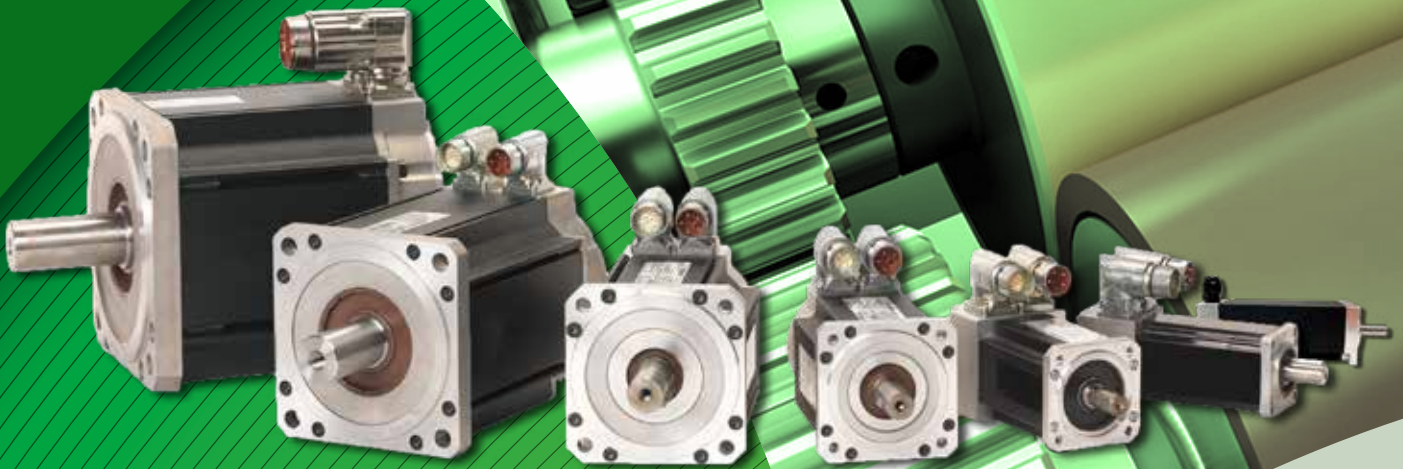


CONTROL TECHNIQUES DYNAMICS

SERVO MOTOR SERIES

UNIMOTOR HD HIGH INERTIA ADDITION



067 to 190 Frames

1.1 to 227.9 Kgcm²

200-240 / 380-480Vrms

Nidec
All for dreams

Unimotor hd - High Inertia Addition

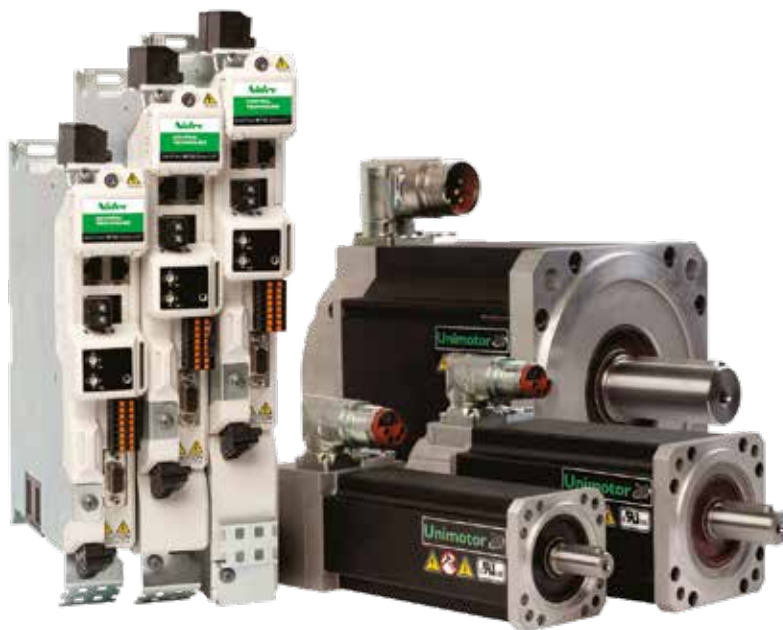
Unimotor hd is a high dynamic brushless AC servo motor range that provides a compact solution for high demanding applications.

In many instances you may need more performance across the motor inertia range, we have modified the construction of our Unimotor hd motors to do just that.

Thanks to its optimized design, the hd range provides high motion efficiency and performances with higher torque to inertia ratio.

The high inertia option motors are available in frame sizes from 067 to 190.

Unimotor hd and Digitax HD



Quick reference table

| Frame size (mm) | PCD (mm) | Stall (Nm) | | Inertia (kg.cm ²) Standard | | Inertia (kg.cm ²) High | |
|-----------------|----------|------------|------|--|-------|------------------------------------|-------|
| 067 | 075 | 1.44 | 4.72 | 0.3 | 0.94 | 1.15 | 1.96 |
| 089 | 100 | 3.2 | 10.3 | 0.87 | 3.2 | 3.2 | 6.25 |
| 115 | 130 | 5.8 | 18.8 | 2.4 | 8.38 | 7.8 | 16.6 |
| 142 | 165 | 10.1 | 38.0 | 5.6 | 27.2 | 23.4 | 56.8 |
| 190 | 215 | 51.0 | 85.0 | 22.0 | 103.5 | 89.6 | 227.9 |

Conformance and standards



Ordering information

Use the information below in the illustration to create an order code for a Unimotor hd high inertia.

| 067 | UD | B | 30 | 0 | B |
|------------|------------------------|------------------------|------------------------|-----------------------------|---|
| Frame size | Motor voltage | Stator length | Rated speed* | Brake | Connection type** |
| | 067 - 190 frame | 067 - 115 frame | 067 frame | 067 - 190 frame | Size 1 |
| 067 | ED = 220V | A to D | 30 = 3000 rpm | 0 = Not fitted (Std) | B = Power and signal 90° rotatable |
| 089 | UD = 400V | 142 frame | 60 = 6000 rpm | 067 - 142B frame | D = Single cable, power & signal combined, 90° rotatable |
| 115 | | A to E | 089 frame | 6 = Parking brake | D = Single cable, power & signal combined, 90° rotatable |
| 142 | | 190 frame | 30 = 3000 rpm | 142C - 190 frame | R = Power 8-way, Signal 90° rotatable |
| 190 | | A to F | 40 = 4000 rpm | 5 = Parking brake | R = Power 8-way, Signal 90° rotatable |
| | | | 60 = 6000 rpm | | Size 1.5 |
| | | | 115 - 142 frame | | J = Power and signal 90° rotatable |
| | | | 20 = 2000 rpm | | E = Single cable, power & signal combined, 90° rotatable |
| | | | 30 = 3000 rpm | | Z = Power 8-way, Signal 90° rotatable |
| | | | 40 = 4000 rpm | | |
| | | | 60 = 6000 rpm | | |
| | | | 190 frame | | |
| | | | 10 = 1000 rpm | | |
| | | | 15 = 1500 rpm | | |
| | | | 20 = 2000 rpm | | |
| | | | 30 = 3000 rpm | | |

*Not all speeds are available on all motors. Please refer to performance pages 6-15.

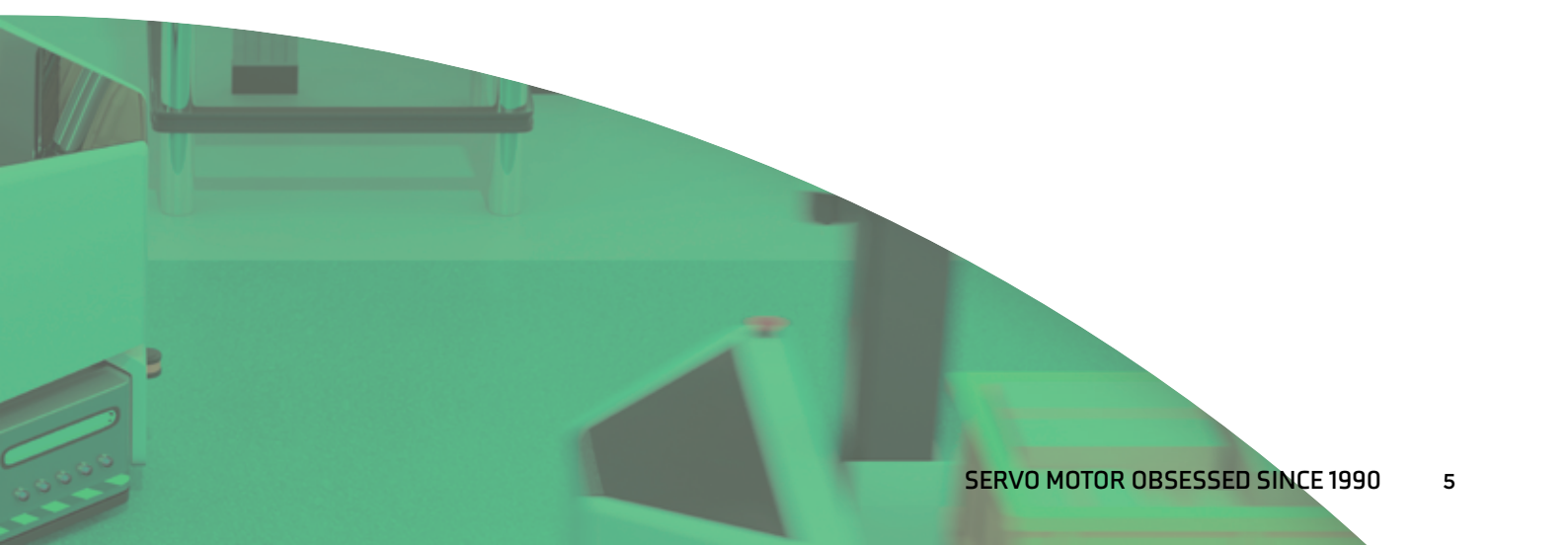
**Single cable option must be fitted with KTY thermistor and is only available with certain feedback options.

For recommended connector sizes please refer to performance pages 6-15.

Additional options are available upon request but may require a longer lead time to complete, please check with the Drive Centre.



| A | CR | | A | -SHJ |
|-----------------|---|--------------|--------------------------------|---------------------|
| Output shaft | Feedback device | | Thermistor | Inertia |
| 067 - 190 frame | 067 frame | Single Cable | 067 - 190 frame | 067 - 190 frame |
| A = Key | AR = Resolver | No | A = PTC Thermistor (DIN44082) | -SHJ = High Inertia |
| B = Plain shaft | CR = Incremental Encoder | No | C = KTY Thermistor (KTY94.130) | |
| | CT = Incremental Encoder | No | | |
| | EM = Inductive EnDat SinCos Multi-turn | No | | |
| | FM = Inductive EnDat SinCos Single-turn | No | | |
| | EG = Inductive EnDat Multi-turn | Yes | | |
| | FG = Inductive EnDat Single-turn | Yes | | |
| | 089 - 190 frame | | | |
| | AE = Resolver | No | | |
| | CA = Incremental Encoder | No | | |
| | CT = Incremental Encoder | No | | |
| | EC = Inductive EnDat SinCos Multi-turn | No | | |
| | FC = Inductive EnDat SinCos Single-turn | No | | |
| | EF = Inductive EnDat Multi-turn FS | Yes | | |
| | FF = Inductive EnDat Single-turn FS | Yes | | |
| | GB = ROHS EnDat Multi-turn Size 58 | Yes | | |
| | HB = ROHS EnDat Single-turn Size 58 | Yes | | |



Ratings

3 Phase VPWM drives 200 - 240Vrms - $\Delta t = 100^{\circ}\text{C}$ winding 40°C maximum ambient.
 All data subject to +/-10% tolerance

| Motor Frame Size (mm) | 067ED | | | | 089ED | | | | 115ED | | | |
|-------------------------------------|--|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frame length | A | B | C | D | A | B | C | D | A | B | C | D |
| Continuous stall torque (Nm) | 1.44 | 2.55 | 3.70 | 4.72 | 3.20 | 5.50 | 8.00 | 10.30 | 5.80 | 10.20 | 14.60 | 18.80 |
| Peak torque (Nm) | 4.35 | 7.65 | 11.10 | 14.16 | 9.60 | 16.50 | 24.00 | 30.90 | 17.40 | 30.60 | 43.80 | 56.40 |
| High inertia (kg cm ²) | 1.15 | 1.42 | 1.69 | 1.96 | 3.23 | 4.24 | 5.24 | 6.25 | 7.84 | 10.78 | 13.70 | 16.63 |
| Winding thermal time constant (sec) | 54 | 61 | 65 | 68 | 85 | 93 | 98 | 103 | 161 | 164 | 168 | 175 |
| High inertia motor weight (kg) | 2.94 | 3.58 | 4.25 | 4.92 | 5.06 | 6.27 | 7.49 | 8.82 | 8.24 | 10.23 | 12.23 | 14.47 |
| Number of poles | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Speed 2000 (rpm) | $K_t(\text{Nm/A}) = 1.4$ $K_e(\text{V/Krpm}) = 85.5$ | | | | | | | | | | | |
| Rated torque (Nm) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 11.9 | 15.6 |
| Stall current (A) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 10.43 | 13.43 |
| Rated power (kW) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 2.49 | 3.27 |
| R (ph-ph) (Ohms) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 0.77 | 0.61 |
| L (ph-ph) (mH) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 7.9 | 6.6 |
| Recommended power conn' size | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 1 | 1 |
| Speed 3000 (rpm) | $K_t(\text{Nm/A}) = 0.93$ $K_e(\text{V/Krpm}) = 57$ | | | | | | | | | | | |
| Rated Torque (Nm) | 1.40 | 2.45 | 3.50 | 4.60 | 3.00 | 4.85 | 6.90 | 8.50 | 4.80 | 7.70 | 10.50 | ◆ |
| Stall Current (A) | 1.55 | 2.74 | 3.98 | 5.08 | 3.44 | 5.91 | 8.60 | 11.08 | 6.24 | 10.97 | 15.70 | ◆ |
| Rated Power (kW) | 0.44 | 0.77 | 1.10 | 1.45 | 0.94 | 1.52 | 2.17 | 2.67 | 1.51 | 2.42 | 3.30 | ◆ |
| R (ph-ph) (Ohms) | 15.16 | 5.85 | 3.33 | 2.17 | 4.10 | 1.64 | 0.93 | 0.45 | 1.59 | 0.58 | 0.39 | ◆ |
| L (ph-ph) (mH) | 46.7 | 20.6 | 12.7 | 8.13 | 25.0 | 11.8 | 7.1 | 13.7 | 12.8 | 5.4 | 4.0 | ◆ |
| Recommended power conn' size | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | ◆ |
| Speed 4000 (rpm) | $K_t(\text{Nm/A}) = 0.7$ $K_e(\text{V/Krpm}) = 42.75$ | | | | | | | | | | | |
| Rated Torque (Nm) | ◆ | ◆ | ◆ | ◆ | ◆ | 4.55 | 6.35 | ◆ | ◆ | ◆ | 8.70 | ◆ |
| Stall Current (A) | ◆ | ◆ | ◆ | ◆ | ◆ | 7.86 | 11.43 | ◆ | ◆ | ◆ | 20.86 | ◆ |
| Rated Power (kW) | ◆ | ◆ | ◆ | ◆ | ◆ | 1.91 | 2.66 | ◆ | ◆ | ◆ | 3.64 | ◆ |
| R (ph-ph) (Ohms) | ◆ | ◆ | ◆ | ◆ | ◆ | 0.82 | 0.56 | ◆ | ◆ | ◆ | 0.12 | ◆ |
| L (ph-ph) (mH) | ◆ | ◆ | ◆ | ◆ | ◆ | 6.0 | 4.3 | ◆ | ◆ | ◆ | 4.0 | ◆ |
| Recommended power conn' size | ◆ | ◆ | ◆ | ◆ | ◆ | 1 | 1 | ◆ | ◆ | ◆ | 1 | ◆ |
| Speed 6000 (rpm) | $K_t(\text{Nm/A}) = 0.47$ $K_e(\text{V/Krpm}) = 28.5$ | | | | | | | | | | | |
| Rated Torque (Nm) | 1.30 | 2.20 | 3.10 | 4.00 | 2.65 | 3.80 | 5.00 | ◆ | 3.60 | 4.80 | ◆ | ◆ |
| Stall Current (A) | 3.06 | 5.43 | 7.87 | 10.04 | 6.93 | 11.70 | 17.02 | ◆ | 12.34 | 21.70 | ◆ | ◆ |
| Rated Power (kW) | 0.82 | 1.38 | 1.95 | 2.51 | 1.67 | 2.39 | 3.14 | ◆ | 2.26 | 3.02 | ◆ | ◆ |
| R (ph-ph) (Ohms) | 3.79 | 1.46 | 0.76 | 0.54 | 1.03 | 0.41 | 0.24 | ◆ | 0.40 | 0.09 | ◆ | ◆ |
| L (ph-ph) (mH) | 11.70 | 5.20 | 3.60 | 2.03 | 6.20 | 2.96 | 1.77 | ◆ | 3.20 | 2.80 | ◆ | ◆ |
| Recommended power conn' size | 1 | 1 | 1 | 1 | 1 | 1 | 1 | ◆ | 1 | 1 | ◆ | ◆ |

◆ not available

Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C ambient at **12kHz drive switching frequency**. All other figures relate to a 20°C motor temperature. Maximum intermittent winding temperature is 140°C

| 142ED | | | | | 190ED | | | | | | Motor Frame Size (mm) |
|--------------------------------------|-------|-------|-------|--------|-------------------------------------|--------|--------|--------|--------|--------|-------------------------------------|
| A | B | C | D | E | A | B | C | D | E | F | Frame length |
| 10.10 | 17.40 | 25.00 | 31.50 | 38.00 | 18.50 | 32.70 | 52.00 | 62.00 | 73.50 | 85.00 | Continuous stall torque (Nm) |
| 30.30 | 52.20 | 75.00 | 94.50 | 114.00 | 55.50 | 98.10 | 156.00 | 186.00 | 220.50 | 255.00 | Peak torque (Nm) |
| 23.40 | 31.75 | 40.11 | 48.46 | 56.80 | 89.63 | 117.28 | 144.93 | 172.58 | 200.23 | 227.88 | High inertia (kg cm ²) |
| 235 | 240 | 245 | 251 | 256 | 286 | 313 | 311 | 316 | 292 | 324 | Winding thermal time constant (sec) |
| 12.55 | 15.66 | 18.78 | 21.90 | 25.02 | 25.63 | 33.06 | 40.50 | 47.98 | 54.50 | 61.02 | High inertia motor weight (kg) |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | Number of poles |
| Kt(Nm/A) = 1.4 Ke(V/Krpm) = 85.5 | | | | | Kt(Nm/A) = 2.8 Ke(V/Krpm) = 171 | | | | | | 190 frame Speed 1000 (rpm) |
| 8.6 | 15.3 | 21.4 | ◆ | ◆ | 17.6 | ◆ | 49.0 | 56.5 | ◆ | 77.5 | Rated torque (Nm) |
| 7.21 | 12.43 | 17.86 | ◆ | ◆ | 6.61 | ◆ | 18.57 | 22.14 | ◆ | 30.36 | Stall current (A) |
| 1.80 | 3.20 | 4.48 | ◆ | ◆ | 1.84 | ◆ | 5.13 | 5.92 | ◆ | 8.12 | Rated power (kW) |
| 0.85 | 0.34 | 0.24 | ◆ | ◆ | 1.23 | ◆ | 0.30 | 0.27 | ◆ | 0.15 | R (ph-ph) (Ohms) |
| 14.3 | 5.9 | 3.7 | ◆ | ◆ | 34.1 | ◆ | 10.0 | 7.1 | ◆ | 4.8 | L (ph-ph) (mH) |
| 1 | 1 | 1.5 | ◆ | ◆ | 1.5 | ◆ | 1.5 | 1.5 | ◆ | 1.5 | Recommended power conn' size |
| Kt(Nm/A) = 0.93 Ke(V/Krpm) = 57 | | | | | Kt(Nm/A) = 1.86 Ke(V/Krpm) = 114 | | | | | | 190 frame Speed 1500 (rpm) |
| 8.20 | 14.00 | 18.40 | 20.90 | ◆ | ◆ | ◆ | 32.80 | ◆ | ◆ | ◆ | Rated Torque (Nm) |
| 10.86 | 18.71 | 26.88 | 33.87 | ◆ | ◆ | ◆ | 55.91 | ◆ | ◆ | ◆ | Stall Current (A) |
| 2.58 | 4.40 | 5.78 | 6.57 | ◆ | ◆ | ◆ | 10.30 | ◆ | ◆ | ◆ | Rated Power (kW) |
| 0.38 | 0.22 | 0.12 | 0.09 | ◆ | ◆ | ◆ | 0.03 | ◆ | ◆ | ◆ | R (ph-ph) (Ohms) |
| 6.3 | 2.8 | 1.9 | 1.6 | ◆ | ◆ | ◆ | 1.2 | ◆ | ◆ | ◆ | L (ph-ph) (mH) |
| 1 | 1.5 | 1.5 | 1.5 | ◆ | ◆ | ◆ | 1.5 | ◆ | ◆ | ◆ | Recommended power conn' size |
| Kt(Nm/A) = 0.7 Ke(V/Krpm) = 42.75 | | | | | Kt(Nm/A) = 1.4 Ke(V/Krpm) = 85.5 | | | | | | 190 frame Speed 2000 (rpm) |
| ◆ | 11.70 | ◆ | ◆ | ◆ | ◆ | ◆ | 42.50 | ◆ | ◆ | ◆ | Rated Torque (Nm) |
| ◆ | 24.86 | ◆ | ◆ | ◆ | ◆ | ◆ | 37.14 | ◆ | ◆ | ◆ | Stall Current (A) |
| ◆ | 4.90 | ◆ | ◆ | ◆ | ◆ | ◆ | 8.90 | ◆ | ◆ | ◆ | Rated Power (kW) |
| ◆ | 0.08 | ◆ | ◆ | ◆ | ◆ | ◆ | 0.09 | ◆ | ◆ | ◆ | R (ph-ph) (Ohms) |
| ◆ | 4.5 | ◆ | ◆ | ◆ | ◆ | ◆ | 2.5 | ◆ | ◆ | ◆ | L (ph-ph) (mH) |
| ◆ | 1.5 | ◆ | ◆ | ◆ | ◆ | ◆ | 1.5 | ◆ | ◆ | ◆ | Recommended power conn' size |
| Kt(Nm/A) = 0.47 Ke(V/Krpm) = 28.5 | | | | | Kt(Nm/A) = 0.93 Ke(V/Krpm) = 57 | | | | | | 190 frame Speed 3000 (rpm) |
| ◆ | ◆ | ◆ | ◆ | ◆ | 15.50 | 25.00 | 32.80 | ◆ | ◆ | ◆ | Rated Torque (Nm) |
| ◆ | ◆ | ◆ | ◆ | ◆ | 19.89 | 35.16 | 55.91 | ◆ | ◆ | ◆ | Stall Current (A) |
| ◆ | ◆ | ◆ | ◆ | ◆ | 4.87 | 7.85 | 10.30 | ◆ | ◆ | ◆ | Rated Power (kW) |
| ◆ | ◆ | ◆ | ◆ | ◆ | 0.20 | 0.05 | 0.03 | ◆ | ◆ | ◆ | R (ph-ph) (Ohms) |
| ◆ | ◆ | ◆ | ◆ | ◆ | 3.1 | 1.6 | 1.2 | ◆ | ◆ | ◆ | L (ph-ph) (mH) |
| ◆ | ◆ | ◆ | ◆ | ◆ | 1.5 | 1.5 | 1.5 | ◆ | ◆ | ◆ | Recommended power conn' size |

◆ not available

Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C ambient at **12kHz drive switching frequency**. All other figures relate to a 20°C motor temperature. Maximum intermittent winding temperature is 140°C

Ratings

3 Phase VPWM drives 380 - 480Vrms - $\Delta t = 100^{\circ}\text{C}$ winding 40°C maximum ambient.
 All data subject to +/-10% tolerance

| Motor Frame Size (mm) | 067UD | | | | 089UD | | | | 115UD | | | | |
|-------------------------------------|------------------------------------|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frame length | A | B | C | D | A | B | C | D | A | B | C | D | |
| Continuous stall torque (Nm) | 1.44 | 2.55 | 3.70 | 4.72 | 3.20 | 5.50 | 8.00 | 10.30 | 5.80 | 10.20 | 14.60 | 18.80 | |
| Peak torque (Nm) | 4.35 | 7.65 | 11.10 | 14.16 | 9.60 | 16.50 | 24.00 | 30.90 | 17.40 | 30.60 | 43.80 | 56.40 | |
| High inertia (kg cm ²) | 1.15 | 1.42 | 1.69 | 1.96 | 3.23 | 4.24 | 5.24 | 6.25 | 7.84 | 10.78 | 13.70 | 16.63 | |
| Winding thermal time constant (sec) | 54 | 61 | 65 | 68 | 85 | 93 | 98 | 103 | 161 | 164 | 168 | 175 | |
| High inertia motor weight (kg) | 2.94 | 3.58 | 4.25 | 4.92 | 5.06 | 6.27 | 7.49 | 8.82 | 8.24 | 10.23 | 12.23 | 14.47 | |
| Number of poles | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | |
| Speed 2000 (rpm) | Kt(Nm/A) = 2.4 Ke(V/Krpm) = 147 | | | | | | | | | | | | |
| Rated torque (Nm) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 11.90 | 15.60 |
| Stall current (A) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 6.08 | 7.83 |
| Rated power (kW) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 2.49 | 3.27 |
| R (ph-ph) (Ohms) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 2.41 | 1.80 |
| L (ph-ph) (mH) | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 24.7 | 19.5 |
| Recommended power conn' size | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | 1 | 1 |
| Speed 3000 (rpm) | Kt(Nm/A) = 0.8 Ke(V/Krpm) = 49 | Kt(Nm/A) = 1.6 Ke(V/Krpm) = 98 | | | | | | | | | | | |
| Rated Torque (Nm) | 1.40 | 2.45 | 3.50 | 4.60 | 3.00 | 4.85 | 6.90 | 8.50 | 4.80 | 7.70 | 10.50 | 13.60 | |
| Stall Current (A) | 1.80 | 1.59 | 2.31 | 2.95 | 2.00 | 3.44 | 5.00 | 6.44 | 3.63 | 6.38 | 9.13 | 11.75 | |
| Rated Power (kW) | 0.44 | 0.77 | 1.10 | 1.45 | 0.94 | 1.52 | 2.17 | 2.67 | 1.51 | 2.42 | 3.30 | 4.27 | |
| R (ph-ph) (Ohms) | 11.69 | 18.55 | 10.70 | 6.42 | 10.80 | 5.18 | 2.79 | 1.89 | 5.00 | 1.90 | 1.21 | 0.78 | |
| L (ph-ph) (mH) | 35.2 | 65.6 | 40.8 | 31.2 | 66.8 | 36.7 | 21.7 | 15.3 | 40.3 | 18.0 | 12.7 | 8.7 | |
| Recommended power conn' size | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Speed 4000 (rpm) | Kt(Nm/A) = 1.2 Ke(V/Krpm) = 74 | | | | | | | | | | | | |
| Rated Torque (Nm) | ◆ | ◆ | ◆ | ◆ | ◆ | 4.55 | 6.35 | ◆ | ◆ | ◆ | ◆ | 8.70 | ◆ |
| Stall Current (A) | ◆ | ◆ | ◆ | ◆ | ◆ | 4.58 | 6.67 | ◆ | ◆ | ◆ | ◆ | 12.17 | ◆ |
| Rated Power (kW) | ◆ | ◆ | ◆ | ◆ | ◆ | 1.91 | 2.66 | ◆ | ◆ | ◆ | ◆ | 3.64 | ◆ |
| R (ph-ph) (Ohms) | ◆ | ◆ | ◆ | ◆ | ◆ | 2.60 | 1.80 | ◆ | ◆ | ◆ | ◆ | 0.60 | ◆ |
| L (ph-ph) (mH) | ◆ | ◆ | ◆ | ◆ | ◆ | 18.8 | 13.4 | ◆ | ◆ | ◆ | ◆ | 6.6 | ◆ |
| Recommended power conn' size | ◆ | ◆ | ◆ | ◆ | ◆ | 1 | 1 | ◆ | ◆ | ◆ | ◆ | 1 | ◆ |
| Speed 6000 (rpm) | Kt(Nm/A) = 0.8 Ke(V/Krpm) = 49 | | | | | | | | | | | | |
| Rated Torque (Nm) | 1.30 | 2.20 | 3.10 | 4.00 | 2.65 | 3.80 | 5.00 | ◆ | 3.60 | 4.80 | ◆ | ◆ | |
| Stall Current (A) | 1.80 | 3.19 | 4.63 | 5.90 | 4.00 | 6.88 | 10.00 | ◆ | 7.25 | 12.75 | ◆ | ◆ | |
| Rated Power (kW) | 0.82 | 1.38 | 1.95 | 2.51 | 1.67 | 2.39 | 3.14 | ◆ | 2.26 | 3.02 | ◆ | ◆ | |
| R (ph-ph) (Ohms) | 11.69 | 4.64 | 2.73 | 1.60 | 2.70 | 1.30 | 0.67 | ◆ | 1.25 | 0.47 | ◆ | ◆ | |
| L (ph-ph) (mH) | 35.2 | 16.4 | 10.2 | 7.8 | 16.7 | 9.2 | 5.4 | ◆ | 10.1 | 4.5 | ◆ | ◆ | |
| Recommended power conn' size | 1 | 1 | 1 | 1 | 1 | 1 | 1 | ◆ | 1 | 1 | ◆ | ◆ | |

◆ not available

Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C ambient at **12kHz drive switching frequency**. All other figures relate to a 20°C motor temperature. Maximum intermittent winding temperature is 140°C

| 142UD | | | | | 190UD | | | | | | Motor Frame Size (mm) | |
|------------------------------------|-------|-------|-------|--------|------------------------------------|--------|--------|--------|--------|--------|-------------------------------------|------------------------------|
| A | B | C | D | E | A | B | C | D | E | F | Frame length | |
| 10.10 | 17.40 | 25.00 | 31.50 | 38.00 | 18.50 | 32.70 | 52.00 | 62.00 | 73.50 | 85.00 | Continuous stall torque (Nm) | |
| 30.30 | 52.20 | 75.00 | 94.50 | 114.00 | 55.50 | 98.10 | 156.00 | 186.00 | 220.50 | 255.00 | Peak torque (Nm) | |
| 23.40 | 31.75 | 40.11 | 48.46 | 56.80 | 89.63 | 117.28 | 144.93 | 172.58 | 200.23 | 227.88 | High inertia (kg cm ²) | |
| 235 | 240 | 245 | 251 | 256 | 286 | 292 | 300 | 308 | 316 | 324 | Winding thermal time constant (sec) | |
| 12.55 | 15.66 | 18.78 | 21.90 | 25.02 | 25.63 | 33.06 | 40.50 | 47.98 | 54.50 | 61.02 | High inertia motor weight (kg) | |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | Number of poles | |
| Kt(Nm/A) = 2.4 Ke(V/Krpm) = 147 | | | | | Kt(Nm/A) = 4.8 Ke(V/Krpm) = 296 | | | | | | 190 frame Speed 1000 (rpm) | |
| 8.60 | 15.30 | 21.40 | ◆ | ◆ | 17.60 | ◆ | ◆ | ◆ | ◆ | ◆ | 78.30 | Rated torque (Nm) |
| 4.21 | 7.25 | 10.42 | ◆ | ◆ | 3.83 | ◆ | ◆ | ◆ | ◆ | ◆ | 17.61 | Stall current (A) |
| 1.80 | 3.20 | 4.48 | ◆ | ◆ | 1.83 | ◆ | ◆ | ◆ | ◆ | ◆ | 8.12 | Rated power (kW) |
| 3.90 | 1.53 | 0.79 | ◆ | ◆ | 3.70 | ◆ | ◆ | ◆ | ◆ | ◆ | 0.53 | R (ph-ph) (Ohms) |
| 46.28 | 20.97 | 12.15 | ◆ | ◆ | 101.40 | ◆ | ◆ | ◆ | ◆ | ◆ | 15.80 | L (ph-ph) (mH) |
| 1 | 1 | 1 | ◆ | ◆ | 1.5 | ◆ | ◆ | ◆ | ◆ | ◆ | 1.5 | Recommended power conn' size |
| Kt(Nm/A) = 1.6 Ke(V/Krpm) = 98 | | | | | Kt(Nm/A) = 3.2 Ke(V/Krpm) = 196 | | | | | | 190 frame Speed 1500 (rpm) | |
| 8.20 | 14.00 | 18.40 | 20.90 | 23.00 | ◆ | ◆ | 46.20 | ◆ | ◆ | ◆ | 68.50 | Rated Torque (Nm) |
| 6.31 | 10.88 | 15.63 | 19.69 | 23.75 | ◆ | ◆ | 16.25 | ◆ | ◆ | ◆ | 26.56 | Stall Current (A) |
| 2.58 | 4.40 | 5.78 | 6.57 | 7.23 | ◆ | ◆ | 7.26 | ◆ | ◆ | ◆ | 10.76 | Rated Power (kW) |
| 1.50 | 0.63 | 0.34 | 0.24 | 0.18 | ◆ | ◆ | 0.55 | ◆ | ◆ | ◆ | 0.23 | R (ph-ph) (Ohms) |
| 18.1 | 8.6 | 5.3 | 3.8 | 2.9 | ◆ | ◆ | 14.2 | ◆ | ◆ | ◆ | 6.8 | L (ph-ph) (mH) |
| 1 | 1 | 1 | 1.5 | 1.5 | ◆ | ◆ | 1.5 | ◆ | ◆ | ◆ | 1.5 | Recommended power conn' size |
| Kt(Nm/A) = 1.2 Ke(V/Krpm) = 74 | | | | | Kt(Nm/A) = 2.4 Ke(V/Krpm) = 147 | | | | | | 190 frame Speed 2000 (rpm) | |
| ◆ | 11.70 | ◆ | 14.90 | ◆ | ◆ | ◆ | 42.50 | 45.30 | 52.90 | 56.00 | ◆ | Rated Torque (Nm) |
| ◆ | 14.50 | ◆ | 26.25 | ◆ | ◆ | ◆ | 21.67 | 25.83 | 30.63 | 35.42 | ◆ | Stall Current (A) |
| ◆ | 4.90 | ◆ | 6.24 | ◆ | ◆ | ◆ | 8.90 | 9.49 | 11.08 | 11.73 | ◆ | Rated Power (kW) |
| ◆ | 0.36 | ◆ | 0.16 | ◆ | ◆ | ◆ | 0.32 | 0.17 | 0.16 | 0.14 | ◆ | R (ph-ph) (Ohms) |
| ◆ | 7.1 | ◆ | 2.4 | ◆ | ◆ | ◆ | 8.2 | 5.1 | 4.6 | 4.3 | ◆ | L (ph-ph) (mH) |
| ◆ | 1 | ◆ | 1.5 | ◆ | ◆ | ◆ | 1.5 | 1.5 | 1.5 | 1.5 | ◆ | Recommended power conn' size |
| Kt(Nm/A) = 0.8 Ke(V/Krpm) = 49 | | | | | Kt(Nm/A) = 1.6 Ke(V/Krpm) = 98 | | | | | | 190 frame Speed 3000 (rpm) | |
| ◆ | 7.00 | ◆ | ◆ | ◆ | 15.50 | 25.00 | 32.80 | 39.00 | ◆ | ◆ | ◆ | Rated Torque (Nm) |
| ◆ | 21.75 | ◆ | ◆ | ◆ | 11.56 | 20.44 | 32.50 | 38.75 | ◆ | ◆ | ◆ | Stall Current (A) |
| ◆ | 4.40 | ◆ | ◆ | ◆ | 4.87 | 7.85 | 10.30 | 12.25 | ◆ | ◆ | ◆ | Rated Power (kW) |
| ◆ | 0.17 | ◆ | ◆ | ◆ | 0.57 | 0.23 | 0.11 | 0.11 | ◆ | ◆ | ◆ | R (ph-ph) (Ohms) |
| ◆ | 3.2 | ◆ | ◆ | ◆ | 11.6 | 5.7 | 3.1 | 2.7 | ◆ | ◆ | ◆ | L (ph-ph) (mH) |
| ◆ | 1.5 | ◆ | ◆ | ◆ | 1.5 | 1.5 | 1.5 | 1.5 | ◆ | ◆ | ◆ | Recommended power conn' size |

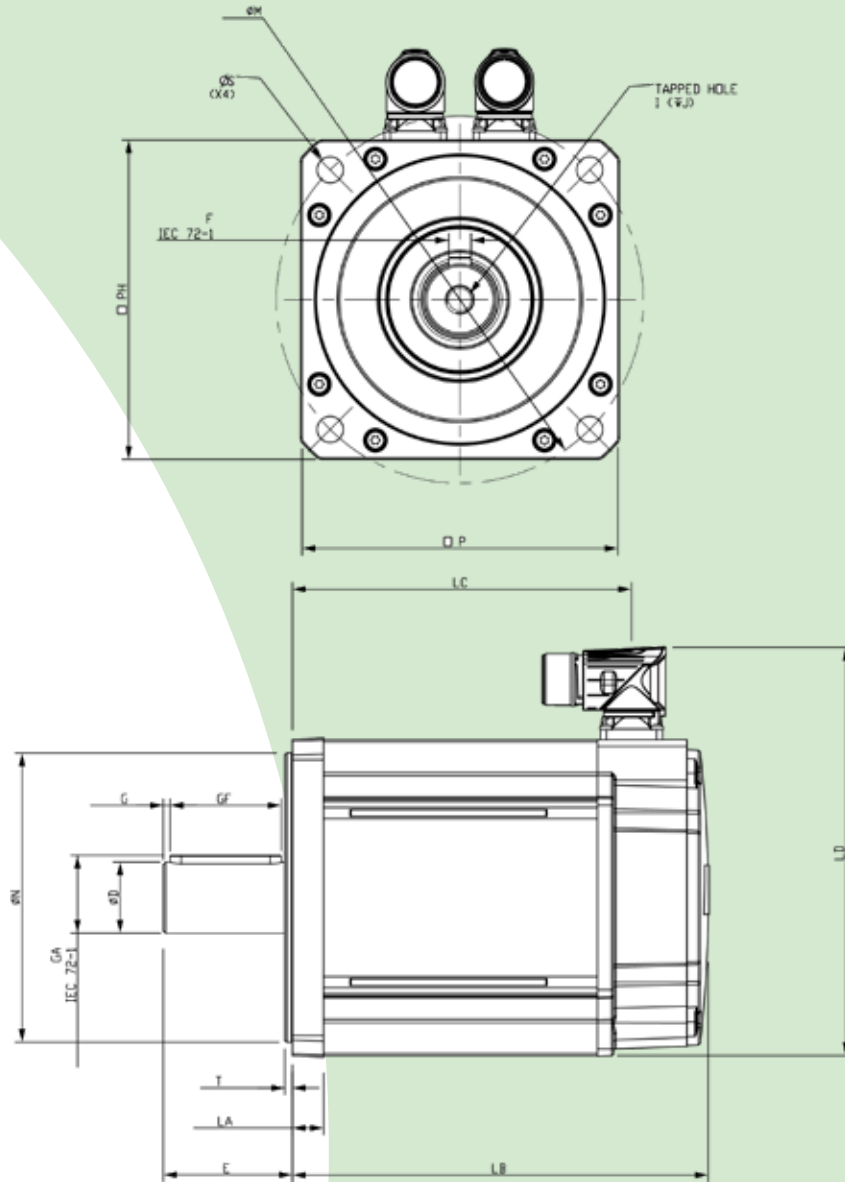
◆ not available

Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C ambient at **12kHz drive switching frequency**. All other figures relate to a 20°C motor temperature. Maximum intermittent winding temperature is 140°C

Dimensions

Motor dimensions (all measurements shown are in mm)

| 067 | Unbraked length | | Braked length | | Flange thickness | Register length | Register diameter | Overall height | Flange square | Fixing hole diameter | Fixing hole PCD | Motor housing | Mounting bolts |
|-----|-------------------------|------------|---------------|------------|------------------|-----------------|-------------------|--|---------------|----------------------|-----------------|---------------|----------------|
| | LB (± 0.9) | LC (± 1.0) | LB (± 0.9) | LC (± 1.0) | | | | | | | | | |
| A | 172.9 | 139.0 | 207.9 | 174.0 | 7.7 | 2.5 | 60.0 | 111.5 | 70.0 | 5.8 | 75.0 | 67.0 | M5 |
| B | 202.9 | 169.0 | 237.9 | 204.0 | | | | | | | | | |
| C | 232.9 | 199.0 | 267.9 | 234.0 | | | | | | | | | |
| D | 262.9 | 229.0 | 297.9 | 264.0 | | | | | | | | | |
| 089 | Feedback EC, FC, EF, FF | | | | Flange thickness | Register length | Register diameter | Overall height | Flange square | Fixing hole diameter | Fixing hole PCD | Motor housing | Mounting bolts |
| | Unbraked length | | Braked length | | | | | | | | | | |
| A | 177.8 | 140.5 | 217.9 | 180.6 | 10.3 | 2.2 | 80.0 | 130.5 | 91.0 | 7.0 | 100.0 | 89.0 | M6 |
| B | 207.8 | 170.5 | 247.9 | 210.6 | | | | | | | | | |
| C | 237.8 | 200.5 | 277.9 | 240.6 | | | | | | | | | |
| D | 267.8 | 230.5 | 300.9 | 270.6 | | | | | | | | | |
| | CA, CT, GB, HB | | AE | | Flange thickness | Register length | Register diameter | Overall height | Flange square | Fixing hole diameter | Fixing hole PCD | Motor housing | Mounting bolts |
| | Unbraked | Braked | Unbraked | Braked | | | | | | | | | |
| A | 190.8 | 230.9 | 167.8 | 207.9 | 10.3 | 2.2 | 80.0 | 130.5 | 91.0 | 7.0 | 100.0 | 89.0 | M6 |
| B | 220.8 | 260.9 | 197.8 | 237.9 | | | | | | | | | |
| C | 250.8 | 290.9 | 227.8 | 267.9 | | | | | | | | | |
| D | 280.8 | 320.9 | 257.8 | 297.9 | | | | | | | | | |
| 115 | Feedback EC, FC, EF, FF | | | | Flange thickness | Register length | Register diameter | Overall height | Flange square | Fixing hole diameter | Fixing hole PCD | Motor housing | Mounting bolts |
| | Unbraked length | | Braked length | | | | | | | | | | |
| A | 193.8 | 154.0 | 230.9 | 191.1 | 13.2 | 2.7 | 110.0 | 156.5 | 116.0 | 10.0 | 130.0 | 115.0 | M8 |
| B | 223.8 | 184.0 | 260.9 | 221.1 | | | | | | | | | |
| C | 253.8 | 214.0 | 290.9 | 251.1 | | | | | | | | | |
| D | 283.8 | 244.0 | 320.9 | 281.1 | | | | | | | | | |
| | CA, CT, GB, HB | | AE | | Flange thickness | Register length | Register diameter | Overall height | Flange square | Fixing hole diameter | Fixing hole PCD | Motor housing | Mounting bolts |
| | Unbraked | Braked | Unbraked | Braked | | | | | | | | | |
| A | 206.8 | 243.9 | 183.8 | 220.9 | 13.2 | 2.7 | 110.0 | 156.5 | 116.0 | 10.0 | 130.0 | 115.0 | M8 |
| B | 236.8 | 273.9 | 213.8 | 250.9 | | | | | | | | | |
| C | 266.8 | 303.9 | 243.8 | 280.9 | | | | | | | | | |
| D | 296.8 | 333.9 | 273.8 | 310.9 | | | | | | | | | |
| 142 | Unbraked length | | Braked length | | Flange thickness | Register length | Register diameter | Overall height | Flange square | Fixing hole diameter | Fixing hole PCD | Motor housing | Mounting bolts |
| | LB (± 0.9) | LC (± 1.0) | LB (± 0.9) | LC (± 1.0) | | | | | | | | | |
| A | 187.0 | 152.5 | 252.5 | 218.0 | 14.0 | 3.4 | 130.0 | 183.5 (Size 1) 204.5 (Size 1.5) | 142.0 | 12.0 | 165.0 | 142.0 | M10 |
| B | 217.0 | 182.5 | 282.5 | 248.0 | | | | | | | | | |
| C | 247.0 | 212.5 | 312.5 | 278.0 | | | | | | | | | |
| D | 277.0 | 242.5 | 342.5 | 308.0 | | | | | | | | | |
| E | 307.0 | 272.5 | 372.5 | 338.0 | | | | | | | | | |
| 190 | Unbraked length | | Braked length | | Flange thickness | Register length | Register diameter | Overall height | Flange square | Fixing hole diameter | Fixing hole PCD | Motor housing | Mounting bolts |
| | LB (± 0.9) | LC (± 1.0) | LB (± 0.9) | LC (± 1.0) | | | | | | | | | |
| A | 190.6 | 161.1 | 289.1 | 259.6 | 18.5 | 3.9 | 180.0 | 252.5 | 190.3 | 14.5 | 215.0 | 190.0 | M12 |
| B | 220.6 | 191.1 | 319.1 | 289.6 | | | | | | | | | |
| C | 250.6 | 221.1 | 349.1 | 319.6 | | | | | | | | | |
| D | 280.6 | 251.1 | 379.1 | 349.6 | | | | | | | | | |
| E | 310.6 | 281.1 | 409.1 | 379.6 | | | | | | | | | |
| F | 340.6 | 311.1 | 439.1 | 409.6 | | | | | | | | | |



Shaft dimensions (all measurements shown are in mm)

| | Shaft diameter | Shaft length | Key height | Key length | Key to shaft end | Key width | Tapped hole thread size | Tapped hole depth |
|-----|----------------|--------------|------------|------------|------------------|-----------|-------------------------|-------------------|
| | D (j6) | E | GA | GF | G | F (h9) | I | J (± 1) |
| 067 | 14.0 | 30.0 | 16.0 | 25.0 | 1.5 | 5.0 | M5 x 0.8 | 13.5 |
| 089 | 19.0 | 40.0 | 21.5 | 32.0 | 3.7 | 6.0 | M6 x 1.0 | 17.0 |
| 115 | 24.0 | 50.0 | 27.0 | 40.0 | 5.3 | 8.0 | M8 x 1.25 | 20.0 |
| 142 | 32.0 | 58.0 | 35.0 | 50.0 | 3.0 | 10.0 | M12 x 1.75 | 29.0 |
| 190 | 38.0 | 80.0 | 41.0 | 70.0 | 4.6 | 10.0 | M12 x 1.75 | 29.0 |

NOTE: motor drawing is for dimensional purposes only, motors will differ in appearance.



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