

YASKAWA

External Drive Axis Packages

for MOTOMAN Robots with YRC1000 Controller

YRC1000



YRC1000 External Axes Drives

As a leading developer and manufacturer of robots, servomotors and controllers, Yaskawa is able to cover a very large part of the in-house value creation chain.

Not only are our robot motors perfectly tailored to our controllers but our external axes come from the same single source. Both the external

axes and the robot axes can easily be controlled by our YRC1000 controller.

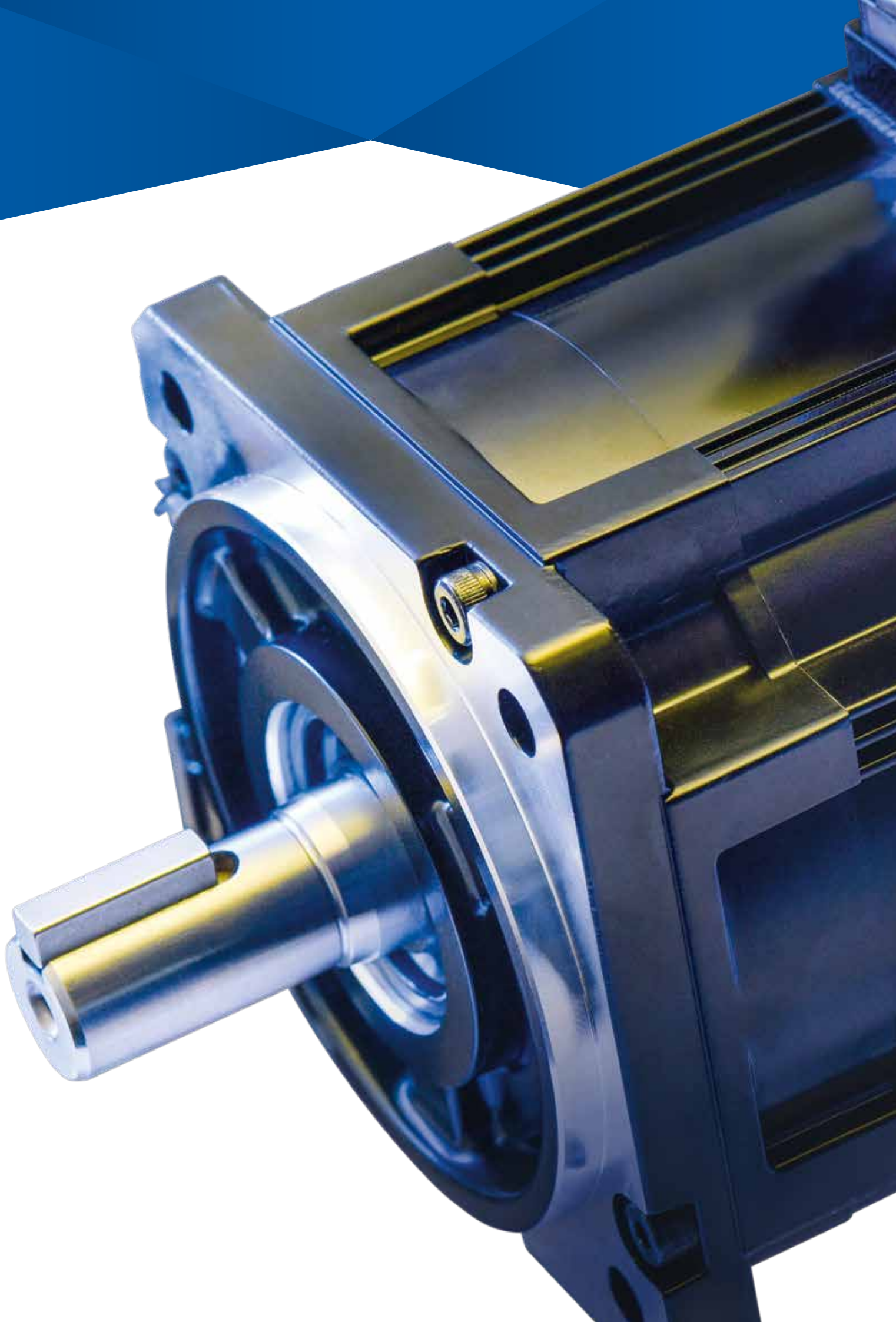
Experience the ease with which our components can be integrated and the way in which they blend harmoniously into your overall installation.

The cable package consists of power and signal cables, available in lengths of 3 – 30 m in 3 m increments. Optionally with external axis disconnection for 1 – 3 external axes in YRC1000 controller.

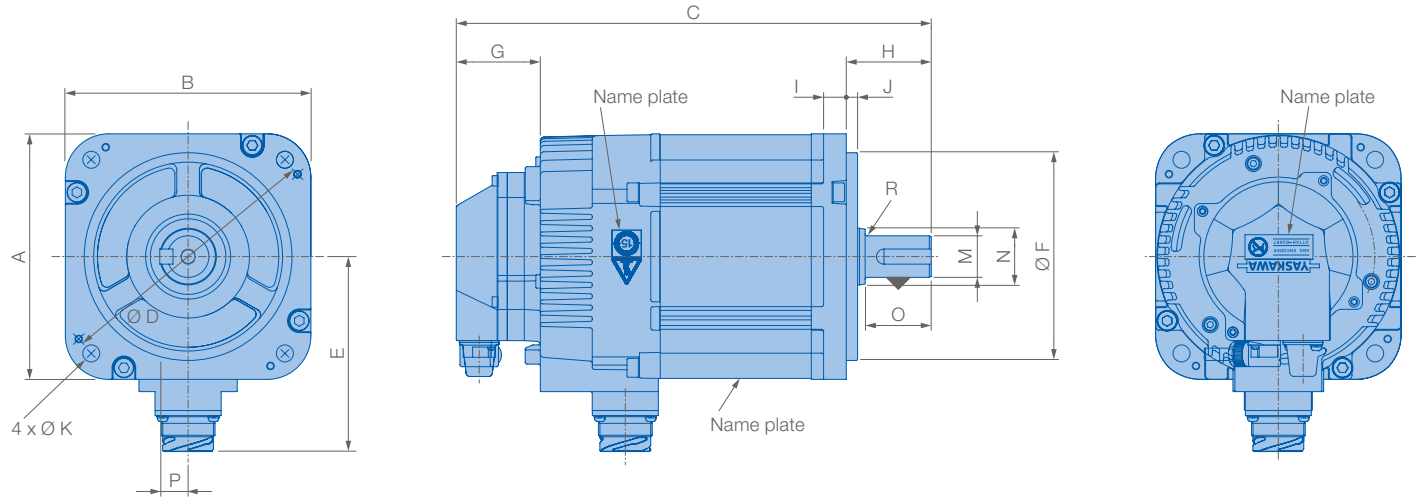
KEY BENEFITS

- Fully integrated additional robot axis
- Compatible with multi-synchronous operation
- Power categories from 0.1 up to 5.5 kW
- Functional unit consisting of SGM7 servomotor, servo/control package as well as power and signal cables
- Up to 3 servo packages can be integrated in the YRC1000 controller in standard configuration





**Example:
SGM7G-20APK-YR1**



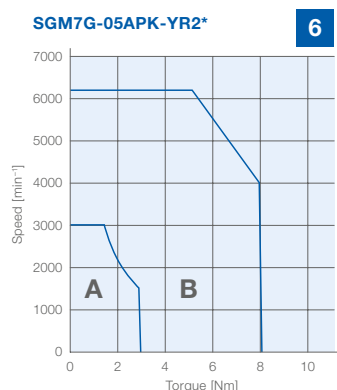
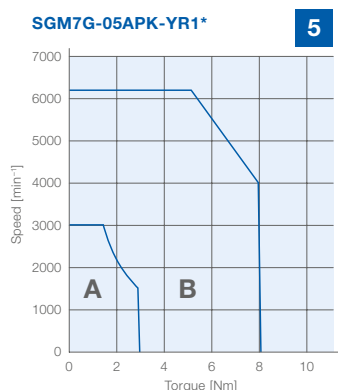
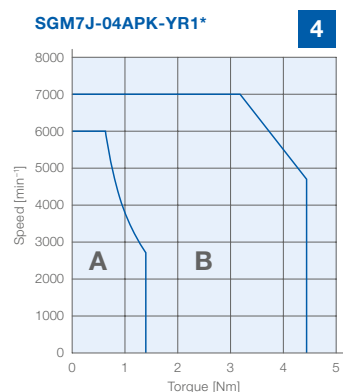
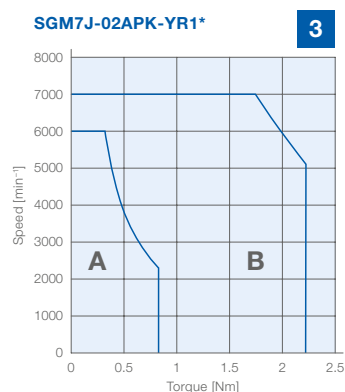
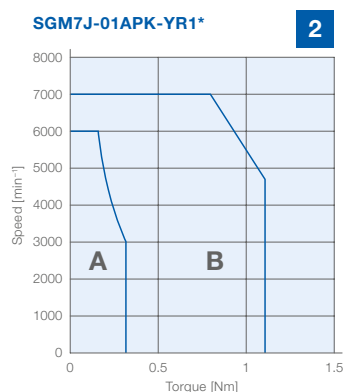
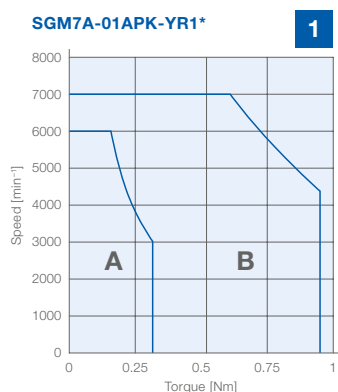
Technical Data/Parameters SGM7 Servomotors

| Technical Data | Models | | | | | |
|-------------------------------|------------------|------------------|------------------|------------------|--------------------------|--------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| | SGM7A-01APK-YR1* | SGM7J-01APK-YR1* | SGM7J-02APK-YR1* | SGM7J-04APK-YR1* | SGM7G-05APK-YR1* | SGM7G-05APK-YR2* |
| SAP | 186772 | 186765 | 186762 | 186750 | 186825 | 195078 |
| A/B | [mm] 60 x 60 | 40 x 40 | 60 x 60 | 60 x 60 | 130 x 130 | 130 x 130 |
| C | [mm] 86.6 | 122 | 125.5 | 144 | 198 | 198 |
| D | [mm] 63.3 | 46 | 70 | 70 | 145 | 145 |
| E | [mm] 42.5 | 20 | 30 | 30 | 82 | 82 |
| F | [mm] 50 (h7) | 30 (h7) | 50 (h7) | 50 (h7) | 110 (h7) | 110 (h7) |
| G | [mm] 11.5 | 18.3 | 18.3 | 18.3 | 36 | 36 |
| H | [mm] 6.6 | 20 | 25 | 25 | 42 | 42 |
| I | [mm] 6 | 5 | 6 | 6 | 12 | 12 |
| J | [mm] 3 | 2.5 | 3 | 3 | 5 | 5 |
| K | [mm] 5.5 | 4.3 | 5.6 | 5.6 | 9 | 9 |
| M | [mm] 8 (h6) | 8 (h6) | 14 (h6) | 14 (h6) | 14 (h6) | 14 (h6) |
| N | [mm] 10 | 10 | 20 | 20 | 23 | 23 |
| O | [mm] 6 | 11 | 13 | 15 | 25 | 25 |
| P | [mm] — | — | — | — | 9 | 9 |
| R (radius) | [mm] 0.4 | 0.4 | 0.4 | 0.4 | 1 | 1 |
| Feather key | — | — | — | — | DIN 6885-B 5 x 5 x 20 | DIN 6885-B 5 x 5 x 20 |
| Threaded hole Thread depth | [mm] M4 x 10 | M4 x 10 | M4 x 10 | M5 x 14 | M5 x 15 | M5 x 15 |

Technical Data SGM7 Servomotors

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|---|------------------|------------------|------------------|------------------|-------------------|-------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| | SGM7A-01APK-YR1* | SGM7J-01APK-YR1* | SGM7J-02APK-YR1* | SGM7J-04APK-YR1* | SGM7G-05APK-YR1* | SGM7G-05APK-YR2* |
| Rated power ^{1) 3)} [kW] | 0.1 | 0.1 | 0.2 | 0.4 | 0.45 | 0.45 |
| Nominal torque ^{1) 3)} [Nm] | 0.318 | 0.318 | 0.83 | 1.4 | 2.86 | 2.86 |
| Continuous max. torque [Nm] | 0.318 | 0.318 | 0.83 | 1.4 | 2.94 | 2.94 |
| Rated speed ^{1) 3)} [min ⁻¹] | 3000 | 3000 | 2300 | 2700 | 1500 | 1500 |
| Nominal current ^{1) 3)} [A eff.] | 0.78 | 0.85 | 2 | 2.8 | 7.3 | 7.3 |
| Rated power [kW/s] | 7.22 | 13.8 | 20.9 | 32.5 | 9.7 | 9.7 |
| Nominal angle acceleration [Rad/s ²] | 22700 | 43200 | 25200 | 23200 | 3400 | 3400 |
| Peak torque [Nm] | 0.955 | 1.11 | 2.23 | 4.46 | 8 | 8 |
| Peak current [A eff.] | 2.6 | 3.1 | 5.8 | 9.3 | 19.6 | 19.6 |
| Max. speed [min ⁻¹] | 7000 | 7000 | 7000 | 7000 | 6200 | 6200 |
| Moment of inertia [kg x m ² x 10 ⁻⁴] | 0.14 | 0.0735 | 0.329 | 0.603 | 8.42 | 8.42 |
| Torque constant [Nm/A eff.] | 0.453 | 0.413 | 0.444 | 0.544 | 0.444 | 0.444 |
| Temperature class | B | B | B | B | F | F |
| Input voltage [V] | 200 | 200 | 200 | 200 | 200 | 200 |
| Holding torque motor brake [Nm] | 0.318 | 0.318 | 0.83 | 1.4 | 2.9 | 4.3 |
| Input voltage motor brake [DC V] | 24 | 24 | 24 | 24 | 24 | 24 |
| Heat sink [mm] | Al 250 x 250 x 6 | Al 200 x 200 x 6 | Al 250 x 250 x 6 | Al 250 x 250 x 6 | Fe 400 x 400 x 20 | Fe 400 x 400 x 20 |

Diagram Speed ^{1) 2)}/Torque

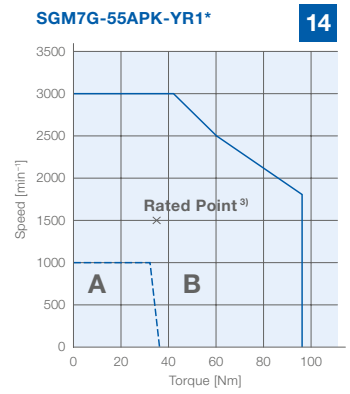
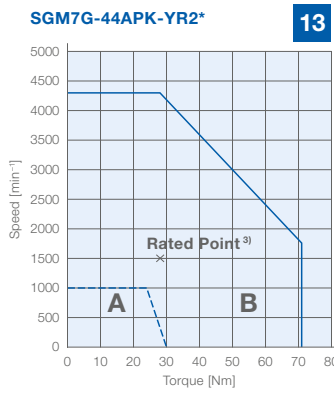
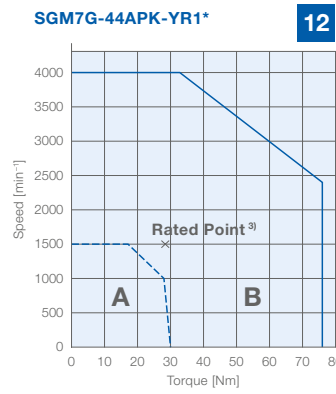
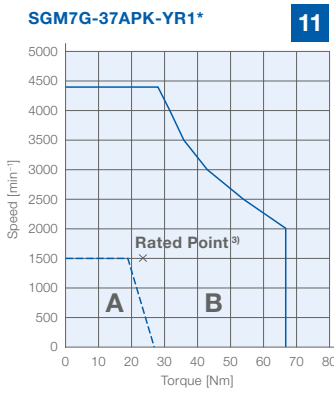
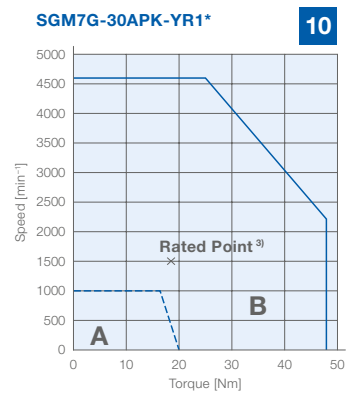
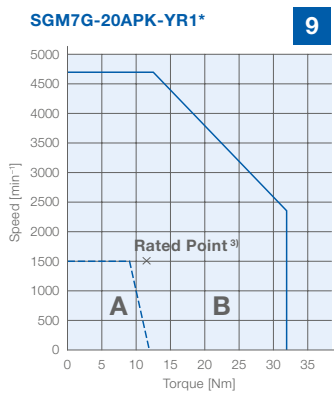
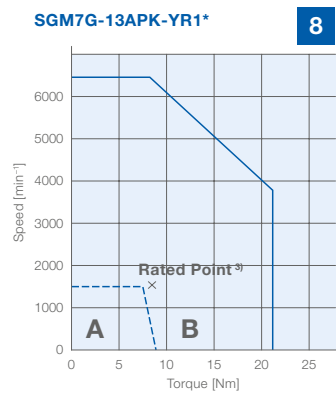
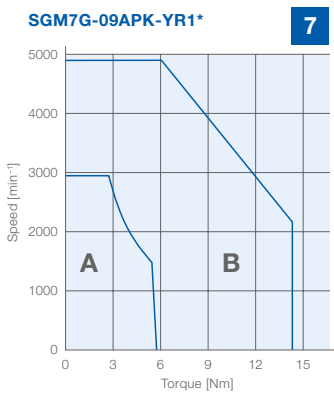


A: Continuous duty zone
B: Intermittent duty zone

Note:

- 1) The Torque-Speed characteristic are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100°C.
- 2) The rated torque is the continuous allowable torque value at the ambient temperature of 45°C with an heat sink.
- 3) Continuous duty zone of this motor is limited to the dotted line on left figure due to allowable temperature of each part of the motor.

| Models | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| SGM7G-09APK-YR1* | SGM7G-13APK-YR1* | SGM7G-20APK-YR1* | SGM7G-30APK-YR1* | SGM7G-37APK-YR1* | SGM7G-44APK-YR1* | SGM7G-44APK-YR2* | SGM7G-55APK-YR1* |
| 0.85 | 1.3 | 1.8 | 2.9 | 3.7 | 4.4 | 4.4 | 5.5 |
| 5.39 | 8.34 | 11.5 | 18.5 | 23.5 | 28.4 | 28.4 | 35 |
| 5.68 | 8.83 | 12 | 19.8 | 27 | 30.1 | 30.1 | 36.1 |
| 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| 6.9 | 13.8 | 16.4 | 22.2 | 22.8 | 25.6 | 27.6 | 24.7 |
| 20.9 | 35.9 | 52.7 | 63.4 | 85 | 55.6 | 106.8 | 84.5 |
| 3880 | 4300 | 4580 | 3430 | 3620 | 1960 | 3760 | 2410 |
| 14.2 | 21 | 32 | 48 | 67 | 76 | 71 | 96 |
| 17 | 35 | 47 | 60.5 | 68 | 68 | 71 | 67 |
| 5000 | 6000 | 4700 | 4600 | 4400 | 4000 | 4300 | 3000 |
| 13.9 | 19.4 | 25.1 | 54 | 65 | 145 | 75.5 | 145 |
| 0.859 | 0.647 | 0.748 | 0.859 | 1.09 | 1.18 | 1.09 | 1.51 |
| F | F | F | F | F | F | F | F |
| 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| 8 | 12.7 | 19.6 | 28.4 | 43.1 | 43.1 | 43.1 | 74 |
| 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Fe 400 x 400 x 20 | Fe 400 x 400 x 20 | Fe 400 x 400 x 20 | Fe 550 x 550 x 30 | Fe 550 x 550 x 30 | Fe 550 x 550 x 30 | Fe 550 x 550 x 30 | Fe 550 x 550 x 30 |



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All drawing dimensions in mm.
Technical data may be subject to change without previous notice.
Please request detailed drawings at robotics@yaskawa.eu.

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