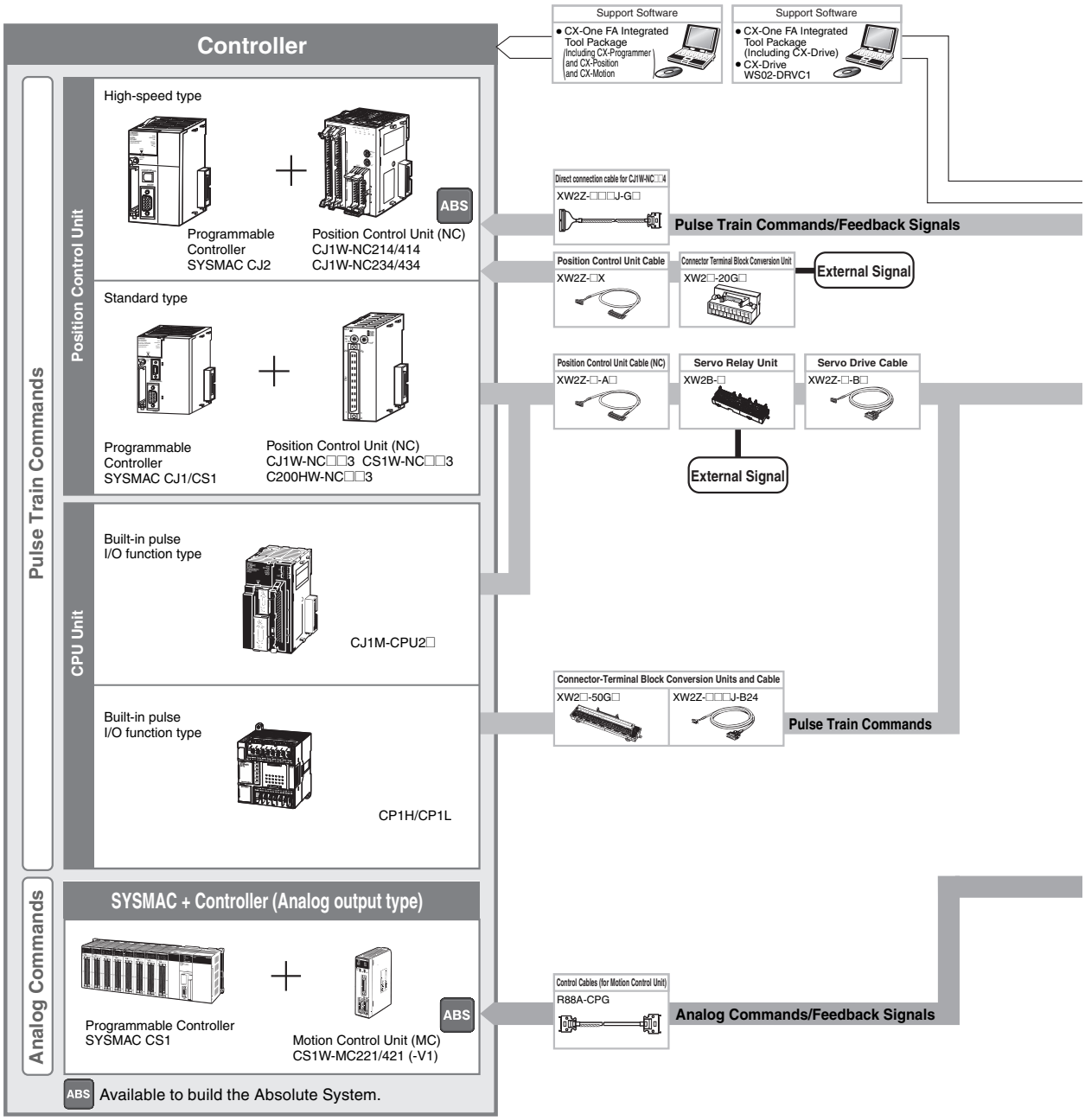
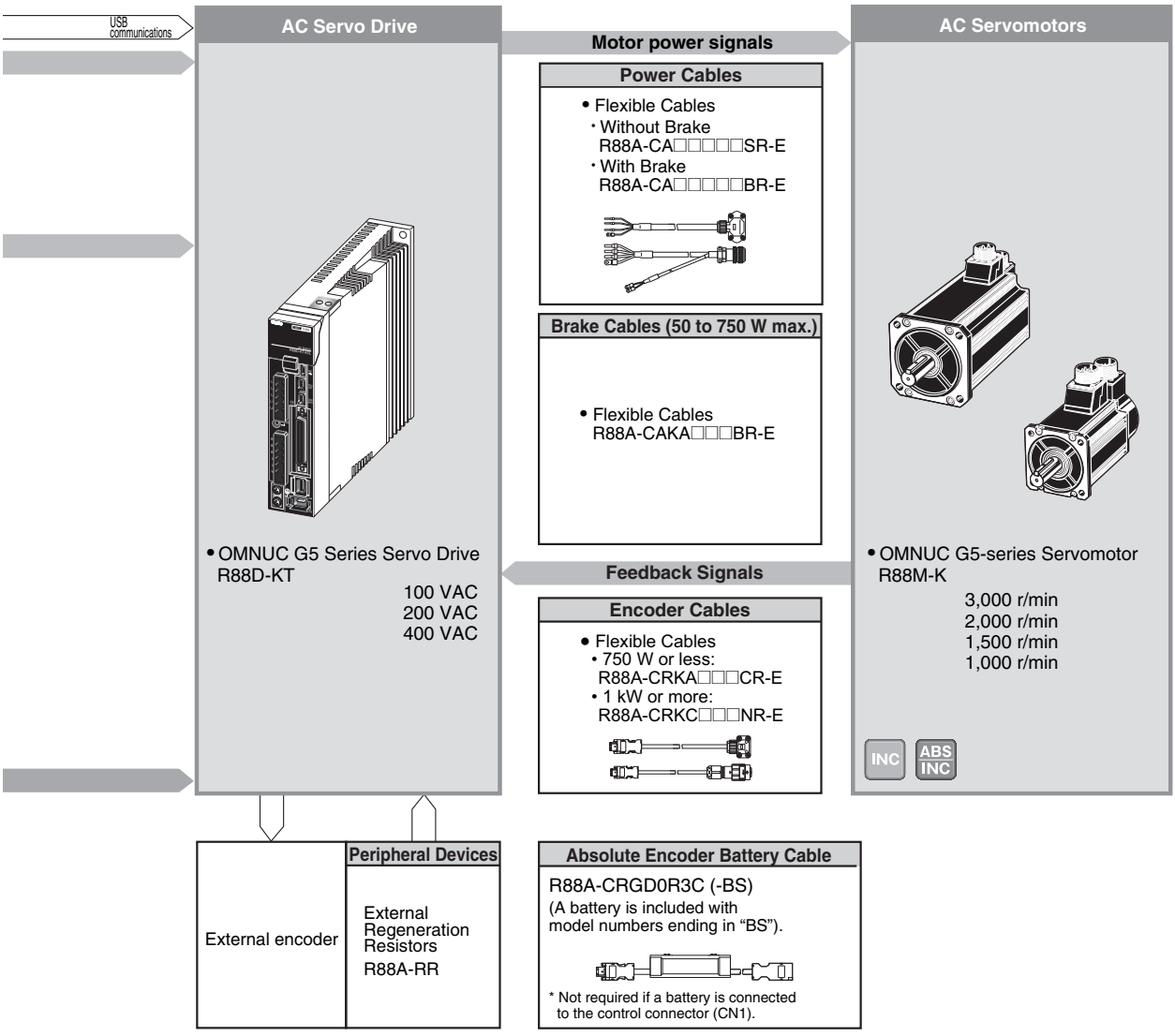
2-1 Servo System Configuration




USB communications
AC Servo Drive
Motor power signals
AC Servomotors
Power Cables
• Flexible Cables
・Without Brake
R88A-CA□□□□□SR-E
・With Brake
R88A-CA□□□□□BR-E
Brake Cables (50 to 750 W max.)
• Flexible Cables
R88A-CAKA□□□BR-E
• OMNUC G5 Series Servo Drive
R88D-KT
100 VAC
200 VAC
400 VAC
Feedback Signals
Encoder Cables
• Flexible Cables
• 750 W or less:
R88A-CRKA□□□CR-E
• 1 kW or more:
R88A-CRKC□□□NR-E
• OMNUC G5-series Servomotor
R88M-K
3,000 r/min
2,000 r/min
1,500 r/min
1,000 r/min
INC
ABS
INC
External encoder
Peripheral Devices
External
Regeneration
Resistors
R88A-RR
Absolute Encoder Battery Cable
R88A-CRGD0R3C (-BS)
(A battery is included with
model numbers ending in "BS").
* Not required if a battery is connected
to the control connector (CN1).

2-2 How to Read Model Numbers

Servo Drive

The Servo Drive model number tells the Servo Drive type, applicable Servomotor capacity, power supply voltage, etc.

R88D-KT01H

OMNUC G5-series Servo Drive

Drive Type
T : Pulse/analog type

Maximum Applicable Servomotor Capacity
A5 : 50 W
01 : 100 W
02 : 200 W
04 : 400 W
06 : 600 W
08 : 750 W
10 : 1 kW
15 : 1.5 kW
20 : 2 kW
30 : 3 kW
50 : 5 kW
75 : 7.5 kW
150 : 15 kW

Power Supply Voltage
L : 100 VAC
H : 200 VAC
F : 400 VAC

Servomotor

R88M-K10030H-BOS2

OMNUC G5-series Servomotor

Servomotor Capacity
- 050 : 50 W
- 100 : 100 W
- 200 : 200 W
- 400 : 400 W
- 600 : 600 W
- 750 : 750 W
- 900 : 900 W
- 1K0 : 1 kW
- 1K5 : 1.5 kW
- 2K0 : 2 kW
- 3K0 : 3 kW
- 4K0 : 4 kW
- 4K5 : 4.5 kW
- 5K0 : 5 kW
- 6K0 : 6 kW
- 7K5 : 7.5 kW
- 11K0 : 11 kW
- 15K0 : 15 kW

Rated Rotation Speed
- 10 : 1,000 r/min
- 15 : 1,500 r/min
- 20 : 2,000 r/min
- 30 : 3,000 r/min

Applied Voltage
- F : 400 VAC (incremental encoder specifications)
- H : 200 VAC (incremental encoder specifications)
- L : 100 VAC (incremental encoder specifications)
- C : 400 VAC (absolute encoder specifications)
- T : 200 VAC (absolute encoder specifications)
- S : 100 VAC (absolute encoder specifications)

Options
- Blank : Straight shaft, no key
- B : With brake
- O : With oil seal
- S2 : With key and tap

2-3 Standard Model Tables

Servo Drive Model Table

Specifications		Model
Single-phase 100 VAC	50 W	R88D-KTA5L
	100 W	R88D-KT01L
	200 W	R88D-KT02L
	400 W	R88D-KT04L
Single-phase/3-phase 200 VAC	100 W	R88D-KT01H
	200 W	R88D-KT02H
	400 W	R88D-KT04H
	750 W	R88D-KT08H
	1 kW	R88D-KT10H
	1.5 kW	R88D-KT15H
3-phase 200 VAC	2 kW	R88D-KT20H
	3 kW	R88D-KT30H
	5 kW	R88D-KT50H
	7.5 kW	R88D-KT75H
	15 kW	R88D-KT150H
3-phase 400 VAC	600 W	R88D-KT06F
	1 kW	R88D-KT10F
	1.5 kW	R88D-KT15F
	2 kW	R88D-KT20F
	3 kW	R88D-KT30F
	5 kW	R88D-KT50F
	7.5 kW	R88D-KT75F
	15 kW	R88D-KT150F

Servomotor Model Tables

3,000-r/min Servomotors

Specifications			Model			
			With incremental encoder		With absolute encoder	
			Straight shaft without key	Straight shaft with key and tap	Straight shaft without key	Straight shaft with key and tap
Without brakes	100 V	50 W	R88M-K05030H	R88M-K05030H-S2	R88M-K05030T	R88M-K05030T-S2
		100 W	R88M-K10030L	R88M-K10030L-S2	R88M-K10030S	R88M-K10030S-S2
		200 W	R88M-K20030L	R88M-K20030L-S2	R88M-K20030S	R88M-K20030S-S2
		400 W	R88M-K40030L	R88M-K40030L-S2	R88M-K40030S	R88M-K40030S-S2
	200 V	50 W	R88M-K05030H	R88M-K05030H-S2	R88M-K05030T	R88M-K05030T-S2
		100 W	R88M-K10030H	R88M-K10030H-S2	R88M-K10030T	R88M-K10030T-S2
		200 W	R88M-K20030H	R88M-K20030H-S2	R88M-K20030T	R88M-K20030T-S2
		400 W	R88M-K40030H	R88M-K40030H-S2	R88M-K40030T	R88M-K40030T-S2
		750 W	R88M-K75030H	R88M-K75030H-S2	R88M-K75030T	R88M-K75030T-S2
		1 kW	R88M-K1K030H	R88M-K1K030H-S2	R88M-K1K030T	R88M-K1K030T-S2
		1.5 kW	R88M-K1K530H	R88M-K1K530H-S2	R88M-K1K530T	R88M-K1K530T-S2
		2 kW	R88M-K2K030H	R88M-K2K030H-S2	R88M-K2K030T	R88M-K2K030T-S2
		3 kW	R88M-K3K030H	R88M-K3K030H-S2	R88M-K3K030T	R88M-K3K030T-S2
		4 kW	R88M-K4K030H	R88M-K4K030H-S2	R88M-K4K030T	R88M-K4K030T-S2
		5 kW	R88M-K5K030H	R88M-K5K030H-S2	R88M-K5K030T	R88M-K5K030T-S2
	400 V	750 W	R88M-K75030F	R88M-K75030F-S2	R88M-K75030C	R88M-K75030C-S2
		1 kW	R88M-K1K030F	R88M-K1K030F-S2	R88M-K1K030C	R88M-K1K030C-S2
		1.5 kW	R88M-K1K530F	R88M-K1K530F-S2	R88M-K1K530C	R88M-K1K530C-S2
		2 kW	R88M-K2K030F	R88M-K2K030F-S2	R88M-K2K030C	R88M-K2K030C-S2
		3 kW	R88M-K3K030F	R88M-K3K030F-S2	R88M-K3K030C	R88M-K3K030C-S2
		4 kW	R88M-K4K030F	R88M-K4K030F-S2	R88M-K4K030C	R88M-K4K030C-S2
		5 kW	R88M-K5K030F	R88M-K5K030F-S2	R88M-K5K030C	R88M-K5K030C-S2

Note. Models with oil seals are also available.

Specifications			Model			
			With incremental encoder		With absolute encoder	
			Straight shaft without key	Straight shaft with key and tap	Straight shaft without key	Straight shaft with key and tap
With brakes	100 V	50 W	R88M-K05030H-B	R88M-K05030H-BS2	R88M-K05030T-B	R88M-K05030T-BS2
		100 W	R88M-K10030L-B	R88M-K10030L-BS2	R88M-K10030S-B	R88M-K10030S-BS2
		200 W	R88M-K20030L-B	R88M-K20030L-BS2	R88M-K20030S-B	R88M-K20030S-BS2
		400 W	R88M-K40030L-B	R88M-K40030L-BS2	R88M-K40030S-B	R88M-K40030S-BS2
	200 V	50 W	R88M-K05030H-B	R88M-K05030H-BS2	R88M-K05030T-B	R88M-K05030T-BS2
		100 W	R88M-K10030H-B	R88M-K10030H-BS2	R88M-K10030T-B	R88M-K10030T-BS2
		200 W	R88M-K20030H-B	R88M-K20030H-BS2	R88M-K20030T-B	R88M-K20030T-BS2
		400 W	R88M-K40030H-B	R88M-K40030H-BS2	R88M-K40030T-B	R88M-K40030T-BS2
		750 W	R88M-K75030H-B	R88M-K75030H-BS2	R88M-K75030T-B	R88M-K75030T-BS2
		1 kW	R88M-K1K030H-B	R88M-K1K030H-BS2	R88M-K1K030T-B	R88M-K1K030T-BS2
		1.5 kW	R88M-K1K530H-B	R88M-K1K530H-BS2	R88M-K1K530T-B	R88M-K1K530T-BS2
		2 kW	R88M-K2K030H-B	R88M-K2K030H-BS2	R88M-K2K030T-B	R88M-K2K030T-BS2
		3 kW	R88M-K3K030H-B	R88M-K3K030H-BS2	R88M-K3K030T-B	R88M-K3K030T-BS2
		4 kW	R88M-K4K030H-B	R88M-K4K030H-BS2	R88M-K4K030T-B	R88M-K4K030T-BS2
		5 kW	R88M-K5K030H-B	R88M-K5K030H-BS2	R88M-K5K030T-B	R88M-K5K030T-BS2
	400 V	750 W	R88M-K75030F-B	R88M-K75030F-BS2	R88M-K75030C-B	R88M-K75030C-BS2
		1 kW	R88M-K1K030F-B	R88M-K1K030F-BS2	R88M-K1K030C-B	R88M-K1K030C-BS2
		1.5 kW	R88M-K1K530F-B	R88M-K1K530F-BS2	R88M-K1K530C-B	R88M-K1K530C-BS2
		2 kW	R88M-K2K030F-B	R88M-K2K030F-BS2	R88M-K2K030C-B	R88M-K2K030C-BS2
		3 kW	R88M-K3K030F-B	R88M-K3K030F-BS2	R88M-K3K030C-B	R88M-K3K030C-BS2
		4 kW	R88M-K4K030F-B	R88M-K4K030F-BS2	R88M-K4K030C-B	R88M-K4K030C-BS2
		5 kW	R88M-K5K030F-B	R88M-K5K030F-BS2	R88M-K5K030C-B	R88M-K5K030C-BS2

Note. Models with oil seals are also available.

1,500-r/min and 2,000-r/min Servomotors

Specifications			Model			
			With incremental encoder		With absolute encoder	
			Straight shaft without key	Straight shaft with key and tap	Straight shaft without key	Straight shaft with key and tap
Without brakes	200 V	1 kW	R88M-K1K020H	R88M-K1K020H-S2	R88M-K1K020T	R88M-K1K020T-S2
		1.5 kW	R88M-K1K520H	R88M-K1K520H-S2	R88M-K1K520T	R88M-K1K520T-S2
		2 kW	R88M-K2K020H	R88M-K2K020H-S2	R88M-K2K020T	R88M-K2K020T-S2
		3 kW	R88M-K3K020H	R88M-K3K020H-S2	R88M-K3K020T	R88M-K3K020T-S2
		4 kW	R88M-K4K020H	R88M-K4K020H-S2	R88M-K4K020T	R88M-K4K020T-S2
		5 kW	R88M-K5K020H	R88M-K5K020H-S2	R88M-K5K020T	R88M-K5K020T-S2
		7.5 kW	---	---	R88M-K7K515T	R88M-K7K515T-S2
		11 kW	---	---	R88M-K11K015T	R88M-K11K015T-S2
		15 kW	---	---	R88M-K15K015T	R88M-K15K015T-S2
	400 V	400 W	R88M-K40020F	R88M-K40020F-S2	R88M-K40020C	R88M-K40020C-BS2
		600 W	R88M-K60020F	R88M-K60020F-S2	R88M-K60020C	R88M-K60020C-BS2
		1 kW	R88M-K1K020F	R88M-K1K020F-S2	R88M-K1K020C	R88M-K1K020C-S2
		1.5 kW	R88M-K1K520F	R88M-K1K520F-S2	R88M-K1K520C	R88M-K1K520C-S2
		2 kW	R88M-K2K020F	R88M-K2K020F-S2	R88M-K2K020C	R88M-K2K020C-S2
		3 kW	R88M-K3K020F	R88M-K3K020F-S2	R88M-K3K020C	R88M-K3K020C-S2
		4 kW	R88M-K4K020F	R88M-K4K020F-S2	R88M-K4K020C	R88M-K4K020C-S2
		5 kW	R88M-K5K020F	R88M-K5K020F-S2	R88M-K5K020C	R88M-K5K020C-S2
		7.5 kW	---	---	R88M-K7K515C	R88M-K7K515C-S2
		11 kW	---	---	R88M-K11K015C	R88M-K11K015C-S2
		15 kW	---	---	R88M-K15K015C	R88M-K15K015C-S2

Note 1. Models with oil seals are also available.
Note 2. The rated rotation speed of Servomotors of 7.5 to 15 kW is 1,500 r/min.

Specifications			Model			
			With incremental encoder		With absolute encoder	
			Straight shaft without key	Straight shaft with key and tap	Straight shaft without key	Straight shaft with key and tap
With brakes	200 V	1 kW	R88M-K1K020H-B	R88M-K1K020H-BS2	R88M-K1K020T-B	R88M-K1K020T-BS2
		1.5 kW	R88M-K1K520H-B	R88M-K1K520H-BS2	R88M-K1K520T-B	R88M-K1K520T-BS2
		2 kW	R88M-K2K020H-B	R88M-K2K020H-BS2	R88M-K2K020T-B	R88M-K2K020T-BS2
		3 kW	R88M-K3K020H-B	R88M-K3K020H-BS2	R88M-K3K020T-B	R88M-K3K020T-BS2
		4 kW	R88M-K4K020H-B	R88M-K4K020H-BS2	R88M-K4K020T-B	R88M-K4K020T-BS2
		5 kW	R88M-K5K020H-B	R88M-K5K020H-BS2	R88M-K5K020T-B	R88M-K5K020T-BS2
		7.5 kW	---	---	R88M-K7K515T-B	R88M-K7K515T-BS2
		11 kW	---	---	R88M-K11K015T-B	R88M-K11K015T-S2
		15 kW	---	---	R88M-K15K015T-B	R88M-K15K015T-S2
	400 V	400 W	R88M-K40020F-B	R88M-K40020F-BS2	R88M-K40020C-B	R88M-K40020C-BS2
		600 W	R88M-K60020F-B	R88M-K60020F-BS2	R88M-K60020C-B	R88M-K60020C-BS2
		1 kW	R88M-K1K020F-B	R88M-K1K020F-BS2	R88M-K1K020C-B	R88M-K1K020C-BS2
		1.5 kW	R88M-K1K520F-B	R88M-K1K520F-BS2	R88M-K1K520C-B	R88M-K1K520C-BS2
		2 kW	R88M-K2K020F-B	R88M-K2K020F-BS2	R88M-K2K020C-B	R88M-K2K020C-BS2
		3 kW	R88M-K3K020F-B	R88M-K3K020F-BS2	R88M-K3K020C-B	R88M-K3K020C-BS2
		4 kW	R88M-K4K020F-B	R88M-K4K020F-BS2	R88M-K4K020C-B	R88M-K4K020C-BS2
		5 kW	R88M-K5K020F-B	R88M-K5K020F-BS2	R88M-K5K020C-B	R88M-K5K020C-BS2
		7.5 kW	---	---	R88M-K7K515C-B	R88M-K7K515C-BS2
		11 kW	---	---	R88M-K11K015C-B	R88M-K11K015C-BS2
		15 kW	---	---	R88M-K15K015C-B	R88M-K15K015C-BS2

Note 1. Models with oil seals are also available.
Note 2. The rated rotation speed of Servomotors of 7.5 to 15 kW is 1,500 r/min.

1,000-r/min Servomotors

Specifications			Model			
			With incremental encoder		With absolute encoder	
			Straight shaft without key	Straight shaft with key and tap	Straight shaft without key	Straight shaft with key and tap
Without brakes	200 V	900 kW	R88M-K90010H	R88M-K90010H-S2	R88M-K90010T	R88M-K90010T-S2
		2 kW	R88M-K2K010H	R88M-K2K010H-S2	R88M-K2K010T	R88M-K2K010T-S2
		3 kW	R88M-K3K010H	R88M-K3K010H-S2	R88M-K3K010T	R88M-K3K010T-S2
		4.5 kW	---	---	R88M-K4K510T	R88M-K4K510T-S2
		6 kW	---	---	R88M-K6K010T	R88M-K6K010T-S2
	400 V	900 kW	R88M-K90010F	R88M-K90010F-S2	R88M-K90010C	R88M-K90010C-S2
		2 kW	R88M-K2K010F	R88M-K2K010F-S2	R88M-K2K010C	R88M-K2K010C-S2
		3 kW	R88M-K3K010F	R88M-K3K010F-S2	R88M-K3K010C	R88M-K3K010C-S2
		4.5 kW	---	---	R88M-K4K510C	R88M-K4K510C-S2
		6 kW	---	---	R88M-K6K010C	R88M-K6K010C-S2
With brakes	200 V	900 kW	R88M-K90010H-B	R88M-K90010H-BS2	R88M-K90010T-B	R88M-K90010T-BS2
		2 kW	R88M-K2K010H-B	R88M-K2K010H-BS2	R88M-K2K010T-B	R88M-K2K010T-BS2
		3 kW	R88M-K3K010H-B	R88M-K3K010H-BS2	R88M-K3K010T-B	R88M-K3K010T-BS2
		4.5 kW	---	---	R88M-K4K510T-B	R88M-K4K510T-BS2
		6 kW	---	---	R88M-K6K010T-B	R88M-K6K010T-BS2
	400 V	900 kW	R88M-K90010F-B	R88M-K90010F-BS2	R88M-K90010C-B	R88M-K90010C-BS2
		2 kW	R88M-K2K010F-B	R88M-K2K010F-BS2	R88M-K2K010C-B	R88M-K2K010C-BS2
		3 kW	R88M-K3K010F-B	R88M-K3K010F-BS2	R88M-K3K010C-B	R88M-K3K010C-BS2
		4.5 kW	---	---	R88M-K4K510C-B	R88M-K4K510C-BS2
		6 kW	---	---	R88M-K6K010C-B	R88M-K6K010C-BS2

Note. Models with oil seals are also available.

Servo Drive and Servomotor Combination Tables

The tables in this section show the possible combinations of OMNUC G5-series Servo Drives and Servomotors. The Servomotors and Servo Drives can only be used in the listed combinations.
"-□" at the end of the motor model number is for options, such as the shaft type, brake, oil seal and key.

3,000-r/min Servomotors and Servo Drives

Voltage	Servomotor			Servo Drive
	Rated output	With incremental encoder	With absolute encoder	
Single-phase 100 V	50 W	R88M-K05030H-□	R88M-K05030T-□	R88D-KTA5L
	100 W	R88M-K10030L-□	R88M-K10030S-□	R88D-KT01L
Single-phase/ 3-phase 100 V	200 W	R88M-K20030L-□	R88M-K20030S-□	R88D-KT02L
	400 W	R88M-K40030L-□	R88M-K40030S-□	R88D-KT04L
Single-phase/ 3-phase 200 V	50 W*	R88M-K05030H-□	R88M-K05030T-□	R88D-KT01H
	100 W	R88M-K10030H-□	R88M-K10030T-□	R88D-KT01H
	200 W	R88M-K20030H-□	R88M-K20030T-□	R88D-KT02H
	400 W	R88M-K40030H-□	R88M-K40030T-□	R88D-KT04H
	750 W	R88M-K75030H-□	R88M-K75030T-□	R88D-KT08H
	1 kW*	R88M-K1K030H-□	R88M-K1K030T-□	R88D-KT15H
	1.5 kW	R88M-K1K530H-□	R88M-K1K530T-□	R88D-KT15H
3-phase 200 V	2 kW	R88M-K2K030H-□	R88M-K2K030T-□	R88D-KT20H
	3 kW	R88M-K3K030H-□	R88M-K3K030T-□	R88D-KT30H
	4 kW*	R88M-K4K030H-□	R88M-K4K030T-□	R88D-KT50H
	5 kW	R88M-K5K030H-□	R88M-K5K030T-□	R88D-KT50H
3-phase 400 V	750 W*	R88M-K75030F-□	R88M-K75030C-□	R88D-KT10F
	1 kW*	R88M-K1K030F-□	R88M-K1K030C-□	R88D-KT15F
	1.5 kW	R88M-K1K530F-□	R88M-K1K530C-□	R88D-KT15F
	2 kW	R88M-K2K030F-□	R88M-K2K030C-□	R88D-KT20F
	3 kW	R88M-K3K030F-□	R88M-K3K030C-□	R88D-KT30F
	4 kW*	R88M-K4K030F-□	R88M-K4K030C-□	R88D-KT50F
	5 kW	R88M-K5K030F-□	R88M-K5K030C-□	R88D-KT50F

* Use these combination with caution because the Servo Drive and Servomotor have different capacities.

1,500-r/min and 2,000-r/min Servomotors and Servo Drives

Voltage	Servomotor			Servo Drive
	Rated output	With incremental encoder	With absolute encoder	
Single-phase/ 3-phase 200 V	1 kW	R88M-K1K020H-☐	R88M-K1K020T-☐	R88D-KT10H
	1.5 kW	R88M-K1K520H-☐	R88M-K1K520T-☐	R88D-KT15H
3-phase 200 V	2 kW	R88M-K2K020H-☐	R88M-K2K020T-☐	R88D-KT20H
	3 kW	R88M-K3K020H-☐	R88M-K3K020T-☐	R88D-KT30H
	4 kW*	R88M-K4K020H-☐	R88M-K4K020T-☐	R88D-KT50H
	5 kW	R88M-K5K020H-☐	R88M-K5K020T-☐	R88D-KT50H
	7.5 kW	---	R88M-K7K515T-☐	R88D-KT75H
	11 kW*	---	R88M-K11K015T-☐	R88D-KT150H
	15 kW	---	R88M-K15K015T-☐	R88D-KT150H
3-phase 400 V	400 W*	R88M-K40020F-☐	R88M-K40020C-☐	R88D-KT06F
	600 W	R88M-K60020F-☐	R88M-K60020C-☐	R88D-KT06F
	1 kW	R88M-K1K020F-☐	R88M-K1K020C-☐	R88D-KT10F
	1.5 kW	R88M-K1K520F-☐	R88M-K1K520C-☐	R88D-KT15F
	2 kW	R88M-K2K020F-☐	R88M-K2K020C-☐	R88D-KT20F
	3 kW	R88M-K3K020F-☐	R88M-K3K020C-☐	R88D-KT30F
	4 kW*	R88M-K4K020F-☐	R88M-K4K020C-☐	R88D-KT50F
	5 kW	R88M-K5K020F-☐	R88M-K5K020C-☐	R88D-KT50F
	7.5 kW	---	R88M-K7K515C-☐	R88D-KT75F
	11 kW*	---	R88M-K11K015C-☐	R88D-KT150F
	15 kW	---	R88M-K15K015C-☐	R88D-KT150F

* Use these combination with caution because the Servo Drive and Servomotor have different capacities.

1,000-r/min Servomotors and Servo Drives

Voltage	Servomotor			Servo Drive
	Rated output	With incremental encoder	With absolute encoder	
Single-phase/ 3-phase 200 V	900 W*	R88M-K90010H-□	R88M-K90010T-□	R88D-KT15H
3-phase 200 V	2 kW*	R88M-K2K010H-□	R88M-K2K010T-□	R88D-KT30H
	3 kW*	R88M-K3K010H-□	R88M-K3K010T-□	R88D-KT50H
	4.5 kW*	---	R88M-K4K510T-□	R88D-KT50H
	6 kW*	---	R88M-K6K010T-□	R88D-KT75H
3-phase 400 V	900 W*	R88M-K90010F-□	R88M-K90010C-□	R88D-KT15F
	2 kW*	R88M-K2K010F-□	R88M-K2K010C-□	R88D-KT30F
	3 kW*	R88M-K3K010F-□	R88M-K3K010C-□	R88D-KT50F
	4.5 kW*	---	R88M-K4K510C-□	R88D-KT50F
	6 kW*	---	R88M-K6K010C-□	R88D-KT75F

* Use these combination with caution because the Servo Drive and Servomotor have different capacities.

Peripheral Equipment and Cable Model Tables

Encoder Cables (European Flexible Cables)

Specifications		Model
[100 V and 200 V] For 3,000-r/min Servomotors of 50 to 750 W (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
[100 V and 200 V] 3,000-r/min Servomotors of 1.0 kW or more For 2,000-r/min Servomotors For 1,000-r/min Servomotors [400 V] For 3,000-r/min Servomotors For 2,000-r/min Servomotors For 1,000-r/min Servomotors	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

3-3 Servomotor Specifications

The following OMNUC G5-Series AC Servomotors are available.
- 3,000-r/min Servomotors
- 2,000-r/min Servomotors
- 1,500-r/min Servomotors
- 1,000-r/min Servomotors

There are various options available, such as models with brakes, or different shaft types. Select a Servomotor based on the mechanical system's load conditions and the installation environment.

General Specifications

Item			3,000-r/min Servomotors		1,000-r/min Servomotors 1,500-r/min Servomotors 2,000-r/min Servomotors
			50 to 750 W	1 to 5 kW	900 W to 15 kW
Ambient operating temperature and operating humidity			0 to +40°C, 20% to 85% (with no condensation)		
Storage ambient temperature and humidity			–20 to +65°C, 20% to 85% (with no condensation) Maximum allowable temperature: 80°C for 72 hours maximum (standard humidity)		
Operating and storage atmosphere			No corrosive gases		
Vibration resistance *1			Acceleration of 49 m/s^2 *2 24.5 m/s^2 max. in X, Y, and Z directions when the motor is stopped		
Impact resistance			Acceleration of 98 m/s^2 max. 3 times each in X, Y, and Z directions		
Insulation resistance			Between power terminal and FG terminal: 20 MΩ min. (at 500 VDC)		
Dielectric strength			1,500 VAC between power terminal and FG terminal for 1 min (voltage 100 V, 200 V) 1,800 VAC between power terminal and FG terminal for 1 min (voltage 400 V) 1,000 VAC between brake terminal and FG terminal for 1 min		
Insulation class			Type B	Type F	
Protective structure			IP67 (except for through-shaft parts and motor and encoder connector pins)		
International standard	EC Directive	Low Voltage Directive	EN60034-1/-5		
	UL standards		UL1004-1		UL1004-1, UL1004-6 *3
	CSA standards		CSA C22.2 No. 100		

*1. The amplitude may be amplified by machine resonance. Do not exceed 80% of the specified value for extended periods of time.
*2. 24.5m/s^2 is specified for 1,500-r/min Servomotors of 7.5 to 15 kW and 1,000-r/min Servomotors of 4.5 to 6 kW.
*3. UL 1004-6 applies only to 1,500-r/min Servomotors of 7.5 to 15 kW and 1,000-r/min Servomotors of 4.5 to 6 kW.
Note 1. Do not use the cable when it is laying in oil or water.
Note 2. Do not expose the cable outlet or connections to stress due to bending or the weight of the cable itself.
Note 3. Disconnect all connections to the Servomotor before attempting a megameter test (insulation resistance measurement) on a Servomotor. Failure to follow this guideline may result in damaging the Servomotor. Never perform a dielectric strength test on the Servomotor. Failure to follow this guideline may result in damaging the internal elements.

Characteristics

3,000-r/min Servomotors

Item		Unit	100 VAC			
Model (R88M-)			K05030H	K10030L	K20030L	K40030L
			K05030T	K10030S	K20030S	K40030S
Rated output *1		W	50	100	200	400
Rated torque *1		N • m	0.16	0.32	0.64	1.3
Rated rotation speed		r/min	3,000			
Maximum rotation speed		r/min	6,000			
Momentary maximum torque *1		N • m	0.48	0.95	1.91	3.8
Rated current *1		A (rms)	1.1	1.6	2.5	4.6
Momentary maximum current *1		A (0-p)	4.7	6.9	10.6	19.5
Rotor inertia	Without brake	kg • m^2	0.025×10^{-4}	0.051×10^{-4}	0.14×10^{-4}	0.26×10^{-4}
	With brake	kg • m^2	0.027×10^{-4}	0.054×10^{-4}	0.16×10^{-4}	0.28×10^{-4}
Applicable load inertia		–	30 times the rotor inertia max. *2			
Torque constant *1		N • m/A	0.11±10%	0.14±10%	0.20±10%	0.21±10%
Power rate *1	Without brake	kW/s	10.1	19.8	28.9	62.3
	With brake	kW/s	9.4	18.7	25.3	57.8
Mechanical time constant	Without brake	ms	1.43	1.03	0.61	0.48
	With brake	ms	1.54	1.09	0.70	0.52
Electrical time constant		ms	0.82	0.91	3.0	3.4
Allowable radial load *3		N	68	68	245	245
Allowable thrust load *3		N	58	58	98	98
Weight	Without brake	kg	Approx. 0.31	Approx. 0.45	Approx. 0.78	Approx. 1.2
	With brake	kg	Approx. 0.51	Approx. 0.65	Approx. 1.2	Approx. 1.6
Radiator plate dimensions (material)			100 × 80 × t10 (Al)		130 × 120 × t12 (Al)	
Applicable Servo Drives (R88D-)			KTA5L	KT01L	KT02L	KT04L
Brake specifications	Brake inertia	kg • m^2	2×10^{-7}	2×10^{-7}	1.8×10^{-6}	1.8×10^{-6}
	Excitation voltage *4	V	24 VDC ± 5%			
	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	0.29 min.	0.29 min.	1.27 min.	1.27 min.
	Attraction time *5	ms	35 max.	35 max.	50 max.	50 max.
	Release time *5	ms	20 max.	20 max.	15 max.	15 max.
	Backlash		±1°			
	Allowable work per braking	J	39.2	39.2	137	137
	Allowable total work	J	4.9×10^{3}	4.9×10^{3}	44.1×10^{3}	44.1×10^{3}

Item		Unit	Model (R88M-) 100 VAC			
			K05030H	K10030L	K20030L	K40030L
			K05030T	K10030S	K20030S	K40030S
Brake specifications	Allowable angular acceleration	rad/s^2	30,000 max. (Speed of 2,800 r/min or more must not be changed in less than 10 ms.)			
	Brake limit	–	10 million times min.			
	Rating	–	Continuous			
	Insulation class	–	Type F			

Model (R88M-)			200 VAC			
			K05030H	K10030H	K20030H	K40030H
Item		Unit	K05030T	K10030T	K20030T	K40030T
Rated output *1		W	50	100	200	400
Rated torque *1		N • m	0.16	0.32	0.64	1.3
Rated rotation speed		r/min	3,000			
Maximum rotation speed		r/min	6,000			
Momentary maximum torque *1		N • m	0.48	0.95	1.91	3.8
Rated current *1		A (rms)	1.1	1.1	1.5	2.4
Momentary maximum current *1		A (0-p)	4.7	4.7	6.5	10.2
Rotor inertia	Without brake	kg • m^2	0.025×10^{-4}	0.051×10^{-4}	0.14×10^{-4}	0.26×10^{-4}
	With brake	kg • m^2	0.027×10^{-4}	0.054×10^{-4}	0.16×10^{-4}	0.28×10^{-4}
Applicable load inertia		–	30 times the rotor inertia max.*2			
Torque constant *1		N • m/A	0.11±10%	0.21±10%	0.32±10%	0.40±10%
Power rate *1	Without brake	kW/s	10.1	19.8	28.9	62.3
	With brake	kW/s	9.4	18.7	25.3	57.8
Mechanical time constant	Without brake	ms	1.43	1.07	0.58	0.43
	With brake	ms	1.54	1.13	0.66	0.46
Electrical time constant		ms	0.82	0.90	3.2	3.4
Allowable radial load *3		N	68	68	245	245
Allowable thrust load *3		N	58	58	98	98
Weight	Without brake	kg	Approx. 0.31	Approx. 0.46	Approx. 0.79	Approx. 1.2
	With brake	kg	Approx. 0.51	Approx. 0.66	Approx. 1.2	Approx. 1.6
Radiator plate dimensions (material)			100 × 80 × t10 (Al)		130 × 120 × t12 (Al)	
Applicable Servo Drives (R88D-)			KT01H	KT01H	KT02H	KT04H

Item		Unit	Model (R88M-) 200 VAC			
			K05030H	K10030H	K20030H	K40030H
			K05030T	K10030T	K20030T	K40030T
Brake specifications	Brake inertia	kg • m^2	2×10^{-7}	2×10^{-7}	1.8×10^{-6}	1.8×10^{-6}
	Excitation voltage *4	V	24 VDC ± 5%			
	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	0.29 min.	0.29 min.	1.27 min.	1.27 min.
	Attraction time *5	ms	35 max.	35 max.	50 max.	50 max.
	Release time *5	ms	20 max.	20 max.	15 max.	15 max.
	Backlash		±1°			
	Allowable work per braking	J	39.2	39.2	137	137
	Allowable total work	J	4.9×10^3	4.9×10^3	44.1×10^3	44.1×10^3
	Allowable angular acceleration	rad/s^2	30,000 max. (Speed of 2,800 r/min or more must not be changed in less than 10 ms.)			
	Brake limit	–	10 million times min.			
	Rating	–	Continuous			
	Insulation class	–	Type F			

Model (R88M-)			200 VAC		
			K75030H	K1K030H	K1K530H
Item		Unit	K75030T	K1K030T	K1K530T
Rated output *1		W	750	1000	1500
Rated torque *1		N • m	2.4	3.18	4.77
Rated rotation speed		r/min	3,000		
Maximum rotation speed		r/min	6,000	5,000	
Momentary maximum torque *1		N • m	7.1	9.55	14.3
Rated current *1		A (rms)	4.1	6.6	8.2
Momentary maximum current *1		A (0-p)		28	35
Rotor inertia	Without brake	kg • m^2	0.87×10^{-4}	2.03×10^{-4}	2.84×10^{-4}
	With brake	kg • m^2	0.97×10^{-4}	2.35×10^{-4}	3.17×10^{-4}
Applicable load inertia		–	20 times the rotor inertia max. *2	15 times the rotor inertia max. *2	
Torque constant *1		N • m/A	0.45±10%	0.37	0.45
Power rate *1	Without brake	kW/s	65.4	49.8	80.1
	With brake	kW/s	58.7	43.0	71.8
Mechanical time constant	Without brake	ms	0.37	0.61	0.49
	With brake	ms	0.42	0.71	0.55
Electrical time constant		ms	5.3	5.8	6.3
Allowable radial load *3		N	392	490	490
Allowable thrust load *3		N	147	196	196
Weight	Without brake	kg	Approx. 2.3	Approx. 3.5	Approx. 4.4
	With brake	kg	Approx. 3.1	Approx. 4.5	Approx. 5.4
Radiator plate dimensions (material)			170 × 160 × t12 (Al)	320 × 300 × t20 (Al)	
Applicable Servo Drives (R88D-)			KT08H	KT15H	KT15H

Item		Unit	Model (R88M-) 200 VAC K75030H / K75030T	K1K030H / K1K030T	K1K530H / K1K530T
Brake specifications	Brake inertia	kg • m^2	0.75×10^{-5}	0.33×10^{-4}	0.33×10^{-4}
	Excitation voltage *4	V	24 VDC ± 5%	24 VDC ± 10%	
	Power consumption (at 20°C)	W	10	19	19
	Current consumption (at 20°C)	A	0.42	0.81±10%	0.81±10%
	Static friction torque	N • m	2.45 min.	7.8 min.	7.8 min.
	Attraction time *5	ms	70 max.	50 max.	50 max.
	Release time *5	ms	20 max.	15 max. *6	15 max. *6
	Backlash		±1°		
	Allowable work per braking	J	196	392	392
	Allowable total work	J	1.47×10^5	4.9×10^5	4.9×10^5
	Allowable angular acceleration	rad/s^2	30,000	10,000	
	Brake limit	–	10 million times min.		
	Rating	–	Continuous		
	Insulation class	–	Type F		

Model (R88M-)			200 VAC			
			K2K030H	K3K030H	K4K030H	K5K030H
Item		Unit	K2K030T	K3K030T	K4K030T	K5K030T
Rated output *1		W	2000	3000	4000	5000
Rated torque *1		N • m	6.37	9.55	12.7	15.9
Rated rotation speed		r/min	3,000			
Maximum rotation speed		r/min	5,000		4,500	4,500
Momentary maximum torque *1		N • m	19.1	28.6	38.2	47.7
Rated current *1		A (rms)	11.3	18.1	19.6	24.0
Momentary maximum current *1		A (0-p)	48	77	83	102
Rotor inertia	Without brake	kg • m^2	3.68×10^{-4}	6.50×10^{-4}	12.9×10^{-4}	17.4×10^{-4}
	With brake	kg • m^2	4.01×10^{-4}	6.85×10^{-4}	14.2×10^{-4}	18.6×10^{-4}
Applicable load inertia		-	15 times the rotor inertia max. *2			
Torque constant *1		N • m/A	0.44	0.41	0.49	0.49
Power rate *1	Without brake	kW/s	110	140	126	146
	With brake	kW/s	101	116	114	136
Mechanical time constant	Without brake	ms	0.44	0.41	0.51	0.50
	With brake	ms	0.48	0.49	0.56	0.54
Electrical time constant		ms	6.7	11	12	13
Allowable radial load *3		N	490	490	784	784
Allowable thrust load *3		N	196	196	343	343
Weight	Without brake	kg	Approx. 5.3	Approx. 8.3	Approx. 11.0	Approx. 14.0
	With brake	kg	Approx. 6.3	Approx. 9.4	Approx. 12.6	Approx. 16.0
Radiator plate dimensions (material)			380 × 350 × t30 (Al)			
Applicable drives (R88D-)			KT20H	KT30H	KT50H	KT50H

	Model (R88M-)		200 VAC			
			K2K030H	K3K030H	K4K030H	K5K030H
	Item	Unit	K2K030T	K3K030T	K4K030T	K5K030T
Brake specifications	Brake inertia	kg • m^2	0.33×10^{-4}	0.33×10^{-4}	1.35×10^{-4}	1.35×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%			
	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	7.8 min.	11.8 min.	16.1 min.	16.1 min.
	Attraction time *5	ms	50 max.	80 max.	110 max.	110 max.
	Release time *5	ms	15 max. *6	15 max. *6	50 max. *7	50 max. *7
	Backlash		±1°			
	Allowable work per braking	J	392	392	1,470	1,470
	Allowable total work	J	4.9×10^5	4.9×10^5	2.2×10^6	2.2×10^6
	Allowable angular acceleration	rad/s^2	10,000			
	Brake limit	-	10 million times min.			
	Rating	-	Continuous			
	Insulation class	-	Type F			

Model (R88M-)			400 VAC			
			K75030F	K1K030F	K1K530F	K2K030F
Item		Unit	K75030C	K1K030C	K1K530C	K2K030C
Rated output *1		W	750	1000	1500	2000
Rated torque *1		N • m	2.39	3.18	4.77	6.37
Rated rotation speed		r/min	3,000			
Maximum rotation speed		r/min	5,000			
Momentary maximum torque *1		N • m	7.16	9.55	14.3	19.1
Rated current *1		A (rms)	2.4	3.3	4.2	5.7
Momentary maximum current *1		A (0-p)	10	14	18	24
Rotor inertia	Without brake	kg • m^2	1.61×10^{-4}	2.03×10^{-4}	2.84×10^{-4}	3.68×10^{-4}
	With brake	kg • m^2	1.93×10^{-4}	2.35×10^{-4}	3.17×10^{-4}	4.01×10^{-4}
Applicable load inertia		–	20 times the rotor inertia max. *2	15 times the rotor inertia max. *2		
Torque constant *1		N • m/A	0.78	0.75	0.89	0.87
Power rate *1	Without brake	kW/s	35.5	49.8	80.1	110
	With brake	kW/s	29.6	43	71.8	101
Mechanical time constant	Without brake	ms	0.67	0.60	0.49	0.45
	With brake	ms	0.8	0.70	0.55	0.49
Electrical time constant		ms	5.9	5.8	6.5	6.6
Allowable radial load *3		N	490	490	490	490
Allowable thrust load *3		N	196	196	196	196
Weight	Without brake	kg	Approx. 3.1	Approx. 3.5	Approx. 4.4	Approx. 5.3
	With brake	kg	Approx. 4.1	Approx. 4.5	Approx. 5.4	Approx. 6.3
Radiator plate dimensions (material)			320 × 300 × t20 (Al)			
Applicable Servo Drives (R88D-)			KT10F	KT15F	KT15F	KT20F

Item		Unit	Model (R88M-) 400 VAC			
			K75030F	K1K030F	K1K530F	K2K030F
			K75030C	K1K030C	K1K530C	K2K030C
Brake specifications	Brake inertia	kg • m^2	0.33×10^{-4}	0.33×10^{-4}	0.33×10^{-4}	0.33×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%			
	Power consumption (at 20°C)	W	17	19	19	19
	Current consumption (at 20°C)	A	0.70±10%	0.81±10%	0.81±10%	0.81±10%
	Static friction torque	N • m	2.5 min.	7.8 min.	7.8 min.	7.8 min.
	Attraction time *5	ms	50 max.	50 max.	50 max.	50 max.
	Release time *5	ms	15 max. *6	15 max. *6	15 max. *6	15 max. *6
	Backlash		±1°			
	Allowable work per braking	J	392	392	392	392
	Allowable total work	J	4.9×10^5	4.9×10^5	4.9×10^5	4.9×10^5
	Allowable angular acceleration	rad/s^2	10,000			
	Brake limit	–	10 million times min.			
	Rating	–	Continuous			
	Insulation class	–	Type F			

Model (R88M-)			400 VAC		
			K3K030F	K4K030F	K5K030F
Item		Unit	K3K030C	K4K030C	K5K030C
Rated output *1		W	3000	4000	5000
Rated torque *1		N • m	9.55	12.7	15.9
Rated rotation speed		r/min	3,000		
Maximum rotation speed		r/min	5,000	4,500	
Momentary maximum torque *1		N • m	28.6	38.2	47.7
Rated current *1		A (rms)	9.2	9.9	12.0
Momentary maximum current *1		A (0-p)	39	42	51
Rotor inertia	Without brake	kg • m^2	6.50×10^{-4}	12.9×10^{-4}	17.4×10^{-4}
	With brake	kg • m^2	7.85×10^{-4}	14.2×10^{-4}	18.6×10^{-4}
Applicable load inertia		–	15 times the rotor inertia max. *2		
Torque constant *1		N • m/A	0.81	0.98	0.98
Power rate *1	Without brake	kW/s	140	126	146
	With brake	kW/s	116	114	136
Mechanical time constant	Without brake	ms	0.40	0.51	0.50
	With brake	ms	0.49	0.56	0.54
Electrical time constant		ms	12	13	13
Allowable radial load *3		N	490	784	784
Allowable thrust load *3		N	196	343	343
Weight	Without brake	kg	Approx. 8.3	Approx. 11.0	Approx. 14.0
	With brake	kg	Approx. 9.4	Approx. 12.6	Approx. 16.0
Radiator plate dimensions (material)			380 × 350 × t30 (Al)		
Applicable Servo Drives (R88D-)			KT30F	KT50F	KT50F

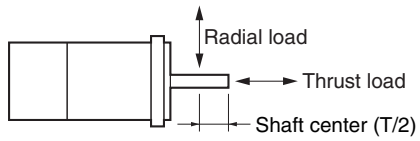
Item		Unit	Model (R88M-) 400 VAC K3K030F K3K030C	K4K030F K4K030C	K5K030F K5K030C
Brake specifications	Brake inertia	kg • m^2	0.33×10^{-4}	1.35×10^{-4}	1.35×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%		
	Power consumption (at 20°C)	W	19	22	22
	Current consumption (at 20°C)	A	0.81±10%	0.90±10%	0.90±10%
	Static friction torque	N • m	11.8 min.	16.1 min.	16.1 min.
	Attraction time *5	ms	80 max.	110 max.	110 max.
	Release time *5	ms	15 max. *6	50 max. *7	50 max. *7
	Backlash		±1°		
	Allowable work per braking	J	392	1470	1470
	Allowable total work	J	4.9×10^5	2.2×10^6	2.2×10^6
	Allowable angular acceleration	rad/s^2	10,000		
	Brake limit	–	10 million times min.		
	Rating	–	Continuous		
	Insulation class	–	Type F		

*1. These are the values when the Servomotor is combined with a drive at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- The dynamic brake is rated for short-term operation. Use it only for emergency stopping. Design the system to stop for at least ten minutes after the dynamic brake operates. Otherwise, the dynamic brake circuits may fail or the dynamic brake resistor may burn.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures.
The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

*5. The operation time is the value (reference value) measured with a surge suppressor (CR50500 by Okaya Electric Industries Co., Ltd.).

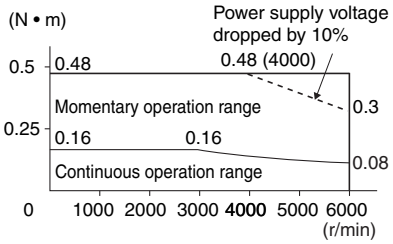
*6. Direct current switching with a varistor (Z15D151 by Ishizuka Electronics Co.).

*7. Direct current switching with a varistor (TNR9G820K by Nippon Chemi-Con Corporation).

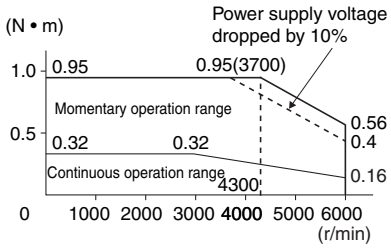
Torque-Rotation Speed Characteristics for 3,000-r/min Servomotors

- 3,000-r/min Servomotor (100 VAC)
The following graphs show the characteristics with a 3-m standard cable and a 100-VAC input.

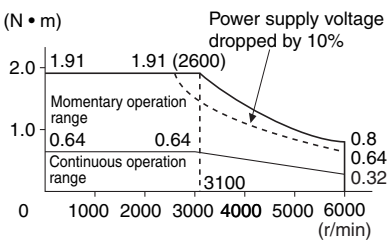
• R88M-K05030H/T (50 W)



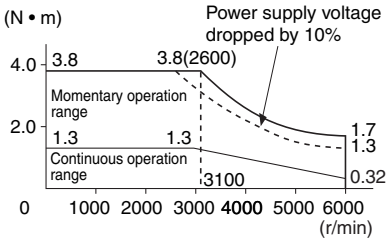
• R88M-K10030L/S (100 W)



• R88M-K20030L/S (200 W)



• R88M-K40030L/S (400 W)



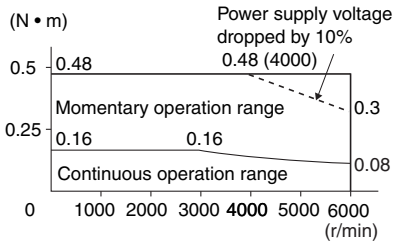
Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

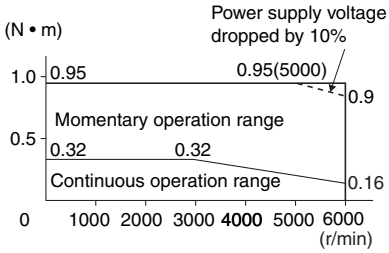
♦ 3,000-r/min Servomotor (200 VAC)

The following graphs show the characteristics with a 3-m standard cable and a 200-VAC input.

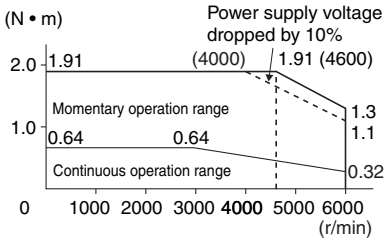
• R88M-K05030H/T (50 W)



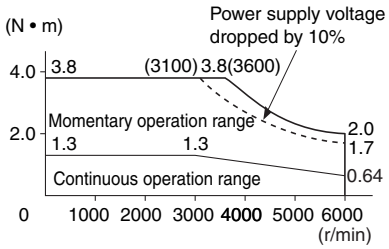
• R88M-K10030H/T (100 W)



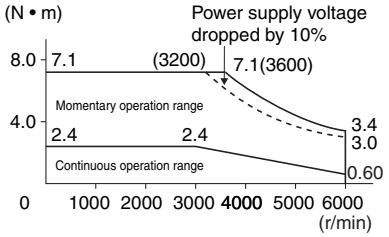
• R88M-K20030H/T (200 W)



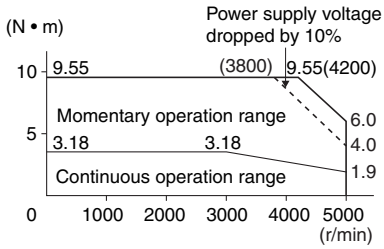
• R88M-K40030H/T (400 W)



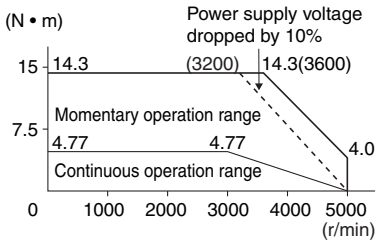
• R88M-K75030H/T (750 W)



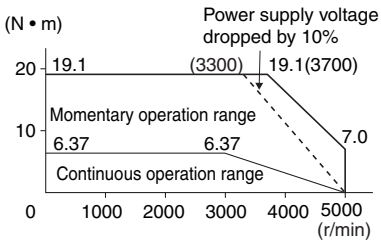
• R88M-K1K030H/T (1 kW)



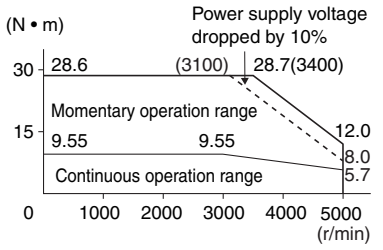
• R88M-K1K530H/T (1.5 kW)



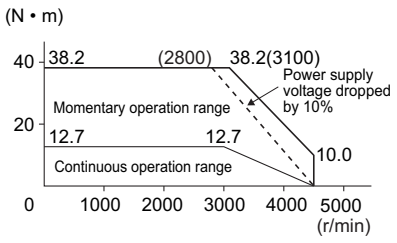
• R88M-K2K030H/T (2 kW)



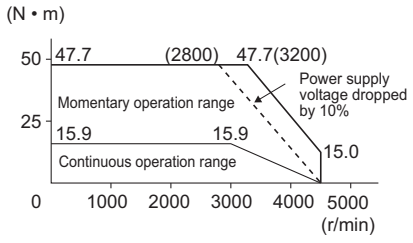
• R88M-K3K030H/T (3 kW)



• R88M-K4K030H/T (4 kW)



• R88M-K5K030H/T (5 kW)

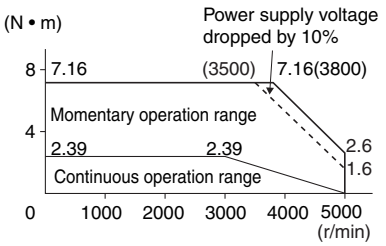


Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

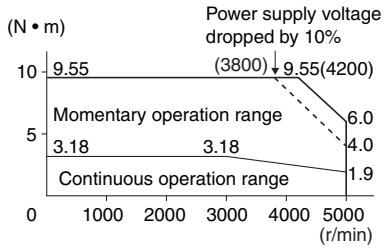
Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

♦ 3,000-r/min Servomotor (400 VAC)
The following graphs show the characteristics with a 3-m standard cable and a 400-VAC input.

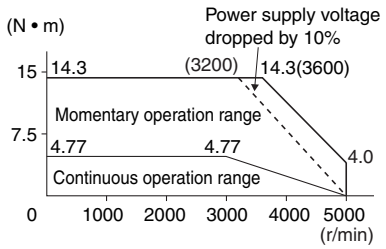
• R88M-K75030F/C (750 W)



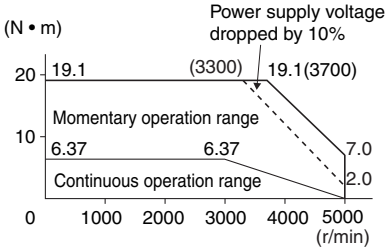
• R88M-K1K030F/C (1 kW)



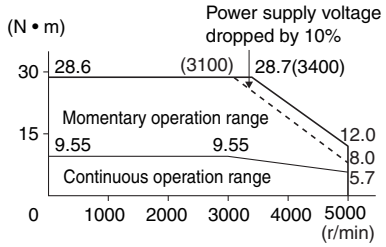
• R88M-K1K530F/C (1.5 kW)



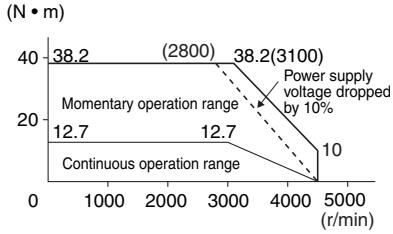
• R88M-K2K030F/C (2 kW)



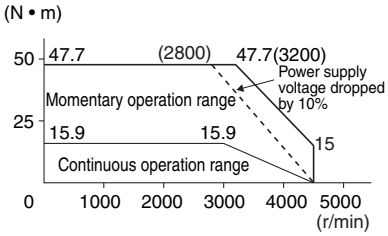
• R88M-K3K030F/C (3 kW)



• R88M-K4K030F/C (4 kW)



• R88M-K5K030F/C (5 kW)

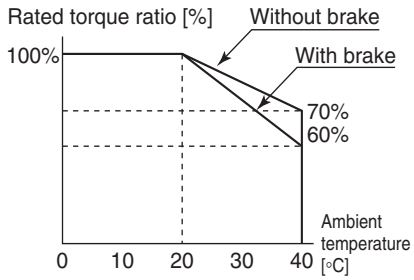


Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

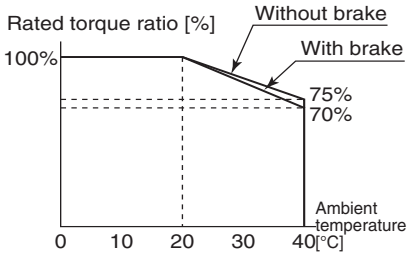
Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

Use the following Servomotors in the ranges shown in the graphs below. Using outside of these ranges may cause the motor to generate heat, which could result in encoder malfunction.

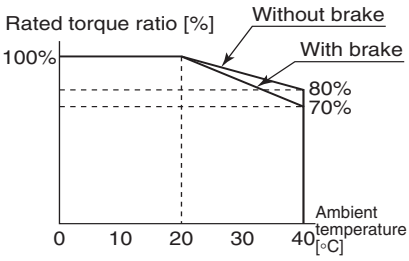
• R88M-K05030L/S/H/T
(50 W: With oil seal)



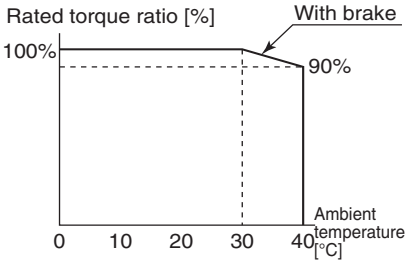
• R88M-K10030L/S/H/T
(100 W: With oil seal)



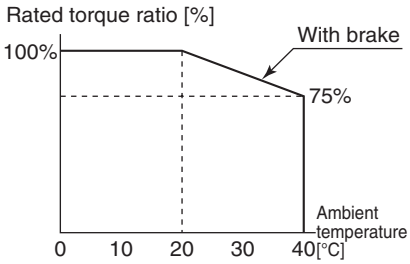
• R88M-K20030L/SH/T
(200 W: With oil seal)



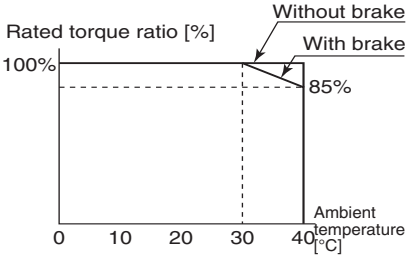
• R88M-K40030L/S/H/T
(400 W: Without oil seal)



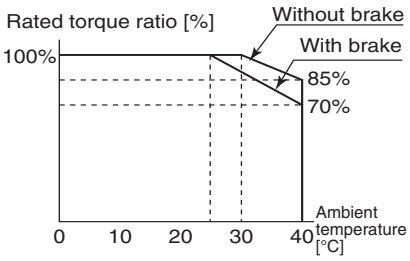
• R88M-K40030L/S/H/T
(400 W: With oil seal)



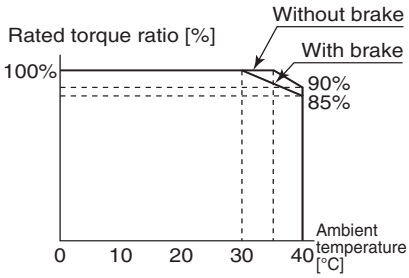
• R88M-K1K530H/T/F/C
(1.5 kW)



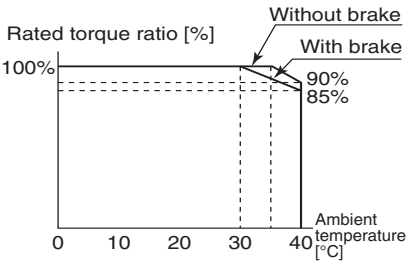
• R88M-K2K030H/T/F/C
(2 kW)



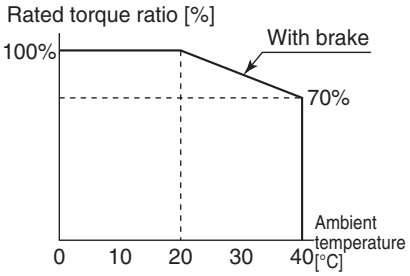
• R88M-K3K030H/T/F/C
(3 kW)



• R88M-K4K030H/T/F/C
(4 kW)



• R88M-K5K030H/T/F/C
(5 kW)



1,500-r/min and 2,000-r/min Servomotors

Model (R88M-)			200 VAC		
			K1K020H	K1K520H	K2K020H
Item		Unit	K1K020T	K1K520T	K2K020T
Rated output *1		W	1,000	1,500	2,000
Rated torque *1		N • m	4.77	7.16	9.55
Rated rotation speed		r/min	2,000		
Maximum rotation speed		r/min	3,000		
Momentary maximum torque *1		N • m	14.3	21.5	28.6
Rated current *1		A (rms)	5.7	9.4	11.5
Momentary maximum current *1		A (0-p)	24	40	49
Rotor inertia	Without brake	kg • m^2	4.60×10^{-4}	6.70×10^{-4}	8.72×10^{-4}
	With brake	kg • m^2	5.90×10^{-4}	7.99×10^{-4}	10.0×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2		
Torque constant *1		N • m/A	0.63	0.58	0.64
Power rate *1	Without brake	kW/s	49.5	76.5	105
	With brake	kW/s	38.6	64.2	91.2
Mechanical time constant	Without brake	ms	0.80	0.66	0.66
	With brake	ms	1.02	0.80	0.76
Electrical time constant		ms	9.4	10	10
Allowable radial load *3		N	490	490	490
Allowable thrust load *3		N	196	196	196
Weight	Without brake	kg	Approx. 5.2	Approx. 6.7	Approx. 8.0
	With brake	kg	Approx. 6.7	Approx. 8.2	Approx. 9.5
Radiator plate dimensions (material)			275 × 260 × t15 (Al)		
Applicable Servo Drives (R88D-)			KT10H	KT15H	KT20H
Brake specifications	Brake inertia	kg • m^2	1.35×10^{-4}	1.35×10^{-4}	1.35×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%		
	Power consumption (at 20°C)	W	14	19	19
	Current consumption (at 20°C)	A	0.59±10%	0.79±10%	0.79±10%
	Static friction torque	N • m	4.9 min.	13.7 min.	13.7 min.
	Attraction time *5	ms	80 max.	100 max.	100 max.
	Release time *5	ms	70 max. *6	50 max. *6	50 max. *6
	Backlash		±1°		
	Allowable work per braking	J	588	1,176	1,176

Item		Unit	200 VAC		
	Model (R88M-)		K1K020H	K1K520H	K2K020H
			K1K020T	K1K520T	K2K020T
Brake specifications	Allowable total work	J	7.8×10^5	1.5×10^6	1.5×10^6
	Allowable angular acceleration	rad/s^2	10,000		
	Brake limit	–	10 million times min.		
	Rating	–	Continuous		
	Insulation class	–	Type F		

Item		Unit	200 VAC		
Model (R88M-)			K3K020H	K4K020H	K5K020H
			K3K020T	K4K020T	K5K020T
Rated output *1		W	3,000	4,000	5,000
Rated torque *1		N • m	14.3	19.1	23.9
Rated rotation speed		r/min	2,000		
Maximum rotation speed		r/min	3,000		
Momentary maximum torque *1		N • m	43.0	57.3	71.6
Rated current *1		A (rms)	17.4	21.0	25.9
Momentary maximum current *1		A (0-p)	74	89	110
Rotor inertia	Without brake	kg • m^2	12.9×10^{-4}	37.6×10^{-4}	48.0×10^{-4}
	With brake	kg • m^2	14.2×10^{-4}	38.6×10^{-4}	48.8×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2		
Torque constant *1		N • m/A	0.59	0.70	0.70
Power rate *1	Without brake	kW/s	159	97.1	119
	With brake	kW/s	144	94.5	117
Mechanical time constant	Without brake	ms	0.57	0.65	0.63
	With brake	ms	0.63	0.66	0.64
Electrical time constant		ms	12	20	19
Allowable radial load *3		N	784	784	784
Allowable thrust load *3		N	343	343	343
Weight	Without brake	kg	Approx. 11.0	Approx. 15.5	Approx. 18.6
	With brake	kg	Approx. 12.6	Approx. 18.7	Approx. 21.8
Radiator plate dimensions (material)			380 × 350 × t30 (Al)	470 × 440 × t30 (Al)	
Applicable Servo Drives (R88D-)			KT30H	KT50H	KT50H

Item		Unit	Model (R88M-) 200 VAC K3K020H / K3K020T	K4K020H / K4K020T	K5K020H / K5K020T
Brake specifications	Brake inertia	kg • m^2	1.35×10^{-4}	4.7×10^{-4}	4.7×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%		
	Power consumption (at 20°C)	W	22	31	31
	Current consumption (at 20°C)	A	0.90±10%	1.3±10%	1.3±10%
	Static friction torque	N • m	16.2 min.	24.5 min.	24.5 min.
	Attraction time *5	ms	110 max.	80 max.	80 max.
	Release time *5	ms	50 max. *6	25 max. *7	25 max. *7
	Backlash		±1°		
	Allowable work per braking	J	1470	1372	1372
	Allowable total work	J	2.2×10^6	2.9×10^6	2.9×10^6
	Allowable angular acceleration	rad/s^2	10,000		
	Brake limit	–	10 million times min.		
	Rating	–	Continuous		
	Insulation class	–	Type F		

Model (R88M-)			200 VAC		
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Item		Unit	K7K515T	K11K015T	K15K015T
Rated output *1		W	7,500	11,000	15,000
Rated torque *1		N • m	47.8	70.0	95.0
Rated rotation speed		r/min	1,500		
Maximum rotation speed		r/min	3,000	2,000	
Momentary maximum torque *1		N • m	119.0	175.0	224.0
Rated current *1		A (rms)	44.0	54.2	66.1
Momentary maximum current *1		A (0-p)	165	203	236
Rotor inertia	Without brake	kg • m^2	101×10^{-4}	212×10^{-4}	302×10^{-4}
	With brake	kg • m^2	107×10^{-4}	220×10^{-4}	311×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2		
Torque constant *1		N • m/A	0.77	0.92	1.05
Power rate *1	Without brake	kW/s	226	231	302
	With brake	kW/s	213	223	293
Mechanical time constant	Without brake	ms	0.58	0.80	0.71
	With brake	ms	0.61	0.83	0.74
Electrical time constant		ms	21	31	32
Allowable radial load *3		N	1,176	2,254	2,254
Allowable thrust load *3		N	490	686	686
Weight	Without brake	kg	Approx. 36.4	Approx. 52.7	Approx. 70.2
	With brake	kg	Approx. 40.4	Approx. 58.9	Approx. 76.3
Radiator plate dimensions (material)			550 × 520 × t30 (Al)	670 × 630 × t35 (Al)	
Applicable Servo Drives (R88D-)			KT75H	KT150H	KT150H

Item		Unit	Model (R88M-)		
			200 VAC		
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			K7K515T	K11K015T	K15K015T
Brake specifications	Brake inertia	kg • m^2	4.7×10^{-4}	7.1×10^{-4}	7.1×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%		
	Power consumption (at 20°C)	W	34	26	26
	Current consumption (at 20°C)	A	1.4±10%	1.08±10%	1.08±10%
	Static friction torque	N • m	58.8 min.	100 min.	100 min.
	Attraction time *5	ms	150 max.	300 max.	300 max.
	Release time *5	ms	50 max.	140 max.	140 max.
	Backlash		±1°		
	Allowable work per braking	J	1,372	2,000	2,000
	Allowable total work	J	2.9×10^6	4.0×10^6	4.0×10^6
	Allowable angular acceleration	rad/s^2	5,000	3,000	
	Brake limit	–	10 million times min.		
	Rating	–	Continuous		
	Insulation class	–	Type F		

Model (R88M-)			400 VAC			
			K40020F	K60020F	K1K020F	K1K520F
Item		Unit	K40020C	K60020C	K1K020C	K1K520C
Rated output *1		W	400	600	1,000	1,500
Rated torque *1		N • m	1.91	2.86	4.77	7.16
Rated rotation speed		r/min	2,000			
Maximum rotation speed		r/min	3,000			
Momentary maximum torque *1		N • m	5.73	8.59	14.3	21.5
Rated current *1		A (rms)	1.2	1.5	2.8	4.7
Momentary maximum current *1		A (0-p)	4.9	6.5	12	20
Rotor inertia	Without brake	kg • m^2	1.61×10^{-4}	2.03×10^{-4}	4.60×10^{-4}	6.70×10^{-4}
	With brake	kg • m^2	1.90×10^{-4}	2.35×10^{-4}	5.90×10^{-4}	7.99×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2			
Torque constant *1		N • m/A	1.27	1.38	1.27	1.16
Power rate *1	Without brake	kW/s	22.7	40.3	49.5	76.5
	With brake	kW/s	19.2	34.8	38.6	64.2
Mechanical time constant	Without brake	ms	0.70	0.62	0.79	0.66
	With brake	ms	0.83	0.72	1.01	0.79
Electrical time constant		ms	5.7	5.9	10	10
Allowable radial load *3		N	490	490	490	490
Allowable thrust load *3		N	196	196	196	196
Weight	Without brake	kg	Approx. 3.1	Approx. 3.5	Approx. 5.2	Approx. 6.7
	With brake	kg	Approx. 4.1	Approx. 4.5	Approx. 6.7	Approx. 8.2
Radiator plate dimensions (material)			320 × 300 × t20 (Al)		275 × 260 × t15 (Al)	
Applicable Servo Drives (R88D-)			KT06F	KT06F	KT10F	KT15F

Item		Unit	Model (R88M-) 400 VAC			
			K40020F	K60020F	K1K020F	K1K520F
			K40020C	K60020C	K1K020C	K1K520C
Brake specifications	Brake inertia	kg • m^2	1.35×10^{-4}	1.35×10^{-4}	1.35×10^{-4}	1.35×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%			
	Power consumption (at 20°C)	W	17	17	14	19
	Current consumption (at 20°C)	A	0.70±10%	0.70±10%	0.59±10%	0.79±10%
	Static friction torque	N • m	2.5 min.	2.5 min.	4.9 min.	13.7 min.
	Attraction time *5	ms	50 max.	50 max.	80 max.	100 max.
	Release time *5	ms	15 max. *7	15 max. *7	70 max. *6	50 max. *6
	Backlash		±1°			
	Allowable work per braking	J	392	392	588	1176
	Allowable total work	J	4.9×10^5	4.9×10^5	7.8×10^5	1.5×10^6
	Allowable angular acceleration	rad/s^2	10,000			
	Brake limit	–	10 million times min.			
	Rating	–	Continuous			
	Insulation class	–	Type F			

Item		Unit	400 VAC			
Model (R88M-)			K2K020F	K3K020F	K4K020F	K5K020F
			K2K020C	K3K020C	K4K020C	K5K020C
Rated output *1		W	2,000	3,000	4,000	5,000
Rated torque *1		N • m	9.55	14.3	19.1	23.9
Rated rotation speed		r/min	2,000			
Maximum rotation speed		r/min	3,000			
Momentary maximum torque *1		N • m	28.7	43.0	57.3	71.6
Rated current *1		A (rms)	5.9	8.7	10.6	13.0
Momentary maximum current *1		A (0-p)	25	37	45	55
Rotor inertia	Without brake	kg • m^2	8.72×10^{-4}	12.9×10^{-4}	37.6×10^{-4}	48.0×10^{-4}
	With brake	kg • m^2	10.0×10^{-4}	14.2×10^{-4}	38.6×10^{-4}	48.8×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2			
Torque constant *1		N • m/A	1.27	1.18	1.40	1.46
Power rate *1	Without brake	kW/s	105	159	97.1	119
	With brake	kW/s	91.2	144	94.5	117
Mechanical time constant	Without brake	ms	0.68	0.56	0.60	0.60
	With brake	ms	0.78	0.61	0.61	0.61
Electrical time constant		ms	10	12	21	19
Allowable radial load *3		N	490	784	784	784
Allowable thrust load *3		N	196	343	343	343
Weight	Without brake	kg	Approx. 8.0	Approx. 11.0	Approx. 15.5	Approx. 18.6
	With brake	kg	Approx. 9.5	Approx. 12.6	Approx. 18.7	Approx. 21.8
Radiator plate dimensions (material)			275 × 260 × t15 (Al)	380 × 350 × t30 (Al)	470 × 440 × t30 (Al)	
Applicable Servo Drives (R88D-)			KT20F	KT30F	KT50F	KT50F

Item		Unit	Model (R88M-) 400 VAC			
			K2K020F	K3K020F	K4K020F	K5K020F
			K2K020C	K3K020C	K4K020C	K5K020C
Brake specifications	Brake inertia	kg • m^2	1.35×10^{-4}	1.35×10^{-4}	4.7×10^{-4}	4.7×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%			
	Power consumption (at 20°C)	W	19	22	31	31
	Current consumption (at 20°C)	A	0.79±10%	0.90±10%	1.3±10%	1.3±10%
	Static friction torque	N • m	13.7 min.	16.2 min.	24.5 min.	24.5 min.
	Attraction time *5	ms	100 max.	110 max.	80 max.	80 max.
	Release time *5	ms	50 max. *6	50 max. *6	25 max. *7	25 max. *7
	Backlash		±1°			
	Allowable work per braking	J	1176	1470	1372	1372
	Allowable total work	J	1.5×10^6	2.2×10^6	2.9×10^6	2.9×10^6
	Allowable angular acceleration	rad/s^2	10,000			
	Brake limit	–	10 million times min.			
	Rating	–	Continuous			
	Insulation class	–	Type F			

Model (R88M-)			400 VAC		
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Item		Unit	K7K515C	K11K015C	K15K015C
Rated output *1		W	7,500	11,000	15,000
Rated torque *1		N • m	47.8	70.0	95.9
Rated rotation speed		r/min	1,500		
Maximum rotation speed		r/min	3,000	2,000	
Momentary maximum torque *1		N • m	119.0	175.0	224.0
Rated current *1		A (rms)	22.0	27.1	33.1
Momentary maximum current *1		A (0-p)	83	101	118
Rotor inertia	Without brake	kg • m^2	101×10^{-4}	212×10^{-4}	302×10^{-4}
	With brake	kg • m^2	107×10^{-4}	220×10^{-4}	311×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2		
Torque constant *1		N • m/A	1.54	1.84	2.10
Power rate *1	Without brake	kW/s	226	231	302
	With brake	kW/s	213	223	293
Mechanical time constant	Without brake	ms	0.58	0.80	0.71
	With brake	ms	0.61	0.83	0.74
Electrical time constant		ms	21	31	32
Allowable radial load *3		N	1,176	2,254	2,254
Allowable thrust load *3		N	490	686	686
Weight	Without brake	kg	Approx. 36.4	Approx. 52.7	Approx. 70.2
	With brake	kg	Approx. 40.4	Approx. 58.9	Approx. 76.3
Radiator plate dimensions (material)			550 × 520 × t30 (Al)	670 × 630 × t35 (Al)	
Applicable Servo Drives (R88D-)			KT75F	KT150F	KT150F

Item		Unit	Model (R88M-)		
			400 VAC		
			---	---	---
			K7K515C	K11K015C	K15K015C
Brake specifications	Brake inertia	kg • m^2	4.7×10^{-4}	7.1×10^{-4}	7.1×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%		
	Power consumption (at 20°C)	W	34	26	26
	Current consumption (at 20°C)	A	1.4±10%	1.08±10%	1.08±10%
	Static friction torque	N • m	58.8 min.	100 min.	100 min.
	Attraction time *5	ms	150 max.	300 max.	300 max.
	Release time *5	ms	50 max.	140 max.	140 max.
	Backlash		±1°		
	Allowable work per braking	J	1,372	2,000	2,000
	Allowable total work	J	2.9×10^6	4.0×10^6	4.0×10^6
	Allowable angular acceleration	rad/s^2	5,000	3,000	
	Brake limit	–	10 million times min.		
	Rating	–	Continuous		
	Insulation class	–	Type F		

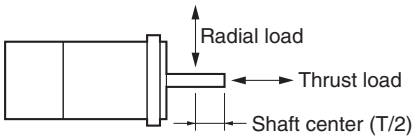
*1. These are the values when the Servomotor is combined with a drive at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- The dynamic brake is rated for short-term operation. Use it only for emergency stopping. Design the system to stop for at least ten minutes after the dynamic brake operates. Otherwise, the dynamic brake circuits may fail or the dynamic brake resistor may burn.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures.

The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

*5. The operation time is the value (reference value) measured with a surge suppressor (CR50500 by Okaya Electric Industries Co., Ltd.).

*6. Direct current switching with a varistor (TNR9G820K by Nippon Chemi-Con Corporation).

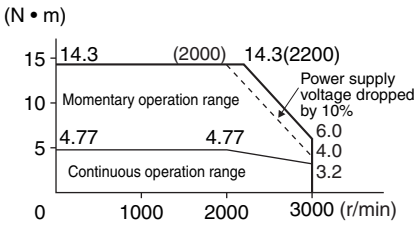
*7. Direct current switching with a varistor (Z15D151 by Ishizuka Electronics Co.).

Torque-Rotation Speed Characteristics for 1,500-r/min and 2,000-r/min Servomotors

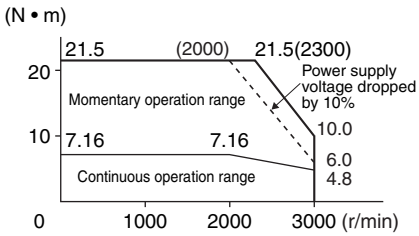
- 1,500-r/min and 2,000-r/min Servomotor (200 VAC)

The following graphs show the characteristics with a 3-m standard cable and a 200-VAC input.

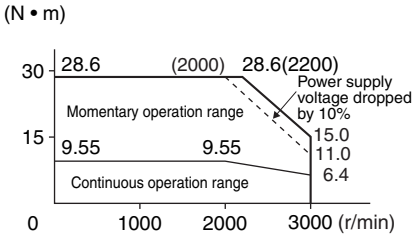
• R88M-K1K020H/T (1 kW)



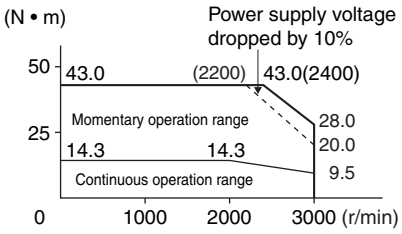
• R88M-K1K520H/T (1.5 kW)



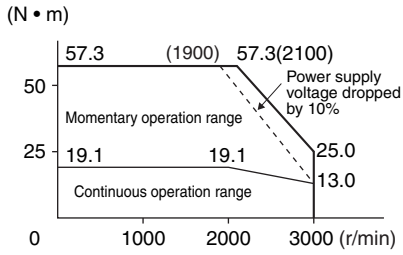
• R88M-K2K020H/T (2 kW)



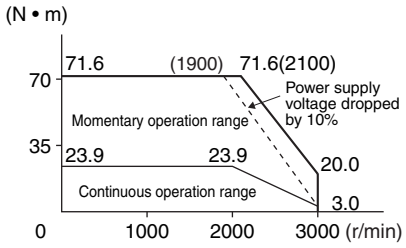
• R88M-K3K020H/T (3 kW)



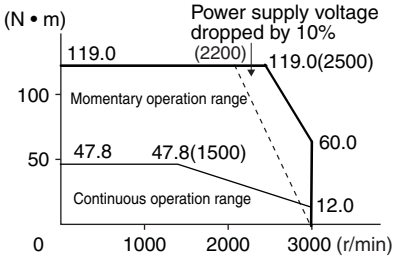
• R88M-K4K020H/T (4 kW)



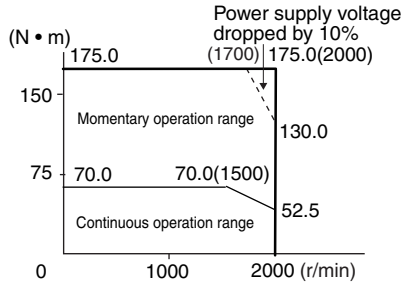
• R88M-K5K020H/T (5 kW)



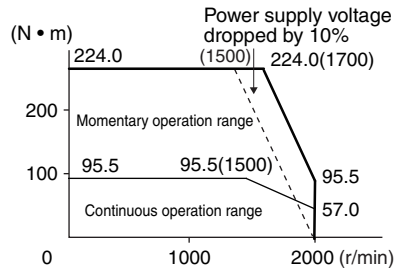
• R88M-K7K515T (7.5 kW)



• R88M-K11K015T (11 kW)



• R88M-K15K015T (15 kW)



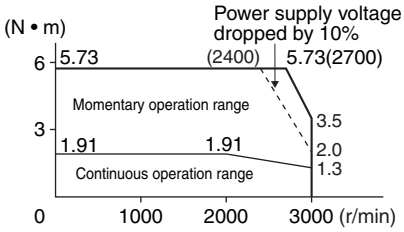
Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

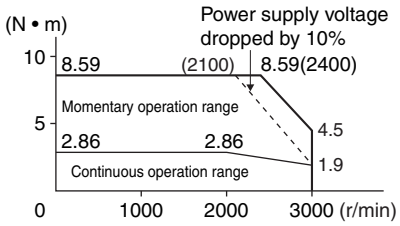
♦ 1,500-r/min and 2,000-r/min Servomotor (400 VAC)

The following graphs show the characteristics with a 3-m standard cable and a 400-VAC input.

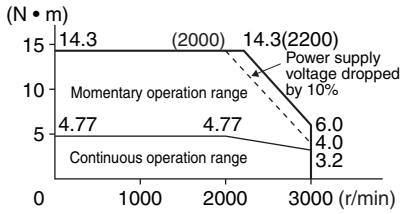
• R88M-K40020F/C (400 W)



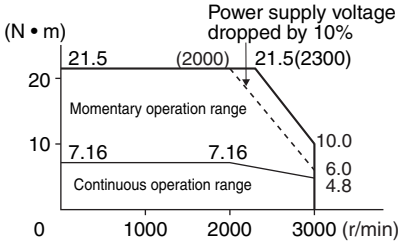
• R88M-K60020F/C (600 W)



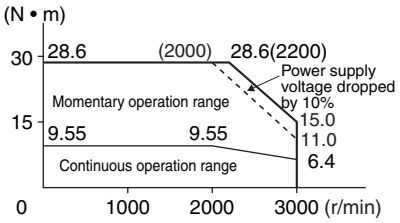
• R88M-K1K020F/C (1 kW)



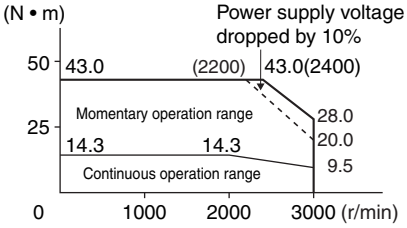
• R88M-K1K520F/C (1.5 kW)



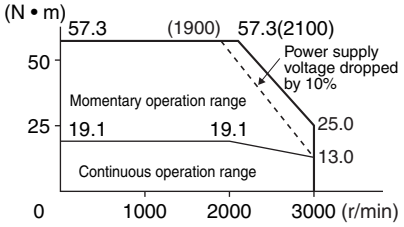
• R88M-K2K020F/C (2 kW)



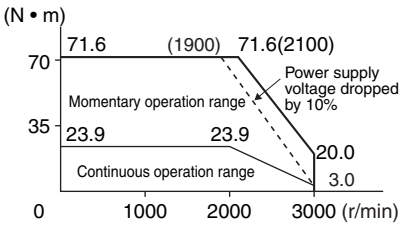
• R88M-K3K020F/C (3 kW)



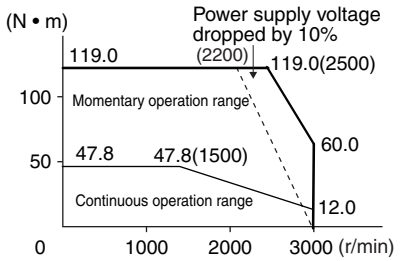
• R88M-K4K020F/C (4 kW)



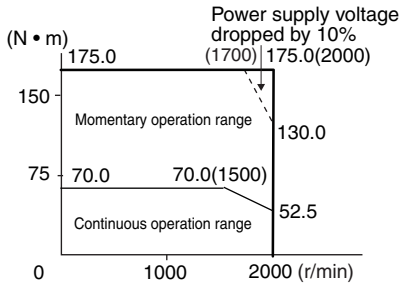
• R88M-K5K020F/C (5 kW)



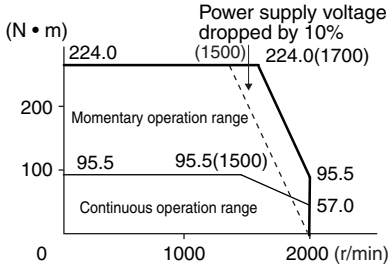
• R88M-K7K515C (7.5 kW)



• R88M-K11K015C (11 kW)



• R88M-K15K015C (15 kW)

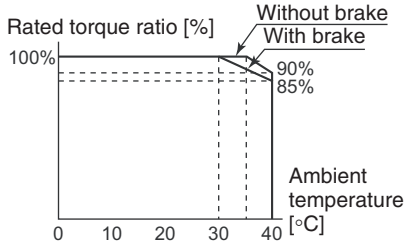


Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

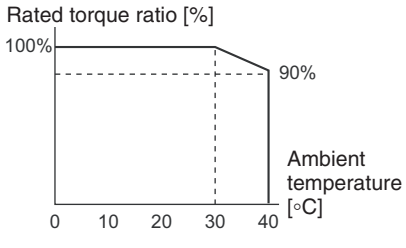
Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.

Use the following Servomotors in the ranges shown in the graphs below. Using outside of these ranges may cause the motor to generate heat, which could result in encoder malfunction.

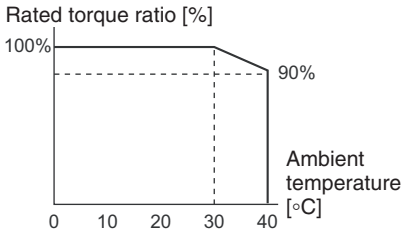
• R88M-K5K020H/T/F/C (5 kW)



• R88M-K7K515T/C (7.5 kW)



• R88M-K15K015T/C (15 kW)



1,000-r/min Servomotors

Item		Unit	Model (R88M-)				
			200 VAC				
			K90010H	K2K010H	K3K010H	---	---
			K90010T	K2K010T	K3K010T	K4K510T	K6K010T
Rated output *1		W	900	2,000	3,000	4,500	6,000
Rated torque *1		N • m	8.59	19.1	28.7	43.0	57.0
Rated rotation speed		r/min	1,000				
Maximum rotation speed		r/min	2,000				
Momentary maximum torque *1		N • m	19.3	47.7	71.7	107.0	143.0
Rated current *1		A (rms)	7.6	17.0	22.6	29.7	38.8
Momentary maximum current *1		A (0-p)	24	60	80	110	149
Rotor inertia	Without brake	kg • m^2	6.70×10^{-4}	30.3×10^{-4}	48.4×10^{-4}	79.1×10^{-4}	101×10^{-4}
	With brake	kg • m^2	7.99×10^{-4}	31.4×10^{-4}	49.2×10^{-4}	84.4×10^{-4}	107×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2				
Torque constant *1		N • m/A	0.86	0.88	0.96	1.02	1.04
Power rate *1	Without brake	kW/s	110	120	170	233	325
	With brake	kW/s	92.4	116	167	219	307
Mechanical time constant	Without brake	ms	0.66	0.75	0.63	0.55	0.54
	With brake	ms	0.78	0.78	0.64	0.63	0.57
Electrical time constant		ms	11	18	21	20	23
Allowable radial load *3		N	686	1176	1470	1470	1764
Allowable thrust load *3		N	196	490	490	490	588
Weight	Without brake	kg	Approx. 6.7	Approx. 14.0	Approx. 20.0	Approx. 29.4	Approx. 36.4
	With brake	kg	Approx. 8.2	Approx. 17.5	Approx. 23.5	Approx. 33.3	Approx. 40.4
Radiator plate dimensions (material)			270 × 260 × t15 (Al)			470 × 440 × t30 (Al)	550 × 520 × t30 (Al)
Applicable Servo Drives (R88D-)			KT15H	KT30H	KT50H	KT75H	KT75H
Brake specifications	Brake inertia	kg • m^2	1.35×10^{-4}	4.7×10^{-4}	4.7×10^{-4}	4.7×10^{-4}	4.7×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%				
	Power consumption (at 20°C)	W	19	31	34	34	34
	Current consumption (at 20°C)	A	0.79±10%	1.3±10%	1.4±10%	1.4±10%	1.4±10%
	Static friction torque	N • m	13.7 min.	24.5 min.	58.8 min.	58.8 min.	58.8 min.
	Attraction time *5	ms	100 max.	80 max.	150 max.	150 max.	150 max.
	Release time *5	ms	50 max. *6	25 max. *7	50 max. *7	50 max.	50 max.
	Backlash		±1°				

Item		Unit	Model (R88M-) 200 VAC				
			K90010H	K2K010H	K3K010H	---	---
			K90010T	K2K010T	K3K010T	K4K510T	K6K010T
Brake specifications	Allowable work per braking	J	1176	1372	1372	1372	1372
	Allowable total work	J	1.5×10^6	2.9×10^6	2.9×10^6	2.9×10^6	2.9×10^6
	Allowable angular acceleration	rad/s^2	10,000			5,000	
	Brake limit	–	10 million times min.				
	Rating	–	Continuous				
	Insulation class	–	Type F				

Item		Unit	400 VAC				
Model (R88M-)			K90010F	K2K010F	K3K010F	---	---
			K90010C	K2K010C	K3K010C	K4K510C	K6K010C
Rated output *1		W	900	2,000	3,000	4,500	6,000
Rated torque *1		N • m	8.59	19.1	28.7	43.0	57.3
Rated rotation speed		r/min	1,000				
Maximum rotation speed		r/min	2,000				
Momentary maximum torque *1		N • m	19.3	47.7	71.7	107.0	143.0
Rated current *1		A (rms)	3.8	8.5	11.3	14.8	19.4
Momentary maximum current *1		A (0-p)	12	30	40	55	74
Rotor inertia	Without brake	kg • m^2	6.70×10^{-4}	30.3×10^{-4}	48.4×10^{-4}	79.1×10^{-4}	101×10^{-4}
	With brake	kg • m^2	7.99×10^{-4}	31.4×10^{-4}	49.2×10^{-4}	84.4×10^{-4}	107×10^{-4}
Applicable load inertia		–	10 times the rotor inertia max. *2				
Torque constant *1		N • m/A	1.72	1.76	1.92	2.05	2.08
Power rate *1	Without brake	kW/s	110	120	170	233	325
	With brake	kW/s	92.4	116	167	219	307
Mechanical time constant	Without brake	ms	0.66	0.76	0.61	0.55	0.54
	With brake	ms	0.79	0.78	0.62	0.63	0.57
Electrical time constant		ms	11	18	22	20	23
Allowable radial load *3		N	686	1176	1470	1470	1764
Allowable thrust load *3		N	196	490	490	490	588
Weight	Without brake	kg	Approx. 6.7	Approx. 14.0	Approx. 20.0	Approx. 29.4	Approx. 36.4
	With brake	kg	Approx. 8.2	Approx. 17.5	Approx. 23.5	Approx. 33.3	Approx. 40.4
Radiator plate dimensions (material)			270 × 260 × t15 (Al)	470 × 440 × t30 (Al)		470 × 440 × t30 (Al)	550 × 520 × t30 (Al)
Applicable Servo Drives (R88D-)			KT15F	KT30F	KT50F	KT50F	KT75F

Item		Unit	Model (R88M-) 400 VAC				
			K90010F	K2K010F	K3K010F	---	---
			K90010C	K2K010C	K3K010C	K4K510C	K6K010C
Brake specifications	Brake inertia	kg • m^2	1.35×10^{-4}	4.7×10^{-4}	4.7×10^{-4}	4.7×10^{-4}	4.7×10^{-4}
	Excitation voltage *4	V	24 VDC ± 10%				
	Power consumption (at 20°C)	W	19	31	34	34	34
	Current consumption (at 20°C)	A	0.79±10%	1.3±10%	1.4±10%	1.4±10%	1.4±10%
	Static friction torque	N • m	13.7 min.	24.5 min.	58.8 min.	58.8 min.	58.8 min.
	Attraction time *5	ms	100 max.	80 max.	150 max.	150 max.	150 max.
	Release time *5	ms	50 max. *6	25 max. *7	50 max. *7	50 max.	50 max.
	Backlash		±1°				
	Allowable work per braking	J	1176	1372	1372	1372	1372
	Allowable total work	J	1.5×10^{6}	2.9×10^{6}	2.9×10^{6}	2.9×10^{6}	2.9×10^{6}
	Allowable angular acceleration	rad/s^2	10,000			5,000	
	Brake limit	–	10 million times min.				
	Rating	–	Continuous				
	Insulation class	–	Type F				

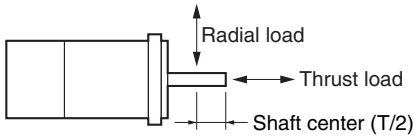
*1. These are the values when the Servomotor is combined with a drive at normal temperature (20°C, 65%). The momentary maximum torque indicates the standard value.

*2. Applicable load inertia.

- The operable load inertia ratio (load inertia/rotor inertia) depends on the mechanical configuration and its rigidity. For a machine with high rigidity, operation is possible even with high load inertia. Select an appropriate motor and confirm that operation is possible.
- The dynamic brake is rated for short-term operation. Use it only for emergency stopping. Design the system to stop for at least ten minutes after the dynamic brake operates. Otherwise, the dynamic brake circuits may fail or the dynamic brake resistor may burn.

*3. The allowable radial and thrust loads are the values determined for a limit of 20,000 hours at normal operating temperatures.

The allowable radial loads are applied as shown in the following diagram.



*4. This is a non-excitation brake. (It is released when excitation voltage is applied.)

*5. The operation time is the value (reference value) measured with a surge suppressor (CR50500 by Okaya Electric Industries Co., Ltd.).

*6. Direct current switching with a varistor (TNR9G820K by Nippon Chemi-Con Corporation).

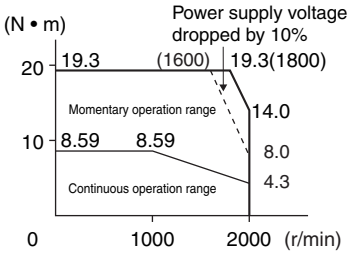
*7. Direct current switching with a varistor (Z15D151 by Ishizuka Electronics Co.).

Torque-Rotation Speed Characteristics for 1,000-r/min Servomotors

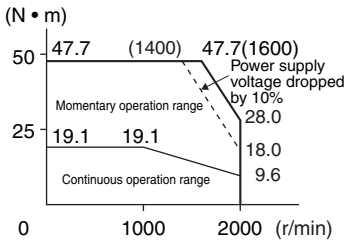
- 1,000-r/min Servomotor (200/400 VAC)

The following graphs show the characteristics with a 3-m standard cable and a 200-VAC input.

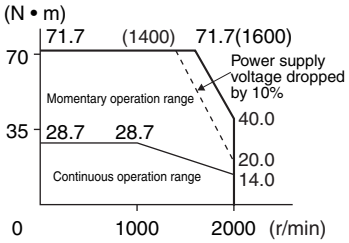
• R88M-K90010H/T/F/C (900 W)



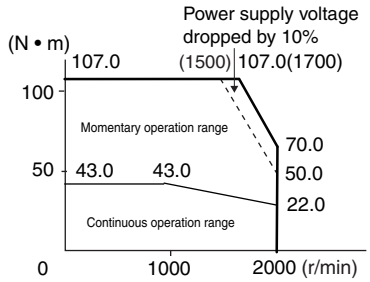
• R88M-K2K010H/T/F/C (2 kW)



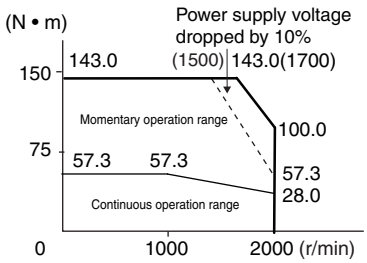
• R88M-K3K010H/T/F/C (3 kW)



• R88M-K4K510T/C (4.5 kW)



• R88M-K6K010T/C (6 kW)



Note 1: The continuous operation range is the range in which continuous operation is possible. Continuous operation at the maximum speed is also possible. However, doing so will reduce the output torque.

Note 2: If the motor power cable exceeds 20 m, the voltage drop will increase and the momentary operation range will become narrower.