

## DR Series



DD Motor

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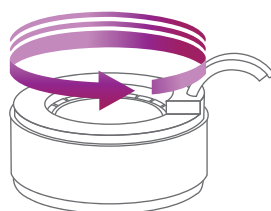


## Features

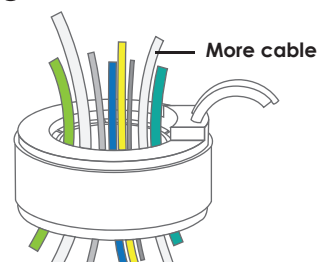
## Frameless type / DR series



① Highest torque density & motor constant.



② Large pass through



③ High heat dissipation



④ Cable output option



## Ordering Information

| DR | K | 105 | 8 | S | H | P | N | CS | 0400                                                                                                                                                                                     |
|----|---|-----|---|---|---|---|---|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |   |     |   |   |   |   |   |    | Cable length (mm) :<br>0400 : 400 mm (Standard)<br>Rotor : Blank                                                                                                                         |
|    |   |     |   |   |   |   |   |    | Cable exit direction :<br>CS : Radial<br>CU : Axial<br>Rotor : Blank                                                                                                                     |
|    |   |     |   |   |   |   |   |    | Cooling : N : No cooling    W : Water cooling<br>Rotor : Blank                                                                                                                           |
|    |   |     |   |   |   |   |   |    | Temperature sensor: P : PTC-90°C    K: KTY84-130    Rotor: Blank                                                                                                                         |
|    |   |     |   |   |   |   |   |    | H : Hall sensor.    NH : No hall sensor.                                                                                                                                                 |
|    |   |     |   |   |   |   |   |    | Winding code :    S : Standard    F : Small current    Rotor : Blank                                                                                                                     |
|    |   |     |   |   |   |   |   |    | Height (mm) :    30 series 8, 16, 24, 32, 48    60 series 8, 16, 24, 48<br>105 series 8, 16, 24, 32, 48, 80    140 series 8, 16, 24, 30, 50, 70<br>175 series 8, 16, 24, 30, 50, 70, 100 |
|    |   |     |   |   |   |   |   |    | Outside diameter of the stator (mm) : 30, 60, 105, 140, 175                                                                                                                              |
|    |   |     |   |   |   |   |   |    | Part :    K : Kit    S : Stator    R : Rotor    KH : Kit with Hall sensor                                                                                                                |
|    |   |     |   |   |   |   |   |    | Torque motor                                                                                                                                                                             |

\* To support hall function, the rotor height need to be higher.

\* Configuring table of Hall type.

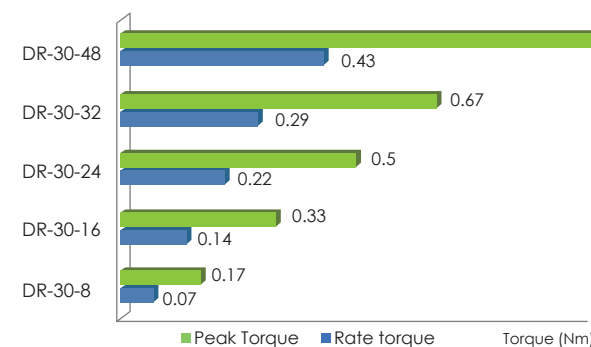
|            | Stack Height | Stator height / Assembly height | Rotor height |
|------------|--------------|---------------------------------|--------------|
| 30 series  | 8            | 14.8                            | 8.6          |
|            | 16           | 22.9                            | 16.6         |
|            | 24           | 30.9                            | 24.6         |
|            | 32           | 39                              | 32.6         |
|            | 48           | 55.1                            | 48.6         |
| 60 series  | 8            | 16.8                            | 8.6          |
|            | 16           | 28.8                            | 16.6         |
|            | 24           | 32.9                            | 24.6         |
| 105 series | 48           | 57                              | 48.6         |
|            | 8            | 27                              | 9            |
|            | 16           | 35                              | 17           |
|            | 24           | 43                              | 25           |
|            | 32           | 51                              | 33           |
|            | 48           | 67                              | 49           |
|            | 80           | 99                              | 81           |

Unit: mm

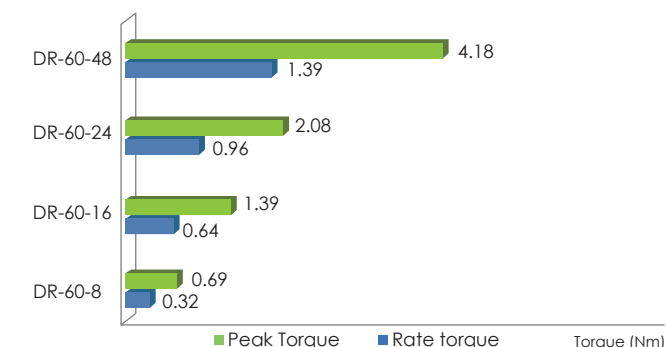
|            | Stack Height | Stator height / Assembly height | Rotor height |
|------------|--------------|---------------------------------|--------------|
| 140 series | 8            | 34                              | 9            |
|            | 16           | 42                              | 17           |
|            | 24           | 50                              | 25           |
|            | 30           | 56                              | 31           |
|            | 50           | 76                              | 51           |
|            | 70           | 96                              | 71           |
| 175 series | 8            | 29                              | 9            |
|            | 16           | 37                              | 17           |
|            | 24           | 45                              | 25           |
|            | 30           | 51                              | 31           |
|            | 50           | 71                              | 51           |
|            | 70           | 91                              | 71           |
|            | 100          | 121                             | 101          |

## Torque Overview

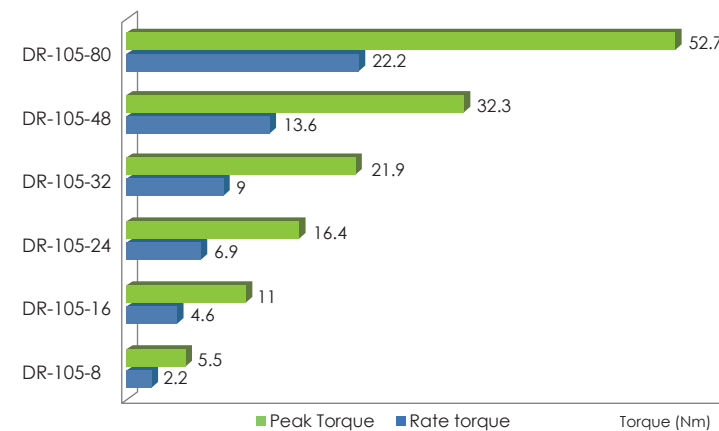
## DR-30



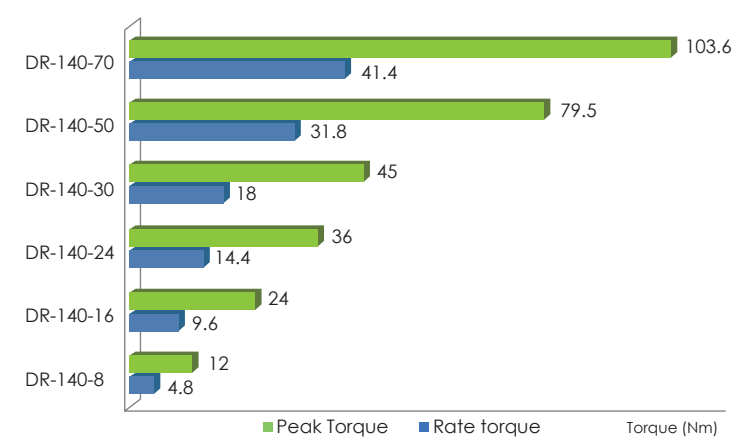
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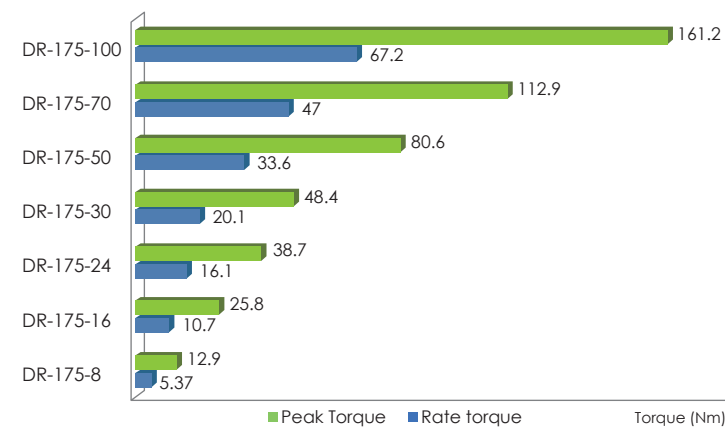
## DR-105

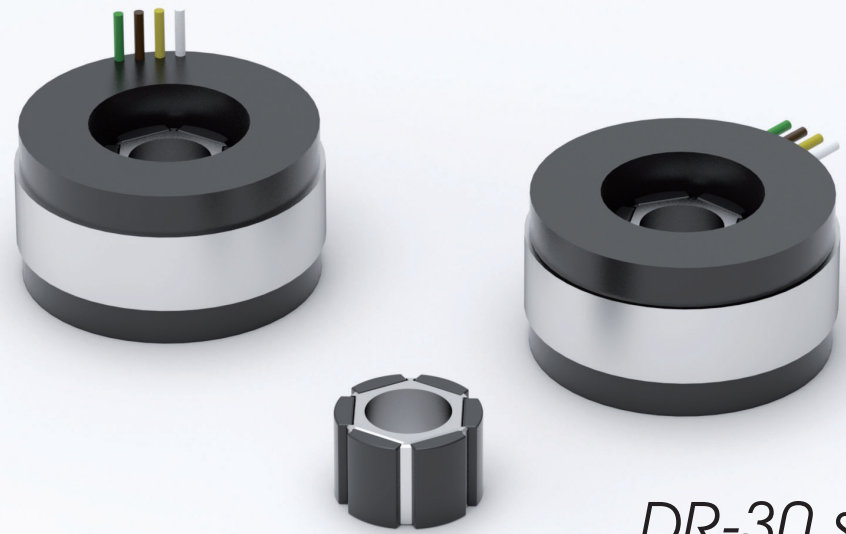


## DR-140



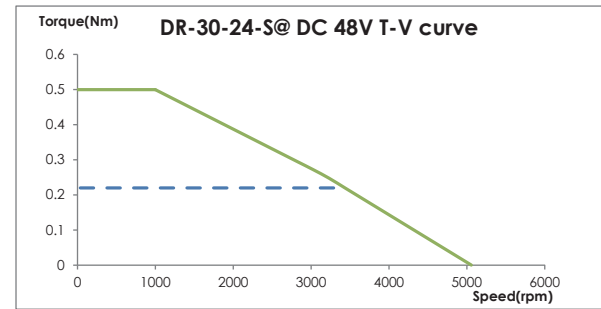
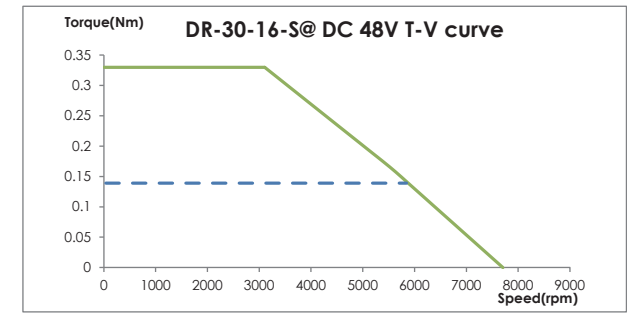
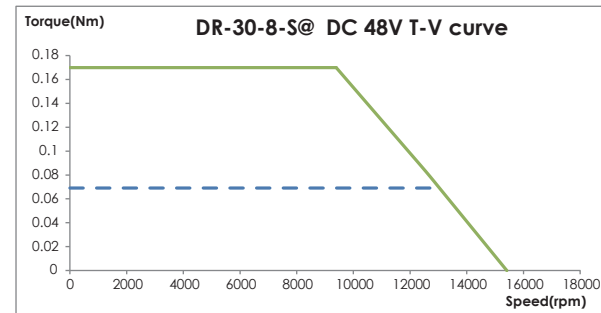
## DR-175



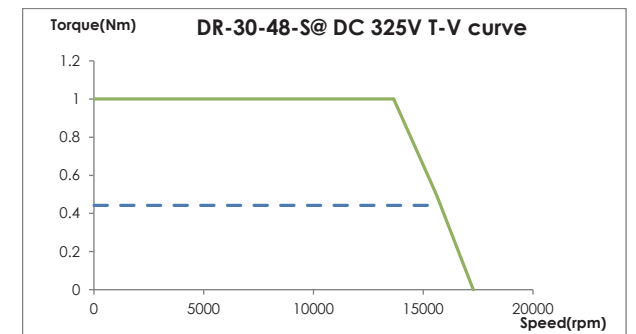
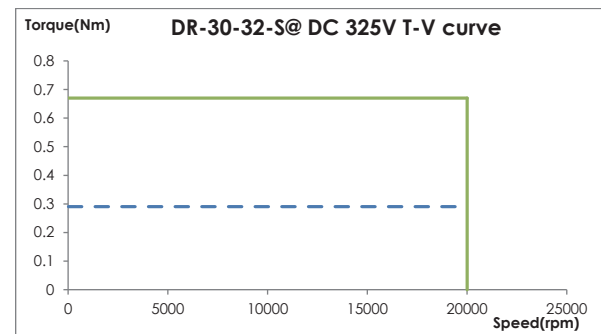


DR-30 series

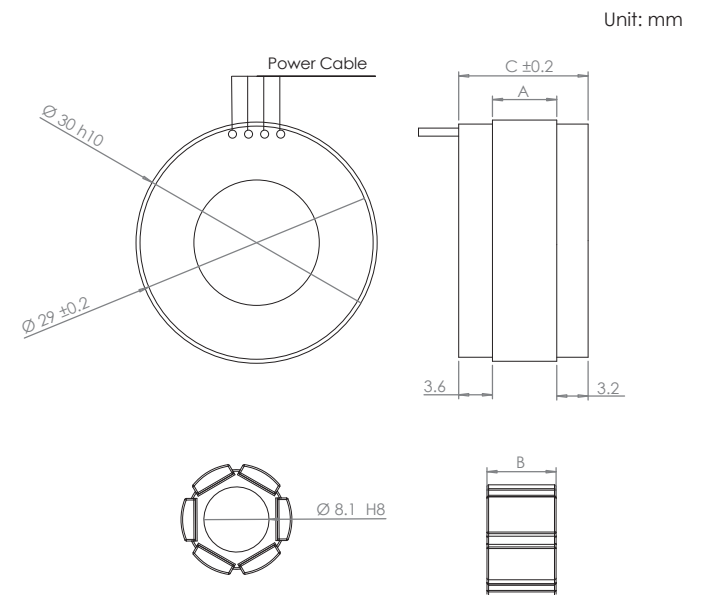
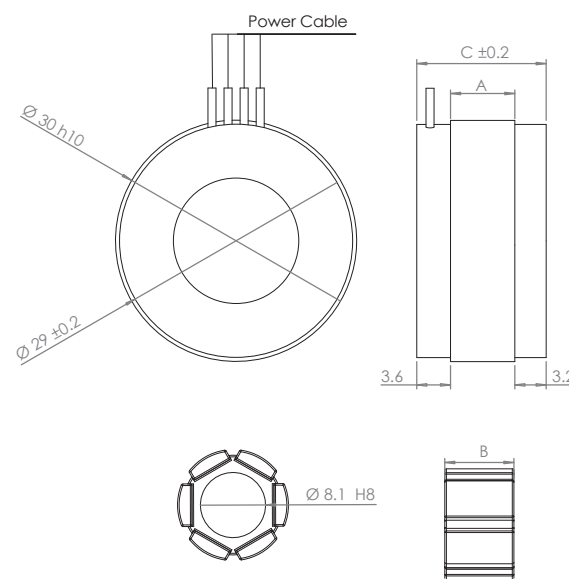
## Torque / Speed Curve (@DC 48V)



## Torque / Speed Curve (@DC 325V)



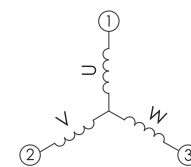
## Dimension



Unit: mm

OUTPUT CABLE  
(All cable standard length is 400 mm)

| Motor Wire Table |                |                      |
|------------------|----------------|----------------------|
| Pin Number       | Function       | Cross section        |
| White            | U phase        | 0.89 mm <sup>2</sup> |
| Yellow           | V phase        | 0.89 mm <sup>2</sup> |
| Brown            | W phase        | 0.89 mm <sup>2</sup> |
| Green            | PE + shielding | 0.89 mm <sup>2</sup> |



## DIMENSIONS

| Type     | A  | B    | C    |
|----------|----|------|------|
| DR-30-8  | 8  | 8.6  | 14.8 |
| DR-30-16 | 16 | 16.6 | 22.9 |
| DR-30-24 | 24 | 24.6 | 30.9 |
| DR-30-32 | 32 | 32.6 | 39   |
| DR-30-48 | 48 | 48.6 | 55.1 |

## DR-30

|                                                        | Unit               | cpc                                                                               |                      |                      |                      |                       |
|--------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|----------------------|----------------------|----------------------|-----------------------|
|                                                        |                    | 3-phase synchronous frameless Torque 230V <sub>ac rms</sub> (325V <sub>dc</sub> ) |                      |                      |                      |                       |
| Coil Assembly Model                                    |                    | DR-30-8                                                                           | DR-30-16             | DR-30-24             | DR-30-32             | DR-30-48              |
| Performance                                            |                    |                                                                                   |                      |                      |                      |                       |
| Peak Torque <sup>(2)(3)</sup>                          | Nm                 | 0.17                                                                              | 0.33                 | 0.50                 | 0.67                 | 1.00                  |
| Continuous Torque with heat sink <sup>(1)(2)</sup>     | Nm                 | 0.07                                                                              | 0.14                 | 0.22                 | 0.29                 | 0.43                  |
| Continuous Torque without heat sink <sup>(2)(3)</sup>  | Nm                 | 0.03                                                                              | 0.06                 | 0.09                 | 0.12                 | 0.18                  |
| Maximum Power with heat sink <sup>(1)(2)</sup>         | W                  | 162.0                                                                             | 248.1                | 333.6                | 333.6                | 589.5                 |
| Continuous Power with heat sink <sup>(1)(2)</sup>      | W                  | 25.9                                                                              | 39.7                 | 53.4                 | 53.4                 | 94.3                  |
| Continuous Power without heat sink <sup>(2)(3)</sup>   | W                  | 4.4                                                                               | 6.7                  | 9.0                  | 9.0                  | 15.9                  |
| Maximum speed                                          | rpm                | 15415 @DC 48V                                                                     | 7708 @DC 48V         | 5058 @DC 48V         | 20000 @AC230V        | 17279 @AC230V         |
| Mechanical                                             |                    |                                                                                   |                      |                      |                      |                       |
| Stator OD                                              | mm                 | 30                                                                                |                      |                      |                      |                       |
| Rotor ID                                               | mm                 | 8.1                                                                               |                      |                      |                      |                       |
| Lamination Stack Height                                | mm                 | 8                                                                                 | 16                   | 24                   | 32                   | 48                    |
| Rotor Inertia                                          | kg*m <sup>2</sup>  | 1.8×10 <sup>-7</sup>                                                              | 3.5×10 <sup>-7</sup> | 5.2×10 <sup>-7</sup> | 6.8×10 <sup>-7</sup> | 1.02×10 <sup>-6</sup> |
| Stator Mass                                            | kg                 | 0.04                                                                              | 0.07                 | 0.10                 | 0.12                 | 0.18                  |
| Rotor Mass                                             | kg                 | 0.01                                                                              | 0.01                 | 0.02                 | 0.02                 | 0.04                  |
| Total Mass                                             | kg                 | 0.05                                                                              | 0.08                 | 0.12                 | 0.14                 | 0.22                  |
| Electrical                                             |                    |                                                                                   |                      |                      |                      |                       |
| Peak Current <sup>(2)(3)</sup>                         | A <sub>pk</sub>    | 7.50                                                                              | 7.50                 | 7.50                 | 7.50                 | 7.50                  |
| Continuous Current with heat sink <sup>(1)(2)</sup>    | A <sub>pk</sub>    | 3                                                                                 | 3                    | 3                    | 3                    | 3                     |
| Continuous Current without heat sink <sup>(2)(3)</sup> | A <sub>pk</sub>    | 1.2                                                                               | 1.2                  | 1.2                  | 1.2                  | 1.2                   |
| Max. current (Linear range) <sup>(2)</sup>             | A <sub>pk</sub>    | 3.5                                                                               | 3.5                  | 3.5                  | 3.5                  | 3.5                   |
| Motor Torque constant                                  | Nm/A <sub>pk</sub> | 0.024                                                                             | 0.048                | 0.072                | 0.096                | 0.144                 |
| Back EMF constant <sup>(2)</sup>                       | V/rad/s            | 0.030                                                                             | 0.060                | 0.090                | 0.120                | 0.180                 |
| Resistance                                             | Ω                  | 2.88                                                                              | 4.41                 | 5.93                 | 7.45                 | 10.48                 |
| Inductance                                             | mH                 | 0.04                                                                              | 0.05                 | 0.07                 | 0.09                 | 0.13                  |
| Time constant <sup>(2)</sup>                           | ms                 | 0.01                                                                              | 0.01                 | 0.01                 | 0.01                 | 0.01                  |
| Thermal Resistance without heat sink <sup>(2)(3)</sup> | °C/W               | 17.3                                                                              | 11.2                 | 8.4                  | 6.7                  | 4.7                   |
| Thermal Resistance with heat sink <sup>(1)(2)</sup>    | °C/W               | 3.2                                                                               | 2.05                 | 1.4                  | 1.15                 | 0.83                  |
| Motor Constant <sup>(2)</sup>                          | N/√W               | 0.01                                                                              | 0.02                 | 0.03                 | 0.04                 | 0.04                  |
| Magnet poles                                           | N                  | 6                                                                                 |                      |                      |                      |                       |
| Ph-PE dielectric strength                              |                    | ≥ 1.5KV(AC)                                                                       |                      |                      |                      |                       |
| Ph-PE insulation Resistance                            |                    | ≥ 600V(DC)                                                                        |                      |                      |                      |                       |

(1) This value applies to the static sinusoidal drive under specific heat sink and temperature ranges from 25°C up to 110°C. The actual performance is dependent on the heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance levels for the total performance and electrical specification is ±10%

(3) This value applies to static sinusoidal drive operating under temperatures from 25°C up to 110°C, without a heat sink.

(4) The above "without heat sink" figure assumes a working condition of 1 atm, 25°C ambient temperature, in which the linear motor is stationary and not in contact with any other objects, relying only on free air convection for cooling. As all heat conductive objects in direct contact with the motor, including the plate, bearing and housing, can be considered a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.





DR-60 series

## DR-60

|                                                        | Unit               | cpc                                                    |                       |                       |                      |
|--------------------------------------------------------|--------------------|--------------------------------------------------------|-----------------------|-----------------------|----------------------|
|                                                        |                    | 3-phase synchronous frameless Torque 48V <sub>dc</sub> |                       |                       |                      |
| Coil Assembly Model                                    |                    | DR-60-8                                                | DR-60-16              | DR-60-24              | DR-60-48             |
| <b>Performance</b>                                     |                    |                                                        |                       |                       |                      |
| Peak Torque <sup>(2)(3)</sup>                          | Nm                 | 0.69                                                   | 1.39                  | 2.08                  | 4.18                 |
| Continuous Torque with heat sink <sup>(1)(2)</sup>     | Nm                 | 0.32                                                   | 0.64                  | 0.96                  | 1.93                 |
| Continuous Torque without heat sink <sup>(2)(3)</sup>  | Nm                 | 0.14                                                   | 0.27                  | 0.40                  | 0.80                 |
| Maximum Power with heat sink <sup>(1)(2)</sup>         | W                  | 100.5                                                  | 120.9                 | 154.9                 | 263.6                |
| Continuous Power with heat sink <sup>(1)(2)</sup>      | W                  | 41.3                                                   | 49.7                  | 63.7                  | 108.4                |
| Continuous Power without heat sink <sup>(2)(3)</sup>   | W                  | 7.0                                                    | 8.4                   | 10.8                  | 18.3                 |
| Maximum speed @DC 48V                                  | rpm                | 10116                                                  | 6347                  | 3408                  | 1686                 |
| <b>Mechanical</b>                                      |                    |                                                        |                       |                       |                      |
| Stator OD                                              | mm                 | 60.03                                                  |                       |                       |                      |
| Rotor ID                                               | mm                 | 23                                                     |                       |                       |                      |
| Lamination Stack Height                                | mm                 | 8                                                      | 16                    | 24                    | 48                   |
| Rotor Inertia                                          | kg·m <sup>2</sup>  | 2.52×10 <sup>-6</sup>                                  | 5.67×10 <sup>-6</sup> | 1.03×10 <sup>-5</sup> | 4.1×10 <sup>-5</sup> |
| Stator Mass                                            | kg                 | 0.15                                                   | 0.25                  | 0.36                  | 0.68                 |
| Rotor Mass                                             | kg                 | 0.02                                                   | 0.05                  | 0.07                  | 0.14                 |
| Total Mass                                             | kg                 | 0.17                                                   | 0.30                  | 0.43                  | 0.81                 |
| <b>Electrical</b>                                      |                    |                                                        |                       |                       |                      |
| Peak Current <sup>(2)(3)</sup>                         | A <sub>pk</sub>    | 22.5                                                   | 22.5                  | 22.5                  | 22.5                 |
| Continuous Current with heat sink <sup>(1)(2)</sup>    | A <sub>pk</sub>    | 9                                                      | 9                     | 9                     | 9                    |
| Continuous Current without heat sink <sup>(2)(3)</sup> | A <sub>pk</sub>    | 3.7                                                    | 3.7                   | 3.7                   | 3.7                  |
| Max. current (Linear range) <sup>(2)</sup>             | A <sub>pk</sub>    | 15                                                     | 15                    | 15                    | 15                   |
| Motor Torque constant                                  | Nm/A <sub>pk</sub> | 0.036                                                  | 0.072                 | 0.108                 | 0.217                |
| Back EMF constant <sup>(2)</sup>                       | V/rad/s            | 0.045                                                  | 0.090                 | 0.135                 | 0.271                |
| Resistance                                             | Ω                  | 0.51                                                   | 0.61                  | 0.79                  | 1.34                 |
| Inductance                                             | mH                 | 0.90                                                   | 1.42                  | 1.94                  | 3.55                 |
| Time constant <sup>(2)</sup>                           | ms                 | 1.8                                                    | 2.3                   | 2.5                   | 2.7                  |
| Thermal Resistance without heat sink <sup>(2)(3)</sup> | °C/W               | 10.50                                                  | 9.10                  | 7.10                  | 4.20                 |
| Thermal Resistance with heat sink <sup>(1)(2)</sup>    | °C/W               | 1.90                                                   | 1.60                  | 1.20                  | 0.72                 |
| Motor Constant <sup>(2)</sup>                          | N/√W               | 0.05                                                   | 0.09                  | 0.12                  | 0.19                 |
| Magnet poles                                           | N                  | 8                                                      |                       |                       |                      |
| Ph-PE dielectric strength                              |                    | ≥ 500V(AC)                                             |                       |                       |                      |
| Ph-PE insulation Resistance                            |                    | ≥ 600V(DC)                                             |                       |                       |                      |

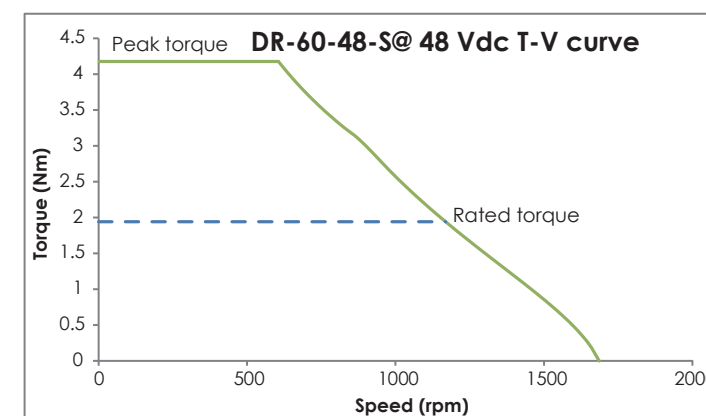
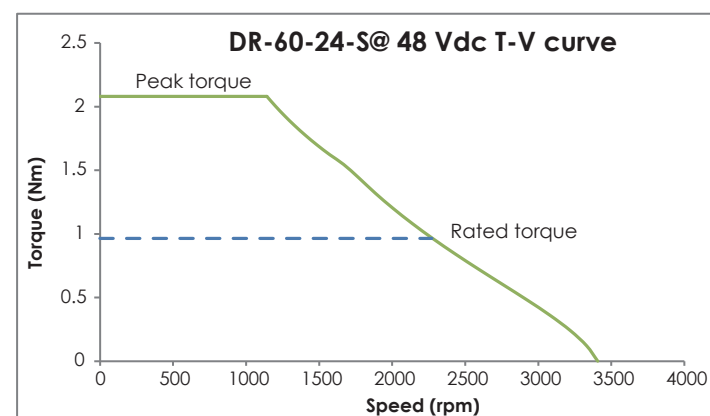
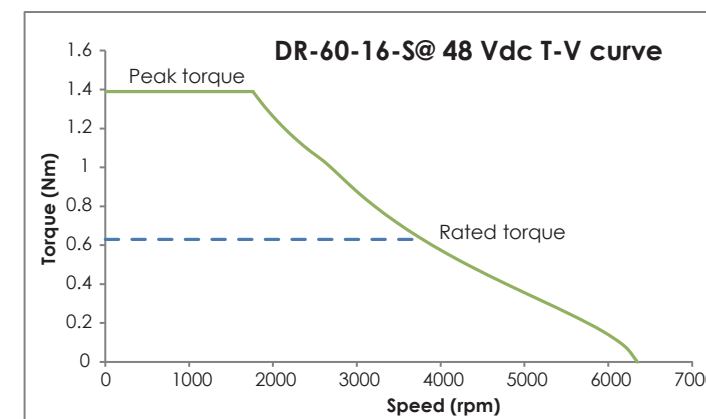
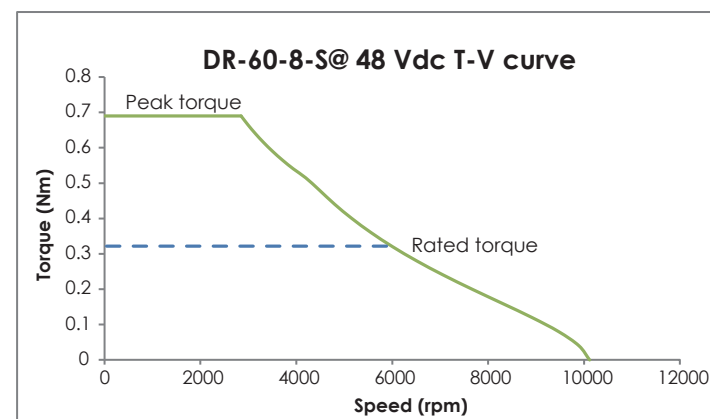
(1) This value applies to the static sinusoidal drive under specific heat sink and temperature ranges from 25°C up to 110°C. The actual performance is dependent on the heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance levels for the total performance and electrical specification is ±10%

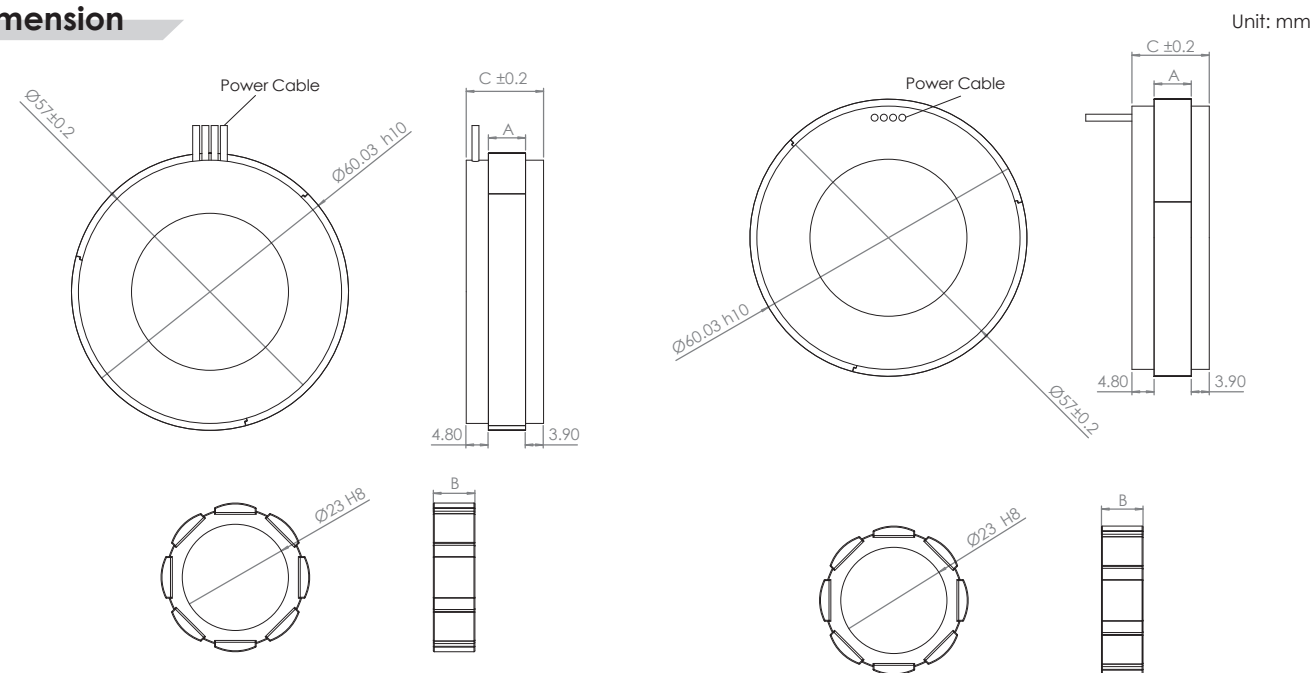
(3) This value applies to static sinusoidal drive operating under temperatures from 25°C up to 110°C, without a heat sink.

(4) The above "without heat sink" figure assumes a working condition of 1 atm, 25°C ambient temperature, in which the linear motor is stationary and not in contact with any other objects, relying only on free air convection for cooling. As all heat conductive objects in direct contact with the motor, including the plate, bearing and housing, can be considered a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

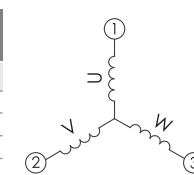
## Torque / Speed Curve (@DC 48V)



## Dimension

OUTPUT CABLE  
(All cable standard length is 400 mm)

| Motor Wire Table |                |                      |
|------------------|----------------|----------------------|
| Pin Number       | Function       | Cross section        |
| White            | U phase        | 0.32 mm <sup>2</sup> |
| Yellow           | V phase        | 0.32 mm <sup>2</sup> |
| Brown            | W phase        | 0.32 mm <sup>2</sup> |
| Green            | PE + shielding | 0.32 mm <sup>2</sup> |



## DIMENSIONS

| Type     | A  | B    | C    |
|----------|----|------|------|
| DR-60-8  | 8  | 8.6  | 16.8 |
| DR-60-16 | 16 | 16.6 | 28.8 |
| DR-60-24 | 24 | 24.6 | 32.9 |
| DR-60-48 | 48 | 48.6 | 57   |



## DR-105

|                                                         |                    |                                                                                   |        |                      |        |                      |        |                      |        |                      |        |                      |        |
|---------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|--------|----------------------|--------|----------------------|--------|----------------------|--------|----------------------|--------|----------------------|--------|
|                                                         | Unit               | cpc                                                                               |        |                      |        |                      |        |                      |        |                      |        |                      |        |
|                                                         |                    | 3-phase synchronous frameless Torque.230V <sub>ac rms</sub> (325V <sub>dc</sub> ) |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Coil Assembly Model                                     |                    | DR-105-8                                                                          |        | DR-105-16            |        | DR-105-24            |        | DR-105-32            |        | DR-105-48            |        | DR-105-80            |        |
| Winding code                                            |                    | S                                                                                 | F      | S                    | F      | S                    | F      | S                    | F      | S                    | F      | S                    | F      |
| Performance                                             |                    |                                                                                   |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Peak Torque <sup>(2)(3)</sup>                           | Nm                 | 5.5                                                                               |        | 11.0                 |        | 16.4                 |        | 21.9                 |        | 32.3                 |        | 52.7                 |        |
| Contionuous Torque with heat sink <sup>(1)(2)</sup>     | Nm                 | 2.2                                                                               |        | 4.6                  |        | 6.9                  |        | 9.0                  |        | 13.6                 |        | 22.2                 |        |
| Contionuous Torque without heat sink <sup>(2)(3)</sup>  | Nm                 | 1.1                                                                               |        | 2.2                  |        | 3.3                  |        | 4.2                  |        | 6.3                  |        | 10.1                 |        |
| Maximum Power with heat sink <sup>(1)(2)</sup>          | W                  | 455.2                                                                             |        | 601.5                |        | 747.8                |        | 894.1                |        | 1140.6               |        | 1635.7               |        |
| Contionuous Power with heat sink <sup>(1)(2)</sup>      | W                  | 72.8                                                                              |        | 96.2                 |        | 119.6                |        | 143.1                |        | 182.5                |        | 261.7                |        |
| Contionuous Power without heat sink <sup>(2)(3)</sup>   | W                  | 18.9                                                                              |        | 25.0                 |        | 31.1                 |        | 34.4                 |        | 45.6                 |        | 62.8                 |        |
| Maximum speed AC 230V@DC 325V                           | rpm                | 6270                                                                              | 2070   | 3135                 | 1040   | 2090                 | 692    | 1556                 | 518    | 1040                 | 346    | 625                  | 207    |
| Maximum speed AC 420V@DC 600V                           | rpm                | 11576                                                                             | 3822   | 5788                 | 1920   | 3668                 | 1278   | 2874                 | 956    | 1920                 | 638    | 1154                 | 383    |
| Mechanical                                              |                    |                                                                                   |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Stator OD                                               | mm                 | 105.01                                                                            |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Rotor ID                                                | mm                 | 56                                                                                |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Lamination Stack Height                                 | mm                 | 8                                                                                 |        | 16                   |        | 24                   |        | 32                   |        | 48                   |        | 80                   |        |
| Rotor Inertia                                           | kg*m <sup>2</sup>  | 5.8*10 <sup>-5</sup>                                                              |        | 1.2*10 <sup>-4</sup> |        | 1.7*10 <sup>-4</sup> |        | 2.3*10 <sup>-4</sup> |        | 3.5*10 <sup>-4</sup> |        | 5.8*10 <sup>-4</sup> |        |
| Stator Mass                                             | kg                 | 0.51                                                                              |        | 0.92                 |        | 1.42                 |        | 1.93                 |        | 2.95                 |        | 4.98                 |        |
| Rotor Mass                                              | kg                 | 0.06                                                                              |        | 0.12                 |        | 0.19                 |        | 0.25                 |        | 0.37                 |        | 0.62                 |        |
| Total Mass                                              | kg                 | 0.57                                                                              |        | 1.04                 |        | 1.61                 |        | 2.18                 |        | 3.32                 |        | 5.6                  |        |
| Electrical                                              |                    |                                                                                   |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Peak Current <sup>(2)(3)</sup>                          | A <sub>pk</sub>    | 12.8                                                                              | 4.3    | 12.8                 | 4.3    | 12.8                 | 4.3    | 12.8                 | 4.0    | 12.5                 | 4.0    | 12.3                 | 3.8    |
| Contionuous Current with heat sink <sup>(1)(2)</sup>    | A <sub>pk</sub>    | 5.1                                                                               | 1.7    | 5.1                  | 1.7    | 5.1                  | 1.7    | 5.1                  | 1.6    | 5.0                  | 1.6    | 4.9                  | 1.5    |
| Contionuous Current without heat sink <sup>(2)(3)</sup> | A <sub>pk</sub>    | 2.6                                                                               | 0.8    | 2.6                  | 0.8    | 2.6                  | 0.8    | 2.5                  | 0.7    | 2.5                  | 0.7    | 2.4                  | 0.6    |
| Max. current (Linear range) <sup>(2)</sup>              | A <sub>pk</sub>    | 5.5                                                                               | 1.9    | 5.5                  | 1.9    | 5.5                  | 1.9    | 5.5                  | 1.9    | 5.4                  | 1.8    | 5.4                  | 1.8    |
| Motor Torque constant                                   | Nm/A <sub>pk</sub> | 0.43                                                                              | 1.30   | 0.86                 | 2.60   | 1.29                 | 3.90   | 1.72                 | 5.20   | 2.58                 | 7.81   | 4.30                 | 13.01  |
| Back EMF constant <sup>(2)</sup>                        | V/rad/s            | 0.50                                                                              | 1.50   | 0.99                 | 2.99   | 1.49                 | 4.49   | 1.99                 | 5.99   | 2.98                 | 8.98   | 4.97                 | 14.97  |
| Resistance                                              | Ω                  | 2.8                                                                               | 24.8   | 3.7                  | 32.2   | 4.6                  | 39.6   | 5.5                  | 47     | 7.3                  | 61.8   | 10.9                 | 91.4   |
| Inductance                                              | mH                 | 16.50                                                                             | 132.50 | 29.20                | 229.30 | 41.90                | 326.10 | 54.60                | 422.90 | 80.00                | 616.50 | 130.80               | 1003.7 |
| Time constant <sup>(2)</sup>                            | ms                 | 5.9                                                                               | 5.3    | 7.9                  | 7.1    | 9.1                  | 8.2    | 9.9                  | 9.0    | 11.0                 | 10.0   | 12.0                 | 11.0   |
| Thermal Resistance without heat sink <sup>(2)(3)</sup>  | °C/W               | 1.19                                                                              |        | 0.83                 |        | 0.67                 |        | 0.59                 |        | 0.44                 |        | 0.31                 |        |
| Thermal Resistance with heat sink <sup>(1)(2)</sup>     | °C/W               | 4.80                                                                              |        | 3.66                 |        | 2.96                 |        | 2.72                 |        | 2.07                 |        | 1.50                 |        |
| Motor Constant <sup>(2)</sup>                           | N/√W               | 0.26                                                                              |        | 0.45                 |        | 0.60                 |        | 0.73                 |        | 0.95                 |        | 1.30                 |        |
| Magnet poles                                            | (N 2τ)             | 20                                                                                |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Ph-PE dielectric strength                               |                    | ≥1.5KV(AC)                                                                        |        |                      |        |                      |        |                      |        |                      |        |                      |        |
| Ph-PE insulation Resistance                             |                    | ≥ 600V(DC)                                                                        |        |                      |        |                      |        |                      |        |                      |        |                      |        |

(1) This value applies to the static sinusoidal drive under specific heat sink and temperature ranges from 25°C up to 110°C. The actual performance is dependent on the heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance levels for the total performance and electrical specification is ±10%

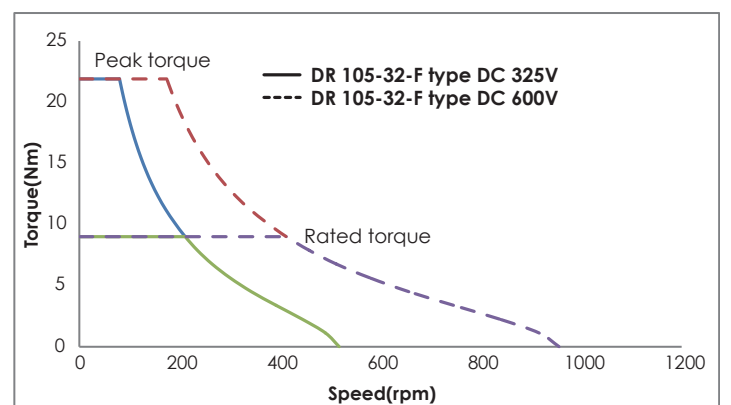
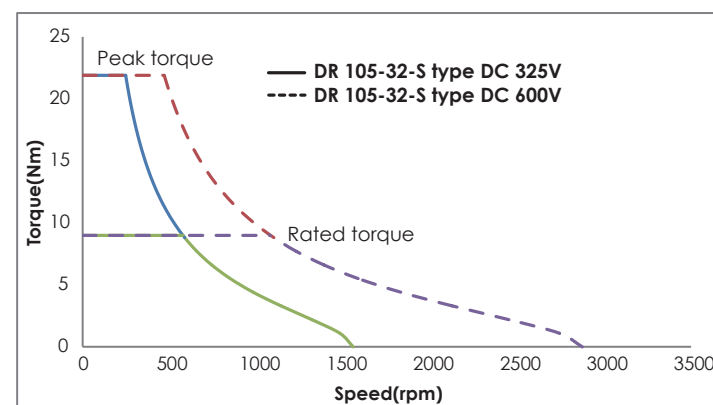
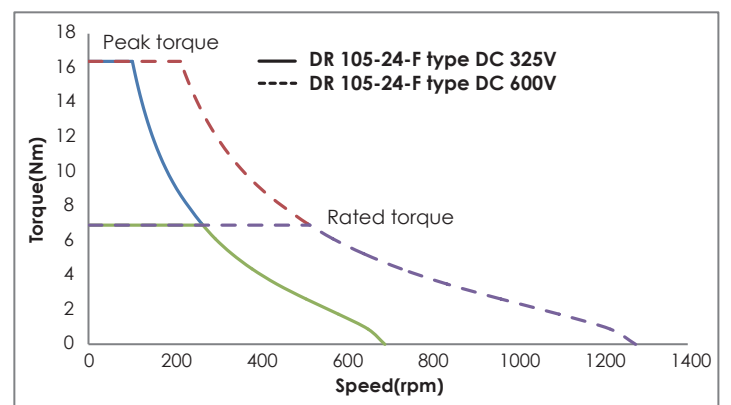
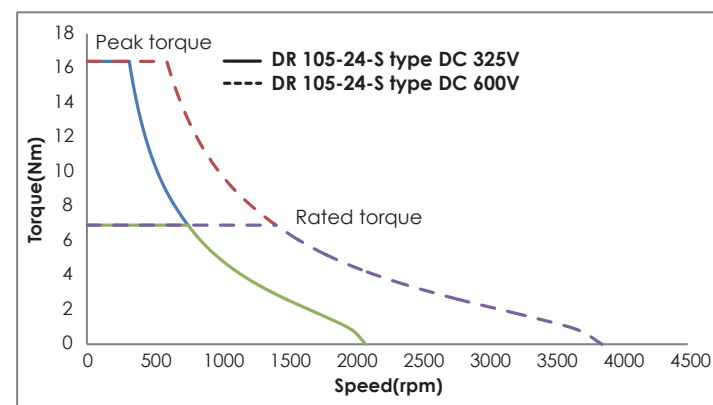
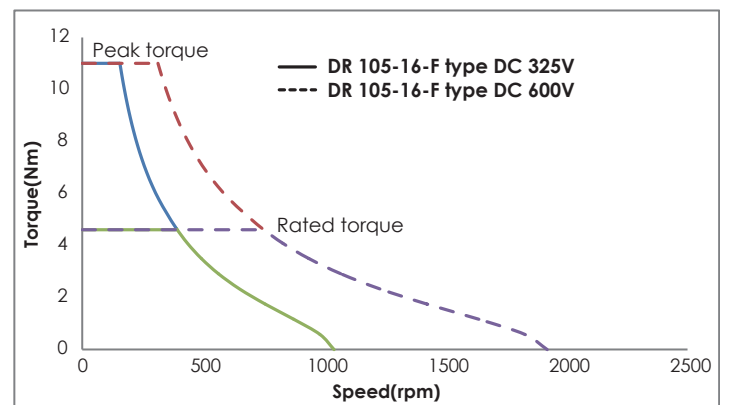
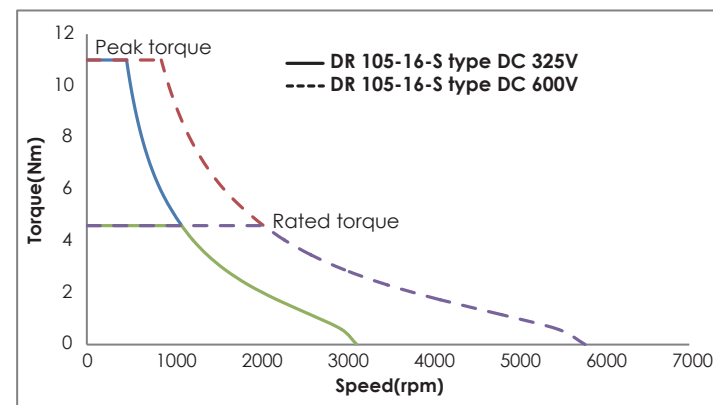
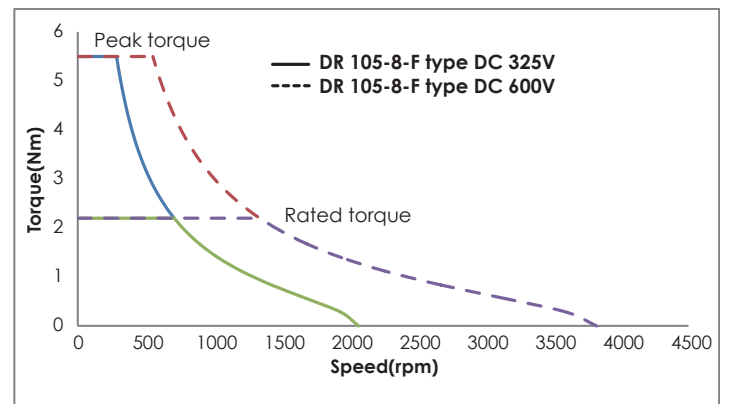
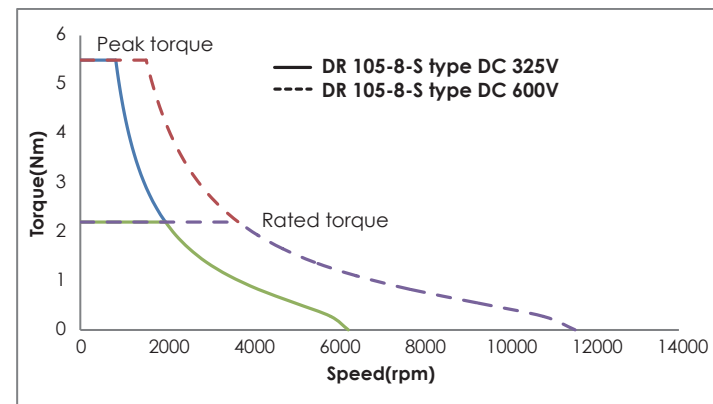
(3) This value applies to static sinusoidal drive operating under temperatures from 25°C up to 110°C, without a heat sink.

(4) The above "without heat sink" figure assumes a working condition of 1 atm, 25°C ambient temperature, in which the linear motor is stationary and not in contact with any other objects, relying only on free air convection for cooling. As all heat conductive objects in direct contact with the motor, including the plate, bearing and housing, can be considered a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

## Torque / Speed Curve

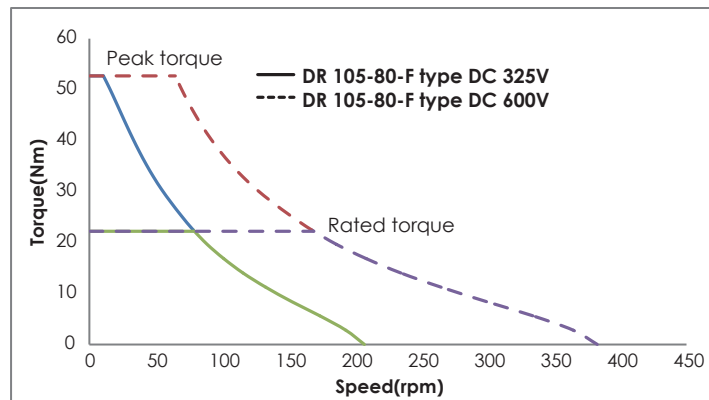
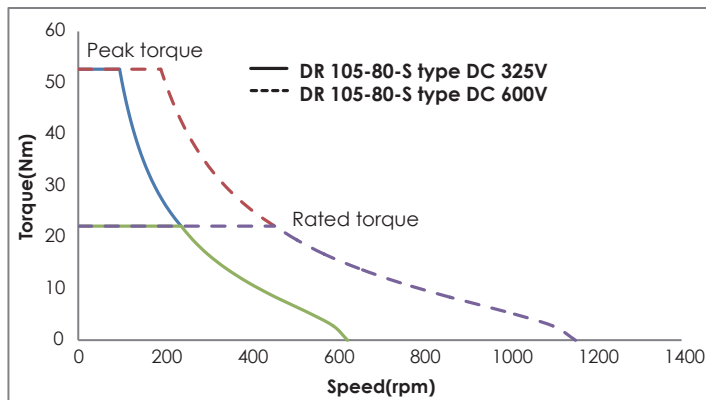
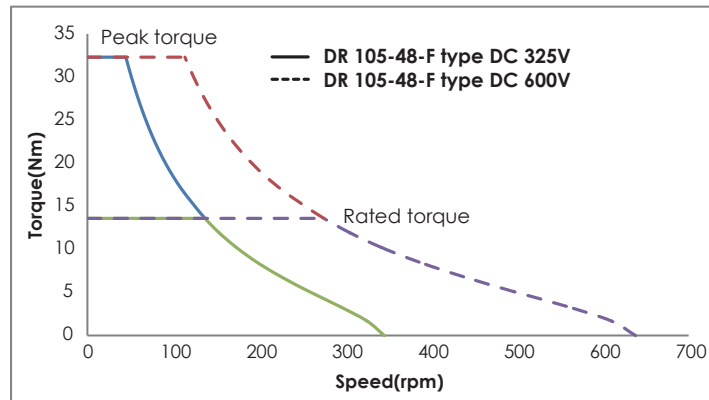
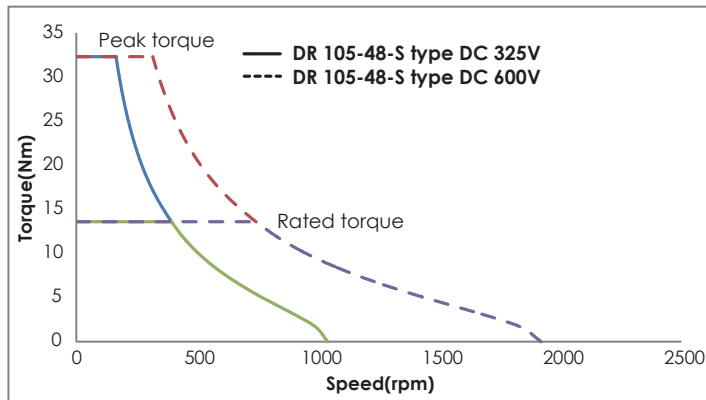
(AC 230V@DC 325V)

(AC 420V@DC 600V)

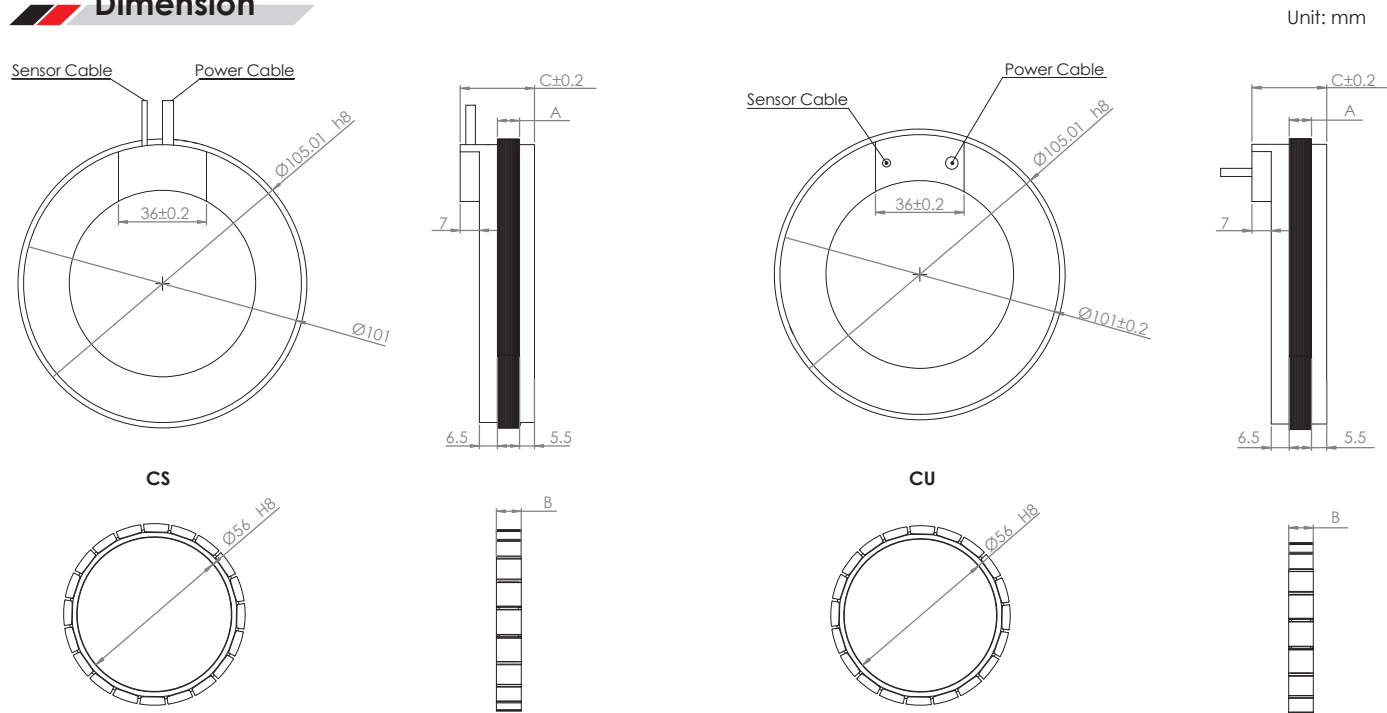




## Torque / Speed Curve (AC 230V@DC 325V) (AC 420V@DC 600V)



## Dimension

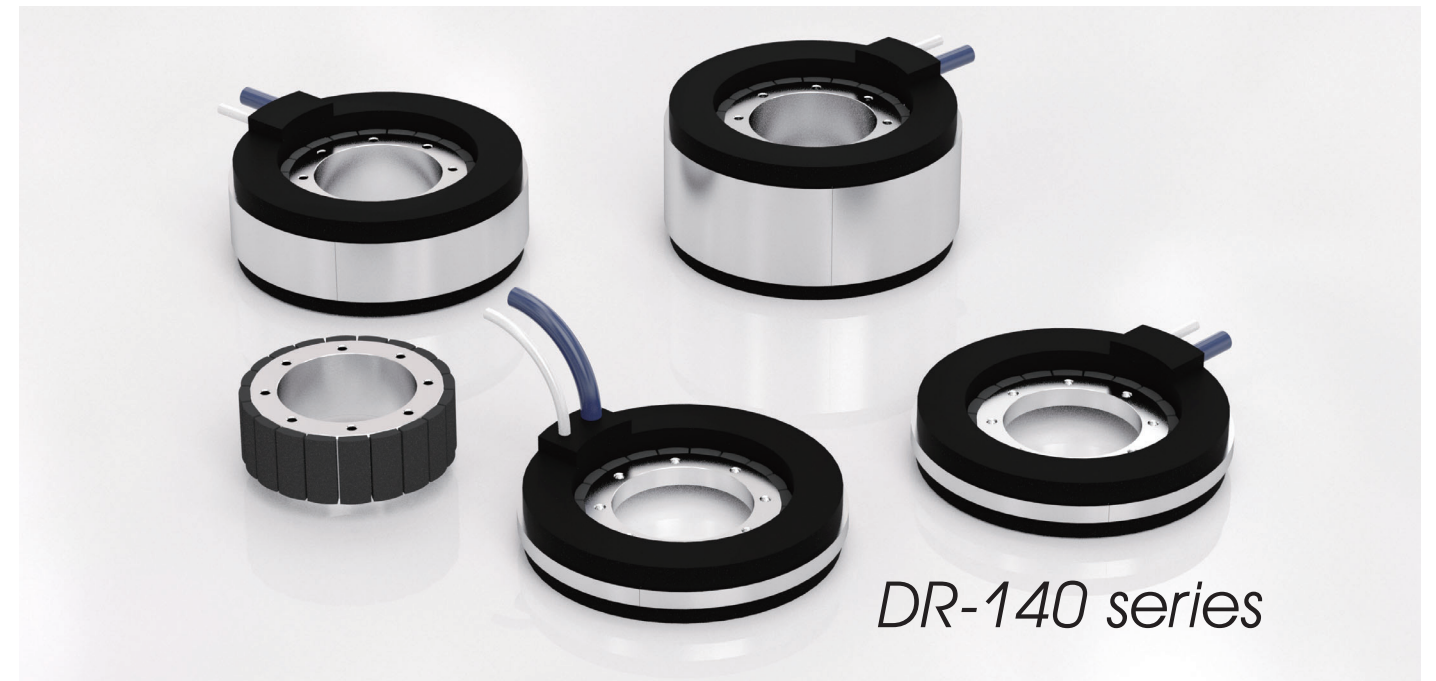
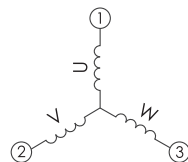


OUTPUT CABLE (All cable standard length is 400 mm)

| Motor Wire Table |                |                     | Hall Sensor Wire Table and Thermal Protection Wire Table |                |                      |       |                |                      |
|------------------|----------------|---------------------|----------------------------------------------------------|----------------|----------------------|-------|----------------|----------------------|
| Pin Number       | Function       | Cross section       | Color                                                    | Function       | Cable Dia.           | Color | Function       | Cable Dia.           |
| White            | U phase        | 0.5 mm <sup>2</sup> | Pink                                                     | Hall A U phase | 0.14 mm <sup>2</sup> | Brown | Thermal sensor | 0.14 mm <sup>2</sup> |
| Yellow           | V phase        | 0.5 mm <sup>2</sup> | Yellow                                                   | Hall B V phase | 0.14 mm <sup>2</sup> | Blue  |                |                      |
| Brown            | W phase        | 0.5 mm <sup>2</sup> | Green                                                    | Hall C W phase | 0.14 mm <sup>2</sup> |       | Shielding      |                      |
| Green            | PE + shielding | 0.5 mm <sup>2</sup> | Grey                                                     | Hall IC + 5V   | 0.14 mm <sup>2</sup> |       |                |                      |
|                  |                |                     | White                                                    | GND            | 0.14 mm <sup>2</sup> |       |                |                      |

DIMENSIONS

| Type      | A  | B  | C  |
|-----------|----|----|----|
| DR-105-8  | 8  | 9  | 27 |
| DR-105-16 | 16 | 17 | 35 |
| DR-105-24 | 24 | 25 | 43 |
| DR-105-34 | 32 | 33 | 51 |
| DR-105-48 | 48 | 49 | 67 |
| DR-105-80 | 80 | 81 | 99 |



## DR-140

|                                                         |                    |                                                                                   |       |                       |       |                       |       |                       |       |                       |       |                      |       |
|---------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|-------|-----------------------|-------|-----------------------|-------|-----------------------|-------|-----------------------|-------|----------------------|-------|
|                                                         | Unit               | cpc                                                                               |       |                       |       |                       |       |                       |       |                       |       |                      |       |
|                                                         |                    | 3-phase synchronous frameless Torque.230V <sub>ac rms</sub> (325V <sub>dc</sub> ) |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Coil Assembly Model                                     |                    | DR-140-8                                                                          |       | DR-140-16             |       | DR-140-24             |       | DR-140-30             |       | DR-140-50             |       | DR-140-70            |       |
| Winding code                                            |                    | S                                                                                 | F     | S                     | F     | S                     | F     | S                     | F     | S                     | F     | S                    | F     |
| Performance                                             |                    |                                                                                   |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Peak Torque <sup>(2)(3)</sup>                           | Nm                 | 12.0                                                                              |       | 24.0                  |       | 36.0                  |       | 45.0                  |       | 79.5                  |       | 103.6                |       |
| Contionuous Torque with heat sink <sup>(1)(2)</sup>     | Nm                 | 4.8                                                                               |       | 9.6                   |       | 14.4                  |       | 18.0                  |       | 31.8                  |       | 41.4                 |       |
| Contionuous Torque without heat sink <sup>(2)(3)</sup>  | Nm                 | 2.9                                                                               |       | 5.8                   |       | 8.6                   |       | 10.8                  |       | 19.1                  |       | 24.7                 |       |
| Maximum Power with heat sink <sup>(1)(2)</sup>          | W                  | 562.5                                                                             |       | 675.0                 |       | 843.8                 |       | 900.0                 |       | 1293.8                |       | 1609.6               |       |
| Contionuous Power with heat sink <sup>(1)(2)</sup>      | W                  | 90.0                                                                              |       | 108.0                 |       | 135.0                 |       | 144.0                 |       | 207.0                 |       | 257.5                |       |
| Contionuous Power without heat sink <sup>(2)(3)</sup>   | W                  | 32.4                                                                              |       | 38.9                  |       | 48.6                  |       | 51.8                  |       | 74.5                  |       | 91.9                 |       |
| Maximum speed AC 230V@DC 325V                           | rpm                | 10000                                                                             | 3450  | 9541                  | 197   | 6650                  | 1322  | 5225                  | 1055  | 3006                  | 596   | 2286                 | 454   |
| Maximum speed AC 420V@DC 600V                           | rpm                | 10000                                                                             | 7108  | 10000                 | 3650  | 10000                 | 2441  | 9647                  | 1948  | 5550                  | 1101  | 4221                 | 839   |
| Mechanical                                              |                    |                                                                                   |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Stator OD                                               | mm                 | 140                                                                               |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Rotor ID                                                | mm                 | 60                                                                                |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Lamination Stack Height                                 | mm                 | 8                                                                                 |       | 16                    |       | 24                    |       | 30                    |       | 50                    |       | 70                   |       |
| Rotor Inertia                                           | kg*m <sup>2</sup>  | 3.99*10 <sup>-4</sup>                                                             |       | 7.55*10 <sup>-4</sup> |       | 1.11*10 <sup>-3</sup> |       | 1.38*10 <sup>-3</sup> |       | 2.27*10 <sup>-3</sup> |       | 3.2*10 <sup>-3</sup> |       |
| Stator Mass                                             | kg                 | 0.56                                                                              |       | 1.11                  |       | 1.67                  |       | 2.09                  |       | 3.48                  |       | 4.87                 |       |
| Rotor Mass                                              | kg                 | 0.26                                                                              |       | 0.5                   |       | 0.69                  |       | 0.89                  |       | 1.46                  |       | 2.04                 |       |
| Total Mass                                              | kg                 | 0.82                                                                              |       | 1.61                  |       | 2.36                  |       | 2.98                  |       | 4.94                  |       | 6.91                 |       |
| Electrical                                              |                    |                                                                                   |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Peak Current <sup>(2)(3)</sup>                          | A <sub>pk</sub>    | 75.0                                                                              | 15.3  | 75.0                  | 15.3  | 75.0                  | 15.3  | 75.0                  | 15.0  | 75.0                  | 15.0  | 74.5                 | 14.8  |
| Contionuous Current with heat sink <sup>(1)(2)</sup>    | A <sub>pk</sub>    | 30.0                                                                              | 6.1   | 30.0                  | 6.1   | 30.0                  | 6.1   | 30.0                  | 6.0   | 30.0                  | 6.0   | 29.8                 | 5.9   |
| Contionuous Current without heat sink <sup>(2)(3)</sup> | A <sub>pk</sub>    | 18.0                                                                              | 3.7   | 18.0                  | 3.7   | 18.0                  | 3.7   | 18.0                  | 3.6   | 18.0                  | 3.6   | 17.8                 | 3.5   |
| Max. current (Linear range) <sup>(2)</sup>              | A <sub>pk</sub>    | 30.0                                                                              | 6.1   | 30.0                  | 6.1   | 30.0                  | 6.1   | 30.0                  | 6.0   | 30.0                  | 6.0   | 29.8                 | 5.9   |
| Motor Torque constant                                   | Nm/A <sub>pk</sub> | 0.16                                                                              | 0.82  | 0.32                  | 1.61  | 0.48                  | 2.40  | 0.60                  | 3.00  | 1.06                  | 5.30  | 1.39                 | 6.96  |
| Back EMF constant <sup>(2)</sup>                        | V/rad/s            | 0.20                                                                              | 0.98  | 0.39                  | 1.93  | 0.58                  | 2.88  | 0.72                  | 3.60  | 1.27                  | 6.37  | 1.67                 | 8.36  |
| Resistance                                              | Ω                  | 0.10                                                                              | 2.43  | 0.12                  | 3.05  | 0.15                  | 3.66  | 0.16                  | 4.12  | 0.23                  | 5.65  | 0.29                 | 7.18  |
| Inductance                                              | mH                 | 0.43                                                                              | 10.75 | 0.86                  | 21.50 | 1.29                  | 32.20 | 1.62                  | 40.40 | 2.70                  | 67.50 | 3.74                 | 93.50 |
| Time constant <sup>(2)</sup>                            | ms                 | 4.4                                                                               |       | 7.0                   |       | 8.8                   |       | 9.8                   |       | 11.9                  |       | 13.0                 |       |
| Thermal Resistance without heat sink <sup>(2)(3)</sup>  | °C/W               | 0.94                                                                              |       | 0.75                  |       | 0.62                  |       | 0.57                  |       | 0.42                  |       | 0.34                 |       |
| Thermal Resistance with heat sink <sup>(1)(2)</sup>     | °C/W               | 2.56                                                                              |       | 2.04                  |       | 1.70                  |       | 1.59                  |       | 1.16                  |       | 0.97                 |       |
| Motor Constant <sup>(2)</sup>                           | N/√W               | 0.52                                                                              |       | 0.92                  |       | 1.25                  |       | 1.48                  |       | 2.23                  |       | 2.60                 |       |
| Magnet poles                                            | N(2τ)              | 20                                                                                |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Ph-PE dielectric strength                               |                    | ≥ 1.5KV(AC)                                                                       |       |                       |       |                       |       |                       |       |                       |       |                      |       |
| Ph-PE insulation Resistance                             |                    | ≥ 600V(DC)                                                                        |       |                       |       |                       |       |                       |       |                       |       |                      |       |

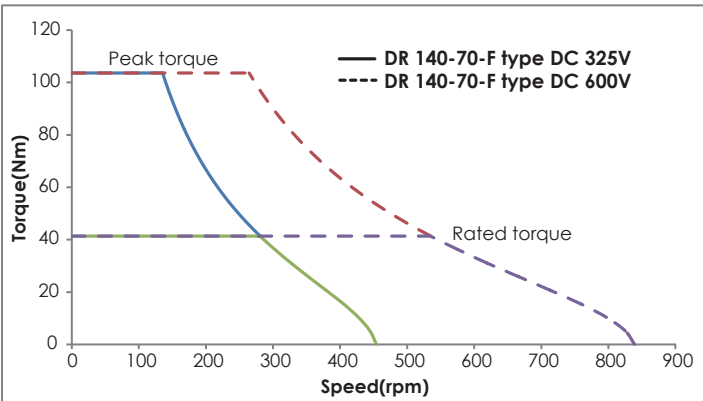
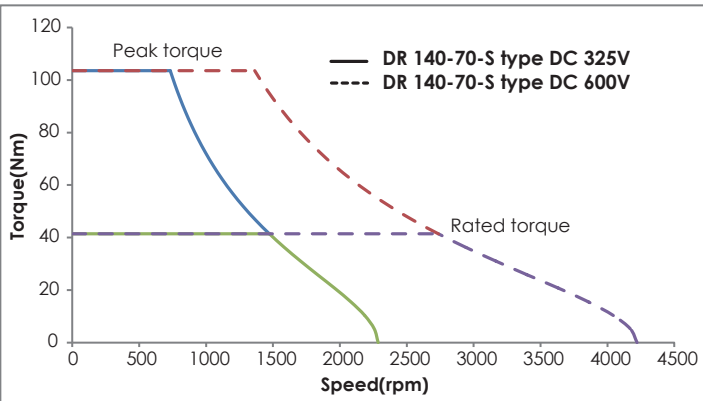
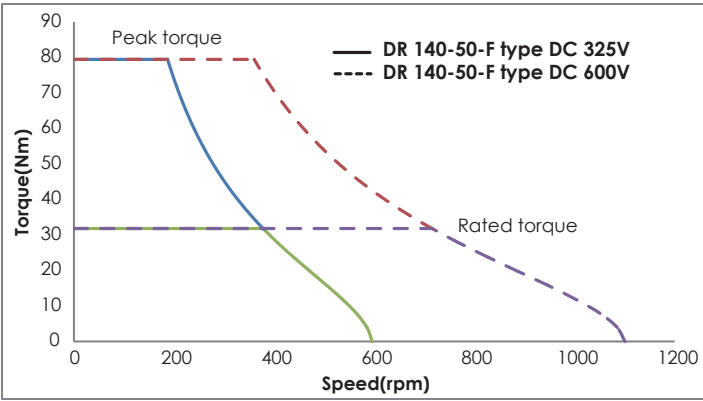
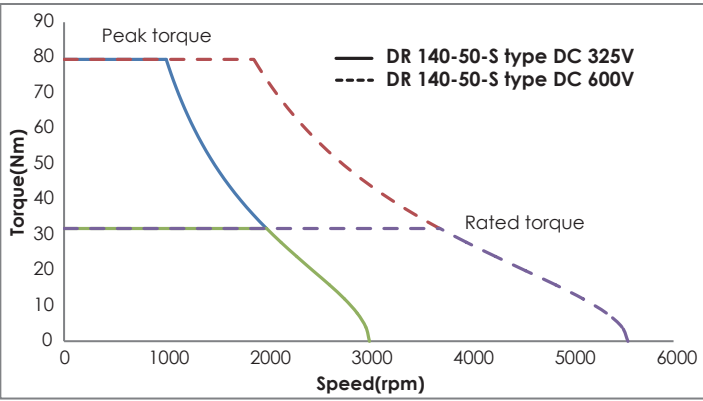
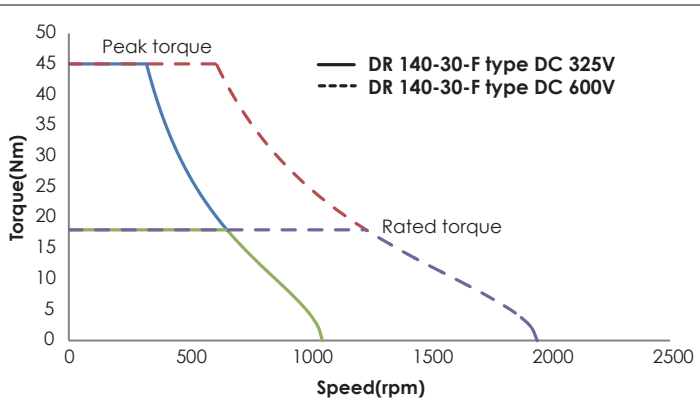
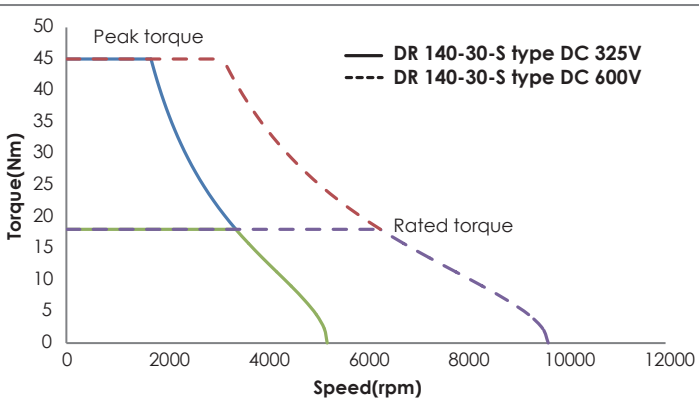
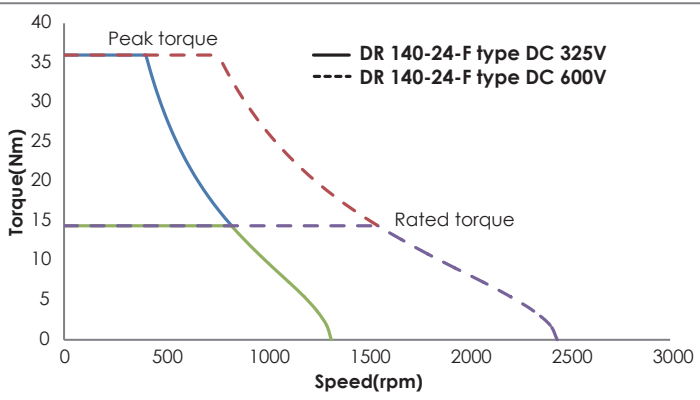
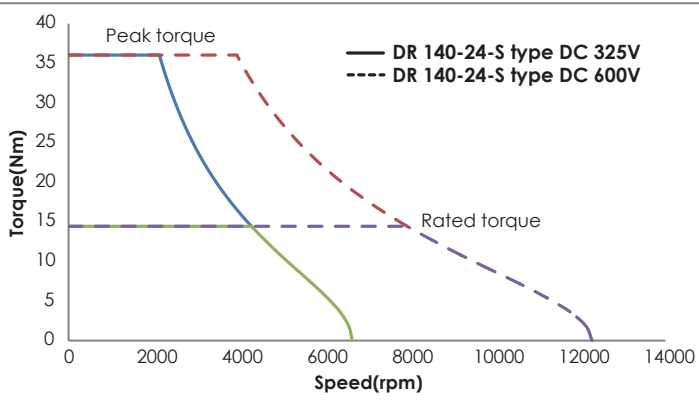
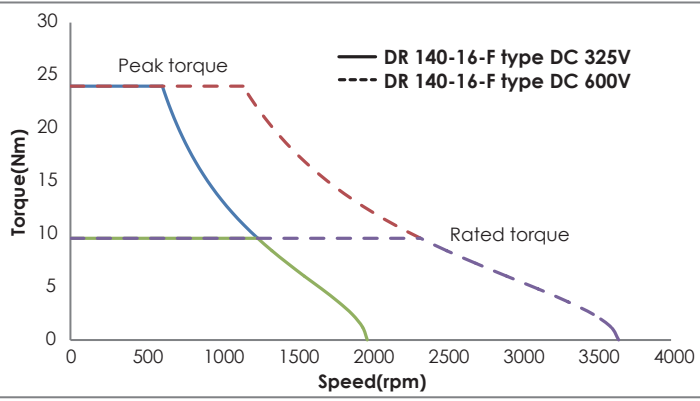
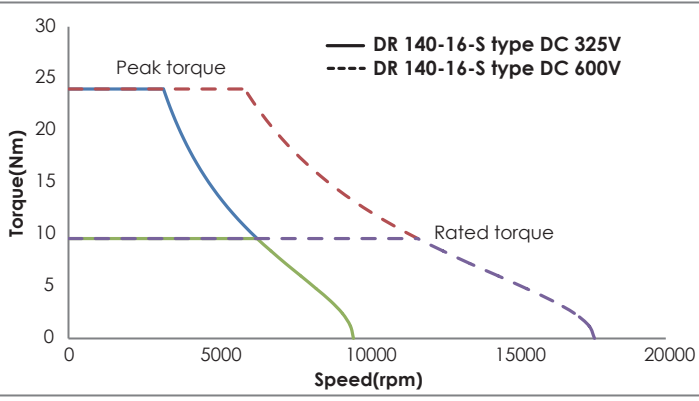
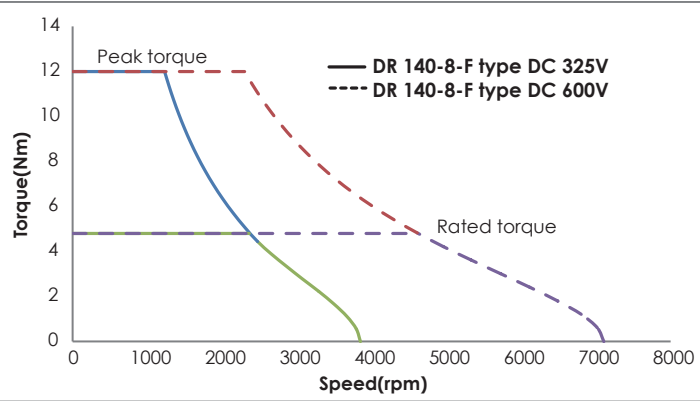
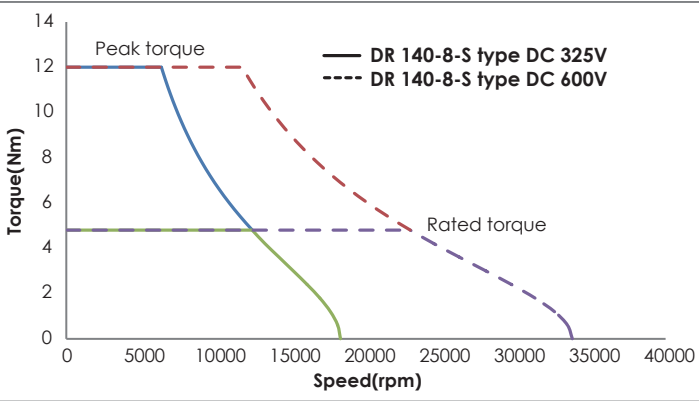
(1) This value applies to the static sinusoidal drive under specific heat sink and temperature ranges from 25°C up to 110°C. The actual performance is dependent on the heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance levels for the total performance and electrical specification is ±10%

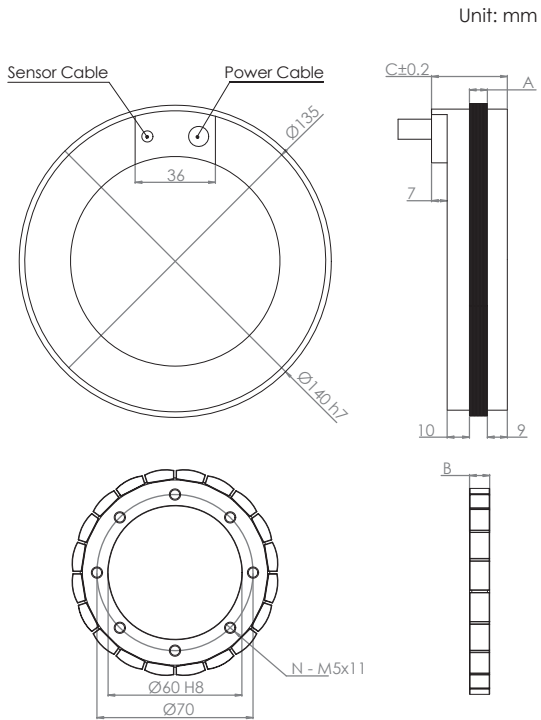
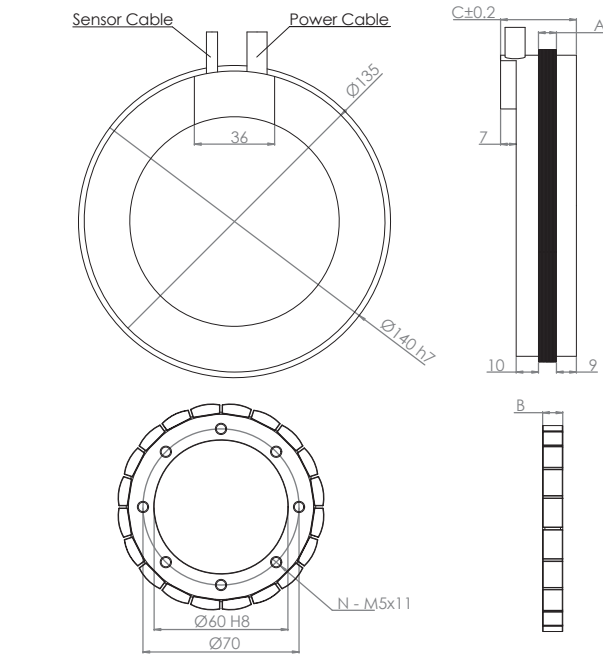
(3) This value applies to static sinusoidal drive operating under temperatures from 25°C up to 110°C, without a heat sink.

(4) The above "without heat sink" figure assumes a working condition of 1 atm, 25°C ambient temperature, in which the linear motor is stationary and not in contact with any other objects, relying only on free air convection for cooling. As all heat conductive objects in direct contact with the motor, including the plate, bearing and housing, can be considered a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

**Torque / Speed Curve** (AC 230V@DC 325V)  
(AC 420V@DC 600V)



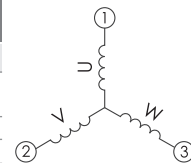
**Dimension**



Unit: mm

OUTPUT CABLE ( All cable standard length is 400 mm)

| Motor Wire Table |                |                     | Hall Sensor Wire Table and Thermal Protection Wire Table |                |                      |       |                |                      |
|------------------|----------------|---------------------|----------------------------------------------------------|----------------|----------------------|-------|----------------|----------------------|
| Pin Number       | Function       | Cross section       | Color                                                    | Function       | Cable Dia.           | Color | Function       | Cable Dia.           |
| White (1)        | U phase        | 1.5 mm <sup>2</sup> | Pink                                                     | Hall A U phase | 0.14 mm <sup>2</sup> | Brown | Thermal sensor | 0.14 mm <sup>2</sup> |
| Yellow (2)       | V phase        | 1.5 mm <sup>2</sup> | Yellow                                                   | Hall B V phase | 0.14 mm <sup>2</sup> | Blue  |                |                      |
| Brown (3)        | W phase        | 1.5 mm <sup>2</sup> | Green                                                    | Hall C W phase | 0.14 mm <sup>2</sup> |       | Shielding      |                      |
| Green            | PE + shielding | 1.5 mm <sup>2</sup> | Grey                                                     | Hall IC + 5V   | 0.14 mm <sup>2</sup> |       |                |                      |
|                  |                |                     | White                                                    | GND            | 0.14 mm <sup>2</sup> |       |                |                      |



**DIMENSIONS**

| Type      | N | A  | B  | C  |
|-----------|---|----|----|----|
| DR-140-08 | 8 | 8  | 9  | 34 |
| DR-140-16 |   | 16 | 17 | 42 |
| DR-140-24 |   | 24 | 25 | 50 |
| DR-140-30 |   | 30 | 31 | 56 |
| DR-140-50 |   | 50 | 51 | 76 |
| DR-140-70 |   | 70 | 71 | 96 |





DR-175 series

## DR-175

|                                                         |                    |                                                                                   |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
|---------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|------|-------|-----------------------|------|-------|-----------------------|-------|-------|-----------------------|-------|------|----------------------|-------|------|-----------------------|-------|------|-----------------------|-------|------|--|--|--|
|                                                         | Unit               | cpc                                                                               |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
|                                                         |                    | 3-phase synchronous frameless Torque.230V <sub>ac rms</sub> (325V <sub>dc</sub> ) |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Coil Assembly Model                                     |                    | DR-175-8                                                                          |      |       | DR-175-16             |      |       | DR-175-24             |       |       | DR-175-30             |       |      | DR-175-50            |       |      | DR-175-70             |       |      | DR-175-100            |       |      |  |  |  |
| Winding code                                            |                    | S                                                                                 | F    | D     | S                     | F    | D     | S                     | F     | D     | S                     | F     | D    | S                    | F     | D    | S                     | F     | D    | S                     | F     | D    |  |  |  |
| Performance                                             |                    |                                                                                   |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Peak Torque <sup>(2)(3)</sup>                           | Nm                 | 12.9                                                                              |      |       | 25.8                  |      |       | 38.7                  |       |       | 48.4                  |       |      | 80.6                 |       |      | 112.9                 |       |      | 161.2                 |       |      |  |  |  |
| Contionuous Torque with heat sink <sup>(1)(2)</sup>     | Nm                 | 5.37                                                                              |      |       | 10.7                  |      |       | 16.1                  |       |       | 20.1                  |       |      | 33.6                 |       |      | 47                    |       |      | 67.2                  |       |      |  |  |  |
| Contionuous Torque without heat sink <sup>(2)(3)</sup>  | Nm                 | 3.39                                                                              |      |       | 6.78                  |      |       | 10.2                  |       |       | 12.7                  |       |      | 21.2                 |       |      | 29.7                  |       |      | 42.4                  |       |      |  |  |  |
| Maximum Power with heat sink <sup>(1)(2)</sup>          | W                  | 365.2                                                                             |      |       | 493.5                 |      |       | 620.6                 |       |       | 716.5                 |       |      | 1035.4               |       |      | 1374.0                |       |      | 1832.8                |       |      |  |  |  |
| Contionuous Power with heat sink <sup>(1)(2)</sup>      | W                  | 58.4                                                                              |      |       | 79.0                  |      |       | 99.3                  |       |       | 114.6                 |       |      | 165.7                |       |      | 219.8                 |       |      | 293.3                 |       |      |  |  |  |
| Contionuous Power without heat sink <sup>(2)(3)</sup>   | W                  | 23.0                                                                              |      |       | 31.1                  |      |       | 39.1                  |       |       | 45.2                  |       |      | 65.3                 |       |      | 86.7                  |       |      | 115.6                 |       |      |  |  |  |
| Maximum speed AC 230V@DC 325V                           | rpm                | 2051                                                                              | 4064 | 10450 | 1021                  | 2051 | 5103  | 684                   | 1363  | 3429  | 549                   | 1097  | 2743 | 328                  | 657   | 1638 | 235                   | 468   | 1173 | 164                   | 328   | 819  |  |  |  |
| Maximum speed AC 420V@DC 600V                           | rpm                | 3787                                                                              | 7503 | 19294 | 1885                  | 3787 | 9423  | 1262                  | 2517  | 6331  | 1013                  | 2026  | 5065 | 605                  | 1213  | 3024 | 434                   | 864   | 2167 | 303                   | 605   | 1512 |  |  |  |
| Mechanical                                              |                    |                                                                                   |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Stator OD                                               | mm                 | 175.03                                                                            |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Rotor ID                                                | mm                 | 90                                                                                |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Lamination Stack Height                                 | mm                 | 8                                                                                 |      |       | 16                    |      |       | 24                    |       |       | 30                    |       |      | 50                   |       |      | 70                    |       |      | 100                   |       |      |  |  |  |
| Rotor Inertia                                           | kg*m <sup>2</sup>  | 1.2x10 <sup>-3</sup>                                                              |      |       | 2.32x10 <sup>-3</sup> |      |       | 3.41x10 <sup>-3</sup> |       |       | 4.23x10 <sup>-3</sup> |       |      | 7.0x10 <sup>-3</sup> |       |      | 9.77x10 <sup>-3</sup> |       |      | 1.39x10 <sup>-2</sup> |       |      |  |  |  |
| Stator Mass                                             | kg                 | 0.96                                                                              |      |       | 1.60                  |      |       | 2.24                  |       |       | 2.7                   |       |      | 4.55                 |       |      | 6.37                  |       |      | 9.10                  |       |      |  |  |  |
| Rotor Mass                                              | kg                 | 0.41                                                                              |      |       | 0.78                  |      |       | 1.14                  |       |       | 1.4                   |       |      | 2.35                 |       |      | 3.28                  |       |      | 4.68                  |       |      |  |  |  |
| Total Mass                                              | kg                 | 1.37                                                                              |      |       | 2.38                  |      |       | 3.38                  |       |       | 4.2                   |       |      | 6.9                  |       |      | 9.65                  |       |      | 13.78                 |       |      |  |  |  |
| Electrical                                              |                    |                                                                                   |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Peak Current <sup>(2)(3)</sup>                          | A <sub>pk</sub>    | 10.8                                                                              | 21.5 | 53.8  | 10.8                  | 21.5 | 53.8  | 10.8                  | 21.5  | 53.8  | 10.8                  | 21.5  | 53.8 | 10.8                 | 21.5  | 53.8 | 10.8                  | 21.5  | 53.8 | 10.8                  | 21.5  | 53.8 |  |  |  |
| Contionuous Current with heat sink <sup>(1)(2)</sup>    | A <sub>pk</sub>    | 4.3                                                                               | 8.6  | 21.5  | 4.3                   | 8.6  | 21.5  | 4.3                   | 8.6   | 21.5  | 4.3                   | 8.6   | 21.5 | 4.3                  | 8.6   | 21.5 | 4.3                   | 8.6   | 21.5 | 4.3                   | 8.6   | 21.5 |  |  |  |
| Contionuous Current without heat sink <sup>(2)(3)</sup> | A <sub>pk</sub>    | 2.7                                                                               | 5    | 14    | 2.7                   | 5    | 14    | 2.7                   | 5     | 14    | 2.7                   | 5     | 14   | 2.7                  | 5     | 14   | 2.7                   | 5     | 14   | 2.7                   | 5     | 14   |  |  |  |
| Max. current (Linear range) <sup>(2)</sup>              | A <sub>pk</sub>    | 8                                                                                 | 16   | 40    | 8                     | 16   | 40    | 8                     | 16    | 40    | 8                     | 16    | 40   | 8                    | 16    | 40   | 8                     | 16    | 40   | 8                     | 16    | 40   |  |  |  |
| Motor Torque constant                                   | Nm/A <sub>pk</sub> | 1.26                                                                              | 0.63 | 0.252 | 2.52                  | 1.26 | 0.504 | 3.77                  | 1.885 | 0.754 | 4.70                  | 2.35  | 0.94 | 7.86                 | 3.93  | 1.57 | 11.00                 | 5.50  | 2.20 | 15.72                 | 7.86  | 3.14 |  |  |  |
| Back EMF constant <sup>(2)</sup>                        | V/rad/s            | 1.52                                                                              | 0.76 | 0.30  | 3.04                  | 1.52 | 0.61  | 4.54                  | 2.27  | 0.91  | 5.66                  | 2.83  | 1.13 | 9.47                 | 4.73  | 1.89 | 13.25                 | 6.63  | 2.65 | 18.94                 | 9.47  | 3.79 |  |  |  |
| Resistance                                              | Ω                  | 3.16                                                                              | 0.79 | 0.13  | 4.27                  | 1.07 | 0.17  | 5.37                  | 1.34  | 0.21  | 6.20                  | 1.55  | 0.25 | 8.96                 | 2.24  | 0.36 | 11.89                 | 2.97  | 0.48 | 15.86                 | 3.97  | 0.63 |  |  |  |
| Inductance                                              | mH                 | 16.00                                                                             | 4.00 | 0.64  | 25.20                 | 6.30 | 1.01  | 34.50                 | 8.63  | 1.38  | 41.40                 | 10.35 | 1.66 | 64.50                | 16.13 | 2.58 | 89.62                 | 22.41 | 3.58 | 122.30                | 30.58 | 4.89 |  |  |  |
| Time constant <sup>(2)</sup>                            | ms                 | 5.1                                                                               | 5.1  | 5.1   | 5.9                   | 5.9  | 5.9   | 6.4                   | 6.4   | 6.4   | 6.7                   | 6.7   | 6.7  | 7.2                  | 7.2   | 7.2  | 7.5                   | 7.5   | 7.5  | 7.7                   | 7.7   | 7.7  |  |  |  |
| Thermal Resistance without heat sink <sup>(2)(3)</sup>  | °C/W               | 3.4                                                                               |      |       | 2.5                   |      |       | 1.98                  |       |       | 1.7                   |       |      | 1.2                  |       |      | 0.9                   |       |      | 0.68                  |       |      |  |  |  |
| Thermal Resistance with heat sink <sup>(1)(2)</sup>     | °C/W               | 1.36                                                                              |      |       | 1                     |      |       | 0.8                   |       |       | 0.68                  |       |      | 0.47                 |       |      | 0.36                  |       |      | 0.27                  |       |      |  |  |  |
| Motor Constant <sup>(2)</sup>                           | N/√W               | 0.71                                                                              |      |       | 1.22                  |      |       | 1.63                  |       |       | 1.89                  |       |      | 2.63                 |       |      | 3.19                  |       |      | 3.95                  |       |      |  |  |  |
| Magnet poles                                            | N                  | 40                                                                                |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Ph-PE dielectric strength                               |                    | ≥ 1.5KV(AC)                                                                       |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |
| Ph-PE insulation Resistance                             |                    | ≥ 600V(DC)                                                                        |      |       |                       |      |       |                       |       |       |                       |       |      |                      |       |      |                       |       |      |                       |       |      |  |  |  |

(1) This value applies to the static sinusoidal drive under specific heat sink and temperature ranges from 25°C up to 110°C. The actual performance is dependent on the heat sink configuration, system cooling condition and ambient temperature.

(2) The tolerance levels for the total performance and electrical specification is ±10%

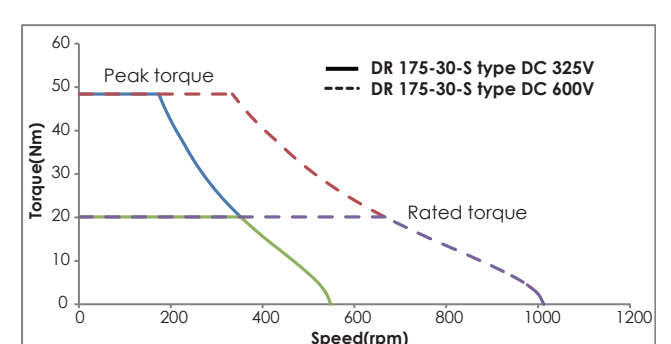
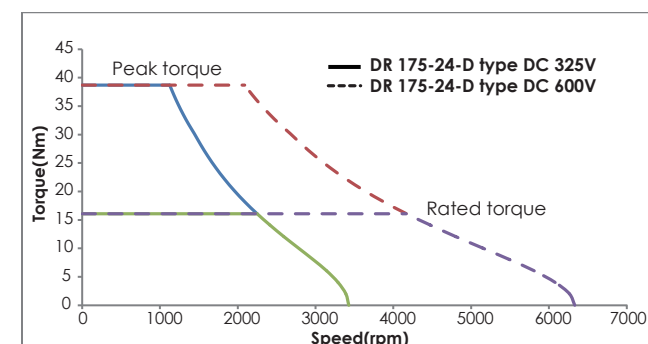
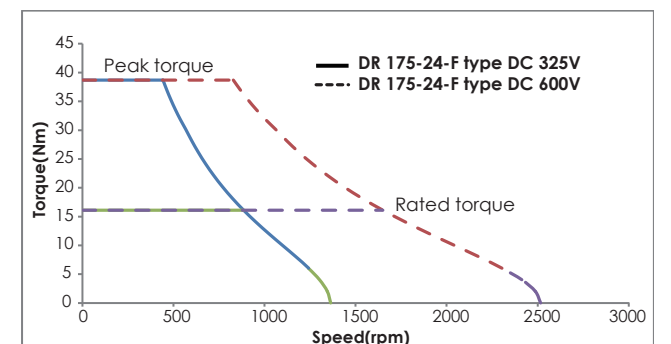
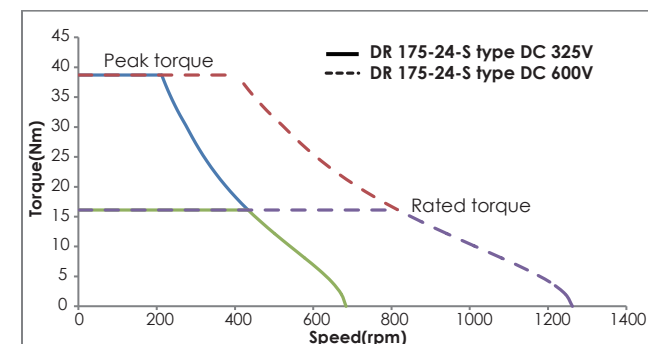
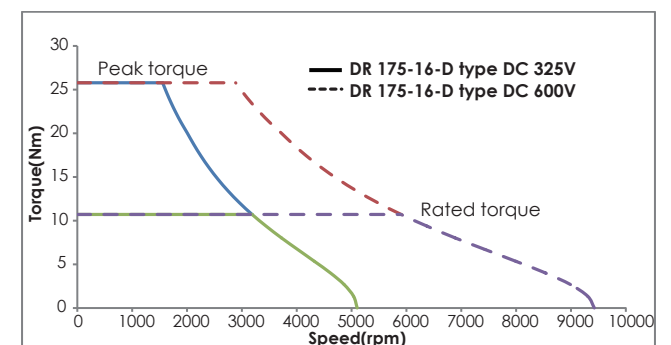
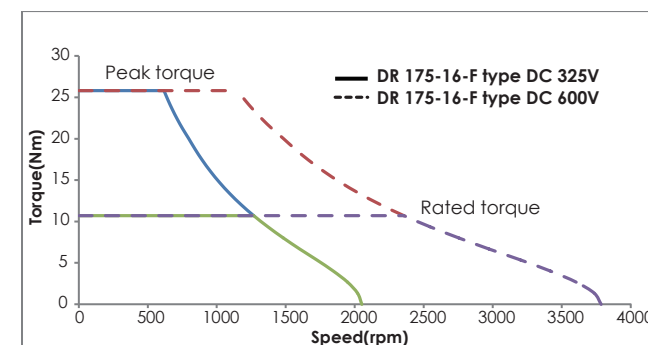
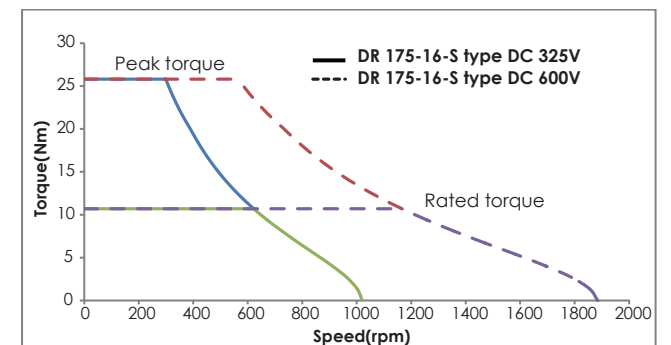
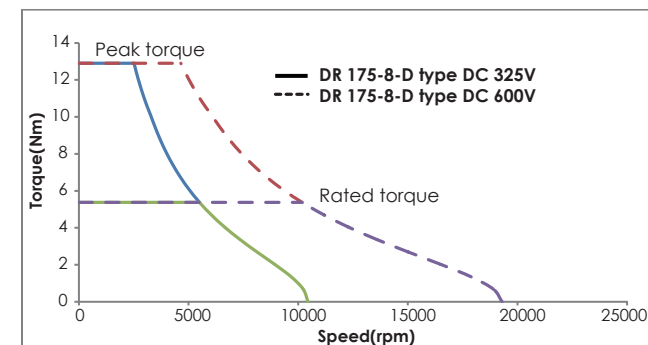
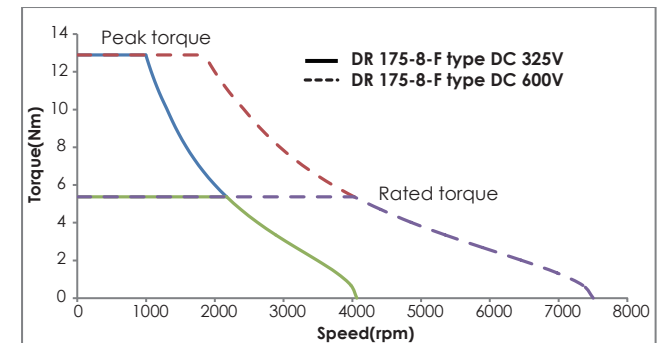
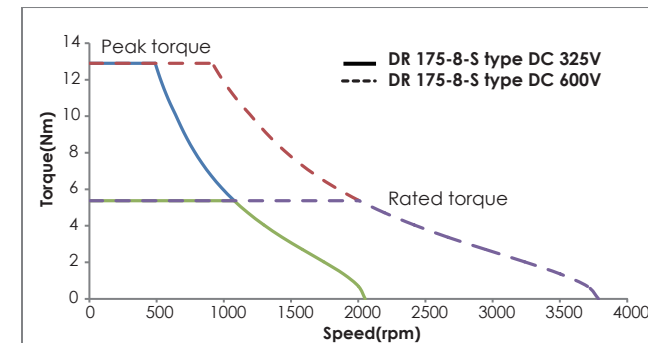
(3) This value applies to static sinusoidal drive operating under temperatures from 25°C up to 110°C, without a heat sink.

(4) The above "without heat sink" figure assumes a working condition of 1 atm, 25°C ambient temperature, in which the linear motor is stationary and not in contact with any other objects, relying only on free air convection for cooling. As all heat conductive objects in direct contact with the motor, including the plate, bearing and housing, can be considered a kind of heat sink, the "with heat sink" figure should be taken as the primary reference in actual application design.

## Torque / Speed Curve

(AC 230V@DC 325V)

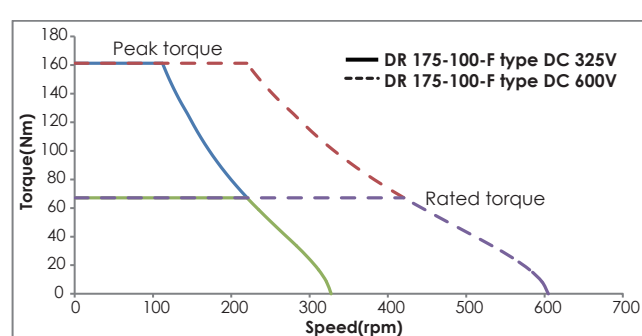
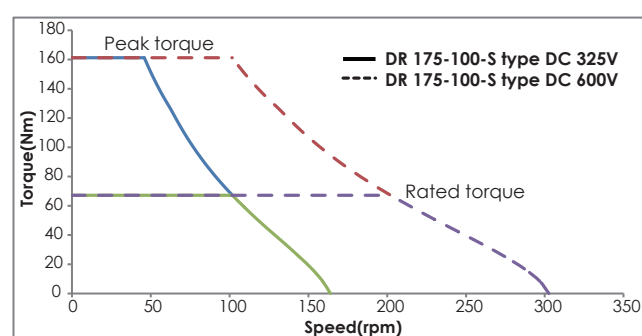
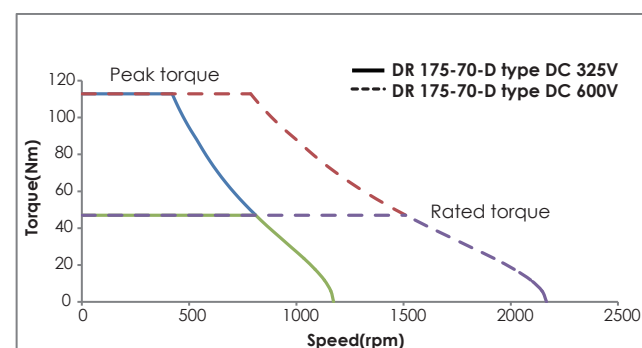
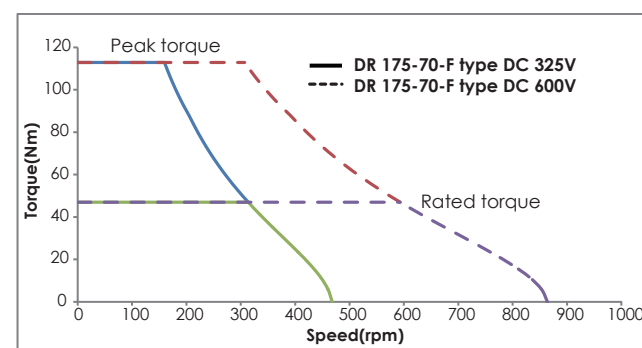
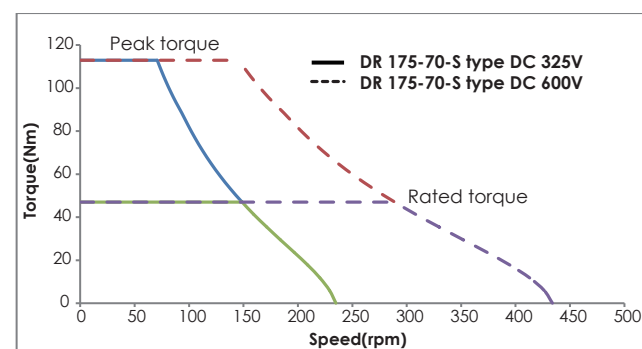
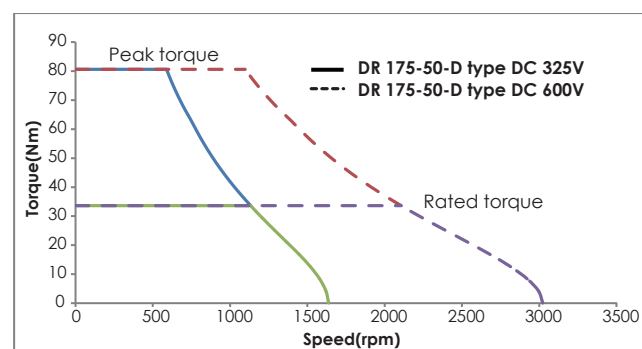
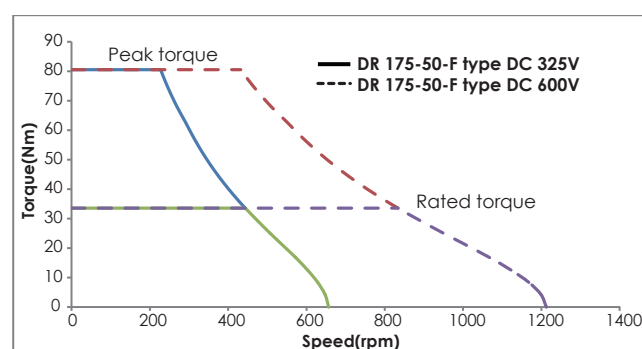
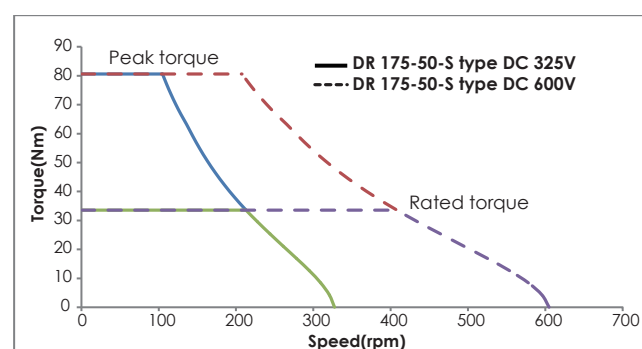
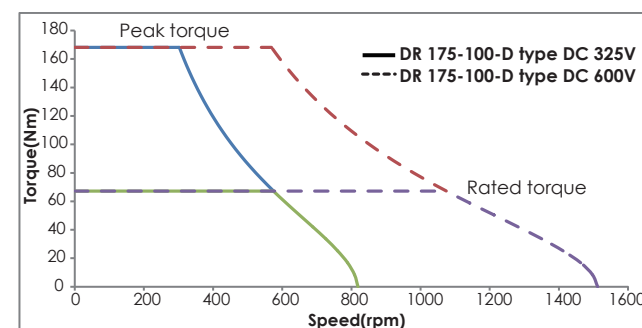
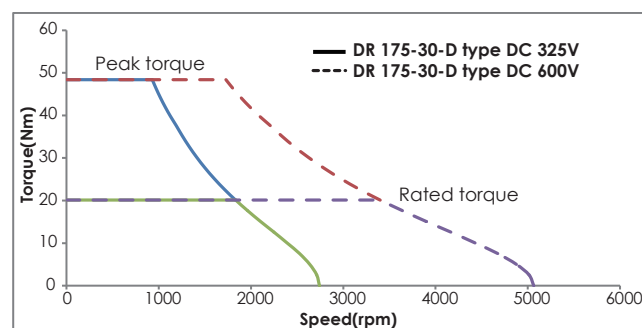
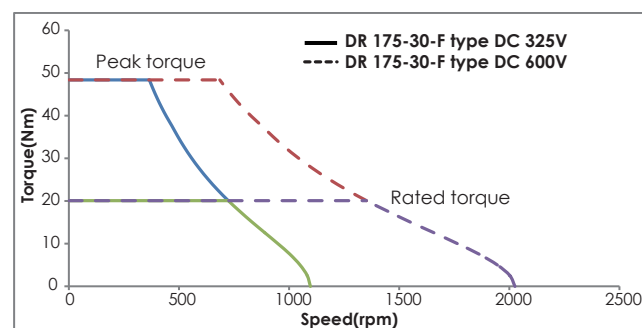
(AC 420V@DC 600V)



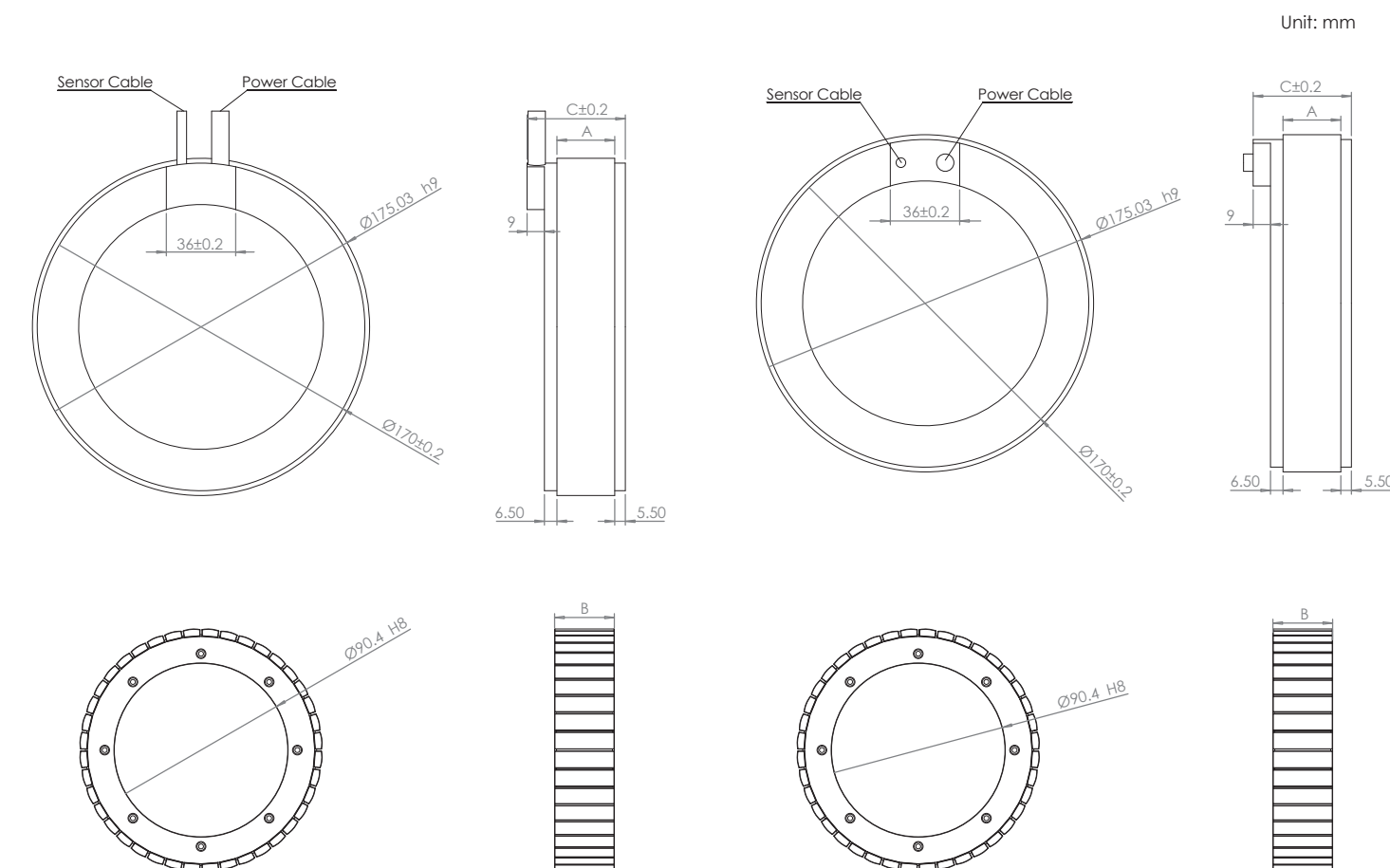


## Torque / Speed Curve

(AC 230V@DC 325V)  
(AC 420V@DC 600V)

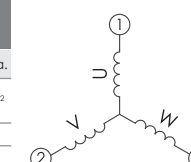


## Dimension



OUTPUT CABLE ( All cable standard length is 400 mm)

| Motor Wire Table |                |                     | Hall Sensor Wire Table and Thermal Protection Wire Table |                |                      |           |                |                      |
|------------------|----------------|---------------------|----------------------------------------------------------|----------------|----------------------|-----------|----------------|----------------------|
| Pin Number       | Function       | Cross section       | Color                                                    | Function       | Cable Dia.           | Color     | Function       | Cable Dia.           |
| White            | U phase        | 0.5 mm <sup>2</sup> | Pink                                                     | Hall A U phase | 0.14 mm <sup>2</sup> | Brown     | Thermal sensor | 0.14 mm <sup>2</sup> |
| Yellow           | V phase        | 0.5 mm <sup>2</sup> | Yellow                                                   | Hall B V phase | 0.14 mm <sup>2</sup> | Blue      |                |                      |
| Brown            | W phase        | 0.5 mm <sup>2</sup> | Green                                                    | Hall C W phase | 0.14 mm <sup>2</sup> | Shielding |                |                      |
| Green            | PE + shielding | 0.5 mm <sup>2</sup> | Grey                                                     | Hall IC + 5V   | 0.14 mm <sup>2</sup> |           |                |                      |
|                  |                |                     | White                                                    | GND            | 0.14 mm <sup>2</sup> |           |                |                      |



DIMENSIONS

| Type       | A   | B   | C   |
|------------|-----|-----|-----|
| DR-175-8   | 8   | 9   | 29  |
| DR-175-16  | 16  | 17  | 37  |
| DR-175-24  | 24  | 25  | 45  |
| DR-175-30  | 30  | 31  | 51  |
| DR-175-50  | 50  | 51  | 71  |
| DR-175-70  | 70  | 71  | 91  |
| DR-175-100 | 100 | 101 | 121 |