

PRODUCT NOTE

# HDS high-performance AC PM servo motor

## High density, high accuracy and high efficiency



The HDS series has a 10-pole design which provides more torque and less cogging for superior performance. Whether your need is positioning, speed, or efficiency, HDS series provides performance and reliability.

### Features



High torque density and power density: reduced volume and weight

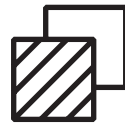


Class F Insulation  
Thermal protection: 3xPTC155

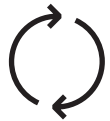
- IP54 without oil seal
- IP65 with oil seal



Ultra-high intrinsic, coercive field rare earth magnets



Epoxy resin potting technology on complete stator: compact size and better heat dissipation



Low cogging torque and torque ripple: excellent performance at low speed and system control



Precise flange and shaft machining: low noise and vibration



Outstanding overload performance: 3 times peak torque, 4 times mechanical overload capacity



Various feedback options, including resolver, incremental encoder, and many types of absolute encoders including Hiperface DSL - single cable solution

# High-performance AC PM servo motors

| Frame         | Model         | Input voltage | Continuous stall torque | Peak torque         | Rated speed          | Maximum speed                         | Rated power | Continuous stall current | Rated current      | Peak current       | Rotor inertia                                       | Torque constant                      | Voltage constant           |
|---------------|---------------|---------------|-------------------------|---------------------|----------------------|---------------------------------------|-------------|--------------------------|--------------------|--------------------|---|--------------------------------------|----------------------------|
|               |               |               | T <sub>0</sub> (Nm)     | T <sub>P</sub> (Nm) | n <sub>N</sub> (rpm) | n <sub>max</sub> (rpm) <sup>(1)</sup> | P (kW)      | I <sub>0</sub> (A)       | I <sub>N</sub> (A) | I <sub>P</sub> (A) | J <sub>M</sub> (kg-cm <sup>2</sup> ) <sup>(2)</sup> | K <sub>t</sub> (Nm/A) <sup>(3)</sup> | K <sub>e</sub> (Vrms/krpm) |
| HDS60 / HDS6A | HDS60-0102A   | AC 230 V      | 0.7                     | 2.23                | 3000                 | 6000                                  | 0.2         | 1.5                      | 1.3                | 5.1                | 0.20  | 0.554                                | 33.5                       |
|               | HDS6A-0102A   |               |                         |                     |                      |                                       |             |                          |                    |                    |   |                                      |                            |
|               | HDS60-0104A   | AC 230 V      | 1.4                     | 4.46                |                      |                                       | 0.4         | 2.8                      | 2.6                | 10.5               | 0.34  |                                      |                            |
|               | HDS6A-0104A   |               |                         |                     |                      |                                       |             |                          |                    |                    |   |                                      |                            |
| HDS80 / HDS8A | HDS80-0309A   | AC 230 V      | 3.2                     | 9.4                 | 3000                 | 6000                                  | 0.85        | 6.4                      | 5.5                | 20.5               | 1.45  | 0.554                                | 33.5                       |
|               | HDS8A-0309A   |               |                         |                     |                      |                                       |             |                          |                    |                    | 2.28  |                                      |                            |
|               | HDS80C-0309A  |               |                         |                     |                      |                                       |             |                          |                    |                    |   |                                      |                            |
| HDS65         | HDS65-0102A   | AC 230 V      | 0.7                     | 1.8                 | 3000                 | 5000                                  | 0.19        | 1.9                      | 1.6                | 5.8                | 0.16  | 0.41                                 | 25                         |
|               | HDS65-0104A   |               | 1.4                     | 3.6                 |                      |                                       | 0.38        | 3.9                      | 3.3                | 12                 | 0.27  |                                      |                            |
|               | HDS65-0206A   |               | 2.1                     | 5.4                 |                      |                                       | 0.57        | 5.5                      | 4.7                | 17.6               | 0.38  |                                      |                            |
| HDS100        | HDS100-0206A  | AC 230 V      | 2.8                     | 6.0                 | 3000                 | 4000                                  | 0.63        | 4.3                      | 3.1                | 11.5               | 0.76  | 0.73                                 | 44                         |
|               | HDS100C-0206A |               | 2.8                     | 6.0                 |                      |                                       |             |                          |                    |                    | 2.00  |                                      |                            |
|               | HDS100-0308A  |               | 3.4                     | 7.5                 |                      |                                       |             |                          |                    |                    | 1.31  |                                      |                            |
|               | HDS100C-0308A |               | 3.4                     | 7.5                 |                      |                                       | 0.75        | 5.8                      | 4.3                | 15.5               | 2.68  | 0.68                                 | 41.3                       |
|               | HDS100-0413A  |               | 5                       | 12.0                |                      |                                       |             |                          |                    |                    | 1.31  |                                      |                            |
|               | HDS100C-0413A |               | 5                       | 12.0                |                      |                                       |             |                          |                    |                    | 2.68  |                                      |                            |
|               | HDS100-0619A  |               | 7.5                     | 18.0                |                      |                                       |             |                          |                    |                    | 1.85  |                                      |                            |
| HDS100C-0619A | 7.5           | 18.0          | 1.9                     | 12.6                | 10.5                 | 39.5                                  | 3.35        | 0.69                     | 41.8               |                    |   |                                      |                            |
| HDS130        | HDS130-0620A  | AC 230 V      | 7.2                     | 19.1                | 3000                 | 5000                                  | 2.0         | 11.5                     | 10.9               | 36                 | 4.06  | 0.685                                | 41.4                       |
|               | HDS130C-0620A |               | 7.2                     | 19.1                |                      |                                       |             |                          |                    |                    | 10.80   |                                      |                            |
|               | HDS130-1225A  |               | 14                      | 36                  |                      |                                       |             |                          |                    |                    | 7.46  |                                      |                            |
|               | HDS130C-1225A | 14            | 36                      | 2.5                 | 19                   | 16.2                                  | 54          | 14.82                    | 0.818              | 49.5               |   |                                      |                            |
|               | HDS130-0817B  | 10            | 24                      |                     |                      |                                       |             | 4.06                     |                    |                    |   |                                      |                            |
|               | HDS130C-0817B | 10            | 24                      | 1.7                 | 9                    | 7.7                                   | 29.5        | 10.80                    | 1.22               | 73.5               |   |                                      |                            |
|               | HDS130-1226B  | 15            | 36                      |                     |                      |                                       |             | 7.46                     |                    |                    |   |                                      |                            |
|               | HDS130C-1226B | 15            | 36                      | 2.6                 | 11.7                 | 9.5                                   | 30.6        | 14.82                    | 1.41               | 85.4               |   |                                      |                            |
|               | HDS130-1829B  | 20            | 54                      |                     |                      |                                       |             | 9.74                     |                    |                    |   |                                      |                            |
| HDS130C-1829B | 20            | 54            | 1500                    |                     |                      |                                       |             | 2.9                      |                    |                    | 16.1  | 14.8                                 | 51                         |
| HDS180        | HDS180-2540B  | AC 400 V      | 29                      | 75                  | 1500                 | 3500                                  | 4.0         | 18.0                     | 15.7               | 48.8               | 44.60   | 1.750                                | 105.9                      |
|               | HDS180C-2540B |               | 29                      | 75                  |                      |                                       |             |                          |                    |                    | 146.60  |                                      |                            |
|               | HDS180-3555B  |               | 41                      | 105                 |                      |                                       |             |                          |                    |                    | 63.50   |                                      |                            |
|               | HDS180C-3555B |               | 41                      | 105                 |                      |                                       | 5.5         | 25.7                     | 22.3               | 68.5               | 169.10  | 1.740                                | 105.1                      |
|               | HDS180-4876B  |               | 53                      | 150                 |                      |                                       |             |                          |                    |                    | 82.10   |                                      |                            |
|               | HDS180C-4876B |               | 53                      | 150                 |                      |                                       | 7.6         | 33.0                     | 30.8               | 99.7               | 191.30  | 1.750                                | 105.9                      |
| HDS240        | HDS240-5011B  | AC 400 V      | 65                      | 150                 | 2200                 | 3000                                  | 11          | 31                       | 23.5               | 93                 | 107   | 2.200                                | 135.0                      |
|               | HDS240-7215B  |               | 92                      | 216                 | 2000                 | 2700                                  | 15          | 39                       | 29.5               | 117                | 142   | 2.400                                | 150.0                      |
|               | HDS240F-6715B |               | 90                      | 201                 | 2200                 | 3000                                  |             | 40                       | 30.5               | 120                | 107   | 2.200                                | 135.0                      |
|               | HDS240F-9320B |               | 122                     | 279                 | 2000                 | 2700                                  | 20          | 50                       | 39                 | 150                | 142   | 2.400                                | 150.0                      |

(1) The max speed in applications shall be co-decided by the input voltage and the output frequency range and the output frequency range of the drive, feedback encoder type, etc. For higher speed applications, please contact ABB.

(2) Excluding brake inertia

(3) The torque constant K<sub>t</sub> decreases in a non-linear manner as the torque increases, the K<sub>t</sub> values are considered valid until approximately 2 times cont. stall torque T<sub>0</sub>.

For complete HDS brochure download:



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