

# Accurax G5 Servo System

Extreme mechatronics meets X-Stream Automation



» Sub micron precision and ms settling time

» Motion network and safety built-in

» Double registration and full closed loop

## Extreme mechatronics... At the heart of every great machine

*Great machines are born from a perfect match between control and mechanics. Accurax G5 gives you the extra edge to build more accurate, faster, smaller and safer machines. You will benefit from an almost 25% reduction in motor weight, and gain 50% cabinet space.*

*You will achieve sub micron precision and ms settling time. Some might call it perfection, we just call it tireless innovation to help you build great machines.*

### Rugged and smart design

- IP67 motor and connectors
- No flying leads
- 5G vibration resistance

### 40% reduction in motor cogging

- Use of 10 pole motors
- Improved technology to minimize the encoder non-linear errors

### 8 times higher resolution

- 20 bit encoder
- Faster processor

**EtherCAT** 

### EtherCAT connectivity

- Compliant with CoE –CiA402 Drive Profile–
- Cyclic synchronous Position, Velocity and Torque modes
- Embedded Gear Ratio, Homing and Profile Position mode
- Distributed clock to ensure high precision synchronization



### 25% lighter and 15% smaller

- Patented new stator PACK & CLAMP technology
- 40% reduction in iron losses
- 45% smaller encoder

**Up to 50% cabinet size reduction**

- Up to 40% smaller drive
- Extra 10% saving thanks to side by side mounting

**Safety conformance**

- PL-d according ISO13849-1:2008
- STO: IEC61800-5-2:2007
- SIL2 according to EN61508:2001
- Cat.3: EN954-1:1996



**Fast & accurate**

- 5 times faster settling time -0~2 ms
- 2 kHz speed response
- Torque feed forward reduces following error

50%

**Settling time**



**Speed response**



**Torque feed forward**



**100,000 hr operation in rugged industrial conditions**

- No fan below 1 kW
- Long life capacitors

**Load vibration suppression**

- Up to 4 preset frequencies
- Setting frequency from 1 to 200Hz



**Vibration suppression**



# ...meets X-Stream Automation

Accurax G5 is perfectly integrated into the new Sysmac automation platform. The servo is fully configured through the one software Sysmac Studio that includes configuration, programming, simulation and monitoring for the complete machine. The built-in EtherCAT connectivity with the distributed clock functionality allows accurate synchronization between all servos with less than 1 $\mu$  jitter. Accurax G5 also simplifies your mechanical and electrical design by including double registration input, full closed loop and multi-drive safety functionality.

① **Built-in safety: multi-drives in a single safety relay circuit**  
The two safety inputs and the external device monitoring (EDM) output can be linked from one servo drive to another without using additional safety relays. Up to 8 servo drives can be connected to a single safety relay, saving hardware and wiring costs.

② **Full closed loop**  
Accurax G5 has a built-in external encoder input for full closed loop operation, for when additional accuracy is required. The external encoder input eliminates the errors caused by, for example, slip in the material.

③ **Double registration input**  
Accurax G5 increases application versatility by providing 2 independent registration inputs per axis, especially relevant for applications such as flow wrappers. By registering the product input position and the mark position on the film, the system can make relative corrections ensuring high accuracy with a simple mechanical design.

INTEGRATED  
FUNCTIONALITY



NJ Series Controller

NS HMI

Ethernet

EtherCAT

**Open connectivity**

- EtherCAT (built-in)
- DeviceNet
- EtherNet/IP (built-in)
- PROFIBUS
- PROFINET

ETHERNET  
CONNECTIVITY

INTUITIVE  
SOFTWARE

**One software - One connection**

- Full access to all devices from one connection
- One software for machine control programming and system setup



Sysmac Studio

R88D-KN□□□-ECT, R88D-KN□□□-ML2, R88D-KT□

# Accurax G5 Servo System

**Accurate motion control in a compact size servo drive family. EtherCAT and safety built-in.**

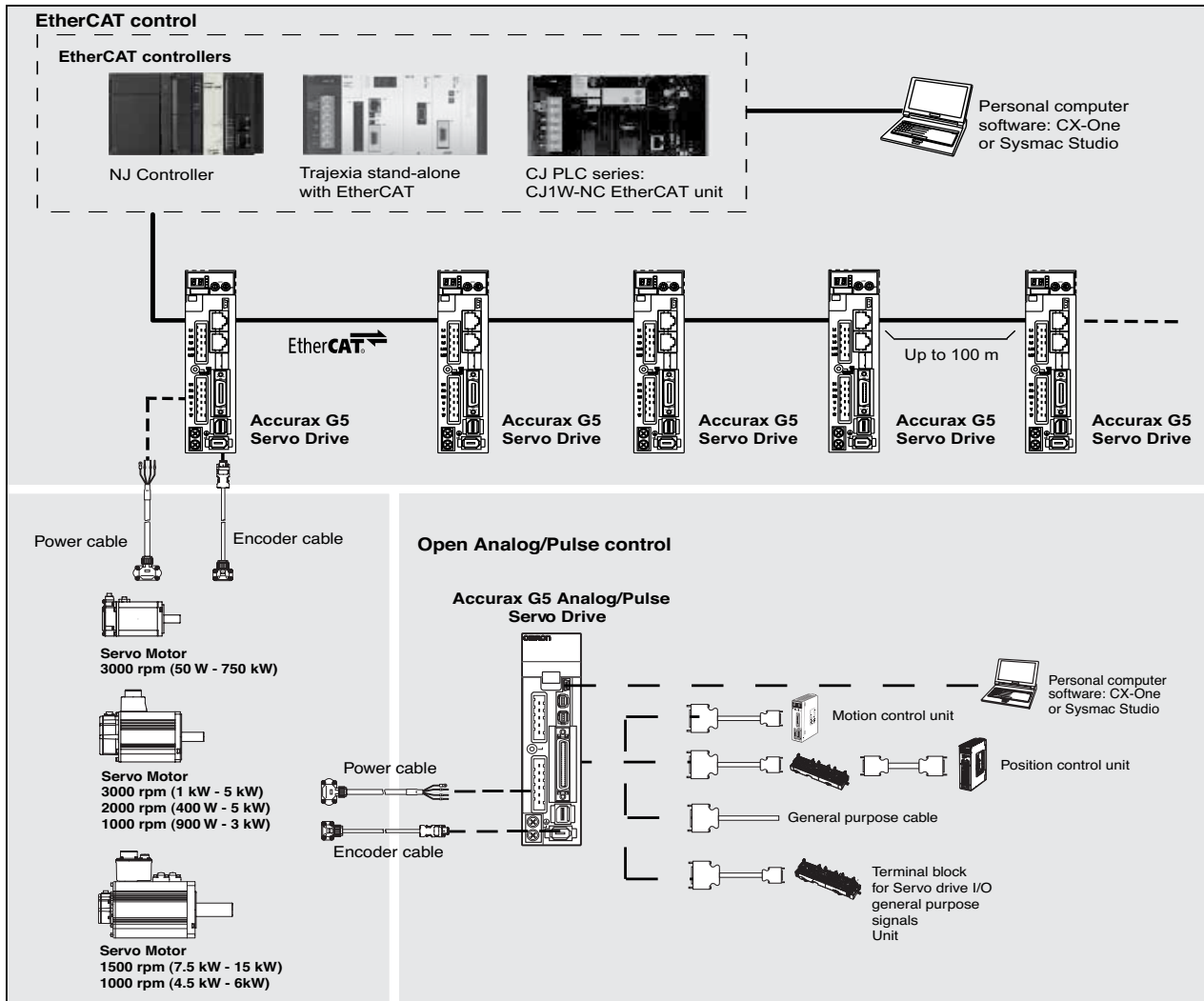
- EtherCAT, ML-II and Analog/Pulse servo drive models
- Safety conforming ISO13849-1 Performance Level D
- High-response frequency of 2 kHz
- High accuracy provided by 20 bits encoder
- Full closed loop encoder built-in
- Real time auto-tuning
- Advanced tuning algorithms (Anti-vibration function, torque feedforward, disturbance observer)
- IP67 protection in all motor models
- Drive Programming: embedded indexer functionality in the Analog/Pulse models



**Ratings**

- 120 VAC Single-phase 50 W to 400 W
- 230 VAC Single-phase 50 W to 1.5 kW
- 230 VAC Three-phase 2 kW to 5 kW
- 460 VAC Three-phase 600 W to 15 kW

**System Configuration**



**Servo Motor Type Designation**

**R88M-K05030H-BOS2**

Accurax G5 Series servo motor

Capacity

|     |        |      |        |
|-----|--------|------|--------|
| 050 | 50 W   | 2K0  | 2 kW   |
| 100 | 100 W  | 3K0  | 3 kW   |
| 200 | 200 W  | 4K0  | 4 kW   |
| 400 | 400 W  | 5K0  | 5 kW   |
| 600 | 600 W  | 6K0  | 6 kW   |
| 750 | 750 W  | 7K5  | 7.5 kW |
| 900 | 900 W  | 11K0 | 11 kW  |
| 1K0 | 1 kW   | 15K0 | 15 kW  |
| 1K5 | 1.5 kW |      |        |

Rated Speed (r/min)

|    |      |
|----|------|
| 10 | 1000 |
| 15 | 1500 |
| 20 | 2000 |
| 30 | 3000 |

Shaft end specifications

|       |                                  |
|-------|----------------------------------|
| Blank | Straight shaft, no key           |
| S2    | Straight, key, tapped (standard) |

Oil seal specifications

|       |             |
|-------|-------------|
| Blank | No oil seal |
| O     | Oil seal    |

Brake specifications

|       |          |
|-------|----------|
| Blank | No brake |
| B     | Brake    |

Voltage and encoder specifications

L: 120 V and 20-bit incremental encoder

S: 120 V and 17-bit absolute encoder

H: 230 V and 20-bit incremental encoder

T: 230 V and 17-bit absolute encoder

F: 460 V and 20-bit incremental encoder

C: 460 V and 17-bit absolute encoder

**Servo Drive Type Designation**

**R88D-KN01H-ECT**

Accurax G5 Series servo drive

Drive Type

T: Analog/Pulse type

N: Network type

Model

Blank: Analog/Pulse type

ECT: EtherCAT comms

ML2: MECHATROLINK-II comms

Capacity and Voltage

| Voltage | Code    | Output |
|---------|---------|--------|
| 120 V   | A5L     | 50 W   |
|         | 01L     | 100 W  |
|         | 02L     | 200 W  |
|         | 04L     | 400 W  |
| 230 V   | 01H     | 100 W  |
|         | 02H     | 200 W  |
|         | 04H     | 400 W  |
|         | 08H     | 750 W  |
|         | 10H     | 1 kW   |
|         | 15H     | 1.5 kW |
|         | 20H     | 2.0 kW |
|         | 30H     | 3.0 kW |
| 460 V   | 50H     | 5.0 kW |
|         | 75H     | 7.5 kW |
|         | 06F     | 600 W  |
|         | 10F     | 1.0 kW |
|         | 15F     | 1.5 kW |
|         | 20F     | 2.0 kW |
|         | 30F     | 3.0 kW |
|         | 50F     | 5.0 kW |
| 75F     | 7.5 kW  |        |
| 150F    | 15.0 kW |        |

Servo Motor/Servo Drive Combination

Servo System Compatibility

| Appearance                                                                          | Accurax G5 rotary servo motor |                        |              |                    |                    | Accurax G5 servo drive models |                |                 |
|-------------------------------------------------------------------------------------|-------------------------------|------------------------|--------------|--------------------|--------------------|-------------------------------|----------------|-----------------|
|                                                                                     | Voltage                       | Speed                  | Rated torque | Capacity           | Model              | EtherCAT                      | Analog/Pulse   | MECHATROLINK-II |
|    | 120 V                         | 3000 min <sup>-1</sup> | 0.16 N•m     | 50 W               | R88M-K05030(H/T)-□ | R88D-KNA5L-ECT                | R88D-KTA5L     | R88D-KNA5L-ML2  |
|                                                                                     |                               |                        | 0.32 N•m     | 100 W              | R88M-K10030(L/S)-□ | R88D-KN01L-ECT                | R88D-KT01L     | R88D-KN01L-ML2  |
|                                                                                     |                               |                        | 0.64 N•m     | 200 W              | R88M-K20030(L/S)-□ | R88D-KN02L-ECT                | R88D-KT02L     | R88D-KN02L-ML2  |
|                                                                                     |                               |                        | 1.3 N•m      | 400 W              | R88M-K40030(L/S)-□ | R88D-KN04L-ECT                | R88D-KT04L     | R88D-KN04L-ML2  |
|    | 230 V                         | 3000 min <sup>-1</sup> | 0.16 N•m     | 50 W               | R88M-K05030(H/T)-□ | R88D-KN01H-ECT                | R88D-KT01H     | R88D-KN01H-ML2  |
|                                                                                     |                               |                        | 0.32 N•m     | 100 W              | R88M-K10030(H/T)-□ | R88D-KN01H-ECT                | R88D-KT01H     | R88D-KN01H-ML2  |
|                                                                                     |                               |                        | 0.64 N•m     | 200 W              | R88M-K20030(H/T)-□ | R88D-KN02H-ECT                | R88D-KT02H     | R88D-KN02H-ML2  |
|                                                                                     |                               |                        | 1.3 N•m      | 400 W              | R88M-K40030(H/T)-□ | R88D-KN04H-ECT                | R88D-KT04H     | R88D-KN04H-ML2  |
|                                                                                     |                               |                        | 2.4 N•m      | 750 W              | R88M-K75030(H/T)-□ | R88D-KN08H-ECT                | R88D-KT08H     | R88D-KN08H-ML2  |
|                                                                                     |                               |                        | 3.18 N•m     | 1000 W             | R88M-K1K030(H/T)-□ | R88D-KN15H-ECT                | R88D-KT15H     | R88D-KN15H-ML2  |
|    | 230 V                         | 3000 min <sup>-1</sup> | 4.77 N•m     | 1500 W             | R88M-K1K530(H/T)-□ | R88D-KN15H-ECT                | R88D-KT15H     | R88D-KN15H-ML2  |
|                                                                                     |                               |                        | 6.37 N•m     | 2000 W             | R88M-K2K030(H/T)-□ | R88D-KN20H-ECT                | R88D-KT20H     | R88D-KN20H-ML2  |
|                                                                                     |                               |                        | 9.55 N•m     | 3000 W             | R88M-K3K030(H/T)-□ | R88D-KN30H-ECT                | R88D-KT30H     | R88D-KN30H-ML2  |
|                                                                                     |                               |                        | 12.7 N•m     | 4000 W             | R88M-K4K030(H/T)-□ | R88D-KN50H-ECT                | R88D-KT50H     | R88D-KN50H-ML2  |
|                                                                                     |                               |                        | 15.9 N•m     | 5000 W             | R88M-K5K030(H/T)-□ | R88D-KN50H-ECT                | R88D-KT50H     | R88D-KN50H-ML2  |
|                                                                                     |                               |                        | 2.39 N•m     | 750 W              | R88M-K75030(F/C)-□ | R88D-KN10F-ECT                | R88D-KT10F     | R88D-KN10F-ML2  |
|                                                                                     |                               |                        | 3.18 N•m     | 1000 W             | R88M-K1K030(F/C)-□ | R88D-KN15F-ECT                | R88D-KT15F     | R88D-KN15F-ML2  |
|                                                                                     |                               |                        | 4.77 N•m     | 1500 W             | R88M-K1K530(F/C)-□ | R88D-KN15F-ECT                | R88D-KT15F     | R88D-KN15F-ML2  |
|                                                                                     |                               |                        | 6.37 N•m     | 2000 W             | R88M-K2K030(F/C)-□ | R88D-KN20F-ECT                | R88D-KT20F     | R88D-KN20F-ML2  |
|                                                                                     | 460 V                         | 3000 min <sup>-1</sup> | 9.55 N•m     | 3000 W             | R88M-K3K030(F/C)-□ | R88D-KN30F-ECT                | R88D-KT30F     | R88D-KN30F-ML2  |
|                                                                                     |                               |                        | 12.7 N•m     | 4000 W             | R88M-K4K030(F/C)-□ | R88D-KN50F-ECT                | R88D-KT50F     | R88D-KN50F-ML2  |
|                                                                                     |                               |                        | 15.9 N•m     | 5000 W             | R88M-K5K030(F/C)-□ | R88D-KN50F-ECT                | R88D-KT50F     | R88D-KN50F-ML2  |
|                                                                                     |                               |                        | 4.77 N•m     | 1000 W             | R88M-K1K020(H/T)-□ | R88D-KN10H-ECT                | R88D-KT10H     | R88D-KN10H-ML2  |
|                                                                                     |                               |                        | 7.16 N•m     | 1500 W             | R88M-K1K520(H/T)-□ | R88D-KN15H-ECT                | R88D-KT15H     | R88D-KN15H-ML2  |
|                                                                                     |                               |                        | 9.55 N•m     | 2000 W             | R88M-K2K020(H/T)-□ | R88D-KN20H-ECT                | R88D-KT20H     | R88D-KN20H-ML2  |
|                                                                                     |                               |                        | 14.3 N•m     | 3000 W             | R88M-K3K020(H/T)-□ | R88D-KN30H-ECT                | R88D-KT30H     | R88D-KN30H-ML2  |
|                                                                                     |                               |                        | 19.1 N•m     | 4000 W             | R88M-K4K020(H/T)-□ | R88D-KN50H-ECT                | R88D-KT50H     | R88D-KN50H-ML2  |
|                                                                                     |                               |                        | 23.9 N•m     | 5000 W             | R88M-K5K020(H/T)-□ | R88D-KN50H-ECT                | R88D-KT50H     | R88D-KN50H-ML2  |
| 460 V                                                                               | 2000 min <sup>-1</sup>        | 1.91 N•m               | 400 W        | R88M-K40020(F/C)-□ | R88D-KN06F-ECT     | R88D-KT06F                    | R88D-KN06F-ML2 |                 |
|                                                                                     |                               | 2.86 N•m               | 600 W        | R88M-K60020(F/C)-□ | R88D-KN06F-ECT     | R88D-KT06F                    | R88D-KN06F-ML2 |                 |
|                                                                                     |                               | 4.77 N•m               | 1000 W       | R88M-K1K020(F/C)-□ | R88D-KN10F-ECT     | R88D-KT10F                    | R88D-KN10F-ML2 |                 |
|                                                                                     |                               | 7.16 N•m               | 1500 W       | R88M-K1K520(F/C)-□ | R88D-KN15F-ECT     | R88D-KT15F                    | R88D-KN15F-ML2 |                 |
|                                                                                     |                               | 9.55 N•m               | 2000 W       | R88M-K2K020(F/C)-□ | R88D-KN20F-ECT     | R88D-KT20F                    | R88D-KN20F-ML2 |                 |
|                                                                                     |                               | 14.3 N•m               | 3000 W       | R88M-K3K020(F/C)-□ | R88D-KN30F-ECT     | R88D-KT30F                    | R88D-KN30F-ML2 |                 |
|                                                                                     | 1500 min <sup>-1</sup>        | 19.1 N•m               | 4000 W       | R88M-K4K020(F/C)-□ | R88D-KN50F-ECT     | R88D-KT50F                    | R88D-KN50F-ML2 |                 |
|                                                                                     |                               | 23.9 N•m               | 5000 W       | R88M-K5K020(F/C)-□ | R88D-KN50F-ECT     | R88D-KT50F                    | R88D-KN50F-ML2 |                 |
|                                                                                     |                               | 47.8 N•m               | 7500 W       | R88M-K7K515C-□     | R88D-KN75F-ECT     | R88D-KT75F                    | -              |                 |
|                                                                                     |                               | 70.0 N•m               | 11000 W      | R88M-K11K015C-□    | R88D-KN150F-ECT    | R88D-KT150F                   | -              |                 |
|                                                                                     |                               | 95.5 N•m               | 15000 W      | R88M-K15K015C-□    | R88D-KN150F-ECT    | R88D-KT150F                   | -              |                 |
|                                                                                     |                               | -                      | -            | -                  | -                  | -                             | -              | -               |
|  | 230 V                         | 1000 min <sup>-1</sup> | 8.59 N•m     | 900 W              | R88M-K90010(H/T)-□ | R88D-KN15H-ECT                | R88D-KT15H     | R88D-KN15H-ML2  |
|                                                                                     |                               |                        | 19.1 N•m     | 2000 W             | R88M-K2K010(H/T)-□ | R88D-KN30H-ECT                | R88D-KT30H     | R88D-KN30H-ML2  |
|                                                                                     |                               |                        | 28.7 N•m     | 3000 W             | R88M-K3K010(H/T)-□ | R88D-KN50H-ECT                | R88D-KT50H     | R88D-KN50H-ML2  |
|                                                                                     | 460 V                         | 1000 min <sup>-1</sup> | 8.59 N•m     | 900 W              | R88M-K90010(F/C)-□ | R88D-KN15F-ECT                | R88D-KT15F     | R88D-KN15F-ML2  |
|                                                                                     |                               |                        | 19.1 N•m     | 2000 W             | R88M-K2K010(F/C)-□ | R88D-KN30F-ECT                | R88D-KT30F     | R88D-KN30F-ML2  |
|                                                                                     |                               |                        | 28.7 N•m     | 3000 W             | R88M-K3K010(F/C)-□ | R88D-KN50F-ECT                | R88D-KT50F     | R88D-KN50F-ML2  |
|                                                                                     |                               |                        | 43.0 N•m     | 4500 W             | R88M-K4K510C-□     | R88D-KN50F-ECT                | R88D-KT50F     | R88D-KN50F-ML2  |
|                                                                                     |                               |                        | 57.3 N•m     | 6000 W             | R88M-K6K010C-□     | R88D-KN75F-ECT                | R88D-KT75F     | -               |



**Servo Motor Specifications**

**Servo motors 3000 r/min rated speed driven with single-phase, 120 V servo drive**

| Servo drive input voltage             |                                                     | Single-phase, 120 V                                                                       |          |          |          |        |
|---------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------|----------|----------|----------|--------|
| Applicable servo motor R88M-K□        | 20-bit incremental encoder                          | 05030H-□                                                                                  | 10030L-□ | 20030L-□ | 40030L-□ |        |
|                                       | 17-bit absolute encoder                             | 05030T-□                                                                                  | 10030S-□ | 20030S-□ | 40030S-□ |        |
| Rated output                          | W                                                   | 50                                                                                        | 100      | 200      | 400      |        |
| Rated torque                          | N•m                                                 | 0.16                                                                                      | 0.32     | 0.64     | 1.3      |        |
| Instantaneous peak torque             | N•m                                                 | 0.48                                                                                      | 0.95     | 1.91     | 3.8      |        |
| Rated current                         | A (rms)                                             | 1.1                                                                                       | 1.6      | 2.5      | 4.6      |        |
| Instantaneous max. current            | A (rms)                                             | 4.7                                                                                       | 6.9      | 10.6     | 19.5     |        |
| Rated speed                           | r/min                                               | 3,000                                                                                     |          |          |          |        |
| Max. speed                            | r/min                                               | 6,000                                                                                     |          |          |          |        |
| Torque constant                       | N•m/ A (rms)                                        | 0.11±10%                                                                                  | 0.14±10% | 0.20±10% | 0.21±10% |        |
| Rotor moment of inertia (JM)          | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 0.025                                                                                     | 0.051    | 0.14     | 0.26     |        |
|                                       | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 0.027                                                                                     | 0.054    | 0.16     | 0.28     |        |
| Allowable load moment of inertia (JL) | Multiple of (JM)                                    | 30 times the rotor inertia max.                                                           |          |          |          |        |
| Rated power rate                      | kW/s (without brake)                                | 10.1                                                                                      | 19.8     | 28.9     | 62.3     |        |
|                                       | kW/s (with brake)                                   | 9.4                                                                                       | 18.7     | 25.3     | 57.8     |        |
| Allowable radial load                 | N                                                   | 68                                                                                        | 68       | 245      | 245      |        |
| Allowable thrust load                 | N                                                   | 58                                                                                        | 58       | 98       | 98       |        |
| Approx. weight                        | kg (without brake)                                  | 0.31                                                                                      | 0.45     | 0.78     | 1.2      |        |
|                                       | kg (with brake)                                     | 0.51                                                                                      | 0.65     | 1.2      | 1.6      |        |
| Brake specifications                  | Rated voltage                                       | 24 VDC±10%                                                                                |          |          |          |        |
|                                       | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                                                       | 0.0002   | 0.0002   | 0.0018   | 0.0018 |
|                                       | Power consumption (at 20°C)                         | W                                                                                         | 7        | 7        | 9        | 9      |
|                                       | Current consumption (at 20°C)                       | A                                                                                         | 0.3      | 0.3      | 0.36     | 0.36   |
|                                       | Static friction torque                              | N•m (minimum)                                                                             | 0.29     | 0.29     | 1.27     | 1.27   |
|                                       | Rise time for holding torque                        | ms (max.)                                                                                 | 35       | 35       | 50       | 50     |
|                                       | Release time                                        | ms (max.)                                                                                 | 20       | 20       | 15       | 20     |
| Basic specifications                  | Time rating                                         | Continuous                                                                                |          |          |          |        |
|                                       | Insulation class                                    | Type B                                                                                    |          |          |          |        |
|                                       | Ambient operating/storage temperature               | 0 to +40°C/-20 to +65°C                                                                   |          |          |          |        |
|                                       | Ambient operating/storage humidity (RH)             | 20% to 85% (non-condensing)                                                               |          |          |          |        |
|                                       | Vibration class                                     | V-15                                                                                      |          |          |          |        |
|                                       | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal                         |          |          |          |        |
|                                       | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening and motor and encoder pins) |          |          |          |        |
|                                       | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                                                |          |          |          |        |
|                                       | Mounting                                            | Flange-mounted                                                                            |          |          |          |        |

**Torque-speed characteristics**

**R88M-K05030(H/T)-□ (50 W)**



**R88M-K10030(L/S)-□ (100 W)**



**R88M-K20030(L/S)-□ (200 W)**



**R88M-K40030(L/S)-□ (400 W)**



**Servo Motor Specifications**

**Servo motors 3000 r/min rated speed driven with single-phase, 230 V servo drive**

| Servo drive input voltage             |                                                     | Single-phase, 230 V                                               |          |          |          |          |          |                             |
|---------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------|----------|----------|----------|----------|----------|-----------------------------|
| Servo motor model R88M-K□             | 20-bit incremental encoder                          | 05030H-□                                                          | 10030H-□ | 20030H-□ | 40030H-□ | 75030H-□ | 1K030H-□ | 1K530H-□                    |
|                                       | 17-bit absolute encoder                             | 05030T-□                                                          | 10030T-□ | 20030T-□ | 40030T-□ | 75030T-□ | 1K030T-□ | 1K530T-□                    |
| Rated output                          | W                                                   | 50                                                                | 100      | 200      | 400      | 750      | 1000     | 1500                        |
| Rated torque                          | N•m                                                 | 0.16                                                              | 0.32     | 0.64     | 1.3      | 2.4      | 3.18     | 4.77                        |
| Instantaneous peak torque             | N•m                                                 | 0.48                                                              | 0.95     | 1.91     | 3.8      | 7.1      | 9.55     | 14.3                        |
| Rated current                         | A (rms)                                             | 1.2                                                               | 1.1      | 1.5      | 2.4      | 4.1      | 6.6      | 8.2                         |
| Instantaneous max. current            | A (rms)                                             | 5.1                                                               | 4.7      | 6.5      | 10.2     | 17.4     | 28       | 35                          |
| Rated speed                           | r/min                                               | 3,000                                                             |          |          |          |          |          |                             |
| Max. speed                            | r/min                                               | 6,000                                                             |          |          |          |          |          | 5,000                       |
| Torque constant                       | N•m/ A (rms)                                        | 0.11±10%                                                          | 0.21±10% | 0.31±10% | 0.39±10% | 0.42±10% | 0.37     | 0.45                        |
| Rotor moment of inertia (JM)          | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 0.025                                                             | 0.051    | 0.14     | 0.26     | 0.87     | 2.03     | 2.84                        |
|                                       | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 0.027                                                             | 0.054    | 0.16     | 0.28     | 0.97     | 2.35     | 3.17                        |
| Allowable load moment of inertia (JL) | Multiple of (JM)                                    | 30                                                                |          |          |          | 20       | 15       |                             |
| Rated power rate                      | kW/s (without brake)                                | 10.1                                                              | 19.9     | 29.0     | 62.4     | 65.6     | 49.8     | 80.1                        |
|                                       | kW/s (with brake)                                   | 9.4                                                               | 18.8     | 25.4     | 58       | 58.8     | 43       | 71.8                        |
| Allowable radial load                 | N                                                   | 68                                                                |          | 245      |          | 490      |          |                             |
| Allowable thrust load                 | N                                                   | 58                                                                |          | 98       |          | 196      |          |                             |
| Approx. mass                          | kg (without brake)                                  | 0.32                                                              | 0.47     | 0.82     | 1.2      | 2.3      | 3.5      | 4.4                         |
|                                       | kg (with brake)                                     | 0.53                                                              | 0.68     | 1.3      | 1.7      | 3.1      | 4.5      | 5.4                         |
| Brake specifications                  | Rated voltage                                       | 24 VDC±10%                                                        |          |          |          |          |          |                             |
|                                       | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                               | 0.002    |          | 0.0018   |          | 0.33     |                             |
|                                       | Power consumption (at 20°C)                         | W                                                                 | 7        |          | 9        |          | 17       | 19                          |
|                                       | Current consumption (at 20°C)                       | A                                                                 | 0.3      |          | 0.36     |          | 0.70±10% | 0.81±10%                    |
|                                       | Static friction torque                              | N•m (minimum)                                                     | 0.29     |          | 1.27     |          | 2.5      | 7.8                         |
|                                       | Rise time for holding torque                        | ms (max.)                                                         | 35       |          | 50       |          |          |                             |
|                                       | Release time                                        | ms (max.)                                                         |          | 20       |          | 15       |          |                             |
| Basic specifications                  | Time rating                                         | Continuous                                                        |          |          |          |          |          |                             |
|                                       | Insulation class                                    | Type B                                                            |          |          |          |          |          | Type F                      |
|                                       | Ambient operating/storage temperature               | 0 to +40°C/-20 to +65°C                                           |          |          |          |          |          |                             |
|                                       | Ambient operating/storage humidity (RH)             | 20% to 80% (non-condensing)                                       |          |          |          |          |          | 20% to 85% (non-condensing) |
|                                       | Vibration class                                     | V-15                                                              |          |          |          |          |          |                             |
|                                       | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal |          |          |          |          |          |                             |
|                                       | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening)    |          |          |          |          |          |                             |
|                                       | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                        |          |          |          |          |          |                             |
| Mounting                              | Flange-mounted                                      |                                                                   |          |          |          |          |          |                             |

**Torque-speed characteristics R88M-K05030H/T (50 W)**



**R88M-K10030H/T (100 W)**



**R88M-K20030H/T (200 W)**



**R88M-K40030H/T (400 W)**



**R88M-K75030H/T (750 W)**



**R88M-K1K030H/T (1 kW)**



**R88M-K1K530H/T (1.5 kW)**



**Servo Motor Specifications**

**Servo motors 3000 r/min rated speed driven with three-phase, 230 V servo drive**

| Servo drive input voltage     |                                                     | Three-phase, 230 V                                                                        |           |           |           |          |
|-------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------|-----------|-----------|-----------|----------|
| Applicable servo motor R88M-□ | 20-bit incremental encoder                          | K2K030H-□                                                                                 | K3K030H-□ | K4K030H-□ | K5K030H-□ |          |
|                               | 17-bit absolute encoder                             | K2K030T-□                                                                                 | K3K030T-□ | K4K030T-□ | K5K030T-□ |          |
| Rated output                  | kW                                                  | 2                                                                                         | 3         | 4         | 5         |          |
| Rated torque                  | N•m                                                 | 6.37                                                                                      | 9.55      | 12.7      | 15.9      |          |
| Instantaneous peak torque     | N•m                                                 | 19.1                                                                                      | 28.6      | 38.2      | 47.7      |          |
| Rated current                 | A (rms)                                             | 11.3                                                                                      | 18.1      | 19.6      | 24        |          |
| Instantaneous max. current    | A (rms)                                             | 48                                                                                        | 77        | 83        | 102       |          |
| Rated speed                   | r/min                                               | 3,000                                                                                     |           |           |           |          |
| Max. speed                    | r/min                                               | 5,000                                                                                     |           |           |           |          |
| Torque constant               | N•m/ A (rms)                                        | 0.44                                                                                      | 0.41      | 0.49      | 0.49      |          |
|                               | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 3.68                                                                                      | 6.5       | 12.9      | 17.4      |          |
| Rotor moment of inertia (JM)  | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 4.01                                                                                      | 7.85      | 14.2      | 18.6      |          |
|                               | Multiple of (JM)                                    | 15 times the rotor inertia max.                                                           |           |           |           |          |
| Rated power rate              | kW/s (without brake)                                | 110                                                                                       | 140       | 126       | 146       |          |
|                               | kW/s (with brake)                                   | 101                                                                                       | 116       | 114       | 136       |          |
| Allowable radial load         | N                                                   | 490                                                                                       | 490       | 784       | 784       |          |
| Allowable thrust load         | N                                                   | 196                                                                                       | 196       | 343       | 343       |          |
| Approx. weight                | kg (without brake)                                  | 5.3                                                                                       | 8.3       | 11        | 14        |          |
|                               | kg (with brake)                                     | 6.3                                                                                       | 9.4       | 12.6      | 16        |          |
| Brake specifications          | Rated voltage                                       | 24 VDC±10%                                                                                |           |           |           |          |
|                               | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                                                       | 0.33      | 0.33      | 1.35      | 1.35     |
|                               | Power consumption (at 20°C)                         | W                                                                                         | 19        | 19        | 22        | 22       |
|                               | Current consumption (at 20°C)                       | A                                                                                         | 0.81±10%  | 0.81±10%  | 0.90±10%  | 0.90±10% |
|                               | Static friction torque                              | N•m (minimum)                                                                             | 7.8       | 11.8      | 16.1      | 16.1     |
|                               | Rise time for holding torque                        | ms (max.)                                                                                 | 50        | 80        | 110       | 110      |
|                               | Release time                                        | ms (max.)                                                                                 | 15        | 15        | 50        | 50       |
| Basic specifications          | Time rating                                         | Continuous                                                                                |           |           |           |          |
|                               | Insulation class                                    | Type F                                                                                    |           |           |           |          |
|                               | Ambient operating/storage temperature               | 0 to +40°C/-20 to +65°C                                                                   |           |           |           |          |
|                               | Ambient operating/storage humidity (RH)             | 20% to 85% (non-condensing)                                                               |           |           |           |          |
|                               | Vibration class                                     | V-15                                                                                      |           |           |           |          |
|                               | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal                         |           |           |           |          |
|                               | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening and motor and encoder pins) |           |           |           |          |
|                               | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                                                |           |           |           |          |
| Mounting                      | Flange-mounted                                      |                                                                                           |           |           |           |          |

**Torque-speed characteristics**

**R88M-K2K030(H/T)-□ (2 kW)**



**R88M-K3K030(H/T)-□ (3 kW)**



**R88M-K4K030(H/T)-□ (4 kW)**



**R88M-K5K030(H/T)-□ (5 kW)**



**Servo Motor Specifications**

**Servo motors 3000 r/min rated speed driven with three-phase, 460 V servo drive**

| Servo drive input voltage             |                                                     | Three-phase, 460 V                                                |          |          |          |          |          |          |      |      |
|---------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------|----------|----------|----------|----------|----------|----------|------|------|
| Servo motor model R88M-K□             | 20-bit incremental encoder                          | 75030F-□                                                          | 1K030F-□ | 1K530F-□ | 2K030F-□ | 3K030F-□ | 4K030F-□ | 5K030F-□ |      |      |
|                                       | 17-bit absolute encoder                             | 75030C-□                                                          | 1K030C-□ | 1K530C-□ | 2K030C-□ | 3K030C-□ | 4K030C-□ | 5K030C-□ |      |      |
| Rated output                          | W                                                   | 750                                                               | 1000     | 1500     | 2000     | 3000     | 4000     | 5000     |      |      |
| Rated torque                          | N•m                                                 | 2.39                                                              | 3.18     | 4.77     | 6.37     | 9.55     | 12.7     | 15.9     |      |      |
| Instantaneous peak torque             | N•m                                                 | 7.16                                                              | 9.55     | 14.3     | 19.1     | 28.6     | 38.2     | 47.7     |      |      |
| Rated current                         | A (rms)                                             | 2.4                                                               | 3.3      | 4.2      | 5.7      | 9.2      | 9.9      | 12       |      |      |
| Instantaneous max. current            | A (rms)                                             | 10                                                                | 14       | 18       | 24       | 39       | 42       | 51       |      |      |
| Rated speed                           | r/min                                               | 3,000                                                             |          |          |          |          |          |          |      |      |
| Max. speed                            | r/min                                               | 5,000                                                             |          |          |          |          |          | 4,500    |      |      |
| Torque constant                       | N•m/ A (rms)                                        | 0.78                                                              | 0.75     | 0.89     | 0.87     | 0.81     | 0.98     |          |      |      |
| Rotor moment of inertia (JM)          | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 1.61                                                              | 2.03     | 2.84     | 3.68     | 6.5      | 12.9     | 17.4     |      |      |
|                                       | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 1.93                                                              | 2.35     | 3.17     | 4.01     | 7.85     | 14.2     | 18.6     |      |      |
| Allowable load moment of inertia (JL) | Multiple of (JM)                                    | 30                                                                |          |          |          |          |          |          |      |      |
| Rated power rate                      | kW/s (without brake)                                | 35.5                                                              | 49.8     | 80.1     | 110      | 140      | 126      | 146      |      |      |
|                                       | kW/s (with brake)                                   | 29.6                                                              | 43       | 71.8     | 101      | 116      | 114      | 136      |      |      |
| Allowable radial load                 | N                                                   | 490                                                               |          |          |          |          |          | 784      |      |      |
| Allowable thrust load                 | N                                                   | 196                                                               |          |          |          |          |          |          |      |      |
| Approx. mass                          | kg (without brake)                                  | 3.1                                                               | 3.5      | 4.4      | 5.3      | 8.3      | 11       | 14       |      |      |
|                                       | kg (with brake)                                     | 4.1                                                               | 4.5      | 5.4      | 6.3      | 9.4      | 12.6     | 16       |      |      |
| Brake specifications                  | Rated voltage                                       | 24 VDC±10%                                                        |          |          |          |          |          |          |      |      |
|                                       | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                               | 0.33     |          |          |          |          |          | 1.35 |      |
|                                       | Power consumption (at 20°C)                         | W                                                                 | 17       | 19       |          |          |          |          | 22   |      |
|                                       | Current consumption (at 20°C)                       | A                                                                 | 0.70±10% |          | 0.81±10% |          | 0.90±10% |          |      |      |
|                                       | Static friction torque                              | N•m (minimum)                                                     | 2.5      | 7.8      |          |          |          |          | 11.8 | 16.1 |
|                                       | Rise time for holding torque                        | ms (max.)                                                         | 50       |          |          |          |          |          | 110  |      |
|                                       | Release time                                        | ms (max.)                                                         | 15       |          |          |          |          |          | 50   |      |
| Basic specifications                  | Time rating                                         | Continuous                                                        |          |          |          |          |          |          |      |      |
|                                       | Insulation class                                    | Type F                                                            |          |          |          |          |          |          |      |      |
|                                       | Ambient operating/storage temperature               | 0 to +40°C/-20 to +65°C                                           |          |          |          |          |          |          |      |      |
|                                       | Ambient operating/storage humidity (RH)             | 20% to 85% (non-condensing)                                       |          |          |          |          |          |          |      |      |
|                                       | Vibration class                                     | V-15                                                              |          |          |          |          |          |          |      |      |
|                                       | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal |          |          |          |          |          |          |      |      |
|                                       | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening)    |          |          |          |          |          |          |      |      |
|                                       | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                        |          |          |          |          |          |          |      |      |
| Mounting                              | Flange-mounted                                      |                                                                   |          |          |          |          |          |          |      |      |

**Torque-speed characteristics**

**R88M-K75030F/C (750 W)**



**R88M-K1K030F/C (1 kW)**



**R88M-K1K530F/C (1.5 kW)**



**R88M-K2K030F/C (2 kW)**



**R88M-K3K030F/C (3 kW)**



**R88M-K4K030F/C (4 kW)**



**R88M-K5K030F/C (5 kW)**



**Servo Motor Specifications**

**Servo motors 2000 r/min rated speed driven with three-phase, 230 V servo drive**

| Servo drive input voltage             |                                                     | Three-phase, 230 V                                                                        |           |           |           |           |           |         |
|---------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|---------|
| Applicable servo motor R88M-□         | 20-bit incremental encoder                          | K1K020H-□                                                                                 | K1K520H-□ | K2K020H-□ | K3K020H-□ | K4K020H-□ | K5K020H-□ |         |
|                                       | 17-bit absolute encoder                             | K1K020T-□                                                                                 | K1K520T-□ | K2K020T-□ | K3K020T-□ | K4K020T-□ | K5K020T-□ |         |
| Rated output                          | kW                                                  | 1                                                                                         | 1.5       | 2         | 3         | 4         | 5         |         |
| Rated torque                          | N•m                                                 | 4.77                                                                                      | 7.16      | 9.55      | 14.3      | 19.1      | 23.9      |         |
| Instantaneous peak torque             | N•m                                                 | 14.3                                                                                      | 21.5      | 28.6      | 43        | 57.3      | 71.6      |         |
| Rated current                         | A (rms)                                             | 5.7                                                                                       | 9.4       | 11.5      | 17.4      | 21        | 25.9      |         |
| Instantaneous max. current            | A (rms)                                             | 24                                                                                        | 40        | 49        | 74        | 89        | 110       |         |
| Rated speed                           | r/min                                               | 2000                                                                                      |           |           |           |           |           |         |
| Max. speed                            | r/min                                               | 3000                                                                                      |           |           |           |           |           |         |
| Torque constant                       | N•m/ A (rms)                                        | 0.63                                                                                      | 0.58      | 0.64      | 0.59      | 0.7       | 0.7       |         |
| Rotor moment of inertia (JM)          | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 4.6                                                                                       | 6.7       | 8.72      | 12.9      | 37.6      | 48        |         |
|                                       | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 5.9                                                                                       | 7.99      | 10        | 14.2      | 38.6      | 48.8      |         |
| Allowable load moment of inertia (JL) | Multiple of (JM)                                    | 10 times the rotor inertia max.                                                           |           |           |           |           |           |         |
| Rated power rate                      | kW/s (without brake)                                | 49.5                                                                                      | 76.5      | 105       | 159       | 97.1      | 119       |         |
|                                       | kW/s (with brake)                                   | 38.6                                                                                      | 64.2      | 91.2      | 144       | 94.5      | 117       |         |
| Allowable radial load                 | N                                                   | 490                                                                                       | 490       | 490       | 784       | 784       | 784       |         |
| Allowable thrust load                 | N                                                   | 196                                                                                       | 196       | 196       | 343       | 343       | 343       |         |
| Approx. weight                        | kg (without brake)                                  | 5.2                                                                                       | 6.7       | 8         | 11        | 15.5      | 18.6      |         |
|                                       | kg (with brake)                                     | 6.7                                                                                       | 8.2       | 9.5       | 12.6      | 18.7      | 21.8      |         |
| Brake specifications                  | Rated voltage                                       | 24 VDC±10%                                                                                |           |           |           |           |           |         |
|                                       | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                                                       | 1.35      | 1.35      | 1.35      | 1.35      | 4.7       | 4.7     |
|                                       | Power consumption (at 20°C)                         | W                                                                                         | 14        | 19        | 19        | 22        | 31        | 31      |
|                                       | Current consumption (at 20°C)                       | A                                                                                         | 0.59±10%  | 0.79±10%  | 0.79±10%  | 0.90±10%  | 1.3±10%   | 1.3±10% |
|                                       | Static friction torque                              | N•m (minimum)                                                                             | 4.9       | 13.7      | 13.7      | 16.2      | 24.5      | 24.5    |
|                                       | Rise time for holding torque                        | ms (max.)                                                                                 | 80        | 100       | 100       | 110       | 80        | 80      |
|                                       | Release time                                        | ms (max.)                                                                                 | 70        | 50        | 50        | 50        | 25        | 25      |
| Basic specifications                  | Time rating                                         | Continuous                                                                                |           |           |           |           |           |         |
|                                       | Insulation class                                    | Type F                                                                                    |           |           |           |           |           |         |
|                                       | Ambient operating/storage temperature               | 0 to +40 °C/ -20 to 85°C                                                                  |           |           |           |           |           |         |
|                                       | Ambient operating/storage humidity (RH)             | 20% to 85% (non-condensing)                                                               |           |           |           |           |           |         |
|                                       | Vibration class                                     | V-15                                                                                      |           |           |           |           |           |         |
|                                       | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal                         |           |           |           |           |           |         |
|                                       | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening and motor and encoder pins) |           |           |           |           |           |         |
|                                       | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                                                |           |           |           |           |           |         |
|                                       | Mounting                                            | Flange-mounted                                                                            |           |           |           |           |           |         |

**Torque-speed characteristics**

**R88M-K1K020(H/T)-□ (1 kW)**



**R88M-K1K520(H/T)-□ (1.5 kW)**



**R88M-K2K020(H/T)-□ (2 kW)**



**R88M-K3K020(H/T)-□ (3 kW)**



**R88M-K4K020(H/T)-□ (4 kW)**



**R88M-K5K020(H/T)-□ (5 kW)**



## Servo Motor Specifications

### Servo motors 2000 r/min rated speed driven with three-phase, 460 V servo drive

| Servo drive input voltage             |                                                     | Three-phase, 460 V                                                                        |           |           |           |           |           |           |           |         |
|---------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| Applicable servo motor R88M-□         | 20-bit incremental encoder                          | 40020F-□                                                                                  | 60020F-□  | K1K020F-□ | K1K520F-□ | K2K020F-□ | K3K020F-□ | K4K020F-□ | K5K020F-□ |         |
|                                       | 17-bit absolute encoder                             | 40020C-□                                                                                  | 60020C-□  | K1K020C-□ | K1K520C-□ | K2K020C-□ | K3K020C-□ | K4K020C-□ | K5K020C-□ |         |
| Rated output                          | kW                                                  | 0.4                                                                                       | 0.6       | 1         | 1.5       | 2         | 3         | 4         | 5         |         |
| Rated torque                          | N•m                                                 | 1.91                                                                                      | 2.86      | 4.77      | 7.16      | 9.55      | 14.3      | 19.1      | 23.9      |         |
| Instantaneous peak torque             | N•m                                                 | 5.73                                                                                      | 8.59      | 14.3      | 21.5      | 28.7      | 43        | 57.3      | 71.6      |         |
| Rated current                         | A (rms)                                             | 1.2                                                                                       | 1.5       | 2.8       | 4.7       | 5.9       | 8.7       | 10.6      | 13        |         |
| Instantaneous max. current            | A (rms)                                             | 4.9                                                                                       | 6.5       | 12        | 20        | 25        | 37        | 45        | 55        |         |
| Rated speed                           | r/min                                               | 2000                                                                                      |           |           |           |           |           |           |           |         |
| Max. speed                            | r/min                                               | 3000                                                                                      |           |           |           |           |           |           |           |         |
| Torque constant                       | N•m/ A (rms)                                        | 1.27                                                                                      | 1.38      | 1.27      | 1.16      | 1.27      | 1.18      | 1.4       | 1.46      |         |
| Rotor moment of inertia (JM)          | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 1.61                                                                                      | 2.03      | 4.6       | 6.7       | 8.72      | 12.9      | 37.6      | 48        |         |
|                                       | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 1.9                                                                                       | 2.35      | 5.9       | 7.99      | 10        | 14.2      | 38.6      | 48.8      |         |
| Allowable load moment of inertia (JL) | Multiple of (JM)                                    | 10 times the rotor inertia max.                                                           |           |           |           |           |           |           |           |         |
| Rated power rate                      | kW/s (without brake)                                | 22.7                                                                                      | 40.3      | 49.5      | 76.5      | 105       | 159       | 97.1      | 119       |         |
|                                       | kW/s (with brake)                                   | 19.2                                                                                      | 34.8      | 38.6      | 64.2      | 91.2      | 144       | 94.5      | 117       |         |
| Allowable radial load                 | N                                                   | 490                                                                                       | 490       | 490       | 490       | 490       | 784       | 784       | 784       |         |
| Allowable thrust load                 | N                                                   | 196                                                                                       | 196       | 196       | 196       | 196       | 343       | 343       | 343       |         |
| Approx. weight                        | kg (without brake)                                  | 3.1                                                                                       | 3.5       | 5.2       | 6.7       | 8         | 11        | 15.5      | 18.6      |         |
|                                       | kg (with brake)                                     | 4.1                                                                                       | 4.5       | 6.7       | 8.2       | 9.5       | 12.6      | 18.7      | 21.8      |         |
| Brake specifications                  | Rated voltage                                       | 24 VDC±10%                                                                                |           |           |           |           |           |           |           |         |
|                                       | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                                                       | 1.35      | 1.35      | 1.35      | 1.35      | 1.35      | 1.35      | 4.7       | 4.7     |
|                                       | Power consumption (at 20°C)                         | W                                                                                         | 17        | 17        | 14        | 19        | 19        | 22        | 31        | 31      |
|                                       | Current consumption (at 20°C)                       | A                                                                                         | 0.70 ±10% | 0.70 ±10% | 0.59±10%  | 0.79±10%  | 0.79±10%  | 0.90±10%  | 1.3±10%   | 1.3±10% |
|                                       | Static friction torque                              | N•m (minimum)                                                                             | 2.5       | 2.5       | 4.9       | 13.7      | 13.7      | 16.2      | 24.5      | 24.5    |
|                                       | Rise time for holding torque                        | ms (max.)                                                                                 | 50        | 50        | 80        | 100       | 100       | 110       | 80        | 80      |
|                                       | Release time                                        | ms (max.)                                                                                 | 15        | 15        | 70        | 50        | 50        | 50        | 25        | 25      |
| Basic specifications                  | Time rating                                         | Continuous                                                                                |           |           |           |           |           |           |           |         |
|                                       | Insulation class                                    | Type F                                                                                    |           |           |           |           |           |           |           |         |
|                                       | Ambient operating/storage temperature               | 0 to +40 °C/ -20 to 85°C                                                                  |           |           |           |           |           |           |           |         |
|                                       | Ambient operating/storage humidity (RH)             | 20% to 85% (non-condensing)                                                               |           |           |           |           |           |           |           |         |
|                                       | Vibration class                                     | V-15                                                                                      |           |           |           |           |           |           |           |         |
|                                       | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal                         |           |           |           |           |           |           |           |         |
|                                       | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening and motor and encoder pins) |           |           |           |           |           |           |           |         |
|                                       | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                                                |           |           |           |           |           |           |           |         |
| Mounting                              | Flange-mounted                                      |                                                                                           |           |           |           |           |           |           |           |         |

### Torque-speed characteristics

**R88M-K40020F/C (400 W)**



**R88M-K60020F/C (600 W)**



**R88M-K1K020F/C (1 kW)**



**R88M-K1K520F/C (1.5 kW)**



**R88M-K2K020F/C (2 kW)**



**R88M-K3K0F/C (3 kW)**



**R88M-K4K020F/C (4 kW)**



**R88M-K5K020F/C (5 kW)**



## Servo Motor Specifications

### Servo motors 1500 r/min rated speed driven with three-phase, 460 V servo drive

| Servo drive input voltage             |                                                     | Three-phase, 230 V                                                |          | Three-phase, 460 V |           |
|---------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------|----------|--------------------|-----------|
| Applicable servo motor R88M-K□        | 17-bit absolute encoder                             | K7K5015T-□                                                        | 7K515C-□ | 11K015C-□          | 15K015C-□ |
| Rated output                          | kW                                                  | 7500                                                              | 7500     | 11000              | 15000     |
| Rated torque                          | N•m                                                 | 47.8                                                              | 47.8     | 70.0               | 95.5      |
| Instantaneous peak torque             | N•m                                                 | 119.0                                                             | 119.0    | 175.0              | 224.0     |
| Rated current                         | A (rms)                                             | 44                                                                | 22.0     | 27.1               | 33.1      |
| Instantaneous max. current            | A (rms)                                             | 165                                                               | 83       | 101                | 118       |
| Rated speed                           | r/min                                               | 1500                                                              |          |                    |           |
| Max. speed                            | r/min                                               | 3000                                                              | 3000     | 2000               |           |
| Torque constant                       | N•m/ A (rms)                                        | 0.77                                                              | 1.54     | 1.84               | 2.10      |
| Rotor moment of inertia (JM)          | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 101                                                               | 101      | 212                | 302       |
|                                       | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 107                                                               | 107      | 220                | 311       |
| Allowable load moment of inertia (JL) | Multiple of (JM)                                    | 10 times the rotor inertia max.                                   |          |                    |           |
| Rated power rate                      | kW/s (without brake)                                | 226                                                               | 226      | 231                | 302       |
|                                       | kW/s (with brake)                                   | 213                                                               | 213      | 223                | 293       |
| Allowable radial load                 | N                                                   | 1176                                                              | 1176     | 2254               | 2254      |
| Allowable thrust load                 | N                                                   | 490                                                               | 490      | 686                | 686       |
| Approx. weight                        | kg (without brake)                                  | 36.4                                                              | 36.4     | 52.7               | 70.2      |
|                                       | kg (with brake)                                     | 40.4                                                              | 40.4     | 58.9               | 76.3      |
| Brake specifications                  | Rated voltage                                       | 24 VDC±10%                                                        |          |                    |           |
|                                       | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                               | 4.7      |                    | 7.1       |
|                                       | Power consumption (at 20°C)                         | W                                                                 | 34       |                    | 26        |
|                                       | Current consumption (at 20°C)                       | A                                                                 | 1.4±10%  |                    | 1.08±10%  |
|                                       | Static friction torque                              | N•m (minimum)                                                     | 58.8     |                    | 100       |
|                                       | Rise time for holding torque                        | ms (max.)                                                         | 150      |                    | 300       |
|                                       | Release time                                        | ms (max.)                                                         | 50       |                    | 140       |
| Basic specifications                  | Time rating                                         | Continuous                                                        |          |                    |           |
|                                       | Insulation class                                    | Type F                                                            |          |                    |           |
|                                       | Ambient operating/storage temperature               | 0 to +40 °C/ -20 to 65°C                                          |          |                    |           |
|                                       | Ambient operating/storage humidity (RH)             | 20% to 85% (non-condensing)                                       |          |                    |           |
|                                       | Vibration class                                     | V-15                                                              |          |                    |           |
|                                       | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal |          |                    |           |
|                                       | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening)    |          |                    |           |
|                                       | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                        |          |                    |           |
|                                       | Mounting                                            | Flange-mounted                                                    |          |                    |           |

### Torque-speed characteristics

**R88M-K7K515(T/C) (7.5 kW)**



**R88M-K11K015C (11 kW)**



**R88M-K15K015C (15 kW)**



**Servo Motor Specifications**

**Servo motors 1000 r/min rated speed driven with three-phase, 230 V or 460 V servo drive**

| Servo drive input voltage             |                                                     | Three-phase, 230 V                                                                        |           |           | Three-phase, 460 V |           |           |           |         |
|---------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------|-----------|-----------|--------------------|-----------|-----------|-----------|---------|
| Applicable servo motor R88M-□         | 20-bit incremental encoder                          | K90010H-□                                                                                 | K2K010H-□ | K3K010H-□ | K90010F-□          | K2K010F-□ | K3K010F-□ |           |         |
|                                       | 17-bit absolute encoder                             | K90010T-□                                                                                 | K2K010T-□ | K3K010T-□ | K90010C-□          | K2K010C-□ | K3K010C-□ | K6K010C-□ |         |
| Rated output                          | kW                                                  | 0.9                                                                                       | 2         | 3         | 0.9                | 2         | 3         | 6         |         |
| Rated torque                          | N•m                                                 | 8.59                                                                                      | 19.1      | 28.7      | 8.59               | 19.1      | 28.7      | 57.3      |         |
| Instantaneous peak torque             | N•m                                                 | 19.3                                                                                      | 47.7      | 71.7      | 19.3               | 47.7      | 71.7      | 143.0     |         |
| Rated current                         | A (rms)                                             | 7.6                                                                                       | 17        | 22.6      | 3.8                | 8.5       | 11.3      | 19.4      |         |
| Instantaneous max. current            | A (rms)                                             | 24                                                                                        | 60        | 80        | 12                 | 30        | 40        | 74        |         |
| Rated speed                           | r/min                                               | 1000                                                                                      |           |           |                    |           |           |           |         |
| Max. speed                            | r/min                                               | 2000                                                                                      |           |           |                    |           |           |           |         |
| Torque constant                       | N•m/ A (rms)                                        | 0.86                                                                                      | 0.88      | 0.96      | 1.72               | 1.76      | 1.92      | 2.08      |         |
| Rotor moment of inertia (JM)          | kg•m <sup>2</sup> ×10 <sup>-4</sup> (without brake) | 6.7                                                                                       | 30.3      | 48.4      | 6.7                | 30.3      | 48.4      | 101       |         |
|                                       | kg•m <sup>2</sup> ×10 <sup>-4</sup> (with brake)    | 7.99                                                                                      | 31.4      | 49.2      | 7.99               | 31.4      | 49.2      | 107       |         |
| Allowable load moment of inertia (JL) | Multiple of (JM)                                    | 10 times the rotor inertia max.                                                           |           |           |                    |           |           |           |         |
| Rated power rate                      | kW/s (without brake)                                | 110                                                                                       | 120       | 170       | 110                | 120       | 170       | 325       |         |
|                                       | kW/s (with brake)                                   | 92.4                                                                                      | 116       | 167       | 92.4               | 116       | 167       | 307       |         |
| Allowable radial load                 | N                                                   | 686                                                                                       | 1176      | 1470      | 686                | 1176      | 1470      | 1764      |         |
| Allowable thrust load                 | N                                                   | 196                                                                                       | 490       | 490       | 196                | 490       | 490       | 588       |         |
| Approx. weight                        | kg (without brake)                                  | 6.7                                                                                       | 14        | 20        | 6.7                | 14        | 20        | 36.4      |         |
|                                       | kg (with brake)                                     | 8.2                                                                                       | 17.5      | 23.5      | 8.2                | 17.5      | 23.5      | 40.4      |         |
| Brake specifications                  | Rated voltage                                       | 24 VDC±10%                                                                                |           |           |                    |           |           |           |         |
|                                       | Holding brake moment of inertia (J)                 | kg•m <sup>2</sup> ×10 <sup>-4</sup>                                                       | 1.35      | 4.7       | 4.7                | 1.35      | 4.7       | 4.7       | 4.7     |
|                                       | Power consumption (at 20°C)                         | W                                                                                         | 19        | 31        | 34                 | 19        | 31        | 34        | 34      |
|                                       | Current consumption (at 20°C)                       | A                                                                                         | 0.79±10%  | 1.3±10%   | 1.4±10%            | 0.79±10%  | 1.3±10%   | 1.4±10%   | 1.4±10% |
|                                       | Static friction torque                              | N•m (minimum)                                                                             | 13.7      | 24.5      | 58.8               | 13.7      | 24.5      | 58.8      | 58.8    |
|                                       | Rise time for holding torque                        | ms (max.)                                                                                 | 100       | 80        | 150                | 100       | 80        | 150       | 150     |
|                                       | Release time                                        | ms (max.)                                                                                 | 50        | 25        | 50                 | 50        | 25        | 50        | 50      |
| Basic specifications                  | Time rating                                         | Continuous                                                                                |           |           |                    |           |           |           |         |
|                                       | Insulation class                                    | Type F                                                                                    |           |           |                    |           |           |           |         |
|                                       | Ambient operating/storage temperature               | 0 to +40 °C/ -20 to 85°C                                                                  |           |           |                    |           |           |           |         |
|                                       | Ambient operating/storage humidity (RH)             | 20% to 85% (non-condensing)                                                               |           |           |                    |           |           |           |         |
|                                       | Vibration class                                     | V-15                                                                                      |           |           |                    |           |           |           |         |
|                                       | Insulation resistance                               | 20 MΩ min. at 500 VDC between the power terminals and FG terminal                         |           |           |                    |           |           |           |         |
|                                       | Enclosure                                           | Totally-enclosed, self-cooling, IP67 (excluding shaft opening and motor and encoder pins) |           |           |                    |           |           |           |         |
|                                       | Vibration resistance                                | Vibration acceleration 49 m/s <sup>2</sup>                                                |           |           |                    |           |           |           |         |
|                                       | Mounting                                            | Flange-mounted                                                                            |           |           |                    |           |           |           |         |

**Torque-speed characteristics**

**R88M-K90010(H/T/F/C)-□ (900 W)**



**R88M-K2K010(H/T/F/C)-□ (2 kW)**



**R88M-K3K010(H/T/F/C)-□ (3 kW)**



**R88M-K6K010(C)-□ (6 kW)**





## Servo Motor Specifications

### Single-phase, 120 V

| Servo drive type       | R88D-K□                        |                                   | A5L □                                               | 01L□                                                                                                            | 02L□    | 04L□    |  |
|------------------------|--------------------------------|-----------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------|---------|--|
| Applicable servo motor | R88M-K□                        |                                   | 05030H□                                             | 10030L□                                                                                                         | 20030L□ | 40030L□ |  |
|                        |                                |                                   | 05030T□                                             | 10030S□                                                                                                         | 20030S□ | 40030S□ |  |
| Basic specifications   | Max. Applicable motor capacity | W                                 | 50                                                  | 100                                                                                                             | 200     | 400     |  |
|                        | Continuous output current      | A (rms)                           | 1.2                                                 | 1.7                                                                                                             | 2.5     | 4.6     |  |
|                        | Input power                    | Main circuit                      | Single-phase 100 to 120 VAC + 10 to -15% (50/60 Hz) |                                                                                                                 |         |         |  |
|                        | Supply                         | Control circuit                   | Single-phase 100 to 120 VAC + 10 to -15% (50/60 Hz) |                                                                                                                 |         |         |  |
|                        | Control method                 |                                   | IGBT-driven PWM method, sinusoidal drive            |                                                                                                                 |         |         |  |
|                        | Feedback                       |                                   | Serial encoder (incremental/absolute value)         |                                                                                                                 |         |         |  |
|                        | Conditions                     | Usage/storage temperature         |                                                     | 0 to +55 °C / -20 to 65 °C                                                                                      |         |         |  |
|                        |                                | Usage/storage humidity            |                                                     | 90% RH or less (non-condensing)                                                                                 |         |         |  |
|                        |                                | Altitude                          |                                                     | 1000 m or less above sea level                                                                                  |         |         |  |
|                        |                                | Vibration/shock resistance (max.) |                                                     | 5.88 m/s <sup>2</sup> 10-60 Hz (Continuous operation at resonance point is not allowed) / 19.6 m/s <sup>2</sup> |         |         |  |
| Configuration          |                                | Base mounted                      |                                                     |                                                                                                                 |         |         |  |
| Approx. weight         | Kg                             | 0.8                               | 0.8                                                 | 1.0                                                                                                             | 1.6     |         |  |

### Single-phase, 230 V

| Servo drive type       | R88D-K□                        |                                   | 01H□                                                         | 02H□                                                                                                            | 04H□        | 08H□        | 10H□        | 15H□        |  |
|------------------------|--------------------------------|-----------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|--|
| Applicable servo motor | R88M-K□                        |                                   | 05030(H/T)□                                                  | 20030(H/T)□                                                                                                     | 40030(H/T)□ | 75030(H/T)□ | 1K020(H/T)□ | 1K030(H/T)□ |  |
|                        |                                |                                   | 10030(H/T)□                                                  | -                                                                                                               | -           | -           | -           | 1K530(H/T)□ |  |
|                        |                                |                                   | -                                                            | -                                                                                                               | -           | -           | -           | 1K520(H/T)□ |  |
|                        |                                |                                   | -                                                            | -                                                                                                               | -           | -           | -           | 90010(H/T)□ |  |
| Basic specifications   | Max. Applicable motor capacity | W                                 | 100                                                          | 200                                                                                                             | 400         | 750         | 1000        | 1500        |  |
|                        | Continuous output current      | A (rms)                           | 1.2                                                          | 1.6                                                                                                             | 2.6         | 4.1         | 5.9         | 9.4         |  |
|                        | Input power                    | Main circuit                      | Single-phase/3-phase, 200 to 240 VAC + 10 to -15% (50/60 Hz) |                                                                                                                 |             |             |             |             |  |
|                        | Supply                         | Control circuit                   | Single-phase, 200 to 240 VAC + 10 to -15% (50/60 Hz)         |                                                                                                                 |             |             |             |             |  |
|                        | Control method                 |                                   | IGBT-driven PWM method, sinusoidal drive                     |                                                                                                                 |             |             |             |             |  |
|                        | Feedback                       |                                   | Serial encoder (incremental/absolute value)                  |                                                                                                                 |             |             |             |             |  |
|                        | Conditions                     | Usage/storage temperature         |                                                              | 0 to +55 °C / -20 to 65 °C                                                                                      |             |             |             |             |  |
|                        |                                | Usage/storage humidity            |                                                              | 90% RH or less (non-condensing)                                                                                 |             |             |             |             |  |
|                        |                                | Altitude                          |                                                              | 1000 m or less above sea level                                                                                  |             |             |             |             |  |
|                        |                                | Vibration/shock resistance (max.) |                                                              | 5.88 m/s <sup>2</sup> 10-60 Hz (Continuous operation at resonance point is not allowed) / 19.6 m/s <sup>2</sup> |             |             |             |             |  |
| Configuration          |                                | Base mounted                      |                                                              |                                                                                                                 |             |             |             |             |  |
| Approx. weight         | Kg                             | 0.8                               | 0.8                                                          | 1.1                                                                                                             | 1.6         | 1.8         | 1.8         |             |  |

### Three-phase, 230 V

| Servo drive type       | R88D-K□                        |                                   | 20H□                                                 | 30H□                                                                                                            | 50H□        | 75H□             |  |
|------------------------|--------------------------------|-----------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------|------------------|--|
| Applicable servo motor | R88M-K□                        |                                   | 2K030(H/T)□                                          | 3K030(H/T)□                                                                                                     | 3K010(H/T)□ | 7K5015T□         |  |
|                        |                                |                                   | 2K020(H/T)□                                          | 3K020(H/T)□                                                                                                     | 4K030(H/T)□ | -                |  |
|                        |                                |                                   | -                                                    | 2K010(H/T)□                                                                                                     | 4K020(H/T)□ | -                |  |
|                        |                                |                                   | -                                                    | -                                                                                                               | 5K030(H/T)□ | -                |  |
| Basic specifications   | Max. Applicable motor capacity | W                                 | 2000                                                 | 3000                                                                                                            | 5000        | 7500             |  |
|                        | Continuous output current      | A (rms)                           | 13.4                                                 | 18.7                                                                                                            | 33.0        | 44.0             |  |
|                        | Input power                    | Main circuit                      | 3-phase, 200 to 240 VAC + 10 to -15% (50/60 Hz)      |                                                                                                                 |             |                  |  |
|                        | Supply                         | Control circuit                   | Single-phase, 200 to 240 VAC + 10 to -15% (50/60 Hz) |                                                                                                                 |             |                  |  |
|                        | Control method                 |                                   | IGBT-driven PWM method, sinusoidal drive             |                                                                                                                 |             |                  |  |
|                        | Feedback                       |                                   | Serial encoder (incremental/absolute value)          |                                                                                                                 |             | Absolute encoder |  |
|                        | Conditions                     | Usage/storage temperature         |                                                      | 0 to +55 °C / -20 to 65 °C                                                                                      |             |                  |  |
|                        |                                | Usage/storage humidity            |                                                      | 90% RH or less (non-condensing)                                                                                 |             |                  |  |
|                        |                                | Altitude                          |                                                      | 1000 m or less above sea level                                                                                  |             |                  |  |
|                        |                                | Vibration/shock resistance (max.) |                                                      | 5.88 m/s <sup>2</sup> 10-60 Hz (Continuous operation at resonance point is not allowed) / 19.6 m/s <sup>2</sup> |             |                  |  |
| Configuration          |                                | Base mounted                      |                                                      |                                                                                                                 |             |                  |  |
| Approx. weight         | Kg                             | 2.7                               | 4.8                                                  | 4.8                                                                                                             | 13.5        |                  |  |

### Three-phase, 460 V

| Servo drive type       | R88D-K□                        |                            | 06F-□                                          | 10F-□                                                                                                           | 15F-□        | 20F-□        | 30F-□        | 50F-□        | 75F-□            | 150F-□    |  |  |
|------------------------|--------------------------------|----------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|------------------|-----------|--|--|
| Applicable servo motor | R88M-K□                        |                            | 40020(F/C)-□                                   | 75030(F/C)-□                                                                                                    | 1K030(F/C)-□ | 2K030(F/C)-□ | 3K030(F/C)-□ | 4K030(F/C)-□ | 6K010C-□         | 11K015C-□ |  |  |
|                        |                                |                            | 60020(F/C)-□                                   | 1K020(F/C)-□                                                                                                    | 1K530(F/C)-□ | 2K020(F/C)-□ | 3K020(F/C)-□ | 5K030(F/C)-□ | 7K515C-□         | 15K015C-□ |  |  |
|                        |                                |                            | -                                              | -                                                                                                               | 1K520(F/C)-□ | -            | 2K010(F/C)-□ | 4K020(F/C)-□ | -                | -         |  |  |
|                        |                                |                            | -                                              | -                                                                                                               | 90010(F/C)-□ | -            | -            | 5K020(F/C)-□ | -                | -         |  |  |
|                        |                                |                            | -                                              | -                                                                                                               | -            | -            | -            | 4K510C-□     | -                | -         |  |  |
|                        |                                |                            | -                                              | -                                                                                                               | -            | -            | -            | 3K010(F/C)-□ | -                | -         |  |  |
| Basic specifications   | Max. Applicable motor capacity | kW                         | 0.6                                            | 1.0                                                                                                             | 1.5          | 2.0          | 3.0          | 5.0          | 7.5              | 15.0      |  |  |
|                        | Continuous output current      | A (rms)                    | 2.9                                            | 2.9                                                                                                             | 4.7          | 6.7          | 9.4          | 16.5         | 22.0             | 33.4      |  |  |
|                        | Input power                    | Main circuit               | 3-phase, 380 to 480 VAC + 10 to -15% (50/60Hz) |                                                                                                                 |              |              |              |              |                  |           |  |  |
|                        | Supply                         | Control circuit            | 24 VDC ±15%                                    |                                                                                                                 |              |              |              |              |                  |           |  |  |
|                        | Control method                 |                            | IGBT-driven PWM method, sinusoidal drive       |                                                                                                                 |              |              |              |              |                  |           |  |  |
|                        | Feedback                       | Serial encoder             | Incremental or absolute encoder                |                                                                                                                 |              |              |              |              | Absolute encoder |           |  |  |
|                        | Conditions                     | Usage/storage temperature  |                                                | 0 to +55 °C / -20 to 65 °C                                                                                      |              |              |              |              |                  |           |  |  |
|                        |                                | Usage/storage humidity     |                                                | 90% RH or less (non-condensing)                                                                                 |              |              |              |              |                  |           |  |  |
|                        |                                | Altitude                   |                                                | 1000 m or less above sea level                                                                                  |              |              |              |              |                  |           |  |  |
|                        |                                | Vibration/shock resistance |                                                | 5.88 m/s <sup>2</sup> 10-60 Hz (Continuous operation at resonance point is not allowed) / 19.6 m/s <sup>2</sup> |              |              |              |              |                  |           |  |  |
| Configuration          |                                | Base mounted               |                                                |                                                                                                                 |              |              |              |              |                  |           |  |  |
| Approx. weight         | Kg                             | 1.9                        |                                                |                                                                                                                 | 2.7          | 4.7          |              | 13.5         | 21.0             |           |  |  |

**Servo Drive Specifications**

**General specifications (for EtherCAT servo drives)**

|                           |                                          |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                        |
|---------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Performance               | Frequency characteristics                | 2 kHz                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                        |
| EtherCAT interface        | Command input                            | EtherCAT commands (for sequence, motion, data setting/reference, monitor, adjustment, and other commands).                                                                                                                                       |                                                                                                                                                                                                                                                        |
|                           | Control Mode (*1 Drive Profile)          | CSP, CSV, CST, Homing and Position Profile modes (CiA402 Drive Profile)<br>Homing mode; Position profile mode; Dual touch probe function (Latch function); Torque limit function                                                                 |                                                                                                                                                                                                                                                        |
| I/O signal                | Sequence input signal (8 inputs)         | Multi-function input x 8 by parameter setting (forward/reverse drive prohibition, emergency stop, external latch, origin proximity, forward/reverse torque limit, general purpose monitor input).                                                |                                                                                                                                                                                                                                                        |
|                           | Sequence output signal (3 outputs)       | 1 x servo drive error output<br>2 x multi-function outputs by parameters setting (servo ready, brake release, torque limit detection, zero speed detection, warning output, position completion, error clear attributed, programmable output...) |                                                                                                                                                                                                                                                        |
| Integrated functions      | USB Communications                       | Interface                                                                                                                                                                                                                                        | Personal computer/ Connector mini-USB                                                                                                                                                                                                                  |
|                           |                                          | Communications standard                                                                                                                                                                                                                          | Compliant with USB 2.0 standard                                                                                                                                                                                                                        |
|                           |                                          | Function                                                                                                                                                                                                                                         | Parameter setting, status monitoring and tuning.                                                                                                                                                                                                       |
|                           | EtherCAT communications                  | Communications protocol                                                                                                                                                                                                                          | IEC 61158 Type 12, IEC 61800-7                                                                                                                                                                                                                         |
|                           |                                          | Physical layer                                                                                                                                                                                                                                   | 100BASE-TX (IEEE802.3)                                                                                                                                                                                                                                 |
|                           |                                          | Connectors                                                                                                                                                                                                                                       | RJ45 x 2; ECAT IN: EtherCAT input x 1; ECAT OUT: EtherCAT output x 1                                                                                                                                                                                   |
|                           |                                          | Communications media                                                                                                                                                                                                                             | Category 5 or higher(cable with double, aluminium tape and braided shielding is recommended).                                                                                                                                                          |
|                           |                                          | Communications distance                                                                                                                                                                                                                          | Distance between nodes: 100 m max.                                                                                                                                                                                                                     |
|                           |                                          | LED indicators                                                                                                                                                                                                                                   | RUN x 1; ERR x 1; L/A IN (Link/Activity IN) x 1; L/A OUT (Link/activity OUT) x 1                                                                                                                                                                       |
|                           | Autotuning                               | Automatic motor parameter setting. One parameter rigidity setting. Inertia detection.                                                                                                                                                            |                                                                                                                                                                                                                                                        |
|                           | Dynamic brake (DB)                       | Built-in and Configurable. Operates during main power OFF, servo alarm, servo OFF or overtravel.                                                                                                                                                 |                                                                                                                                                                                                                                                        |
|                           | Regenerative processing                  | Internal resistor included in models from 600 W to 15 kW. Regenerative resistor externally mounted (option).                                                                                                                                     |                                                                                                                                                                                                                                                        |
|                           | Overtravel (OT) prevention function      | DB stop, deceleration stop or coast to stop during P-OT, N-OT operation.                                                                                                                                                                         |                                                                                                                                                                                                                                                        |
|                           | Encoder divider function                 | Gear ratio                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                        |
|                           | Protective functions                     | Overcurrent, overvoltage, undervoltage, overspeed, overload, encoder error, overheat...                                                                                                                                                          |                                                                                                                                                                                                                                                        |
|                           | Analog monitor functions for supervision |                                                                                                                                                                                                                                                  | Analog monitor of motor speed, speed reference, torque reference, command following error, analog input...<br>The monitoring signals to output and their scaling can be specified with parameters.<br>Number of channels: 2 (Output voltage: ±10V DC). |
|                           | Panel operator                           | Display functions                                                                                                                                                                                                                                | 2 x digit 7-segment LED display shows the drive status, alarm codes, parameters...                                                                                                                                                                     |
|                           |                                          | Switches                                                                                                                                                                                                                                         | 2 x rotary switches for setting the node address.                                                                                                                                                                                                      |
|                           | CHARGE lamp                              |                                                                                                                                                                                                                                                  | Lights when the main circuit power supply is turned ON.                                                                                                                                                                                                |
|                           | Safety terminal                          | Functions                                                                                                                                                                                                                                        | Safety Torque OFF function to cut off the motor current and stop the motor. Output signal for failure monitoring function.                                                                                                                             |
| Conformed standards       |                                          | EN ISO13849-1:2008 (PL- d, Performance Level d), IEC61800-5 -2:2007 (function STO, Safe Torque OFF), EN61508:2001 (Safety Integrity Level 2, SIL2), EN954-1:1996 (CAT3).                                                                         |                                                                                                                                                                                                                                                        |
| External encoder feedback |                                          | Serial signal and line-driver A-B-Z encoder for full-close control.                                                                                                                                                                              |                                                                                                                                                                                                                                                        |

\*1 The CSV, CST and Homing modes are supported in the servo drive with version 2.0 or higher.

**General specifications (for MECHATROLINK-II servo drives)**

|                           |                                                                          |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                        |
|---------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control mode              | Position control, velocity control, torque control, full-closed control. |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                        |
| Performance               | Frequency characteristics                                                | 2 kHz                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                        |
|                           | Speed zero clamp                                                         | Preset velocity command can be clamped to zero by the speed zero clamp input.                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                        |
|                           | Soft start time setting                                                  | 0 to 10 s (acceleration, deceleration can be set separately)                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                        |
| Command input             | MECHATROLINK-II communication                                            | MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitor, adjustment and other commands).                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                        |
| I/O signal                | Sequence input signal (8 inputs)                                         | Multi-function input x 8 by parameter setting (forward/reverse drive prohibition, emergency stop, external latch, origin proximity, forward/reverse torque limit, general purpose monitor input).                                                                                                                                |                                                                                                                                                                                                                                                        |
|                           | Sequence output signal (3 outputs)                                       | It is possible to output three types of signal form incl.: brake release, servo ready, servo alarm, positioning complete, motor rotation speed detection, torque limit detection, zero speed detection, speed coincidence detection, warning, position command status, speed limit detection, alarm ouput, speed command status. |                                                                                                                                                                                                                                                        |
| Integrated functions      | USB Communications                                                       | Interface                                                                                                                                                                                                                                                                                                                        | Personal computer/ Connector mini-USB                                                                                                                                                                                                                  |
|                           |                                                                          | Communications standard                                                                                                                                                                                                                                                                                                          | Compliant with USB 2.0 standard                                                                                                                                                                                                                        |
|                           |                                                                          | Function                                                                                                                                                                                                                                                                                                                         | Parameter setting and status monitoring.                                                                                                                                                                                                               |
|                           | MECHATROLINK-II communications                                           | Communications protocol                                                                                                                                                                                                                                                                                                          | MECHATROLINK-II                                                                                                                                                                                                                                        |
|                           |                                                                          | Station address                                                                                                                                                                                                                                                                                                                  | 41H to 51 FH (max. number of slaves: 30)                                                                                                                                                                                                               |
|                           |                                                                          | Transmission speed                                                                                                                                                                                                                                                                                                               | 10 Mbps                                                                                                                                                                                                                                                |
|                           |                                                                          | Transmission cycle                                                                                                                                                                                                                                                                                                               | 1, 2 & 4 ms                                                                                                                                                                                                                                            |
|                           |                                                                          | Data length                                                                                                                                                                                                                                                                                                                      | 17-bytes and 32-bytes                                                                                                                                                                                                                                  |
|                           | Automatic load inertia detection                                         | Automatic motor parameter setting. One parameter rigidity setting.                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                        |
|                           | Dynamic brake (DB)                                                       | Built-in and Configurable. Operates during main power OFF, servo alarm, servo OFF or overtravel.                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                        |
|                           | Regenerative processing                                                  | Internal resistor included in models from 600 W to 5 kW. Regenerative resistor externally mounted (option).                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                        |
|                           | Overtravel (OT) prevention function                                      | DB stop, deceleration stop or coast to stop during P-OT, N-OT operation.                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                        |
|                           | Encoder divider function                                                 | Optional division possible.                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                        |
|                           | Protective functions                                                     | Overcurrent, overvoltage, undervoltage, overspeed, overload, encoder error, overheat...                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                        |
|                           | Analog monitor functions for supervision                                 |                                                                                                                                                                                                                                                                                                                                  | Analog monitor of motor speed, speed reference, torque reference, command following error, analog input...<br>The monitoring signals to output and their scaling can be specified with parameters.<br>Number of channels: 2 (Output voltage: ±10V DC). |
|                           | Panel operator                                                           | Display functions                                                                                                                                                                                                                                                                                                                | 2-digit 7-segment LED display shows the drive status, alarm codes, parameters...<br>MECHATROLINK-II communications status LED indicator (COM).                                                                                                         |
|                           |                                                                          | Switches                                                                                                                                                                                                                                                                                                                         | 2 x rotary switches for setting the MECHATROLINK-II node address.                                                                                                                                                                                      |
|                           | CHARGE lamp                                                              |                                                                                                                                                                                                                                                                                                                                  | Lights when the main circuit power supply is turned ON.                                                                                                                                                                                                |
|                           | Safety terminal                                                          | Functions                                                                                                                                                                                                                                                                                                                        | Safety Torque OFF function to cut off the motor current and stop the motor. Output signal for failure monitoring function.                                                                                                                             |
|                           |                                                                          | Conformed standards                                                                                                                                                                                                                                                                                                              | EN ISO13849-1:2008 (PL- d, Performance Level d), IEC61800-5 -2:2007 (function STO, Safe Torque OFF), EN61508:2001 (Safety Integrity Level 2, SIL2), EN954-1:1996 (CAT3).                                                                               |
| External encoder feedback |                                                                          | Serial signal and line-driver A-B-Z encoder for full-close control.                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                        |

**Servo Drive Specifications**

**General specifications (for Analog/Pulse servo drives)**

|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control mode                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | 7 modes selectable by parameter: (1) position control, (2) velocity control, (3) torque control, (4) position/velocity control, (5) position/torque control, (6) velocity/torque control and (7) full-closed control.                                                                        |
| Speed/<br>torque<br>control                                                                     | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                 | Frequency characteristics<br>2 kHz                                                                                                                                                                                                                                                           |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Speed zero clamp<br>Preset velocity command can be clamped to zero by the speed zero clamp input.                                                                                                                                                                                            |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Soft start time setting<br>0 to 10 s (acceleration, deceleration can be set separately). S-curve acceleration/deceleration is also available.                                                                                                                                                |
|                                                                                                 | Input<br>signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Speed<br>control                                                                                                                                                                                | Speed reference voltage<br>6 VDC at rated speed: set at delivery (the scale and polarity can be set by parameters).                                                                                                                                                                          |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Torque limit<br>3 VDC at rated torque (torque can be limited separately in positive/negative direction).                                                                                                                                                                                     |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Preset speed control<br>Preset speed is selectable from 8 internal settings by digital inputs.                                                                                                                                                                                               |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Torque reference voltage<br>3 VDC at rated torque: set at delivery (the scale and polarity can be set by parameters).                                                                           |                                                                                                                                                                                                                                                                                              |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Speed limit<br>Speed limit can be set by parameter.                                                                                                                                             |                                                                                                                                                                                                                                                                                              |
| Position<br>control                                                                             | Input<br>signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Command<br>pulse                                                                                                                                                                                | Input pulse type<br>Sign + pulse train, 90° phase displacement 2-phase pulse (A-phase+ B-phase) or CCW/CW pulse train.                                                                                                                                                                       |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Input pulse frequency<br>4 Mpps max. (200 Kpps max. at open collector).                                                                                                                                                                                                                      |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Command pulse scaling (Electronic Gear)<br>Applicable scaling ratio: 1/1000 - 1000<br>Any value of 1-20 <sup>20</sup> can be set for numerator (encoder resolution) and denominator (command pulse resolution per motor revolution). The combination has to be within the range shown above. |
| Full-closed<br>control                                                                          | Input<br>signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Command<br>pulse                                                                                                                                                                                | Input pulse type<br>Sign + pulse train, 90° phase displacement 2-phase pulse (A-phase+ B-phase) or CCW/CW pulse train.                                                                                                                                                                       |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Input pulse frequency<br>4 Mpps max. (200 Kpps max. at open collector).                                                                                                                                                                                                                      |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 | Command pulse scaling (Electronic Gear)<br>Applicable scaling ratio: 1/1000 - 1000<br>Any value of 1-20 <sup>20</sup> can be set for numerator (encoder resolution) and denominator (command pulse resolution). The combination has to be within the range shown above.                      |
|                                                                                                 | External encoder scaling<br>Applicable scaling ratio: 1/20 - 160<br>Any value of 1-20 <sup>20</sup> can be set for numerator (encoder resolution) and denominator (external encoder resolution per motor revolution). The combination has to be within the range shown above.                                                                                                                                                                                                       |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
| I/O signal                                                                                      | Position signal output<br>A-phase, B-phase, Z-phase line driver output and Z-phase open-collector output.                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Sequence input signal (10 inputs)<br>Multi-function input x 10 by parameter setting (servo ON, control mode switching, forward/reverse drive prohibition, vibration filter switching, gain switching, electronic gear switching, error counter reset, pulse prohibition, alarm reset, internal speed selection, torque limit switching, zero speed, emergency stop, inertia ratio switching, velocity/torque command sign). Dedicated input x 1 (SEN: sensor ON, ABS data request). |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Sequence output signal (4 outputs)<br>It is possible to output four types of signal form incl.: brake release, servo ready, servo alarm, positioning complete, motor rotation speed detection, torque limit detection, zero speed detection, speed coincidence detection, warning, position command status, speed limit detection, speed command status.                                                                                                                            |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
| Integrated<br>functions                                                                         | USB<br>Communications                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Interface<br>Personal computer/ Connector mini-USB                                                                                                                                              |                                                                                                                                                                                                                                                                                              |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Communications standard<br>Compliant with USB 2.0 standard                                                                                                                                      |                                                                                                                                                                                                                                                                                              |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Function<br>Parameter setting and status monitoring                                                                                                                                             |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Automatic load inertia detection<br>Automatic motor parameter setting. One parameter rigidity setting.                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Dynamic brake (DB)<br>Built-in and Configurable. Operates during main power OFF, servo alarm, servo OFF or overtravel.                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Regenerative processing<br>Internal resistor included in models from 600 W to 15 kW. Regenerative resistor externally mounted (option).                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Overtravel (OT) prevention function<br>DB stop, deceleration stop or coast to stop during P-OT, N-OT operation                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Encoder divider function<br>Optional division possible                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Electronic gearing (Numerator/Denominator)<br>Up to 4 electronic gear numerators by combining with inputs.                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Internal speed setting function<br>8 speeds may be set internally                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Protective functions<br>Overcurrent, overvoltage, undervoltage, overspeed, overload, encoder error, overheat...                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Analog monitor functions for supervision<br>Analog monitor of motor speed, speed reference, torque reference, command following error, analog input...<br>The monitoring signals to output and their scaling can be specified by parameters.<br>Number of channels: 2 (Output voltage: ±10V DC)                                                                                                                                                                                     |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Panel operator                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Display functions<br>6-digit 7-segment LED display shows the drive status, alarm codes, parameters...                                                                                           |                                                                                                                                                                                                                                                                                              |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Switches<br>Used to set/monitor parameters and drive condition (5 key switches).                                                                                                                |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | CHARGE lamp<br>Lights when the main circuit power supply is turned ON.                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
|                                                                                                 | Safety terminal                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Functions<br>Safety torque OFF function to cut off the motor current and stop the motor.<br>Output signal for failure monitoring function.                                                      |                                                                                                                                                                                                                                                                                              |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Conformed standards<br>EN ISO13849-1:2008 (PL- d, Performance Level d), IEC61800-5 -2:2007 (function STO, Safe Torque OFF), EN61508:2001 (Safety Integrity Level 2, SIL2), EN954-1:1996 (CAT3). |                                                                                                                                                                                                                                                                                              |
| External encoder feedback<br>Serial signal and line-driver A-B-Z encoder for full-close control |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |
| Expansion connector<br>Serial bus for option board                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                              |

Servo Drive Part Names



EtherCAT servo drives



MECHATROLINK-II servo drives



Analog/pulse servo drives

**Note:** the above pictures show 230 V servo drives models only. The 460 V servo drives have 24 VDC power input terminals for control circuit instead of L1C and L2C terminals.

**Dimensions**

**SERVO MOTORS**

**Type 3000 r/min motors (120 V, 100 W and 230 V, 50 - 100 W)**



| Dimensions (mm)          | Without brake |    | With brake |    | LN | Shaft End Dimensions |               | Approx. Weight (kg) |  |
|--------------------------|---------------|----|------------|----|----|----------------------|---------------|---------------------|--|
|                          | LL            | LM | LL         | LM |    | Tap x Depth          | Without brake | With brake          |  |
| R88M-K05030(H/T)-□S2     | 72            | 48 | 102        | 78 | 23 | M3 x 6L              | 0.32          | 0.53                |  |
| R88M-K10030(L/S/H/T)-□S2 | 92            | 68 | 122        | 98 | 43 |                      | 0.47          | 0.68                |  |

**Type 3000 r/min motors (120 V, 200 - 400 W and 230 V, 200 - 750 W)**



| Dimensions (mm)      | Without brake |      | With brake |       | LR | Flange surface   |    |    |    |     |     | Shaft End Dimensions |    |      |      |                 |   | Approx. Weight (kg) |               |            |
|----------------------|---------------|------|------------|-------|----|------------------|----|----|----|-----|-----|----------------------|----|------|------|-----------------|---|---------------------|---------------|------------|
|                      | LL            | LM   | LL         | LM    |    | LB               | LC | LD | LE | LG  | LZ  | S                    | K  | QK   | H    | B               | T | Tap x Depth         | Without brake | With brake |
| R88M-K20030(H/T)-□S2 | 79.5          | 56.5 | 116        | 93    | 30 | 50 <sup>h7</sup> | 60 | 70 | 3  | 6.5 | 4.5 | 11 <sup>h6</sup>     | 20 | 18   | 8.5  | 4 <sup>h9</sup> | 4 | M4x8L               | 0.82          | 1.3        |
| R88M-K20030(L/S)-□S2 | 79.5          | 56.5 | 116        | 93    | 30 | 50 <sup>h7</sup> | 60 | 70 | 3  | 6.5 | 4.5 | 11 <sup>h6</sup>     | 20 | 18   | 8.5  | 4 <sup>h9</sup> | 4 | M4x8L               | 0.78          | 1.2        |
| R88M-K40030(H/T)-□S2 | 99            | 76   | 135.5      | 112.5 | 30 | 50 <sup>h7</sup> | 60 | 70 | 3  | 6.5 | 4.5 | 14 <sup>h6</sup>     | 25 | 22.5 | 11   | 5 <sup>h9</sup> | 5 | M5x10L              | 1.2           | 1.7        |
| R88M-K40030(L/S)-□S2 | 99            | 76   | 135.5      | 112.5 | 30 | 50 <sup>h7</sup> | 60 | 70 | 3  | 6.5 | 4.5 | 14 <sup>h6</sup>     | 25 | 22.5 | 11   | 5 <sup>h9</sup> | 5 | M5x10L              | 1.2           | 1.6        |
| R88M-K75030(H/T)-□S2 | 112.2         | 86   | 148.2      | 122.2 | 35 | 70 <sup>h7</sup> | 80 | 90 | 3  | 8   | 6   | 19 <sup>h6</sup>     | 25 | 22   | 15.5 | 6 <sup>h9</sup> | 6 | M5x10L              | 2.3           | 3.1        |

**Type 3000 r/min motors (230 V, 1 - 5 kW)**



| Model          | Without brake |       |       |       |     | With brake |       |       |       |     | Flange surface |     |                   |     |     |    | Shaft End Dimensions |                  |             |    |    |      | Approx. Weight (kg) |   |               |            |
|----------------|---------------|-------|-------|-------|-----|------------|-------|-------|-------|-----|----------------|-----|-------------------|-----|-----|----|----------------------|------------------|-------------|----|----|------|---------------------|---|---------------|------------|
|                | LL            | LM    | KB1   | KB2   | KL1 | LL         | LM    | KB1   | KB2   | KL1 | LR             | LA  | LB                | LC  | LD  | LE | LG                   | S                | Tap x Depth | K  | QK | H    | B                   | T | Without brake | With brake |
| 1K030(H/T)-□S2 | 141           | 97    | 66    | 119   | 101 | 168        | 124   | 66    | 146   | 101 | 55             | 135 | 95 <sup>h7</sup>  | 100 | 115 | 3  | 10                   | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5 | 6 <sup>h9</sup>     | 6 | 3.5           | 4.5        |
| 1K530(H/T)-□S2 | 159.5         | 115.5 | 84.5  | 137.5 | 101 | 186.5      | 142.5 | 84.5  | 164.5 | 101 | 55             | 135 | 95 <sup>h7</sup>  | 100 | 115 | 3  | 10                   | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5 | 6 <sup>h9</sup>     | 6 | 4.4           | 5.4        |
| 2K030(H/T)-□S2 | 178.5         | 134.5 | 103.5 | 156.5 | 101 | 205.5      | 161.5 | 103.5 | 183.5 | 101 | 55             | 135 | 95 <sup>h7</sup>  | 100 | 115 | 3  | 10                   | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5 | 6 <sup>h9</sup>     | 6 | 5.3           | 6.3        |
| 3K030(H/T)-□S2 | 190           | 146   | 112   | 168   | 113 | 215        | 171   | 112   | 193   | 113 | 55             | 162 | 110 <sup>h7</sup> | 120 | 145 | 3  | 12                   | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18   | 8 <sup>h9</sup>     | 7 | 8.3           | 9.4        |
| 4K030(H/T)-□S2 | 208           | 164   | 127   | 186   | 118 | 233        | 189   | 127   | 211   | 118 | 65             | 145 | 110 <sup>h7</sup> | 130 | 165 | 6  | 12                   | 24 <sup>h6</sup> | M8 x 20L    | 55 | 51 | 20   | 8 <sup>h9</sup>     | 7 | 11.0          | 12.6       |
| 5K030(H/T)-□S2 | 243           | 199   | 162   | 221   | 118 | 268        | 224   | 162   | 246   | 118 | 65             | 145 | 110 <sup>h7</sup> | 130 | 165 | 6  | 12                   | 24 <sup>h6</sup> | M8 x 20L    | 55 | 51 | 20   | 8 <sup>h9</sup>     | 7 | 14.0          | 16.0       |

Dimensions

SERVO MOTORS

Type 3000 r/min motors (460 V, 750 W - 5 kW)



| Model          | Without brake |       |       |       |     | With brake |       |       |       |     | Flange surface |     |                   |     |     |    | Shaft End Dimensions |                  |             |    |    |      | Approx. Weight (kg) |   |               |            |
|----------------|---------------|-------|-------|-------|-----|------------|-------|-------|-------|-----|----------------|-----|-------------------|-----|-----|----|----------------------|------------------|-------------|----|----|------|---------------------|---|---------------|------------|
|                | LL            | LM    | KB1   | KB2   | KL1 | LL         | LM    | KB1   | KB2   | KL1 | LR             | LA  | LB                | LC  | LD  | LE | LG                   | S                | Tap x Depth | K  | QK | H    | B                   | T | Without brake | With brake |
| 75030(F/C)-□S2 | 131.5         | 87.5  | 56.5  | 109.5 | 101 | 158.5      | 114.5 | 53.5  | 136.5 | 103 | 55             | 135 | 95 <sup>h7</sup>  | 100 | 115 | 3  | 10                   | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5 | 6 <sup>h9</sup>     | 6 | 3.1           | 4.1        |
| 1K030(F/C)-□S2 | 141           | 97    | 66    | 119   | 101 | 168        | 124   | 66    | 146   | 101 | 55             | 135 | 95 <sup>h7</sup>  | 100 | 115 | 3  | 10                   | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5 | 6 <sup>h9</sup>     | 6 | 3.5           | 4.5        |
| 1K530(F/C)-□S2 | 159.5         | 115.5 | 84.5  | 137.5 | 101 | 186.5      | 142.5 | 84.5  | 164.5 | 101 | 55             | 135 | 95 <sup>h7</sup>  | 100 | 115 | 3  | 10                   | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5 | 6 <sup>h9</sup>     | 6 | 4.4           | 5.4        |
| 2K030(F/C)-□S2 | 178.5         | 134.5 | 103.5 | 156.5 | 101 | 205.5      | 161.5 | 103.5 | 183.5 | 101 | 55             | 135 | 95 <sup>h7</sup>  | 100 | 115 | 3  | 10                   | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5 | 6 <sup>h9</sup>     | 6 | 5.3           | 6.3        |
| 3K030(F/C)-□S2 | 190           | 146   | 112   | 168   | 113 | 215        | 171   | 112   | 193   | 113 | 55             | 162 | 110 <sup>h7</sup> | 120 | 145 | 3  | 12                   | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18   | 8 <sup>h9</sup>     | 7 | 8.3           | 9.4        |
| 4K030(F/C)-□S2 | 208           | 164   | 127   | 186   | 118 | 233        | 189   | 127   | 211   | 118 | 65             | 145 | 110 <sup>h7</sup> | 130 | 165 | 6  | 12                   | 24 <sup>h6</sup> | M8 x 20L    | 55 | 51 | 20   | 8 <sup>h9</sup>     | 7 | 11.0          | 12.6       |
| 5K030(F/C)-□S2 | 243           | 199   | 162   | 221   | 118 | 268        | 224   | 162   | 246   | 118 | 65             | 145 | 110 <sup>h7</sup> | 130 | 165 | 6  | 12                   | 24 <sup>h6</sup> | M8 x 20L    | 55 | 51 | 20   | 8 <sup>h9</sup>     | 7 | 14.0          | 16.0       |

Type 2000 r/min motors



230 V, 1 kW - 5 kW

| Model          | Without brake |       |      |       |     | With brake |       |      |       |     | Flange surface |     |                     |     |     |     | Shaft End Dimensions |      |                  |             |    |    | Approx. Weight (kg) |                  |   |               |            |
|----------------|---------------|-------|------|-------|-----|------------|-------|------|-------|-----|----------------|-----|---------------------|-----|-----|-----|----------------------|------|------------------|-------------|----|----|---------------------|------------------|---|---------------|------------|
|                | LL            | LM    | KB1  | KB2   | KL1 | LL         | LM    | KB1  | KB2   | KL1 | LR             | LA  | LB                  | LC  | LD  | LE  | LG                   | LZ   | S                | Tap x Depth | K  | QK | H                   | B                | T | Without brake | With brake |
| 1K020(H/T)-□S2 | 138           | 94    | 60   | 116   | 116 | 163        | 119   | 60   | 141   | 116 | 55             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18                  | 8 <sup>h9</sup>  | 7 | 5.2           | 6.7        |
| 1K520(H/T)-□S2 | 155.5         | 111.5 | 77.5 | 133.5 | 116 | 180.5      | 136.5 | 77.5 | 158.5 | 116 | 55             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18                  | 8 <sup>h9</sup>  | 7 | 6.7           | 8.2        |
| 2K020(H/T)-□S2 | 173           | 129   | 95   | 151   | 116 | 198        | 154   | 95   | 176   | 116 | 55             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18                  | 8 <sup>h9</sup>  | 7 | 8.0           | 9.5        |
| 3K020(H/T)-□S2 | 208           | 164   | 127  | 186   | 118 | 233        | 189   | 127  | 211   | 118 | 65             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 24 <sup>h6</sup> | M8 x 20L    | 55 | 51 | 20                  | 8 <sup>h9</sup>  | 7 | 11.0          | 12.6       |
| 4K020(H/T)-□S2 | 177           | 133   | 96   | 155   | 140 | 202        | 158   | 96   | 180   | 140 | 70             | 233 | 114.3 <sup>h7</sup> | 176 | 200 | 3.2 | 18                   | 13.5 | 35 <sup>h6</sup> | M12 x 25L   | 55 | 50 | 30                  | 10 <sup>h9</sup> | 8 | 15.5          | 18.7       |
| 5K020(H/T)-□S2 | 202           | 158   | 96   | 180   | 140 | 221        | 177   | 115  | 199   | 140 | 70             | 233 | 114.3 <sup>h7</sup> | 176 | 200 | 3.2 | 18                   | 13.5 | 35 <sup>h6</sup> | M12 x 25L   | 55 | 51 | 30                  | 10 <sup>h9</sup> | 8 | 18.6          | 21.8       |

460 V, 400 W - 5 kW

| Model          | Without brake |       |      |       |     | With brake |       |      |       |     | Flange surface |     |                     |     |     |     | Shaft End Dimensions |      |                  |             |    |    | Approx. Weight (kg) |                  |   |               |            |
|----------------|---------------|-------|------|-------|-----|------------|-------|------|-------|-----|----------------|-----|---------------------|-----|-----|-----|----------------------|------|------------------|-------------|----|----|---------------------|------------------|---|---------------|------------|
|                | LL            | LM    | KB1  | KB2   | KL1 | LL         | LM    | KB1  | KB2   | KL1 | LR             | LA  | LB                  | LC  | LD  | LE  | LG                   | LZ   | S                | Tap x Depth | K  | QK | H                   | B                | T | Without brake | With brake |
| 40020(F/O)-□S2 | 131.5         | 87.5  | 56.5 | 109.5 | 101 | 158.5      | 114.5 | 53.5 | 136.5 | 103 | 55             | 135 | 95 <sup>h7</sup>    | 100 | 115 | 3   | 10                   | 9    | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5                | 6 <sup>h9</sup>  | 6 | 3.1           | 4.1        |
| 60020(F/O)-□S2 | 141           | 97    | 66   | 119   | 101 | 168        | 124   | 63   | 146   | 103 | 55             | 135 | 95 <sup>h7</sup>    | 100 | 115 | 3   | 10                   | 9    | 19 <sup>h6</sup> | M5 x 12L    | 45 | 42 | 15.5                | 6 <sup>h9</sup>  | 6 | 3.5           | 4.5        |
| 1K020(F/C)-□S2 | 138           | 94    | 60   | 116   | 116 | 163        | 119   | 60   | 141   | 116 | 55             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18                  | 8 <sup>h9</sup>  | 7 | 5.2           | 6.7        |
| 1K520(F/C)-□S2 | 155.5         | 111.5 | 77.5 | 133.5 | 116 | 180.5      | 136.5 | 77.5 | 158.5 | 116 | 55             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18                  | 8 <sup>h9</sup>  | 7 | 6.7           | 8.2        |
| 2K020(F/C)-□S2 | 173           | 129   | 95   | 151   | 116 | 198        | 154   | 95   | 176   | 116 | 55             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 22 <sup>h6</sup> | M5 x 12L    | 45 | 41 | 18                  | 8 <sup>h9</sup>  | 7 | 8.0           | 9.5        |
| 3K020(F/C)-□S2 | 208           | 164   | 127  | 186   | 118 | 233        | 189   | 127  | 211   | 118 | 65             | 145 | 110 <sup>h7</sup>   | 130 | 165 | 6   | 12                   | 9    | 24 <sup>h6</sup> | M8 x 20L    | 55 | 51 | 20                  | 8 <sup>h9</sup>  | 7 | 11.0          | 12.6       |
| 4K020(F/C)-□S2 | 177           | 133   | 96   | 155   | 140 | 202        | 158   | 96   | 180   | 140 | 70             | 233 | 114.3 <sup>h7</sup> | 176 | 200 | 3.2 | 18                   | 13.5 | 35 <sup>h6</sup> | M12 x 25L   | 55 | 50 | 30                  | 10 <sup>h9</sup> | 8 | 15.5          | 18.7       |
| 5K020(F/C)-□S2 | 202           | 158   | 96   | 180   | 140 | 221        | 177   | 115  | 199   | 140 | 70             | 233 | 114.3 <sup>h7</sup> | 176 | 200 | 3.2 | 18                   | 13.5 | 35 <sup>h6</sup> | M12 x 25L   | 55 | 51 | 30                  | 10 <sup>h9</sup> | 8 | 18.6          | 21.8       |

Dimensions

SERVO MOTORS

Type 1500 r/min motors (230 V or 460 V, 7.5kW)

| Dimensions (mm) |     | Without brake |     |     |       |       |     | With brake |     |     |     |       |       | Approx. Mass (Kg) |               |            |
|-----------------|-----|---------------|-----|-----|-------|-------|-----|------------|-----|-----|-----|-------|-------|-------------------|---------------|------------|
| Model           | LL  | LM            | KB1 | KB2 | L1    | L2    | L3  | LL         | LM  | KB1 | KB2 | L1    | L2    | L3                | Without brake | With brake |
| <b>R88M-K□</b>  |     |               |     |     |       |       |     |            |     |     |     |       |       |                   |               |            |
| 7K515T-□S2      | 312 | 268           | 219 | 290 | 117.5 | 117.5 | 149 | 337        | 293 | 253 | 315 | 117.5 | 152.5 | 183               | 36.4          | 40.4       |
| 7K515C-□S2      | 312 | 268           | 219 | 290 | 117.5 | 117.5 | 149 | 337        | 293 | 253 | 315 | 117.5 | 152.5 | 183               | 36.4          | 40.4       |



Type 1500 r/min motors (460 V, 11 - 15 kW)

| Dimensions (mm) |     | Without brake |     |     |       |       |     | With brake |     |     |     |       |       | Approx. Mass (Kg) |               |            |
|-----------------|-----|---------------|-----|-----|-------|-------|-----|------------|-----|-----|-----|-------|-------|-------------------|---------------|------------|
| Model           | LL  | LM            | KB1 | KB2 | L1    | L2    | L3  | LL         | LM  | KB1 | KB2 | L1    | L2    | L3                | Without brake | With brake |
| <b>R88M-K□</b>  |     |               |     |     |       |       |     |            |     |     |     |       |       |                   |               |            |
| 11K015C-□S2     | 316 | 272           | 232 | 294 | 124.5 | 124.5 | 162 | 364        | 320 | 266 | 342 | 124.5 | 159.5 | 196               | 52.7          | 58.9       |
| 15K015C-□S2     | 384 | 340           | 300 | 362 | 158.5 | 239   | 230 | 432        | 388 | 334 | 410 | 158.5 | 193.5 | 264               | 70.2          | 76.3       |



Type 1000 r/min motors (230 V, 900W - 3 kW/ 460 V, 900W - 3 kW)

| Dimensions (mm)    |       | Without brake |       |       |     |       | With brake |       |       |     |    | LR  | Flange surface      |     |     |     |    |      |                  | Shaft End Dimensions |    |    |    |                  | Approx. Mass (Kg) |               |            |  |
|--------------------|-------|---------------|-------|-------|-----|-------|------------|-------|-------|-----|----|-----|---------------------|-----|-----|-----|----|------|------------------|----------------------|----|----|----|------------------|-------------------|---------------|------------|--|
| Model              | LL    | LM            | KB1   | KB2   | KL1 | LL    | LM         | KB1   | KB2   | KL1 | LA |     | LB                  | LC  | LD  | LE  | LG | LZ   | S                | Tap x Depth          | K  | Q  | H  | B                | T                 | Without brake | With brake |  |
| <b>R88M-K□</b>     |       |               |       |       |     |       |            |       |       |     |    |     |                     |     |     |     |    |      |                  |                      |    |    |    |                  |                   |               |            |  |
| 230 90010(H/T)-□S2 | 155.5 | 111.5         | 77.5  | 133.5 | 116 | 180.5 | 136.5      | 77.5  | 158.5 | 116 | 55 | 165 | 110 <sup>h7</sup>   | 130 | 145 | 6   | 12 | 9    | 22 <sup>h6</sup> | M5x 12L              | 45 | 41 | 18 | 8 <sup>h9</sup>  | 7                 | 6.7           | 8.2        |  |
| 2K010(H/T)-□S2     | 163.5 | 119.5         | 82.2  | 141.5 | 140 | 209.5 | 165.5      | 128.5 | 187.5 | 140 | 80 | 233 | 114.3 <sup>h7</sup> | 176 | 200 | 3.2 | 18 | 13.5 | 35 <sup>h6</sup> | M12x 25L             | 55 | 50 | 30 | 10 <sup>h9</sup> | 8                 | 14            | 20         |  |
| 3K010(H/T)-□S2     | 208   | 164           | 127   | 186   |     | 234.5 | 190.5      |       | 212.5 |     |    |     |                     |     |     |     |    |      |                  |                      |    |    |    |                  |                   |               |            |  |
| 400 90010(F/C)-□S2 | 155.5 | 111.5         | 77.5  | 133.5 | 116 | 180.5 | 136.5      | 74.5  | 158.5 | 118 | 55 | 165 | 110 <sup>h7</sup>   | 130 | 145 | 6   | 12 | 9    | 22 <sup>h6</sup> | M5x 10L              | 45 | 41 | 18 | 8 <sup>h9</sup>  | 7                 | 6.7           | 8.2        |  |
| 2K010(F/C)-□S2     | 163.5 | 119.5         | 82.5  | 141.5 | 140 | 188.5 | 144.5      | 82.5  | 166.5 | 140 | 80 | 233 | 114.3 <sup>h7</sup> | 176 | 200 | 3.2 | 18 | 13.5 | 35 <sup>h6</sup> | M12x 25L             | 55 | 50 | 30 | 10 <sup>h9</sup> | 8                 | 14            | 17.5       |  |
| 3K010(F/C)-□S2     | 209.5 | 165.5         | 128.5 | 187.5 |     | 234.5 | 190.5      | 128.5 | 212.5 |     |    |     |                     |     |     |     |    |      |                  |                      |    |    |    |                  |                   |               |            |  |

**Servo Motor Specifications**



**Type 1000 r/min motors (460 V, 4.5 kW)**

| Dimensions (mm) | Without brake |     |     |     |    |    | With brake |     |     |     |    |     | Approx. Mass (Kg) |            |
|-----------------|---------------|-----|-----|-----|----|----|------------|-----|-----|-----|----|-----|-------------------|------------|
| Model           | LL            | LM  | KB1 | KB2 | L1 | L2 | LL         | LM  | KB1 | KB2 | L1 | L2  | Without brake     | With brake |
| R88M-K□         |               |     |     |     |    |    |            |     |     |     |    |     |                   |            |
| 4K510C-□S2      | 266           | 222 | 185 | 244 | 98 | 98 | 291        | 247 | 185 | 269 | 98 | 133 | 29.4              | 33.3       |



**Type 1000 r/min motors (460 V, 6 kW)**

| Dimensions (mm) | Without brake |     |     |     |       |       |     | With brake |     |     |     |       |       | Approx. Mass (Kg) |               |            |
|-----------------|---------------|-----|-----|-----|-------|-------|-----|------------|-----|-----|-----|-------|-------|-------------------|---------------|------------|
| Model           | LL            | LM  | KB1 | KB2 | L1    | L2    | L3  | LL         | LM  | KB1 | KB2 | L1    | L2    | L3                | Without brake | With brake |
| R88M-K□         |               |     |     |     |       |       |     |            |     |     |     |       |       |                   |               |            |
| 6K010C-□S2      | 312           | 268 | 219 | 290 | 117.5 | 117.5 | 149 | 337        | 293 | 253 | 315 | 117.5 | 152.5 | 183               | 36.4          | 40.4       |





**Dimensions**

**SERVO DRIVES**

**R88D-KTA5L/01L, R88D-KNA5L/01L-□ (120 V, 50 - 100W)**

**R88D-KT01H/02H, R88D-KN01H/02H-□ (230 V, 100 - 200W)**



**R88D-KT02L, R88D-KN02L-□ (120 V, 200 W)**

**R88D-KT04H, R88D-KN04H-□ (230 V, 400 W)**



**R88D-KT04L, R88D-KN04L-□ (120 V, 400 W)**

**R88D-KT08H, R88D-KN08H-□ (230 V, 750 W)**





**Dimensions**

**SERVO DRIVES**

**R88D-KT20F, R88D-KN20F-□ (460 V, 2 kW)**



**R88D-KT30F/50F, R88D-KN30F/50F-□ (460 V, 3 - 5 kW)**



**R88D-KT75H, R88D-KN75H-ECT (230 V, 7.5 kW)**

**R88D-KT75F, R88D-KN75F-ECT (460 V, 7.5 kW)**



**Dimensions**

**SERVO DRIVES**

**R88D-KT150F, R88D-KN150F-ECT (460 V, 15 kW)**



**Filters**

| Filter Model   | External dimensions |     |    | Mount dimensions |     |
|----------------|---------------------|-----|----|------------------|-----|
|                | H                   | W   | D  | M1               | M2  |
| R88A-FIK102-RE | 190                 | 42  | 44 | 180              | 20  |
| R88A-FIK104-RE | 190                 | 57  | 30 | 180              | 30  |
| R88A-FIK107-RE | 190                 | 64  | 35 | 180              | 40  |
| R88A-FIK114-RE | 190                 | 86  | 35 | 180              | 60  |
| R88A-FIK222-RE | 291                 | 130 | 45 | 278              | 100 |
| R88A-FIK304-RE | 196                 | 92  | 40 | 186              | 70  |
| R88A-FIK306-RE | 238                 | 94  | 40 | 228              | 70  |
| R88A-FIK312-RE | 291                 | 130 | 40 | 278              | 100 |
| R88A-FIK330-RE | 305                 | 233 | 50 | 288              | 180 |
| R88A-FIK350-RE | 506                 | 261 | 52 | 491              | 200 |



**Installation**

**Single-phase, 120 VAC (for EtherCAT and MECHATROLINK-II servo drives)**



\*1 For servo drives from 400 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.  
 \*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.  
 \*3 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

Note: The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.

Installation

Single-phase, 230 VAC (for EtherCAT and MECHATROLINK-II servo drives)



\*1 For servo drives from 750 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

\*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.

\*3 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

Note: The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.

Installation

Three-phase, 230 VAC (for EtherCAT and MECHATROLINK-II servo drives)



\*1 For servo drives from 750 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

\*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.

\*3 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CNB.

Note: The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.

Installation

Three-phase, 460 VAC (for EtherCAT and MECHATROLINK-II servo drives)



\*1 For servo drives from 750 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

\*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.

\*3 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

Note: The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.



Installation

Single-phase, 120 VAC (for Analog/Pulse servo drives)



\*1 For servo drives from 400 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.  
 \*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.  
 \*3 Only available in Position control mode.  
 \*4 The input function depends on control mode used (Position, speed or torque control).  
 \*5 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.  
 Note: The input function of pins 8, 9 and 26 to 33, and output function of pins 10, 11, 34, 35, 38 and 39, can be changed via parameter settings.

Installation

Single-phase, 230 VAC (for Analog/Pulse servo drives)



\*1 For servo drives from 750 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.  
 \*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.  
 \*3 Only available in Position control mode.  
 \*4 The input function depends on control mode used (Position, speed or torque control).  
 \*5 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.  
 Note: The input function of pins 8, 9 and 26 to 33, and output function of pins 10, 11, 34, 35, 38 and 39, can be changed via parameter settings.

Installation

Three-phase, 230 VAC (for Analog/Pulse servo drives)



\*1 For servo drives from 750 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.  
 \*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.  
 \*3 Only available in Position control mode.  
 \*4 The input function depends on control mode used (Position, speed or torque control).  
 \*5 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.  
 Note: The input function of pins 8, 9 and 26 to 33, and output function of pins 10, 11, 34, 35, 38 and 39, can be changed via parameter settings.

Installation

Three-phase, 460 VAC (for Analog/Pulse servo drives)



\*1 Normally B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

\*2 For use only with an absolute encoder. If a backup battery is connected to CN1 I/O connector, an encoder cable with a battery is not required.

\*3 Only available in Position control mode.

\*4 The input function depends on control mode used (Position, speed or torque control).

\*5 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

Note: The input function of pins 8, 9 and 26 to 33, and output function of pins 10, 11, 34, 35, 38 and 39, can be changed via parameter settings.

**Ordering Information**

**Accurax G5 Servo System configuration**



**Note:** The symbols ①②③... show the recommended sequence to select the servo motor and cables

**Servo motor** ① Select motor from R88M-K family using motor tables in next pages.

**Servo drive** ② Refer to Accurax G5 servo drive section for detailed drive specifications and selection of drive accessories.

**Servo Motors 3000 r/min (50 W - 400 W), 120 VAC**

| Symbol                                                                                   | Specifications          |                                 |                                    |                  | Servo motor model | Compatible servo drives ② |                  |                    |                 |            |
|------------------------------------------------------------------------------------------|-------------------------|---------------------------------|------------------------------------|------------------|-------------------|---------------------------|------------------|--------------------|-----------------|------------|
|                                                                                          | Voltage                 | Encoder and design              |                                    | Rated torque     |                   | Capacity                  | G5 EtherCAT      | G5 MECHATROLINK-II | G5 Analog/Pulse |            |
| ①<br> | Single-phase<br>120 VAC | Incremental encoder<br>(20 bit) | Straight shaft<br>with key and tap | Without<br>brake | 0.16 N • m        | 50 W                      | R88M-K05030H-S2  | R88D-KNA5L-ECT     | R88D-KNA5L-ML2  | R88D-KTA5L |
|                                                                                          |                         |                                 |                                    |                  | 0.32 N • m        | 100 W                     | R88M-K10030L-S2  | R88D-KN01L-ECT     | R88D-KN01L-ML2  | R88D-KT01L |
|                                                                                          |                         |                                 |                                    |                  | 0.64 N • m        | 200 W                     | R88M-K20030L-S2  | R88D-KN02L-ECT     | R88D-KN02L-ML2  | R88D-KT02L |
|                                                                                          |                         |                                 |                                    | 1.3 N • m        | 400 W             | R88M-K40030L-S2           | R88D-KN04L-ECT   | R88D-KN04L-ML2     | R88D-KT04L      |            |
|                                                                                          |                         |                                 |                                    | With<br>brake    | 0.16 N • m        | 50 W                      | R88M-K05030H-BS2 | R88D-KNA5L-ECT     | R88D-KNA5L-ML2  | R88D-KTA5L |
|                                                                                          |                         |                                 |                                    |                  | 0.32 N • m        | 100 W                     | R88M-K10030L-BS2 | R88D-KN01L-ECT     | R88D-KN01L-ML2  | R88D-KT01L |
|                                                                                          |                         | 0.64 N • m                      | 200 W                              |                  | R88M-K20030L-BS2  | R88D-KN02L-ECT            | R88D-KN02L-ML2   | R88D-KT02L         |                 |            |
|                                                                                          |                         | Absolute encoder<br>(17 bit)    | Straight shaft with key<br>and tap | Without<br>brake | 0.16 N • m        | 50 W                      | R88M-K05030T-S2  | R88D-KNA5L-ECT     | R88D-KNA5L-ML2  | R88D-KTA5L |
|                                                                                          |                         |                                 |                                    |                  | 0.32 N • m        | 100 W                     | R88M-K10030S-S2  | R88D-KN01L-ECT     | R88D-KN01L-ML2  | R88D-KT01L |
|                                                                                          |                         |                                 |                                    |                  | 0.64 N • m        | 200 W                     | R88M-K20030S-S2  | R88D-KN02L-ECT     | R88D-KN02L-ML2  | R88D-KT02L |
|                                                                                          |                         |                                 |                                    | 1.3 N • m        | 400 W             | R88M-K40030S-S2           | R88D-KN04L-ECT   | R88D-KN04L-ML2     | R88D-KT04L      |            |
|                                                                                          |                         |                                 |                                    | With<br>brake    | 0.16 N • m        | 50 W                      | R88M-K05030T-BS2 | R88D-KNA5L-ECT     | R88D-KNA5L-ML2  | R88D-KTA5L |
|                                                                                          |                         |                                 |                                    |                  | 0.32 N • m        | 100 W                     | R88M-K10030S-BS2 | R88D-KN01L-ECT     | R88D-KN01L-ML2  | R88D-KT01L |
|                                                                                          |                         | 0.64 N • m                      | 200 W                              |                  | R88M-K20030S-BS2  | R88D-KN02L-ECT            | R88D-KN02L-ML2   | R88D-KT02L         |                 |            |
|                                                                                          |                         |                                 |                                    |                  | 1.3 N • m         | 400 W                     | R88M-K40030S-BS2 | R88D-KN04L-ECT     | R88D-KN04L-ML2  | R88D-KT04L |

Ordering Information

Servo Motors 3000 r/min (50 W - 5 kW), 230/460 VAC

| Symbol                                                                            | Specifications                          |                                                                       |                                                                    |                                                                       | Servo motor model | Compatible servo drives ② |                  |                    |                 |                |            |
|-----------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------|---------------------------|------------------|--------------------|-----------------|----------------|------------|
|                                                                                   | Voltage                                 | Encoder and design                                                    |                                                                    | Rated torque                                                          |                   | Capacity                  | G5 EtherCAT      | G5 MECHATROLINK-II | G5 Analog/Pulse |                |            |
|  | Single-phase/<br>Three-phase<br>230 VAC | Incremental encoder<br>(20 bit)<br>Straight shaft with key<br>and tap | Without<br>brake                                                   | 0.16 N • m                                                            | 50 W              | R88M-K05030H-S2           | R88D-KN01H-ECT   | R88D-KN01H-ML2     | R88D-KT01H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 0.32 N • m                                                            | 100 W             | R88M-K10030H-S2           | R88D-KN01H-ECT   | R88D-KN01H-ML2     | R88D-KT01H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 0.64 N • m                                                            | 200 W             | R88M-K20030H-S2           | R88D-KN02H-ECT   | R88D-KN02H-ML2     | R88D-KT02H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 1.3 N • m                                                             | 400 W             | R88M-K40030H-S2           | R88D-KN04H-ECT   | R88D-KN04H-ML2     | R88D-KT04H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 2.4 N • m                                                             | 750 W             | R88M-K75030H-S2           | R88D-KN08H-ECT   | R88D-KN08H-ML2     | R88D-KT08H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 3.18 N • m                                                            | 1 kW              | R88M-K1K030H-S2           | R88D-KN10H-ECT   | R88D-KN10H-ML2     | R88D-KT10H      |                |            |
|                                                                                   |                                         |                                                                       | 4.77 N • m                                                         | 1.5 kW                                                                | R88M-K1K530H-S2   | R88D-KN15H-ECT            | R88D-KN15H-ML2   | R88D-KT15H         |                 |                |            |
|                                                                                   |                                         |                                                                       | With brake                                                         | 0.16 N • m                                                            | 50 W              | R88M-K05030H-BS2          | R88D-KN01H-ECT   | R88D-KN01H-ML2     | R88D-KT01H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 0.32 N • m                                                            | 100 W             | R88M-K10030H-BS2          | R88D-KN01H-ECT   | R88D-KN01H-ML2     | R88D-KT01H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 0.64 N • m                                                            | 200 W             | R88M-K20030H-BS2          | R88D-KN02H-ECT   | R88D-KN02H-ML2     | R88D-KT02H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 1.3 N • m                                                             | 400 W             | R88M-K40030H-BS2          | R88D-KN04H-ECT   | R88D-KN04H-ML2     | R88D-KT04H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 2.4 N • m                                                             | 750 W             | R88M-K75030H-BS2          | R88D-KN08H-ECT   | R88D-KN08H-ML2     | R88D-KT08H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 3.18 N • m                                                            | 1 kW              | R88M-K1K030H-BS2          | R88D-KN10H-ECT   | R88D-KN10H-ML2     | R88D-KT10H      |                |            |
|                                                                                   |                                         |                                                                       | Absolute encoder<br>(17 bit)<br>Straight shaft with key<br>and tap | Without<br>brake                                                      | 0.16 N • m        | 50 W                      | R88M-K05030T-S2  | R88D-KN01H-ECT     | R88D-KN01H-ML2  | R88D-KT01H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 0.32 N • m        | 100 W                     | R88M-K10030T-S2  | R88D-KN01H-ECT     | R88D-KN01H-ML2  | R88D-KT01H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 0.64 N • m        | 200 W                     | R88M-K20030T-S2  | R88D-KN02H-ECT     | R88D-KN02H-ML2  | R88D-KT02H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 1.3 N • m         | 400 W                     | R88M-K40030T-S2  | R88D-KN04H-ECT     | R88D-KN04H-ML2  | R88D-KT04H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 2.4 N • m         | 750 W                     | R88M-K75030T-S2  | R88D-KN08H-ECT     | R88D-KN08H-ML2  | R88D-KT08H     |            |
|                                                                                   |                                         | 3.18 N • m                                                            |                                                                    |                                                                       | 1 kW              | R88M-K1K030T-S2           | R88D-KN10H-ECT   | R88D-KN10H-ML2     | R88D-KT10H      |                |            |
|                                                                                   |                                         | With brake                                                            |                                                                    | 0.16 N • m                                                            | 50 W              | R88M-K05030T-BS2          | R88D-KN01H-ECT   | R88D-KN01H-ML2     | R88D-KT01H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 0.32 N • m                                                            | 100 W             | R88M-K10030T-BS2          | R88D-KN01H-ECT   | R88D-KN01H-ML2     | R88D-KT01H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 0.64 N • m                                                            | 200 W             | R88M-K20030T-BS2          | R88D-KN02H-ECT   | R88D-KN02H-ML2     | R88D-KT02H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 1.3 N • m                                                             | 400 W             | R88M-K40030T-BS2          | R88D-KN04H-ECT   | R88D-KN04H-ML2     | R88D-KT04H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 2.4 N • m                                                             | 750 W             | R88M-K75030T-BS2          | R88D-KN08H-ECT   | R88D-KN08H-ML2     | R88D-KT08H      |                |            |
|                                                                                   |                                         |                                                                       |                                                                    | 3.18 N • m                                                            | 1 kW              | R88M-K1K030T-BS2          | R88D-KN10H-ECT   | R88D-KN10H-ML2     | R88D-KT10H      |                |            |
|                                                                                   |                                         | Three-phase<br>230 VAC                                                |                                                                    | Incremental encoder<br>(20 bit)<br>Straight shaft with key<br>and tap | Without<br>brake  | 6.37 N • m                | 2 kW             | R88M-K2K030H-S2    | R88D-KN20H-ECT  | R88D-KN20H-ML2 | R88D-KT20H |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 9.55 N • m                | 3 kW             | R88M-K3K030H-S2    | R88D-KN30H-ECT  | R88D-KN30H-ML2 | R88D-KT30H |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 15.9 N • m                | 5 kW             | R88M-K5K030H-S2    | R88D-KN50H-ECT  | R88D-KN50H-ML2 | R88D-KT50H |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | With brake        | 6.37 N • m                | 2 kW             | R88M-K2K030H-BS2   | R88D-KN20H-ECT  | R88D-KN20H-ML2 | R88D-KT20H |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 9.55 N • m                | 3 kW             | R88M-K3K030H-BS2   | R88D-KN30H-ECT  | R88D-KN30H-ML2 | R88D-KT30H |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 15.9 N • m                | 5 kW             | R88M-K5K030H-BS2   | R88D-KN50H-ECT  | R88D-KN50H-ML2 | R88D-KT50H |
|                                                                                   |                                         |                                                                       | Absolute encoder<br>(17 bit)<br>Straight shaft with key<br>and tap | Without<br>brake                                                      | 6.37 N • m        | 2 kW                      | R88M-K2K030T-S2  | R88D-KN20H-ECT     | R88D-KN20H-ML2  | R88D-KT20H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 9.55 N • m        | 3 kW                      | R88M-K3K030T-S2  | R88D-KN30H-ECT     | R88D-KN30H-ML2  | R88D-KT30H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 15.9 N • m        | 5 kW                      | R88M-K5K030T-S2  | R88D-KN50H-ECT     | R88D-KN50H-ML2  | R88D-KT50H     |            |
|                                                                                   |                                         |                                                                       |                                                                    | With brake                                                            | 6.37 N • m        | 2 kW                      | R88M-K2K030T-BS2 | R88D-KN20H-ECT     | R88D-KN20H-ML2  | R88D-KT20H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 9.55 N • m        | 3 kW                      | R88M-K3K030T-BS2 | R88D-KN30H-ECT     | R88D-KN30H-ML2  | R88D-KT30H     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 15.9 N • m        | 5 kW                      | R88M-K5K030T-BS2 | R88D-KN50H-ECT     | R88D-KN50H-ML2  | R88D-KT50H     |            |
|                                                                                   |                                         |                                                                       | Three-phase<br>460 VAC                                             | Incremental encoder<br>(20 bit)<br>Straight shaft with key<br>and tap | Without<br>brake  | 2.4 N • m                 | 750 W            | R88M-K75030F-S2    | R88D-KN10F-ECT  | R88D-KN10F-ML2 | R88D-KT10F |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 3.18 N • m                | 1 kW             | R88M-K1K030F-S2    | R88D-KN10F-ECT  | R88D-KN10F-ML2 | R88D-KT10F |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 4.77 N • m                | 1.5 kW           | R88M-K1K530F-S2    | R88D-KN15F-ECT  | R88D-KN15F-ML2 | R88D-KT15F |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 6.37 N • m                | 2 kW             | R88M-K2K030F-S2    | R88D-KN20F-ECT  | R88D-KN20F-ML2 | R88D-KT20F |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 9.55 N • m                | 3 kW             | R88M-K3K030F-S2    | R88D-KN30F-ECT  | R88D-KN30F-ML2 | R88D-KT30F |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       |                   | 12.7 N • m                | 4 kW             | R88M-K4K030F-S2    | R88D-KN50F-ECT  | R88D-KN50F-ML2 | R88D-KT50F |
|                                                                                   |                                         | With brake                                                            |                                                                    |                                                                       | 2.4 N • m         | 750 W                     | R88M-K75030F-BS2 | R88D-KN10F-ECT     | R88D-KN10F-ML2  | R88D-KT10F     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 3.18 N • m        | 1 kW                      | R88M-K1K030F-BS2 | R88D-KN10F-ECT     | R88D-KN10F-ML2  | R88D-KT10F     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 4.77 N • m        | 1.5 kW                    | R88M-K1K530F-BS2 | R88D-KN15F-ECT     | R88D-KN15F-ML2  | R88D-KT15F     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 6.37 N • m        | 2 kW                      | R88M-K2K030F-BS2 | R88D-KN20F-ECT     | R88D-KN20F-ML2  | R88D-KT20F     |            |
|                                                                                   |                                         |                                                                       |                                                                    |                                                                       | 9.55 N • m        | 3 kW                      | R88M-K3K030F-BS2 | R88D-KN30F-ECT     | R88D-KN30F-ML2  | R88D-KT30F     |            |
| 12.7 N • m                                                                        | 4 kW                                    |                                                                       |                                                                    |                                                                       | R88M-K4K030F-BS2  | R88D-KN50F-ECT            | R88D-KN50F-ML2   | R88D-KT50F         |                 |                |            |
| Absolute encoder<br>(17 bit)<br>Straight shaft with key<br>and tap                | Without<br>brake                        | 2.4 N • m                                                             |                                                                    |                                                                       | 750 W             | R88M-K75030C-S2           | R88D-KN10F-ECT   | R88D-KN10F-ML2     | R88D-KT10F      |                |            |
|                                                                                   |                                         | 3.18 N • m                                                            |                                                                    |                                                                       | 1 kW              | R88M-K1K030C-S2           | R88D-KN10F-ECT   | R88D-KN10F-ML2     | R88D-KT10F      |                |            |
|                                                                                   |                                         | 4.77 N • m                                                            |                                                                    |                                                                       | 1.5 kW            | R88M-K1K530C-S2           | R88D-KN15F-ECT   | R88D-KN15F-ML2     | R88D-KT15F      |                |            |
|                                                                                   |                                         | 6.37 N • m                                                            |                                                                    |                                                                       | 2 kW              | R88M-K2K030C-S2           | R88D-KN20F-ECT   | R88D-KN20F-ML2     | R88D-KT20F      |                |            |
|                                                                                   |                                         | 9.55 N • m                                                            |                                                                    |                                                                       | 3 kW              | R88M-K3K030C-S2           | R88D-KN30F-ECT   | R88D-KN30F-ML2     | R88D-KT30F      |                |            |
|                                                                                   |                                         | 12.7 N • m                                                            |                                                                    |                                                                       | 4 kW              | R88M-K4K030C-S2           | R88D-KN50F-ECT   | R88D-KN50F-ML2     | R88D-KT50F      |                |            |
|                                                                                   | With brake                              | 2.4 N • m                                                             |                                                                    | 750 W                                                                 | R88M-K75030C-BS2  | R88D-KN10F-ECT            | R88D-KN10F-ML2   | R88D-KT10F         |                 |                |            |
|                                                                                   |                                         | 3.18 N • m                                                            |                                                                    | 1 kW                                                                  | R88M-K1K030C-BS2  | R88D-KN10F-ECT            | R88D-KN10F-ML2   | R88D-KT10F         |                 |                |            |
|                                                                                   |                                         | 4.77 N • m                                                            |                                                                    | 1.5 kW                                                                | R88M-K1K530C-BS2  | R88D-KN15F-ECT            | R88D-KN15F-ML2   | R88D-KT15F         |                 |                |            |
|                                                                                   |                                         | 6.37 N • m                                                            |                                                                    | 2 kW                                                                  | R88M-K2K030C-BS2  | R88D-KN20F-ECT            | R88D-KN20F-ML2   | R88D-KT20F         |                 |                |            |
|                                                                                   |                                         | 9.55 N • m                                                            |                                                                    | 3 kW                                                                  | R88M-K3K030C-BS2  | R88D-KN30F-ECT            | R88D-KN30F-ML2   | R88D-KT30F         |                 |                |            |
|                                                                                   |                                         | 12.7 N • m                                                            |                                                                    | 4 kW                                                                  | R88M-K4K030C-BS2  | R88D-KN50F-ECT            | R88D-KN50F-ML2   | R88D-KT50F         |                 |                |            |

Ordering Information

Servo Motors 2000 r/min (400 W - 5 kW), 230/460 VAC

| Symbol                                                                            | Specifications                                                         |                                                                        |                                                                     |                     | Servo motor model | Compatible servo drives ② |                    |                  |                |                |            |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------|-------------------|---------------------------|--------------------|------------------|----------------|----------------|------------|
|                                                                                   | Voltage                                                                | Encoder and design                                                     | Rated torque                                                        | Capacity            |                   | G5 EtherCAT               | G5 MECHATROLINK-II | G5 Analog/Pulse  |                |                |            |
|  | Single-phase/Three-phase 230 VAC                                       | <b>Incremental encoder (20 bit)</b><br>Straight shaft with key and tap | Without brake                                                       | 4.77 N • m          | 1 kW              | R88M-K1K020H-S2           | R88D-KN10H-ECT     | R88D-KN10H-ML2   | R88D-KT10H     |                |            |
|                                                                                   | Three-phase 230 VAC                                                    |                                                                        |                                                                     | 7.16 N • m          | 1.5 kW            | R88M-K1K520H-S2           | R88D-KN15H-ECT     | R88D-KN15H-ML2   | R88D-KT15H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 9.55 N • m          | 2 kW              | R88M-K2K020H-S2           | R88D-KN20H-ECT     | R88D-KN20H-ML2   | R88D-KT20H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 14.3 N • m          | 3 kW              | R88M-K3K020H-S2           | R88D-KN30H-ECT     | R88D-KN30H-ML2   | R88D-KT30H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 19.1 N • m          | 4 kW              | R88M-K4K020H-S2           | R88D-KN50H-ECT     | R88D-KN50H-ML2   | R88D-KT50H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 23.9 N • m          | 5 kW              | R88M-K5K020H-S2           | R88D-KN50H-ECT     | R88D-KN50H-ML2   | R88D-KT50H     |                |            |
|                                                                                   |                                                                        |                                                                        | 4.77 N • m                                                          | 1 kW                | R88M-K1K020H-BS2  | R88D-KN10H-ECT            | R88D-KN10H-ML2     | R88D-KT10H       |                |                |            |
|                                                                                   | Three-phase 230 VAC                                                    |                                                                        | 7.16 N • m                                                          | 1.5 kW              | R88M-K1K520H-BS2  | R88D-KN15H-ECT            | R88D-KN15H-ML2     | R88D-KT15H       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 9.55 N • m                                                          | 2 kW                | R88M-K2K020H-BS2  | R88D-KN20H-ECT            | R88D-KN20H-ML2     | R88D-KT20H       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 14.3 N • m                                                          | 3 kW                | R88M-K3K020H-BS2  | R88D-KN30H-ECT            | R88D-KN30H-ML2     | R88D-KT30H       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 19.1 N • m                                                          | 4 kW                | R88M-K4K020H-BS2  | R88D-KN50H-ECT            | R88D-KN50H-ML2     | R88D-KT50H       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 23.9 N • m                                                          | 5 kW                | R88M-K5K020H-BS2  | R88D-KN50H-ECT            | R88D-KN50H-ML2     | R88D-KT50H       |                |                |            |
|                                                                                   |                                                                        | 4.77 N • m                                                             | 1 kW                                                                | R88M-K1K020T-S2     | R88D-KN10H-ECT    | R88D-KN10H-ML2            | R88D-KT10H         |                  |                |                |            |
|                                                                                   | Single-phase/Three-phase 230 VAC                                       | <b>Absolute encoder (17 bit)</b><br>Straight shaft with key and tap    | Without brake                                                       | 7.16 N • m          | 1.5 kW            | R88M-K1K520T-S2           | R88D-KN15H-ECT     | R88D-KN15H-ML2   | R88D-KT15H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 9.55 N • m          | 2 kW              | R88M-K2K020T-S2           | R88D-KN20H-ECT     | R88D-KN20H-ML2   | R88D-KT20H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 14.3 N • m          | 3 kW              | R88M-K3K020T-S2           | R88D-KN30H-ECT     | R88D-KN30H-ML2   | R88D-KT30H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 19.1 N • m          | 4 kW              | R88M-K4K020T-S2           | R88D-KN50H-ECT     | R88D-KN50H-ML2   | R88D-KT50H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 23.9 N • m          | 5 kW              | R88M-K5K020T-S2           | R88D-KN50H-ECT     | R88D-KN50H-ML2   | R88D-KT50H     |                |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | 4.77 N • m          | 1 kW              | R88M-K1K020T-BS2          | R88D-KN10H-ECT     | R88D-KN10H-ML2   | R88D-KT10H     |                |            |
|                                                                                   |                                                                        |                                                                        | Three-phase 230 VAC                                                 | With brake          | 7.16 N • m        | 1.5 kW                    | R88M-K1K520T-BS2   | R88D-KN15H-ECT   | R88D-KN15H-ML2 | R88D-KT15H     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 9.55 N • m        | 2 kW                      | R88M-K2K020T-BS2   | R88D-KN20H-ECT   | R88D-KN20H-ML2 | R88D-KT20H     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 14.3 N • m        | 3 kW                      | R88M-K3K020T-BS2   | R88D-KN30H-ECT   | R88D-KN30H-ML2 | R88D-KT30H     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 19.1 N • m        | 4 kW                      | R88M-K4K020T-BS2   | R88D-KN50H-ECT   | R88D-KN50H-ML2 | R88D-KT50H     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 23.9 N • m        | 5 kW                      | R88M-K5K020T-BS2   | R88D-KN50H-ECT   | R88D-KN50H-ML2 | R88D-KT50H     |            |
| 4.77 N • m                                                                        |                                                                        |                                                                        |                                                                     |                     | 1 kW              | R88M-K1K020F-S2           | R88D-KN06F-ECT     | R88D-KN06F-ML2   | R88D-KT06F     |                |            |
| Three-phase 460 VAC                                                               | <b>Incremental encoder (20 bit)</b><br>Straight shaft with key and tap | Without brake                                                          | 2.86 N • m                                                          | 600 W               | R88M-K60020F-S2   | R88D-KN06F-ECT            | R88D-KN06F-ML2     | R88D-KT06F       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 4.77 N • m                                                          | 1 kW                | R88M-K1K020F-S2   | R88D-KN10F-ECT            | R88D-KN10F-ML2     | R88D-KT10F       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 7.16 N • m                                                          | 1.5 kW              | R88M-K1K520F-S2   | R88D-KN15F-ECT            | R88D-KN15F-ML2     | R88D-KT15F       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 9.55 N • m                                                          | 2 kW                | R88M-K2K020F-S2   | R88D-KN20F-ECT            | R88D-KN20F-ML2     | R88D-KT20F       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 14.3 N • m                                                          | 3 kW                | R88M-K3K020F-S2   | R88D-KN30F-ECT            | R88D-KN30F-ML2     | R88D-KT30F       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 19.1 N • m                                                          | 4 kW                | R88M-K4K020F-S2   | R88D-KN50F-ECT            | R88D-KN50F-ML2     | R88D-KT50F       |                |                |            |
|                                                                                   |                                                                        |                                                                        | 23.9 N • m                                                          | 5 kW                | R88M-K5K020F-S2   | R88D-KN50F-ECT            | R88D-KN50F-ML2     | R88D-KT50F       |                |                |            |
|                                                                                   |                                                                        |                                                                        | Three-phase 460 VAC                                                 | With brake          | 1.91 N • m        | 400 W                     | R88M-K40020F-BS2   | R88D-KN06F-ECT   | R88D-KN06F-ML2 | R88D-KT06F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 2.86 N • m        | 600 W                     | R88M-K60020F-BS2   | R88D-KN06F-ECT   | R88D-KN06F-ML2 | R88D-KT06F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 4.77 N • m        | 1 kW                      | R88M-K1K020F-BS2   | R88D-KN10F-ECT   | R88D-KN10F-ML2 | R88D-KT10F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 7.16 N • m        | 1.5 kW                    | R88M-K1K520F-BS2   | R88D-KN15F-ECT   | R88D-KN15F-ML2 | R88D-KT15F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 9.55 N • m        | 2 kW                      | R88M-K2K020F-BS2   | R88D-KN20F-ECT   | R88D-KN20F-ML2 | R88D-KT20F     |            |
|                                                                                   |                                                                        | 14.3 N • m                                                             |                                                                     |                     | 3 kW              | R88M-K3K020F-BS2          | R88D-KN30F-ECT     | R88D-KN30F-ML2   | R88D-KT30F     |                |            |
|                                                                                   |                                                                        | Three-phase 460 VAC                                                    | <b>Absolute encoder (17 bit)</b><br>Straight shaft with key and tap | Without brake       | 19.1 N • m        | 4 kW                      | R88M-K4K020F-S2    | R88D-KN50F-ECT   | R88D-KN50F-ML2 | R88D-KT50F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 23.9 N • m        | 5 kW                      | R88M-K5K020F-S2    | R88D-KN50F-ECT   | R88D-KN50F-ML2 | R88D-KT50F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 1.91 N • m        | 400 W                     | R88M-K40020C-S2    | R88D-KN06F-ECT   | R88D-KN06F-ML2 | R88D-KT06F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 2.86 N • m        | 600 W                     | R88M-K60020C-S2    | R88D-KN06F-ECT   | R88D-KN06F-ML2 | R88D-KT06F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 4.77 N • m        | 1 kW                      | R88M-K1K020C-S2    | R88D-KN10F-ECT   | R88D-KN10F-ML2 | R88D-KT10F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     | 7.16 N • m        | 1.5 kW                    | R88M-K1K520C-S2    | R88D-KN15F-ECT   | R88D-KN15F-ML2 | R88D-KT15F     |            |
|                                                                                   |                                                                        |                                                                        |                                                                     | Three-phase 460 VAC | With brake        | 9.55 N • m                | 2 kW               | R88M-K2K020C-S2  | R88D-KN20F-ECT | R88D-KN20F-ML2 | R88D-KT20F |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     |                   | 14.3 N • m                | 3 kW               | R88M-K3K020C-S2  | R88D-KN30F-ECT | R88D-KN30F-ML2 | R88D-KT30F |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     |                   | 19.1 N • m                | 4 kW               | R88M-K4K020C-S2  | R88D-KN50F-ECT | R88D-KN50F-ML2 | R88D-KT50F |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     |                   | 23.9 N • m                | 5 kW               | R88M-K5K020C-S2  | R88D-KN50F-ECT | R88D-KN50F-ML2 | R88D-KT50F |
|                                                                                   |                                                                        |                                                                        |                                                                     |                     |                   | 1.91 N • m                | 400 W              | R88M-K40020C-BS2 | R88D-KN06F-ECT | R88D-KN06F-ML2 | R88D-KT06F |
| 2.86 N • m                                                                        | 600 W                                                                  |                                                                        |                                                                     |                     |                   | R88M-K60020C-BS2          | R88D-KN06F-ECT     | R88D-KN06F-ML2   | R88D-KT06F     |                |            |
| Three-phase 460 VAC                                                               | With brake                                                             | 4.77 N • m                                                             | 1 kW                                                                | R88M-K1K020C-BS2    | R88D-KN10F-ECT    | R88D-KN10F-ML2            | R88D-KT10F         |                  |                |                |            |
|                                                                                   |                                                                        | 7.16 N • m                                                             | 1.5 kW                                                              | R88M-K1K520C-BS2    | R88D-KN15F-ECT    | R88D-KN15F-ML2            | R88D-KT15F         |                  |                |                |            |
|                                                                                   |                                                                        | 9.55 N • m                                                             | 2 kW                                                                | R88M-K2K020C-BS2    | R88D-KN20F-ECT    | R88D-KN20F-ML2            | R88D-KT20F         |                  |                |                |            |
|                                                                                   |                                                                        | 14.3 N • m                                                             | 3 kW                                                                | R88M-K3K020C-BS2    | R88D-KN30F-ECT    | R88D-KN30F-ML2            | R88D-KT30F         |                  |                |                |            |
|                                                                                   |                                                                        | 19.1 N • m                                                             | 4 kW                                                                | R88M-K4K020C-BS2    | R88D-KN50F-ECT    | R88D-KN50F-ML2            | R88D-KT50F         |                  |                |                |            |
|                                                                                   |                                                                        | 23.9 N • m                                                             | 5 kW                                                                | R88M-K5K020C-BS2    | R88D-KN50F-ECT    | R88D-KN50F-ML2            | R88D-KT50F         |                  |                |                |            |

Ordering Information

Servo Motors 1500 r/min (7.5 - 15 kW)

| Symbol                                                                            | Specifications         |                                                                    |               |          | Servo motor model | Compatible servo drives <sup>②</sup> |                 |            |
|-----------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------|---------------|----------|-------------------|--------------------------------------|-----------------|------------|
|                                                                                   | Voltage                | Encoder and design                                                 | Rated torque  | Capacity |                   | G5 EtherCAT                          | G5 Analog/Pulse |            |
|  | Three-phase<br>230 VAC | Absolute encoder<br>(17 bit)<br>Straight shaft with<br>key and tap | Without brake | 47.8 N·m | 7500 W            | R88M-K7K515T-S2                      | R88D-KN75H-ECT  | R88D-KT75H |
|                                                                                   |                        |                                                                    | With brake    | 47.8 N·m | 7500 W            | R88M-K7K515T-BS2                     | R88D-KN75H-ECT  | R88D-KT75H |
|                                                                                   | Without brake          |                                                                    | 47.8 N·m      | 7500 W   | R88M-K7K515C-S2   | R88D-KN75F-ECT                       | R88D-KT75F      |            |
|                                                                                   |                        |                                                                    | 70.0 N·m      | 11000 W  | R88M-K11K015C-S2  | R88D-KN150F-ECT                      | R88D-KT150F     |            |
|                                                                                   | With brake             |                                                                    | 95.5 N·m      | 15000 W  | R88M-K15K015C-S2  | R88D-KN150F-ECT                      | R88D-KT150F     |            |
|                                                                                   |                        |                                                                    | 47.8 N·m      | 7500 W   | R88M-K7K515C-BS2  | R88D-KN75F-ECT                       | R88D-KT75F      |            |
|                                                                                   | Three-phase<br>460 VAC | Without brake                                                      | 70.0 N·m      | 11000 W  | R88M-K11K015C-BS2 | R88D-KN150F-ECT                      | R88D-KT150F     |            |
|                                                                                   |                        | With brake                                                         | 95.5 N·m      | 15000 W  | R88M-K15K015C-BS2 | R88D-KN150F-ECT                      | R88D-KT150F     |            |

Servo Motors 1000 r/min (900 W - 6 kW)

| Symbol                                                                                                                                                                       | Specifications                          |                                                                       |                  |                | Servo motor model | Compatible servo drives <sup>②</sup> |                 |            |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------|------------------|----------------|-------------------|--------------------------------------|-----------------|------------|----------------|
|                                                                                                                                                                              | Voltage                                 | Encoder and design                                                    | Rated torque     | Capacity       |                   | G5 EtherCAT                          | G5 Analog/Pulse | G5 ML2     |                |
| <br><br> | Single-phase/<br>Three-phase<br>230 VAC | Incremental encoder<br>(20 bit)<br>Straight shaft with key<br>and tap | Without brake    | 8.59 N·m       | 900 W             | R88M-K90010H-S2                      | R88D-KN15H-ECT  | R88D-KT15H | R88D-KN15H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 19.1 N·m       | 2000 W            | R88M-K2K010H-S2                      | R88D-KN30H-ECT  | R88D-KT30H | R88D-KN30H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 28.7 N·m       | 3000 W            | R88M-K3K010H-S2                      | R88D-KN50H-ECT  | R88D-KT50H | R88D-KN50H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 8.59 N·m       | 900 W             | R88M-K90010H-BS2                     | R88D-KN15H-ECT  | R88D-KT15H | R88D-KN15H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 19.1 N·m       | 2000 W            | R88M-K2K010H-BS2                     | R88D-KN30H-ECT  | R88D-KT30H | R88D-KN30H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 28.7 N·m       | 3000 W            | R88M-K3K010H-BS2                     | R88D-KN50H-ECT  | R88D-KT50H | R88D-KN50H-ML2 |
|                                                                                                                                                                              |                                         | Absolute encoder<br>(17 bit)<br>Straight shaft with key<br>and tap    | Without brake    | 8.59 N·m       | 900 W             | R88M-K90010T-S2                      | R88D-KN15H-ECT  | R88D-KT15H | R88D-KN15H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 19.1 N·m       | 2000 W            | R88M-K2K010T-S2                      | R88D-KN30H-ECT  | R88D-KT30H | R88D-KN30H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 28.7 N·m       | 3000 W            | R88M-K3K010T-S2                      | R88D-KN50H-ECT  | R88D-KT50H | R88D-KN50H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 8.59 N·m       | 900 W             | R88M-K90010T-BS2                     | R88D-KN15H-ECT  | R88D-KT15H | R88D-KN15H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 19.1 N·m       | 2000 W            | R88M-K2K010T-BS2                     | R88D-KN30H-ECT  | R88D-KT30H | R88D-KN30H-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 28.7 N·m       | 3000 W            | R88M-K3K010T-BS2                     | R88D-KN50H-ECT  | R88D-KT50H | R88D-KN50H-ML2 |
|                                                                                                                                                                              | Three-phase<br>460 VAC                  | Incremental encoder<br>(20 bit)<br>Straight shaft with key<br>and tap | Without brake    | 8.59 N·m       | 900 W             | R88M-K90010F-S2                      | R88D-KN15F-ECT  | R88D-KT15F | R88D-KN15F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 19.1 N·m       | 2000 W            | R88M-K2K010F-S2                      | R88D-KN30F-ECT  | R88D-KT30F | R88D-KN30F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 28.7 N·m       | 3000 W            | R88M-K3K010F-S2                      | R88D-KN50F-ECT  | R88D-KT50F | R88D-KN50F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 8.59 N·m       | 900 W             | R88M-K90010F-BS2                     | R88D-KN15F-ECT  | R88D-KT15F | R88D-KN15F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 19.1 N·m       | 2000 W            | R88M-K2K010F-BS2                     | R88D-KN30F-ECT  | R88D-KT30F | R88D-KN30F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 28.7 N·m       | 3000 W            | R88M-K3K010F-BS2                     | R88D-KN50F-ECT  | R88D-KT50F | R88D-KN50F-ML2 |
|                                                                                                                                                                              |                                         | Absolute encoder<br>(17 bit)<br>Straight shaft with key<br>and tap    | Without brake    | 8.59 N·m       | 900 W             | R88M-K90010C-S2                      | R88D-KN15F-ECT  | R88D-KT15F | R88D-KN15F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 19.1 N·m       | 2000 W            | R88M-K2K010C-S2                      | R88D-KN30F-ECT  | R88D-KT30F | R88D-KN30F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 28.7 N·m       | 3000 W            | R88M-K3K010C-S2                      | R88D-KN50F-ECT  | R88D-KT50F | R88D-KN50F-ML2 |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 43.0 N·m       | 4500 W            | R88M-K4K510C-S2                      | R88D-KN50F-ECT  | R88D-KT50F | -              |
|                                                                                                                                                                              |                                         |                                                                       | Without brake    | 57.3 N·m       | 6000 W            | R88M-K6K010C-S2                      | R88D-KN75F-ECT  | R88D-KT75F | -              |
|                                                                                                                                                                              |                                         |                                                                       | With brake       | 8.59 N·m       | 900 W             | R88M-K90010C-BS2                     | R88D-KN15F-ECT  | R88D-KT15F | R88D-KN15F-ML2 |
| With brake                                                                                                                                                                   | 19.1 N·m                                | 2000 W                                                                | R88M-K2K010C-BS2 | R88D-KN30F-ECT | R88D-KT30F        | R88D-KN30F-ML2                       |                 |            |                |
| With brake                                                                                                                                                                   | 28.7 N·m                                | 3000 W                                                                | R88M-K3K010C-BS2 | R88D-KN50F-ECT | R88D-KT50F        | R88D-KN50F-ML2                       |                 |            |                |
| With brake                                                                                                                                                                   | 43.0 N·m                                | 4500 W                                                                | R88M-K4K510C-BS2 | R88D-KN50F-ECT | R88D-KT50F        | -                                    |                 |            |                |
| With brake                                                                                                                                                                   | 57.3 N·m                                | 6000 W                                                                | R88M-K6K010C-BS2 | R88D-KN75F-ECT | R88D-KT75F        | -                                    |                 |            |                |



**Ordering Information**

**Accurax G5 series EtherCAT reference configuration**



**Note:** The symbols ①②③... show the recommended sequence to select the Accurax G5 servo system

**Servo motors power & encoder cables**

**Note:** ①② Refer to the Accurax G5 servo motor section for servomotor, motor cables or connectors selection.

**Servo drives**

| Symbol             | Specifications        |                | Servo drive model  | Servo motor model ① |                    |
|--------------------|-----------------------|----------------|--------------------|---------------------|--------------------|
|                    | Voltage               | Capacity       |                    |                     |                    |
| ③                  | Single-phase, 120 VAC | 50 W           | R88D-KNA5L-ECT     | R88M-K05030(H/T)-□  |                    |
|                    |                       | 100 W          | R88D-KN01L-ECT     | R88M-K10030(L/S)-□  |                    |
|                    |                       | 200 W          | R88D-KN02L-ECT     | R88M-K20030(L/S)-□  |                    |
|                    |                       | 400 W          | R88D-KN04L-ECT     | R88M-K40030(L/S)-□  |                    |
|                    | Single-phase, 230 VAC | 100 W          | R88D-KN01H-ECT     | R88M-K05030(H/T)-□  | R88M-K10030(H/T)-□ |
|                    |                       |                | R88D-KN02H-ECT     | R88M-K20030(H/T)-□  |                    |
|                    |                       | 400 W          | R88D-KN04H-ECT     | R88M-K40030(H/T)-□  |                    |
|                    |                       |                | R88D-KN08H-ECT     | R88M-K75030(H/T)-□  |                    |
|                    |                       | 1.0 kW         | R88D-KN10H-ECT     | R88M-K1K020(H/T)-□  | R88M-K1K030(H/T)-□ |
|                    |                       |                | R88D-KN15H-ECT     | R88M-K1K530(H/T)-□  | R88M-K1K520(H/T)-□ |
|                    |                       |                | R88M-K90010(H/T)-□ |                     |                    |
|                    |                       |                | R88M-K2K030(H/T)-□ | R88M-K2K020(H/T)-□  |                    |
|                    | Three-phase, 230 VAC  | 2.0 kW         | R88D-KN20H-ECT     | R88M-K3K030(H/T)-□  | R88M-K2K010(H/T)-□ |
|                    |                       |                | R88D-KN30H-ECT     | R88M-K3K020(H/T)-□  |                    |
|                    |                       | 5.0 kW         | R88D-KN50H-ECT     | R88M-K3K010(H/T)-□  | R88M-K4K030(H/T)-□ |
|                    |                       |                | R88M-K4K020(H/T)-□ |                     |                    |
|                    |                       |                | R88M-K5K030(H/T)-□ |                     |                    |
|                    |                       |                | R88M-K5K020(H/T)-□ |                     |                    |
|                    | 7.5 kW                | R88D-KN75H-ECT | R88M-K7K515T-□     |                     |                    |
|                    | Three-phase, 460 VAC  | 600 W          | R88D-KN06F-ECT     | R88M-K40020(F/C)-□  | R88M-K60020(F/C)-□ |
|                    |                       |                | R88D-KN10F-ECT     | R88M-K75030(F/C)-□  | R88M-K1K020(F/C)-□ |
|                    |                       | 1.5 kW         | R88D-KN15F-ECT     | R88M-K1K030(F/C)-□  | R88M-K1K530(F/C)-□ |
|                    |                       |                | R88M-K1K520(F/C)-□ |                     |                    |
|                    |                       |                | R88M-K90010(F/C)-□ |                     |                    |
| R88M-K2K030(F/C)-□ |                       |                | R88M-K2K020(F/C)-□ |                     |                    |
| 2.0 kW             |                       | R88D-KN20F-ECT | R88M-K3K030(F/C)-□ | R88M-K3K020(F/C)-□  |                    |
|                    |                       | R88D-KN30F-ECT | R88M-K2K010(F/C)-□ |                     |                    |

## Ordering Information

| Symbol | Specifications       | Servo drive model | ① Compatible G5 series rotary servo motors |                    |
|--------|----------------------|-------------------|--------------------------------------------|--------------------|
| ③      | Three-phase, 460 VAC | 5.0 kW            | R88D-KN50F-ECT                             |                    |
|        |                      | 7.5 kW            | R88D-KN75F-ECT                             |                    |
|        |                      | 15 kW             | R88D-KN150F-ECT                            |                    |
|        |                      |                   |                                            | R88M-K4K030(F/C)-□ |
|        |                      |                   |                                            | R88M-K5K030(F/C)-□ |
|        |                      |                   |                                            | R88M-K4K020(F/C)-□ |
|        |                      |                   |                                            | R88M-K5K020(F/C)-□ |
|        |                      |                   |                                            | R88M-K4K510C-□     |
|        |                      |                   |                                            | R88M-K3K010(F/C)-□ |
|        |                      |                   | R88M-K6K010C-□                             |                    |
|        |                      |                   | R88M-K7K515C-□                             |                    |
|        |                      |                   | R88M-K11K015C-□                            |                    |
|        |                      |                   | R88M-K15K015C-□                            |                    |

### Signals cables for I/O general purpose (CN1)

| Symbol | Description                                              | Connect to              | Model               |
|--------|----------------------------------------------------------|-------------------------|---------------------|
| ④      | I/O connector kit (26 pins)                              | For I/O general purpose | - R88A-CNW01C       |
| ⑤      | I/O signals cable                                        | For I/O general purpose | 1 m R88A-CPKB001S-E |
|        |                                                          |                         | 2 m R88A-CPKB002S-E |
| ⑥      | Terminal block cable                                     | For I/O general purpose | 1 m XW2Z-100J-B34   |
|        |                                                          |                         | 2 m XW2Z-200J-B34   |
| ⑦      | Terminal block (M3 screw and for pin terminals)          | -                       | XW2B-20G4           |
|        | Terminal block (M3.5 screw and for fork/round terminals) | -                       | XW2B-20G5           |
|        | Terminal block (M3 screw and for fork/round terminals)   | -                       | XW2D-20G6           |

### External encoder cable (CN4)

| Symbol | Name                   | Model                 |
|--------|------------------------|-----------------------|
| ⑧      | External encoder cable | 5 m R88A-CRKM005SR-E  |
|        |                        | 10 m R88A-CRKM010SR-E |
|        |                        | 20 m R88A-CRKM020SR-E |

### Analog monitor (CN5)

| Symbol | Name                 | Model            |
|--------|----------------------|------------------|
| ⑨      | Analog monitor cable | 1 m R88A-CMK001S |

### USB personal computer cable (CN7)

| Symbol | Name                     | Model             |
|--------|--------------------------|-------------------|
| ⑩      | USB mini-connector cable | 2 m AX-CUSBM002-E |

### Cable for safety (CN8)

| Symbol | Name         | Model              |
|--------|--------------|--------------------|
| ⑪      | Safety cable | 3 m R88A-CSK003S-E |

### Filters

| Symbol | Specifications        | Power           | Drive Model    | Filter Model   | Rated Current (A)    | Leakage Current (mA) Nom/Max |
|--------|-----------------------|-----------------|----------------|----------------|----------------------|------------------------------|
| ⑫      | Single-phase, 120 VAC | 50 W            | R88D-KTA5L-ECT | R88A-FIK102-RE | 2.4                  | 3.5                          |
|        |                       | 100 W           | R88D-KT01L-ECT | R88A-FIK102-RE | 2.4                  | 3.5                          |
|        |                       | 200 W           | R88D-KT02L-ECT | R88A-FIK104-RE | 4.1                  | 3.5                          |
|        |                       | 400 W           | R88D-KT04L-ECT | R88A-FIK107-RE | 6.6                  | 3.5                          |
|        | Single-phase, 230 VAC | 100 W           | R88D-KT01H-ECT | R88A-FIK102-RE | 2.4                  | 3.5                          |
|        |                       | 200 W           | R88D-KT02H-ECT | R88A-FIK102-RE | 2.4                  | 3.5                          |
|        |                       | 400 W           | R88D-KT04H-ECT | R88A-FIK104-RE | 4.1                  | 3.5                          |
|        |                       | 750 W           | R88D-KT08H-ECT | R88A-FIK107-RE | 6.6                  | 3.5                          |
|        |                       | 1.0 kW          | R88D-KT10H-ECT | R88A-FIK114-RE | 14.2                 | 3.5                          |
|        |                       | 1.5 kW          | R88D-KT15H-ECT | R88A-FIK114-RE | 14.2                 | 3.5                          |
|        | Three-phase, 230 VAC  | 2.0 kW          | R88D-KT20H-ECT | R88A-FIK212-RE | 12                   | 0.5/25 <sup>1</sup>          |
|        |                       | 3.0 kW          | R88D-KT30H-ECT | R88A-FIK222-RE | 22                   | 0.5/25 <sup>1</sup>          |
|        |                       | 5.0 kW          | R88D-KT50H-ECT | R88A-FIK222-RE | 22                   | 0.5/25 <sup>1</sup>          |
|        |                       | 7.5 kW          | R88D-KT75H-ECT | -              | -                    | -                            |
|        | Three-phase, 460 VAC  | 600 W           | R88D-KT06F-ECT | R88A-FIK304-RE | 4                    | 0.3/32 <sup>1</sup>          |
|        |                       | 1.0 kW          | R88D-KT10F-ECT | R88A-FIK304-RE | 4                    | 0.3/32 <sup>1</sup>          |
|        |                       | 1.5 kW          | R88D-KT15F-ECT | R88A-FIK304-RE | 4                    | 0.3/32 <sup>1</sup>          |
|        |                       | 2.0 kW          | R88D-KT20F-ECT | R88A-FIK306-RE | 6                    | 0.3/32 <sup>1</sup>          |
|        |                       | 3.0 kW          | R88D-KT30F-ECT | R88A-FIK312-RE | 12.1                 | 0.3/32 <sup>1</sup>          |
|        |                       | 5.0 kW          | R88D-KT50F-ECT | R88A-FIK312-RE | 12.1                 | 0.3/32 <sup>1</sup>          |
|        |                       | 7.5 kW          | R88D-KT75F-ECT | R88A-FIK330-RE | 22                   | 0.3/40 <sup>1</sup>          |
| 15 kW  |                       | R88D-KT150F-ECT | R88A-FIK350-RE | 44             | 2.0/130 <sup>1</sup> |                              |

1. Momentary peak leakage current for the filter at switch-on/off.

### Connectors

| Specifications                        | Model       |
|---------------------------------------|-------------|
| External encoder connector (for CN4)  | R88A-CNK41L |
| Safety I/O signal connector (for CN8) | R88A-CNK81S |

### Computer software

| Specifications                                                                                              | Model    |
|-------------------------------------------------------------------------------------------------------------|----------|
| Configuration and monitoring software tool for servo drives and inverters (CX-drive version 2.10 or higher) | CX-Drive |

### EtherCAT controllers

| Symbol | Name                                        | Model                |                     |
|--------|---------------------------------------------|----------------------|---------------------|
| ⑬      | NJ Series Machine Automation Controller     | NJ301-1100 (4 axes)  |                     |
|        |                                             | NJ301-1200 (8 axes)  |                     |
|        |                                             | NJ501-1300 (16 axes) |                     |
|        |                                             | NJ501-1400 (32 axes) |                     |
|        |                                             | NJ501-1500 (64 axes) |                     |
|        | Trajexia stand-alone                        | Motion control unit  | TJ2-MC64 (64 axes)  |
|        |                                             |                      | TJ2-ECT64 (64 axes) |
|        |                                             | EtherCAT master unit | TJ2-ECT16(16 axes)  |
|        | Position Controller Unit for CJ1 PLC series | TJ2-ECT04 (4 axes)   |                     |
|        |                                             | CJ1W-NCF8□ (16 axes) |                     |
|        |                                             | CJ1W-NC88□ (8 axes)  |                     |
|        |                                             | CJ1W-NC48□ (4 axes)  |                     |
|        |                                             | CJ1W-NC281 (2 axes)  |                     |

### External regenerative resistor

| Symbol | Regenerative resistor unit model | Model       |
|--------|----------------------------------|-------------|
| ⑭      | R88A-RR08050S                    | 50 Ω, 80 W  |
|        | R88A-RR080100S                   | 100 Ω, 80 W |
|        | R88A-RR22047S1                   | 47 Ω, 220 W |
|        | R88A-RR50020S                    | 20 Ω, 500 W |

**Ordering Information**

**Accurax G5 series MECHATROLINK-II Reference configuration**



**Note:** The symbols ①②③④⑤... show the recommended sequence to select the components in Accurax G5 servo system

**Servo motors, power & encoder cables**

**Note:** ①② Refer to the Accurax G5 servo motor section for servomotor, motor cables or connectors selection

**MECHATROLINK-II Servo Drives**

| Symbol | Specifications        | Servo drive model | Compatible G5 series rotary servo motors ① |                                                                |
|--------|-----------------------|-------------------|--------------------------------------------|----------------------------------------------------------------|
| ③      | Single-phase, 120 VAC | 50 W              | R88D-KNA5L-ML2                             | R88M-K05030(H/T)-□                                             |
|        |                       | 100 W             | R88D-KN01L-ML2                             | R88M-K10030(L/S)-□                                             |
|        |                       | 200 W             | R88D-KN02L-ML2                             | R88M-K20030(L/S)-□                                             |
|        |                       | 400 W             | R88D-KN04L-ML2                             | R88M-K40030(L/S)-□                                             |
|        | Single-phase, 230 VAC | 100 W             | R88D-KN01H-ML2                             | R88M-K05030(H/T)-□<br>R88M-K10030(H/T)-□                       |
|        |                       |                   | R88D-KN02H-ML2                             | R88M-K20030(H/T)-□                                             |
|        |                       | 400 W             | R88D-KN04H-ML2                             | R88M-K40030(H/T)-□                                             |
|        |                       |                   | R88D-KN08H-ML2                             | R88M-K75030(H/T)-□                                             |
|        |                       | 1 kW              | R88D-KN10H-ML2                             | R88M-K1K020(H/T)-□<br>R88M-K1K030(H/T)-□                       |
|        |                       |                   | R88D-KN15H-ML2                             | R88M-K1K530(H/T)-□<br>R88M-K1K520(H/T)-□<br>R88M-K90010(H/T)-□ |
|        |                       | 1.5 kW            | R88D-KN15H-ML2                             | R88M-K1K530(H/T)-□                                             |
|        |                       |                   |                                            | R88M-K1K520(H/T)-□                                             |
|        | R88M-K90010(H/T)-□    |                   |                                            |                                                                |
|        | Three-phase, 230 VAC  | 2 kW              | R88D-KN20H-ML2                             | R88M-K2K030(H/T)-□                                             |
|        |                       | 3 kW              | R88D-KN30H-ML2                             | R88M-K3K030(H/T)-□                                             |
|        |                       | 5 kW              | R88D-KN50H-ML2                             | R88M-K5K030(H/T)-□                                             |
|        | Three-phase, 460 VAC  | 600 W             | R88D-KN06F-ML2                             | R88M-K40020(F/C)-□<br>R88M-K60020(F/C)-□                       |
|        |                       |                   | R88D-KN10F-ML2                             | R88M-K75030(F/C)-□<br>R88M-K1K020(F/C)-□                       |
|        |                       | 1 kW              | R88D-KN10F-ML2                             | R88M-K1K030(F/C)-□                                             |
|        |                       |                   |                                            | R88M-K1K530(F/C)-□                                             |
|        |                       |                   |                                            | R88M-K1K520(F/C)-□                                             |
|        |                       | 1.5 kW            | R88D-KN15F-ML2                             | R88M-K90010(F/C)-□                                             |
|        |                       |                   |                                            | R88M-K2K030(F/C)-□                                             |
|        |                       |                   |                                            | R88M-K2K020(F/C)-□                                             |
| 2 kW   |                       | R88D-KN20F-ML2    | R88M-K3K030(F/C)-□                         |                                                                |
|        |                       |                   | R88M-K3K020(F/C)-□                         |                                                                |
|        |                       |                   | R88M-K2K010(F/C)-□                         |                                                                |
| 3 kW   |                       | R88D-KN30F-ML2    | R88M-K4K030(F/C)-□                         |                                                                |
|        |                       |                   | R88M-K5K030(F/C)-□                         |                                                                |
|        |                       |                   | R88M-K5K020(F/C)-□                         |                                                                |
| 5 kW   |                       | R88D-KN50F-ML2    | R88M-K4K020(F/C)-□                         |                                                                |
|        | R88M-K5K020(F/C)-□    |                   |                                            |                                                                |
|        | R88M-K3K010(F/C)-□    |                   |                                            |                                                                |

## Ordering Information

### Control Cables (for CN1)

| Symbol | Description                                              | Connect to              |     | Model         |
|--------|----------------------------------------------------------|-------------------------|-----|---------------|
| ④      | I/O connector kit (26 pins)                              | For I/O general purpose | -   | R88A-CNW01C   |
| ⑤      | Terminal block cable                                     |                         | 1 m | XW2Z-100J-B34 |
|        |                                                          |                         | 2 m | XW2Z-200J-B34 |
| ⑥      | Terminal block (M3 screw and for pin terminals)          | For I/O general purpose | -   | XW2B-20G4     |
|        | Terminal block (M3.5 screw and for fork/round terminals) |                         | -   | XW2B-20G5     |
|        | Terminal block (M3 screw and for fork/round terminals)   |                         | -   | XW2D-20G6     |
|        |                                                          |                         | -   |               |

### Analog monitor (for CN5)

| Symbol | Name                 |     | Model        |
|--------|----------------------|-----|--------------|
| ⑦      | Analog monitor cable | 1 m | R88A-CMK001S |

### MECHATROLINK-II cables (for CN6)

| Symbol | Specifications                      | Length         | Model          |
|--------|-------------------------------------|----------------|----------------|
| ⑧      | MECHATROLINK-II Terminator resistor | -              | FNY-W6022-E    |
|        | MECHATROLINK-II cables              | 0.5 m          | FNY-W6003-A5-E |
| 1 m    |                                     | FNY-W6003-01-E |                |
| 3 m    |                                     | FNY-W6003-03-E |                |
| 5 m    |                                     | FNY-W6003-05-E |                |
| 10 m   |                                     | FNY-W6003-10-E |                |
| 20 m   |                                     | FNY-W6003-20-E |                |
| 30 m   |                                     | FNY-W6003-30-E |                |

### USB personal computer cable (for CN7)

| Symbol | Name                     |     | Model            |
|--------|--------------------------|-----|------------------|
| ⑨      | USB mini-connector cable | 2 m | 3G3AX-CUSBM002-E |

### Filters

| Specifications        | Power  | Drive model    | Filter model   | Rated current (A) | Leakage current (mA) |
|-----------------------|--------|----------------|----------------|-------------------|----------------------|
| Single-phase, 120 VAC | 50 W   | R88D-KNA5L-ML2 | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 100 W  | R88D-KN01L-ML2 | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 200 W  | R88D-KN02L-ML2 | R88A-FIK104-RE | 4.1               | 3.5                  |
|                       | 400 W  | R88D-KN04L-ML2 | R88A-FIK107-RE | 6.6               | 3.5                  |
| Single-phase, 230 VAC | 100 W  | R88D-KN01H-ML2 | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 200 W  | R88D-KN02H-ML2 | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 400 W  | R88D-KN04H-ML2 | R88A-FIK104-RE | 4.1               | 3.5                  |
|                       | 750 W  | R88D-KN08H-ML2 | R88A-FIK107-RE | 6.6               | 3.5                  |
|                       | 1.0 kW | R88D-KN10H-ML2 | R88A-FIK114-RE | 14.2              | 3.5                  |
|                       | 1.5 kW | R88D-KN15H-ML2 | R88A-FIK114-RE | 14.2              | 3.5                  |
| Three-phase, 230 VAC  | 2.0 kW | R88D-KN20H-ML2 | R88A-FIK212-RE | 12                | 0.5/25 <sup>1</sup>  |
|                       | 3.0 kW | R88D-KN30H-ML2 | R88A-FIK222-RE | 22                | 0.5/25 <sup>1</sup>  |
|                       | 5.0 kW | R88D-KN50H-ML2 | R88A-FIK222-RE | 22                | 0.5/25 <sup>1</sup>  |
| Three-phase, 460 VAC  | 600 W  | R88D-KN06F-ML2 | R88A-FIK304-RE | 4                 | 0.3/32 <sup>1</sup>  |
|                       | 1.0 kW | R88D-KN10F-ML2 | R88A-FIK304-RE | 4                 | 0.3/32 <sup>1</sup>  |
|                       | 1.5 kW | R88D-KN15F-ML2 | R88A-FIK304-RE | 4                 | 0.3/32 <sup>1</sup>  |
|                       | 2.0 kW | R88D-KN20F-ML2 | R88A-FIK306-RE | 6                 | 0.3/32 <sup>1</sup>  |
|                       | 3.0 kW | R88D-KN30F-ML2 | R88A-FIK312-RE | 12.1              | 0.3/32 <sup>1</sup>  |
|                       | 5.0 kW | R88D-KN50F-ML2 | R88A-FIK312-RE | 12.1              | 0.3/32 <sup>1</sup>  |

Note: 1. Momentary peak leakage current for the filter at switch-on/off.

### Reactors

| MECHATROLINK-II servo drive model                                     | Reactor model |
|-----------------------------------------------------------------------|---------------|
| R88D-KNA5L-ML2/-KN01H-ML2                                             | 3G3AX-DL2002  |
| R88D-KN01L-ML2/-KN02H-ML2                                             | 3G3AX-DL2004  |
| R88D-KN02L-ML2/-KN04H-ML2                                             | 3G3AX-DL2007  |
| R88D-KN04L-ML2/-KN08H-ML2/-KN10H-ML2                                  | 3G3AX-DL2015  |
| R88D-KN15H-ML2                                                        | 3G3AX-DL2022  |
| R88D-KN08H-ML2/-KN10H-ML2/-KN15H-ML2/-KN06F-ML2/-KN10F-ML2/-KN15F-ML2 | 3G3AX-AL2025  |
| R88D-KN20H-ML2/-KN30H-ML2/-KN20F-ML2/-KN30F-ML2                       | 3G3AX-AL2055  |
| R88D-KN50H-ML2/-KN50F-ML2                                             | 3G3AX-AL2110  |

### MECHATROLINK-II Motion controllers

| Symbol              | Name                                   | Model                |
|---------------------|----------------------------------------|----------------------|
| ⑩                   | Trajexia stand-alone motion controller | TJ1-MC04 (4 axes)    |
|                     |                                        | TJ1-MC16 (16 axes)   |
|                     |                                        | TJ2-MC64 (64 axes)   |
|                     | Trajexia-PLC motion controller         | CJ1W-MCH72           |
|                     |                                        | CJ1W-NCF71 (16 axes) |
|                     | Position Controller Unit for CJ1 PLC   | CJ1W-NC471 (4 axes)  |
|                     |                                        | CJ1W-NC271 (2 axes)  |
|                     |                                        | CS1W-NCF71 (16 axes) |
|                     | Position Controller Unit for CS1 PLC   | CS1W-NC471 (4 axes)  |
|                     |                                        | CS1W-NC271 (2 axes)  |
| CS1W-NC271 (2 axes) |                                        |                      |

### External regenerative resistor

| Symbol | Regenerative resistor unit model | Specifications |
|--------|----------------------------------|----------------|
| ⑪      | R88A-RR08050S                    | 50 Ω, 80 W     |
|        | R88A-RR080100S                   | 100 Ω, 80 W    |
|        | R88A-RR22047S                    | 47 Ω, 220 W    |
|        | R88A-RR50020S                    | 20 Ω, 500 W    |

### Connectors

| Specifications                        | Model       |
|---------------------------------------|-------------|
| External encoder connector (for CN4)  | R88A-CNK41L |
| Safety I/O signal connector (for CN8) | R88A-CNK81S |

### Computer software

| Specifications                                                                                               | Model    |
|--------------------------------------------------------------------------------------------------------------|----------|
| Configuration and monitoring software tool for servo drives and inverters. (CX-drive version 1.91 or higher) | CX-drive |

**Ordering Information**

**Accurax G5 series Analog/Pulse reference configuration**



**Note:** The symbols ①②③... show the recommended sequence to select the Accurax G5 servo system

**Servo motors power & encoder cables**

**Note:** ①② Refer to the Accurax G5 servo motor section for servomotor, motor cables or connectors selection.

**Servo Drives**

| Symbol | Specifications        | Servo drive model <sup>1</sup> | Compatible Accurax G5 series rotary servo motors ① |                    |                    |
|--------|-----------------------|--------------------------------|----------------------------------------------------|--------------------|--------------------|
| ③      | Single-phase, 120 VAC | 50 W                           | R88D-KTA5L                                         | R88M-K05030(H/T)-□ |                    |
|        |                       | 100 W                          | R88D-KT01L                                         | R88M-K10030(L/S)-□ |                    |
|        |                       | 200 W                          | R88D-KT02L                                         | R88M-K20030(L/S)-□ |                    |
|        |                       | 400 W                          | R88D-KT04L                                         | R88M-K40030(L/S)-□ |                    |
|        | Single-phase, 230 VAC | 100 W                          | R88D-KT01H                                         | R88M-K05030(H/T)-□ |                    |
|        |                       |                                | R88D-KT02H                                         | R88M-K10030(H/T)-□ |                    |
|        |                       |                                | R88D-KT04H                                         | R88M-K20030(H/T)-□ |                    |
|        |                       | 750 W                          | R88D-KT08H                                         | R88M-K75030(H/T)-□ |                    |
|        |                       |                                | 1.0 kW                                             | R88D-KT10H         | R88M-K1K020(H/T)-□ |
|        |                       |                                |                                                    | R88D-KT15H         | R88M-K1K030(H/T)-□ |
|        | Three-phase, 230 VAC  | 2.0 kW                         | R88D-KT20H                                         | R88M-K1K530(H/T)-□ |                    |
|        |                       |                                |                                                    | R88M-K1K520(H/T)-□ |                    |
|        |                       | 3.0 kW                         | R88D-KT30H                                         | R88M-K90010(H/T)-□ |                    |
|        |                       |                                |                                                    | R88M-K2K030(H/T)-□ |                    |
|        |                       | 5.0 kW                         | R88D-KT50H                                         | R88M-K2K020(H/T)-□ |                    |
|        |                       |                                |                                                    | R88M-K3K030(H/T)-□ |                    |
|        |                       |                                |                                                    | R88M-K3K020(H/T)-□ |                    |
|        |                       |                                |                                                    | R88M-K2K010(H/T)-□ |                    |
|        |                       |                                |                                                    | R88M-K4K030(H/T)-□ |                    |
|        |                       |                                |                                                    | R88M-K5K030(H/T)-□ |                    |
|        | Three-phase, 460 VAC  | 600 W                          | R88D-KT06F                                         | R88M-K40020(F/C)-□ |                    |
|        |                       |                                |                                                    | R88M-K60020(F/C)-□ |                    |
|        |                       | 1.0 kW                         | R88D-KT10F                                         | R88M-K75030(F/C)-□ |                    |
|        |                       |                                |                                                    | R88M-K1K020(F/C)-□ |                    |
|        |                       |                                |                                                    | R88M-K1K030(F/C)-□ |                    |
|        |                       | 1.5 kW                         | R88D-KT15F                                         | R88M-K1K530(F/C)-□ |                    |
|        |                       |                                |                                                    | R88M-K1K520(F/C)-□ |                    |
|        |                       |                                |                                                    | R88M-K90010(F/C)-□ |                    |
|        |                       | 2.0 kW                         | R88D-KT20F                                         | R88M-K2K030(F/C)-□ |                    |
|        |                       |                                |                                                    | R88M-K2K020(F/C)-□ |                    |
| 3.0 kW |                       | R88D-KT30F                     | R88M-K3K030(F/C)-□                                 |                    |                    |
|        |                       |                                | R88M-K3K020(F/C)-□                                 |                    |                    |
|        |                       |                                | R88M-K2K010(F/C)-□                                 |                    |                    |
|        |                       |                                | R88M-K4K030(F/C)-□                                 |                    |                    |
|        | R88M-K5K030(F/C)-□    |                                |                                                    |                    |                    |
|        | R88M-K4K510(C)-□      |                                |                                                    |                    |                    |
| 5.0 kW | R88D-KT50F            | R88M-K4K020(F/C)-□             |                                                    |                    |                    |
|        |                       | R88M-K5K020(F/C)-□             |                                                    |                    |                    |
|        |                       | R88M-K4K510(C)-□               |                                                    |                    |                    |
|        |                       | R88M-K3K010(F/C)-□             |                                                    |                    |                    |
|        |                       | R88M-K6K010(C)-□               |                                                    |                    |                    |
| 7.5 kW | R88D-KT75F            | R88M-K7K515(C)-□               |                                                    |                    |                    |
|        |                       | R88M-K11K015(C)-□              |                                                    |                    |                    |
| 15 kW  | R88D-KT150F           | R88M-K15K015(C)-□              |                                                    |                    |                    |

**Note:** 1. Drive Programming – embedded indexer functionality – is available in the Accurax G5 Analog/Pulse models with firmware 1.10 or higher.

**Ordering Information**

**Control cables (for CN1)**

| Symbol           | Description                                              | Connect to                                                                                                              |       | Model                                          |
|------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------|
| ④                | Control cable<br>(1 axis)                                | Motion control units<br>CS1W-MC221<br>CS1W-MC421                                                                        | 1 m   | R88A-CPG001M1                                  |
|                  |                                                          |                                                                                                                         | 2 m   | R88A-CPG002M1                                  |
|                  |                                                          |                                                                                                                         | 3 m   | R88A-CPG003M1                                  |
|                  |                                                          |                                                                                                                         | 5 m   | R88A-CPG005M1                                  |
|                  | Control cable<br>(2 axis)                                | Motion control units<br>CS1W-MC221<br>CS1W-MC421                                                                        | 1 m   | R88A-CPG001M2                                  |
|                  |                                                          |                                                                                                                         | 2 m   | R88A-CPG002M2                                  |
|                  |                                                          |                                                                                                                         | 3 m   | R88A-CPG003M2                                  |
|                  |                                                          |                                                                                                                         | 5 m   | R88A-CPG005M2                                  |
| ⑧                | Cable from servo relay unit to servo drive               | CS1W-NC1□3, CJ1W-NC1□3, C200HW-NC113,<br>CS1W-NC2□3/4□3, CJ1W-NC2□3/4□3,<br>C200HW-NC213/413, CQM1H-PLB21 or CQM1-CPU43 | 1 m   | XW2Z-100J-B25                                  |
|                  |                                                          |                                                                                                                         | 2 m   | XW2Z-200J-B25                                  |
|                  |                                                          | CJ1M-CPU21/22/23                                                                                                        | 1 m   | XW2Z-100J-B31                                  |
|                  |                                                          |                                                                                                                         | 2 m   | XW2Z-200J-B31                                  |
| ⑨                | Servo relay unit                                         | Position control units<br>CS1W-NC1□3, CJ1W-NC1□3 or C200HW-NC113                                                        | -     | XW2B-20J6-1B (1 axis)                          |
|                  |                                                          | Position control units<br>CS1W-NC2□3/4□3, CJ1W-NC2□3/4□3 or<br>C200HW-NC213/413                                         | -     | XW2B-40J6-2B (2 axes)                          |
|                  |                                                          | CQM1H-PLB21 or CQM1-CPU43                                                                                               | -     | XW2B-20J6-3B (1 axis)                          |
|                  |                                                          | CJ1M-CPU21/22/23                                                                                                        | -     | XW2B-20J6-8A (1 axis)<br>XW2B-40J6-9A (2 axes) |
| ⑩                | Position control unit<br>connecting cable                | CQM1H-PLB21                                                                                                             | 0.5 m | XW2Z-050J-A3                                   |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A3                                   |
|                  |                                                          | CS1W-NC113 or C200HW-NC113                                                                                              | 0.5 m | XW2Z-050J-A6                                   |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A6                                   |
|                  |                                                          | CS1W-NC213/413 or C200HW-NC213/413                                                                                      | 0.5 m | XW2Z-050J-A7                                   |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A7                                   |
|                  |                                                          | CS1W-NC133                                                                                                              | 0.5 m | XW2Z-050J-A10                                  |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A10                                  |
|                  |                                                          | CS1W-NC233/433                                                                                                          | 0.5 m | XW2Z-050J-A11                                  |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A11                                  |
|                  |                                                          | CJ1W-NC113                                                                                                              | 0.5 m | XW2Z-050J-A14                                  |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A14                                  |
|                  |                                                          | CJ1W-NC213/413                                                                                                          | 0.5 m | XW2Z-050J-A15                                  |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A15                                  |
|                  |                                                          | CJ1W-NC133                                                                                                              | 0.5 m | XW2Z-050J-A18                                  |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A18                                  |
|                  |                                                          | CJ1W-NC233/433                                                                                                          | 0.5 m | XW2Z-050J-A19                                  |
|                  |                                                          |                                                                                                                         | 1 m   | XW2Z-100J-A19                                  |
| CJ1M-CPU21/22/23 | 0.5 m                                                    | XW2Z-050J-A33                                                                                                           |       |                                                |
|                  | 1 m                                                      | XW2Z-100J-A33                                                                                                           |       |                                                |
| ⑪                | General purpose cable                                    | For general purpose controllers                                                                                         | 1 m   | R88A-CPG001S                                   |
|                  |                                                          |                                                                                                                         | 2 m   | R88A-CPG002S                                   |
| ⑫                | Terminal block cable                                     | For general purpose controllers                                                                                         | 1 m   | XW2Z-100J-B24                                  |
|                  |                                                          |                                                                                                                         | 2 m   | XW2Z-200J-B24                                  |
| ⑬                | Terminal block (M3 screw and for pin terminals)          | For general purpose controllers                                                                                         | -     | XW2B-50G4                                      |
|                  | Terminal block (M3.5 screw and for fork/round terminals) |                                                                                                                         | -     | XW2B-50G5                                      |
|                  | Terminal block (M3 screw and for fork/round terminals)   |                                                                                                                         | -     | XW2D-50G6                                      |

## Ordering Information

### Analog monitor (for CN5)

| Symbol | Name                 | Length | Model        |
|--------|----------------------|--------|--------------|
| ⑭      | Analog monitor cable | 1 m    | R88A-CMK001S |

### USB personal computer cable (for CN7)

| Symbol | Name                     | Length | Model            |
|--------|--------------------------|--------|------------------|
| ⑮      | USB mini-connector cable | 2 m    | 3G3AX-CUSBM002-E |

### External regenerative resistor

| Symbol | Regenerative resistor unit model | Specifications |
|--------|----------------------------------|----------------|
| ⑯      | R88A-RR08050S                    | 50 Ω, 80 W     |
|        | R88A-RR080100S                   | 100 Ω, 80 W    |
|        | R88A-RR22047S                    | 47 Ω, 220 W    |
|        | R88A-RR50020S                    | 20 Ω, 500 W    |

### Filters

| Specifications        | Power  | Drive model | Filter model   | Rated current (A) | Leakage current (mA) |
|-----------------------|--------|-------------|----------------|-------------------|----------------------|
| Single-phase, 120 VAC | 50 W   | R88D-KTA5L  | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 100 W  | R88D-KT01L  | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 200 W  | R88D-KT02L  | R88A-FIK104-RE | 4.1               | 3.5                  |
|                       | 400 W  | R88D-KT04L  | R88A-FIK107-RE | 6.6               | 3.5                  |
| Single-phase, 230 VAC | 100 W  | R88D-KT01H  | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 200 W  | R88D-KT02H  | R88A-FIK102-RE | 2.4               | 3.5                  |
|                       | 400 W  | R88D-KT04H  | R88A-FIK104-RE | 4.1               | 3.5                  |
|                       | 750 W  | R88D-KT08H  | R88A-FIK107-RE | 6.6               | 3.5                  |
|                       | 1.0 kW | R88D-KT10H  | R88A-FIK114-RE | 14.2              | 3.5                  |
|                       | 1.5 kW | R88D-KT15H  | R88A-FIK114-RE | 14.2              | 3.5                  |
| Three-phase, 230 VAC  | 2.0 kW | R88D-KT20H  | R88A-FIK212-RE | 12                | 0.5/25 <sup>1</sup>  |
|                       | 3.0 kW | R88D-KT30H  | R88A-FIK222-RE | 22                | 0.5/25 <sup>1</sup>  |
|                       | 5.0 kW | R88D-KT50H  | R88A-FIK222-RE | 22                | 0.5/25 <sup>1</sup>  |
|                       | 7.5 kW | R88D-KT75H  | -              | -                 | -                    |
| Three-phase, 460 VAC  | 600 W  | R88D-KT06F  | R88A-FIK304-RE | 4                 | 0.3/32 <sup>1</sup>  |
|                       | 1.0 kW | R88D-KT10F  | R88A-FIK304-RE | 4                 | 0.3/32 <sup>1</sup>  |
|                       | 1.5 kW | R88D-KT15F  | R88A-FIK304-RE | 4                 | 0.3/32 <sup>1</sup>  |
|                       | 2.0 kW | R88D-KT20F  | R88A-FIK306-RE | 6                 | 0.3/32 <sup>1</sup>  |
|                       | 3.0 kW | R88D-KT30F  | R88A-FIK312-RE | 12.1              | 0.3/32 <sup>1</sup>  |
|                       | 5.0 kW | R88D-KT50F  | R88A-FIK312-RE | 12.1              | 0.3/32 <sup>1</sup>  |
|                       | 7.5 kW | R88D-KT75F  | R88A-FIK330-RE | 22                | 0.3/40 <sup>1</sup>  |
|                       | 15 kW  | R88D-KT150F | R88A-FIK350-RE | 44                | 2.0/130 <sup>1</sup> |

Note: 1. Momentary peak leakage current for the filter at switch-on/off.

### Reactors

| Analog/Pulse servo drive model | Reactor model |
|--------------------------------|---------------|
| R88D-KTA5L/-KT01H              | 3G3AX-DL2002  |
| R88D-KT01L/-KT02H              | 3G3AX-DL2004  |
| R88D-KT02L/-KT04H              | 3G3AX-DL2007  |
| R88D-KT04L/-KT08H/-KT10H       | 3G3AX-DL2015  |
| R88D-KT15H                     | 3G3AX-DL2022  |
| R88D-KT08H/-KT10H/-KT15H       | 3G3AX-AL2025  |
| R88D-KT20H/-KT30H              | 3G3AX-AL2055  |
| R88D-KT50H                     | 3G3AX-AL2110  |

### Connectors

| Specifications                        | Model       |
|---------------------------------------|-------------|
| I/O connector kit -50 pins-(for CN1)  | R88A-CNU11C |
| External encoder connector (for CN4)  | R88A-CNK41L |
| Safety I/O signal connector (for CN8) | R88A-CNK81S |

### Computer software

| Specifications                                            | Model         |
|-----------------------------------------------------------|---------------|
| Sysmac Studio version 1.0 or higher                       | SYSMAC-SE2□□□ |
| CX-Drive version 2.10 or higher                           | CX-DRIVE 2.10 |
| CX-One software package including CX-Drive 2.10 or higher | CX-ONE        |

**Ordering Information**

**Encoder, Power and Brake Cables and Connectors**



**Note:** The symbols ①②③... show the recommended sequence to select the servo motor and cables

**Servo motor** ① Select motor from R88M-K family using motor tables in next pages.

**Servo drive** ② Refer to Accurax G5 servo drive section for detailed drive specifications and selection of drive accessories.

**Encoder cables for absolute and incremental encoders**

| Symbol | Specifications                                                                                                                                                                                                                                                            | Model | Appearance         |  |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|--|
| ③      | Encoder cable for Servomotors<br>[120 V and 230 V]<br>For 3,000-r/min motors of 50 to 750 W<br>(for both absolute encoders and incremental encoders)                                                                                                                      | 1.5 m | R88A-CRKA001-5CR-E |  |
|        |                                                                                                                                                                                                                                                                           | 3 m   | R88A-CRKA003CR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 5 m   | R88A-CRKA005CR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 10 m  | R88A-CRKA010CR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 15 m  | R88A-CRKA015CR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 20 m  | R88A-CRKA020CR-E   |  |
|        | Encoder cable for Servomotors<br>[120 V and 230 V]<br>For 3,000-r/min motors of 1.0 kW or more<br>For 2,000-r/min motors<br>For 1,000-r/min motors<br><br>[460 V]<br>For 3,000-r/min motors<br>For 2,000-r/min motors<br>For 1,500-r/min motors<br>For 1,000-r/min motors | 1.5 m | R88A-CRKC001-5NR-E |  |
|        |                                                                                                                                                                                                                                                                           | 3 m   | R88A-CRKC003NR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 5 m   | R88A-CRKC005NR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 10 m  | R88A-CRKC010NR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 15 m  | R88A-CRKC015NR-E   |  |
|        |                                                                                                                                                                                                                                                                           | 20 m  | R88A-CRKC020NR-E   |  |

**Note:** For servomotors fitted with an absolute encoder you have to add the extension battery cable R88A-CRGD0R3C□ (see below) or connect a backup battery in the CN1 I/O connector.

**Note:** Contact Omron for 30, 40 and 50 m long cables.



**Ordering Information**

**Absolute Encoder Battery cable (encoder extension cable only)**

| Symbol | Specifications                  |                                |       | Model            | Appearance                                                                                                |
|--------|---------------------------------|--------------------------------|-------|------------------|-----------------------------------------------------------------------------------------------------------|
| ④      | Absolute Encoder battery cable  | Battery not included           | 0.3 m | R88A-CRGD0R3C    |  <p>Battery holder</p> |
|        |                                 | Battery included (R88A-BAT01G) | 0.3 m | R88A-CRGD0R3C-BS |                                                                                                           |
|        | Absolute Encoder backup battery | 2,000 mA.h 3.6 V               | -     | R88A-BAT01GE     |                        |

**Motor Power Cables**

| Symbol                                                                                                                                                                      | Specifications                                                                                                                                                                                   |                                  |                    | Model                                                                                 | Appearance                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| ⑤                                                                                                                                                                           | For 230 V servomotors<br>R88M-K(050/100/200/400/750)30(H/T)□<br><br>Note: for servomotors with brake R88M-K(050/100/200/400/750)30(H/T)-BS2, the separate brake cable R88A-CAKA□□□BR-E is needed | Power cable only (without brake) | 1.5 m              | R88A-CAKA001-5SR-E                                                                    |    |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 3 m                | R88A-CAKA003SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 5 m                | R88A-CAKA005SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 10 m               | R88A-CAKA010SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 15 m               | R88A-CAKA015SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 20 m               | R88A-CAKA020SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             | For 230 V servomotors<br>R88M-K(1K0/1K5)30(H/T)□<br>R88M-K(1K0/1K5)20(H/T)□<br>R88M-K90010(H/T)□                                                                                                 | without brake □-S2               | 1.5 m              | R88A-CAGB001-5SR-E                                                                    |    |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 3 m                | R88A-CAGB003SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 5 m                | R88A-CAGB005SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 10 m               | R88A-CAGB010SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 15 m               | R88A-CAGB015SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 20 m               | R88A-CAGB020SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             | For 230 V servomotors<br>R88M-K(1K0/1K5)30(H/T)□<br>R88M-K(1K0/1K5)20(H/T)□<br>R88M-K90010(H/T)□                                                                                                 | with brake □-BS2                 | 1.5 m              | R88A-CAGB001-5BR-E                                                                    |    |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 3 m                | R88A-CAGB003BR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 5 m                | R88A-CAGB005BR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 10 m               | R88A-CAGB010BR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 15 m               | R88A-CAGB015BR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 20 m               | R88A-CAGB020BR-E                                                                      |                                                                                       |
|                                                                                                                                                                             | For 460 V servomotors<br>R88M-K(750/1K0/1K5/2K)30(F/C)□<br>R88M-K(400/600/1K0/1K5/2K)20(F/C)□<br>R88M-K90010(F/C)□                                                                               | without brake □-S2               | 1.5 m              | R88A-CAGB001-5SR-E                                                                    |  |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 3 m                | R88A-CAGB003SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 5 m                | R88A-CAGB005SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 10 m               | R88A-CAGB010SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 15 m               | R88A-CAGB015SR-E                                                                      |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  |                                  | 20 m               | R88A-CAGB020SR-E                                                                      |                                                                                       |
| For 460 V servomotors<br>R88M-K(3K0/4K0/5K0)30(F/C)□<br>R88M-K(3K0/4K0/5K0)20(F/C)□<br>R88M-K(2K0/3K0)10(F/C)□<br>R88M-K4K510C□                                             | with brake □-BS2                                                                                                                                                                                 | 1.5 m                            | R88A-CAKF001-5BR-E |  |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 3 m                              | R88A-CAKF003BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 5 m                              | R88A-CAKF005BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 10 m                             | R88A-CAKF010BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 15 m                             | R88A-CAKF015BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 20 m                             | R88A-CAKF020BR-E   |                                                                                       |                                                                                       |
| For 460 V servomotors<br>R88M-K(3K0/4K0/5K0)30(F/C)□<br>R88M-K(3K0/4K0/5K0)20(F/C)□<br>R88M-K(2K0/3K0)10(F/C)□<br>R88M-K4K510C□                                             | without brake □-S2                                                                                                                                                                               | 1.5 m                            | R88A-CAGD001-5SR-E |  |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 3 m                              | R88A-CAGD003SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 5 m                              | R88A-CAGD005SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 10 m                             | R88A-CAGD010SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 15 m                             | R88A-CAGD015SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 20 m                             | R88A-CAGD020SR-E   |                                                                                       |                                                                                       |
| For 460 V servomotors<br>R88M-K(3K0/4K0/5K0)30(F/C)□<br>R88M-K(3K0/4K0/5K0)20(F/C)□<br>R88M-K(2K0/3K0)10(F/C)□<br>R88M-K4K510C□                                             | with brake □-BS2                                                                                                                                                                                 | 1.5 m                            | R88A-CAGD001-5BR-E |  |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 3 m                              | R88A-CAGD003BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 5 m                              | R88A-CAGD005BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 10 m                             | R88A-CAGD010BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 15 m                             | R88A-CAGD015BR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 20 m                             | R88A-CAGD020BR-E   |                                                                                       |                                                                                       |
| For 460 V servomotors<br>R88M-K6K010C□<br>R88M-K7K515C□<br><br>Note: for servomotors with brake R88MK(6K010/7K515)C-BS2 the separate brake cable R88A-CAGE□□□BR-E is needed | Power cable only (without brake)                                                                                                                                                                 | 1.5 m                            | R88A-CAKE001-5SR-E |  |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 3 m                              | R88A-CAKE003SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 5 m                              | R88A-CAKE005SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 10 m                             | R88A-CAKE010SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 15 m                             | R88A-CAKE015SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 20 m                             | R88A-CAKE020SR-E   |                                                                                       |                                                                                       |
| For 460 V servomotors<br>R88M-K(11K0/15K0)15C<br><br>Note: for servomotors with brake R88MK(11K0/15K0)15C-BS2, the separate brake cable R88A-CAGE□□□BR-E is needed          | Power cable only (without brake)                                                                                                                                                                 | 1.5 m                            | R88A-CAKG001-5SR-E |  |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 3 m                              | R88A-CAKG003SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 5 m                              | R88A-CAKG005SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 10 m                             | R88A-CAKG010SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 15 m                             | R88A-CAKG015SR-E   |                                                                                       |                                                                                       |
|                                                                                                                                                                             |                                                                                                                                                                                                  | 20 m                             | R88A-CAKG020SR-E   |                                                                                       |                                                                                       |

**Ordering Information**

**Brake cable (for 3000 r/min 50-750 W Motors)**

| Symbol | Specifications                                                                                   |       | Model              | Appearance                                                                         |
|--------|--------------------------------------------------------------------------------------------------|-------|--------------------|------------------------------------------------------------------------------------|
| ⑥      | Brake cable only.<br>For 230 V servo motors with brake<br>R88M-K(050/100/200/400/750)30(H/T)-BS2 | 1.5 m | R88A-CAKA001-5BR-E |  |
|        |                                                                                                  | 3 m   | R88A-CAKA003BR-E   |                                                                                    |
|        |                                                                                                  | 5 m   | R88A-CAKA005BR-E   |                                                                                    |
|        |                                                                                                  | 10 m  | R88A-CAKA010BR-E   |                                                                                    |
|        |                                                                                                  | 15 m  | R88A-CAKA015BR-E   |                                                                                    |
|        |                                                                                                  | 20 m  | R88A-CAKA020BR-E   |                                                                                    |

**Note:** Contact Omron for 30, 40 and 50 m long cables.

**Connectors for encoder, power and brake cables**

| Specifications                       |                  | Applicable Servo motor                                                                                                                                                                               | Model         |
|--------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Connectors for making encoder cables | Drive side (CN2) | All models                                                                                                                                                                                           | R88A-CNW01R   |
|                                      | Motor side       | R88M-K(050/100/200/400/750)30(H/T)□                                                                                                                                                                  | R88A-CNK02R   |
| Connectors for making power cables   | Motor side       | R88M-K(1K0/1K5)30(H/T)□<br>R88M-K(750/1K0/1K5/2K0/3K0/4K0/5K0)30(F/C)□<br>R88M-K(400/600/1K0/1K5/2K0/3K0/4K0/5K0)20□<br>R88M-K(900/2K0/3K0)10□<br>R88M-K(4K5/6K0)10C-□<br>R88M-K(7K5/11K0/15K0)15C-□ | R88A-CNK04R   |
|                                      | Motor side       | R88M-K(050/100/200/400/750)30(H/T)□                                                                                                                                                                  | R88A-CNK11A   |
|                                      | Motor side       | R88M-K(1K0/1K5)30(H/T)-S2<br>R88M-K(1K0/1K5)20(H/T)-S2<br>R88M-K90010(H/T)-S2<br>R88M-K(750/1K0/1K5/2K0)30(F/C)-S2,<br>R88M-K(400/600/1K0/1K5/2K0)20(F/C)-S2<br>R88M-K90010(F/C)-S2                  | MS3108E20-4S  |
|                                      | Motor side       | R88M-K(1K0/1K5)30(H/T)-BS2<br>R88M-K(1K0/1K5)20(H/T)-BS2<br>R88M-K90010(H/T)-BS2                                                                                                                     | MS3108E20-18S |
|                                      | Motor side       | R88M-K(750/1K0/1K5/2K0/3K0/4K0/5K0)30(F/C)-BS2<br>R88M-K(400/600/1K0/1K5/2K0/3K0/4K0/5K0)20(F/C)-BS2<br>R88M-K(900/2K0/3K0)10(F/C)-BS2<br>R88M-K4K510C-BS2                                           | MS3108E24-11S |
|                                      | Motor side       | R88M-K(3K0/4K0/5K0)30(F/C)-S2<br>R88M-K(3K0/4K0/5K0)20(F/C)-S2<br>R88M-K(2K0/3K0)10(F/C)-S2<br>R88M-K4K510C-S2                                                                                       | MS3108E22-22S |
| Connector for brake cable            | Motor side       | R88M-K6K010C-□<br>R88M-K(7K5/11K0/15K0)15C-□                                                                                                                                                         | MS3108E32-17S |
|                                      | Motor side       | R88M-K(050/100/200/400/750)30(H/T)-BS2                                                                                                                                                               | R88A-CNK11B   |
|                                      | Motor side       | R88M-K6K010C-BS2<br>R88M-K(7K5/11K0/15K0)15C-BS2                                                                                                                                                     | MS3108E14S-2S |

**Note:** 1. All cables listed are flexible and shielded (except the R88A-CAKA□□□-BR-E which is only a flexible cable).  
2. All connectors and cables listed have IP67 class (except R88A-CNW01R connector and R88A-CRGD0R3C cable).

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.



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