brake torque   | 30N.m   |
|                          | Angle          | 60°-90° |



|                              |                |         |
|------------------------------|----------------|---------|
| ZD1530-B/ZD1530-B<br>12V/24V | Working torque | 6N.m    |
|                              | Power          | 40W     |
|                              | Brake torque   | 30N.m   |
|                              | Angle          | 50°-90° |

## 雨刮片 Wiper Blade

### SP-A

宽/20  
孔/8.0  
800/900/1000/1200



### SP-B

宽/16  
孔/6.0  
600/650/700/800



### SP-C

宽/14  
孔/4.0  
200~600



### SP-D

钩式  
300/350/400/450/500/550/600/650



### SP-E

宽/15  
孔/6.0  
400/450/500/550/600/650/700/800



## 洗滌器 Washer Fluid Reservoir



**XD101/201** 1.2L



**XD103/203** 1.5L



**XD105/205** 1.5L



**XD102/202** 3L



**XD107/207** 3L



**XD106/206** 2L



**XD108/208** 3.5L



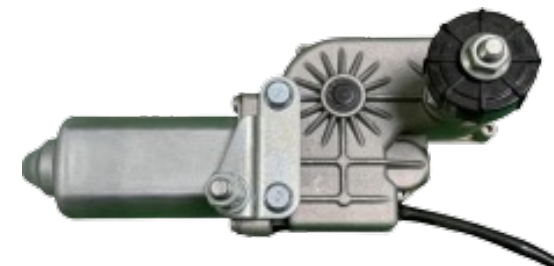
**XD109/209** 5L

## 雨刮电机 Wiper Motor



**ZD1231/ZD2231**  
12V/24V

|                |       |
|----------------|-------|
| Working torque | 2N.m  |
| Power          | 20W   |
| Brake torque   | 10N.m |
| Angle          | 90°   |



**ZD1232/ZD2232**  
12V/24V

|                |         |
|----------------|---------|
| Working torque | 2N.m    |
| Power          | 20W     |
| Brake torque   | 10N.m   |
| Angle          | 60°-95° |



**ZD1233/ZD2233**  
12V/24V

|                |         |
|----------------|---------|
| Working torque | 3N.m    |
| Power          | 30W     |
| Brake torque   | 15N.m   |
| Angle          | 60°-90° |



**ZD1234/ZD2234**  
12V/24V

|                |         |
|----------------|---------|
| Working torque | 4N.m    |
| Power          | 30W     |
| Brake torque   | 20N.m   |
| Angle          | 50°-90° |



**ZD1330/ZD2330**  
12V/24V

|                |          |
|----------------|----------|
| Working torque | 5N.m     |
| Power          | 35W      |
| Brake torque   | 25N.m    |
| Angle          | 30°-175° |



**ZD1330A/ZD2330A**  
12V/24V

|                |          |
|----------------|----------|
| Working torque | 5N.m     |
| Power          | 35W      |
| Brake torque   | 25N.m    |
| Angle          | 30°-175° |

## 雨刮电机 Wiper Motor



|                                |                |         |
|--------------------------------|----------------|---------|
| ZD1630R-C/ZD2630R-C<br>12V/24V | Working torque | 16N.m   |
|                                | Power          | 100W    |
|                                | Brake torque   | 80N.m   |
|                                | Angle          | 50°-90° |



|                                |                |         |
|--------------------------------|----------------|---------|
| ZD1630R-C/ZD2630R-C<br>12V/24V | Working torque | 16N.m   |
|                                | Power          | 100W    |
|                                | Brake torque   | 80N.m   |
|                                | Angle          | 50°-90° |



|                                |                |          |
|--------------------------------|----------------|----------|
| ZD1050R-B/ZD2050R-B<br>12V/24V | Working torque | 9N.m     |
|                                | Power          | 70W      |
|                                | Brake torque   | 45N.m    |
|                                | Angle          | 30°-105° |



|                                |                |          |
|--------------------------------|----------------|----------|
| ZD1050L-B/ZD2050L-B<br>12V/24V | Working torque | 9N.m     |
|                                | Power          | 70W      |
|                                | Brake torque   | 45N.m    |
|                                | Angle          | 30°-105° |



|                              |                |         |
|------------------------------|----------------|---------|
| ZD1733-G/ZD2733-G<br>12V/24V | Working torque | 26N.m   |
|                              | Power          | 150W    |
|                              | Brake torque   | 130N.m  |
|                              | Angle          | 30°-90° |

## 连杆 Mechanical Linkage



卧式对刮连动杆A



直立对刮连动杆



卧式对刮连动杆B



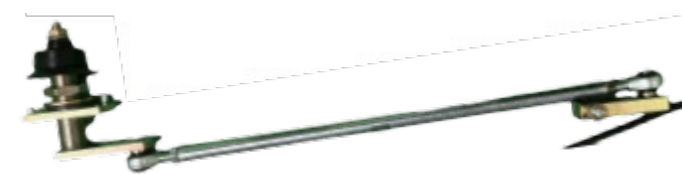
带支架顺刮连动杆A



带支架顺刮连动杆B



单杆连动杆



顺刮连动杆

## 雨刮部件 Wiper Parts

编码器电机  
Encoder



直流电机 DC Motor



喷嘴 Nozzle



开关 Switch

## 雨刮电机 Wiper Motor (Customization)



|                           |                |       |
|---------------------------|----------------|-------|
| ZD1051L/ZD2051<br>12V/24V | Working torque | 9N.m  |
|                           | Power          | 70W   |
|                           | Brake torque   | 45N.m |



|                            |                |       |
|----------------------------|----------------|-------|
| ZD1630R/ZD2630R<br>12V/24V | Working torque | 16N.m |
|                            | Power          | 100W  |
|                            | Brake torque   | 80N.m |



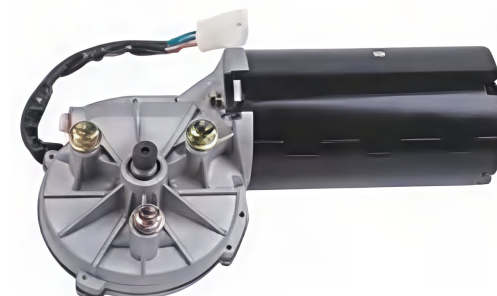
|                            |                |       |
|----------------------------|----------------|-------|
| ZD1050R/ZD2050R<br>12V/24V | Working torque | 9N.m  |
|                            | Power          | 70W   |
|                            | Brake torque   | 45N.m |



|                            |                |       |
|----------------------------|----------------|-------|
| ZD1050L/ZD2050L<br>12V/24V | Working torque | 9N.m  |
|                            | Power          | 70W   |
|                            | Brake torque   | 45N.m |



|                            |                |        |
|----------------------------|----------------|--------|
| ZD1631L/ZD2631L<br>12V/24V | Working torque | 20N.m  |
|                            | Power          | 120W   |
|                            | Brake torque   | 100N.m |



|                          |                |        |
|--------------------------|----------------|--------|
| ZD1733/ZD2733<br>12V/24V | Working torque | 26N.m  |
|                          | Power          | 150W   |
|                          | Brake torque   | 130N.m |

## 雨刮电机 Wiper Motor (Customization)



|                            |                |       |
|----------------------------|----------------|-------|
| ZD1030R/ZD2030R<br>12V/24V | Working torque | 5N.m  |
|                            | Power          | 35W   |
|                            | Brake torque   | 25N.m |



|                            |                |       |
|----------------------------|----------------|-------|
| ZD1030L/ZD2030L<br>12V/24V | Working torque | 5N.m  |
|                            | Power          | 35W   |
|                            | Brake torque   | 25N.m |

## 雨刮电机 Wiper Motor (Customization)



|                            |                |        |
|----------------------------|----------------|--------|
| ZD1733A/ZD2733A<br>12V/24V | Working torque | 26N.m  |
|                            | Power          | 150W   |
|                            | Brake torque   | 130N.m |



|                          |                |        |
|--------------------------|----------------|--------|
| ZD1735/ZD2735<br>12V/24V | Working torque | 30N.m  |
|                          | Power          | 180W   |
|                          | Brake torque   | 150N.m |



|                             |                |       |
|-----------------------------|----------------|-------|
| ZD1042R/ ZD2042R<br>12V/24V | Working torque | 7N.m  |
|                             | Power          | 50W   |
|                             | Brake torque   | 38N.m |



|                             |                |       |
|-----------------------------|----------------|-------|
| ZD1042L/ ZD2042L<br>12V/24V | Working torque | 7N.m  |
|                             | Power          | 50W   |
|                             | Brake torque   | 38N.m |



|                             |                |       |
|-----------------------------|----------------|-------|
| ZD1530L/ ZD2530L<br>12V/24V | Working torque | 7N.m  |
|                             | Power          | 50W   |
|                             | Brake torque   | 38N.m |



|                            |                |       |
|----------------------------|----------------|-------|
| ZD1031L/ZD2031L<br>12V/24V | Working torque | 5N.m  |
|                            | Power          | 35W   |
|                            | Brake torque   | 25N.m |



|                              |                |       |
|------------------------------|----------------|-------|
| ZD1041/ZD2041<br>12V/24V/48V | Working torque | 6N.m  |
|                              | Power          | 40W   |
|                              | Brake torque   | 30N.m |



## 油泵电机 Oil Pump Motor