

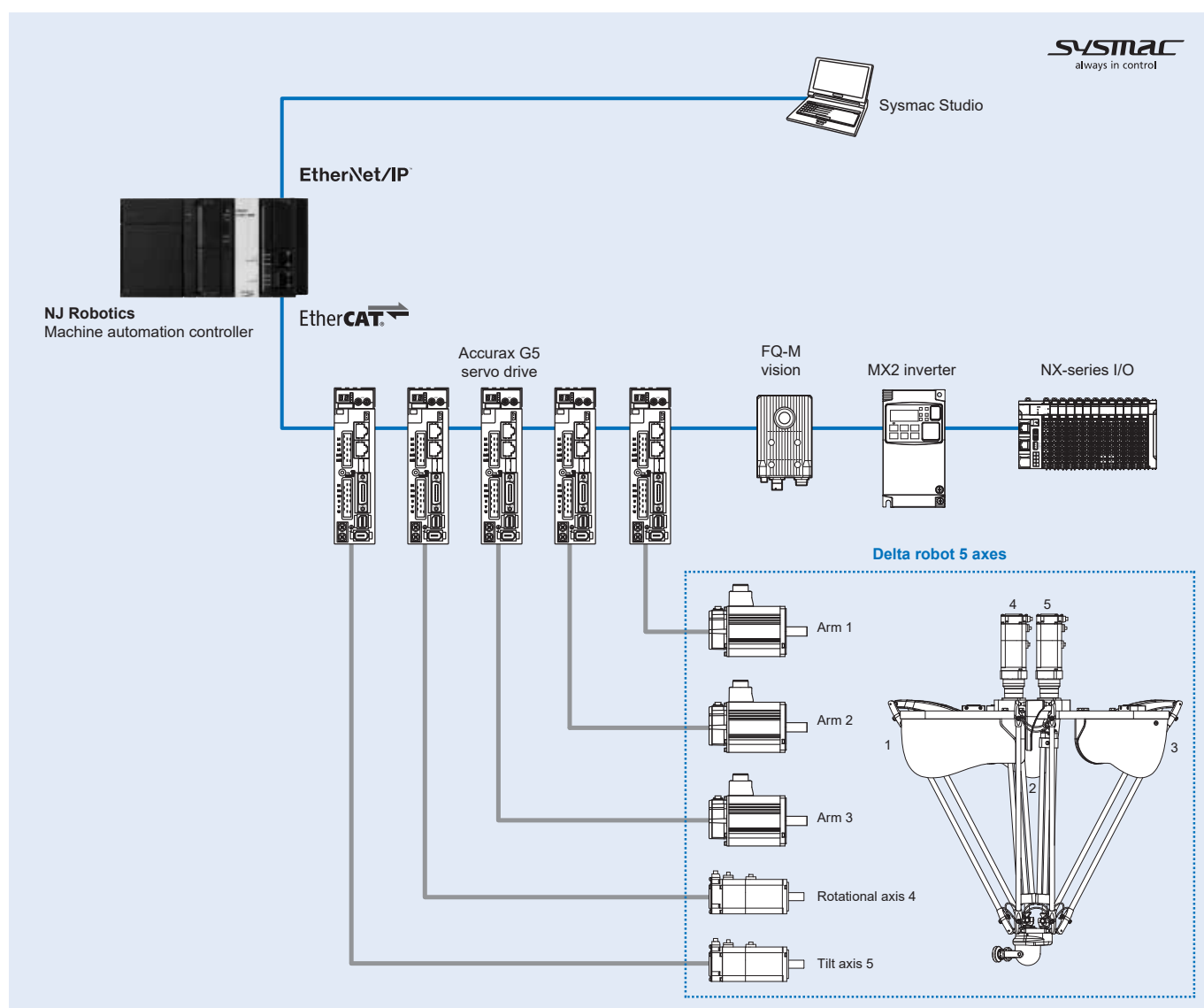
# Delta robot 5 axes

The innovative concept of 2 parallel axes results in the most robust Delta Pick&Place robot

- Robot control integrated in the NJ robotics controller
- Control of up to 8 robots by one controller
- Degrees of freedom: 5
- Up to 125 cycle per minute
- 1,300 and 1,100 mm working range models
- 1 kg max. payload
- IP65 protection class
- Low maintenance, easy access to components



## System configuration



**Note:** Servo motors included in the Delta robot.

## Specifications

### Delta robot XL

Model			CR_UGD5_XL
Working volume	X, Y axis (stroke)		Ø 1,300 mm
	Z axis (stroke) <sup>1</sup>		250 mm (maximum Ø 1,300 mm) / 400 mm (center Ø 870 mm)
	θ axis (rotation angle)		±180 deg (default setting, it can be changed)
	Tilt axis		Mechanically limited
Servo motor	Arm 1, 2, 3	Model	R88M-K1K030T-BS2
		Capacity	1000 W
	Rotational axis 4	Model	R88M-K75030T-BS2
		Capacity	750 W
	Tilt axis 5	Model	R88M-K75030T-BS2
		Capacity	750 W
Repeatability <sup>2</sup>	X, Y, Z axis		±0.2 mm
	θ axis		±0.3 deg
Maximum payload			1 kg
Maximum through-put <sup>3</sup>			120 CPM <sup>4</sup>
Rotational and tilt axes maximum torque			According to the servo motor
Travel limit			1. Soft limit, 2. Mechanical stopper (X, Y, Z axis)
Noise level			< 68 dB (A)
Ambient temperature			Operating: 5°C to 45°C / Storage: -15°C to 60°C
Relative humidity			Max. 90%
Protection class			IP65
Weight (kg)			70 kg

\*1 For further details please check the dimensional drawing in the next section.

\*2 This is the value at a constant ambient temperature.

\*3 With 0.1 kg payload. When reciprocating 305 mm in horizontal and 25 mm in vertical directions.

\*4 CPM: Cycle per minutes. Check the note 3 for the cycle definition.

### Delta robot

Model			CR_UGD5
Working volume	X, Y axis (stroke)		Ø 1,100 mm
	Z axis (stroke) <sup>*1</sup>		250 mm (maximum Ø 1,100 mm) / 400 mm (center Ø 670 mm)
	θ axis (rotation angle)		±180 deg (default setting, it can be changed)
	Tilt axis		Mechanically limited
Servo motor	Arm 1, 2, 3	Model	R88M-K1K030T-BS2
		Capacity	1000 W
	Rotational axis 4	Model	R88M-K75030T-BS2
		Capacity	750 W
	Tilt axis 5	Model	R88M-K75030T-BS2
		Capacity	750 W
Repeatability <sup>*2</sup>	X, Y, Z axis		±0.2 mm
	θ axis		±0.3 deg
Maximum payload			1 kg
Maximum through-put <sup>*3</sup>			125 CPM <sup>*4</sup>
Rotational and tilt axes maximum torque			According to the servo motor
Travel limit			1. Soft limit, 2. Mechanical stopper (X, Y, Z axis)
Noise level			< 68 dB (A)
Ambient temperature			Operating: 5°C to 45°C / Storage: -15°C to 60°C
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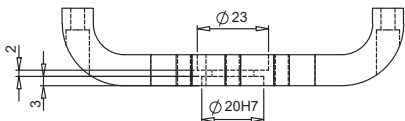
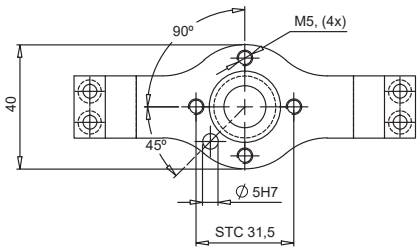
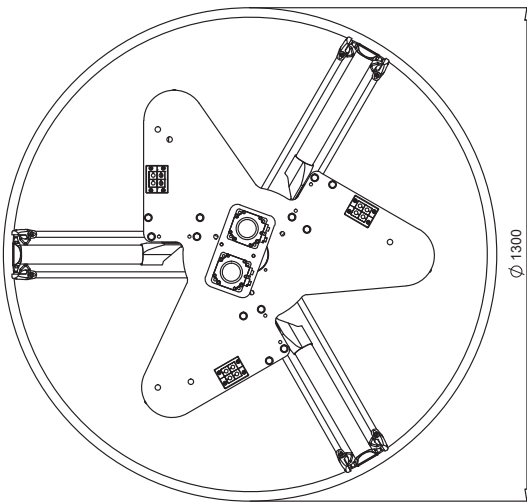
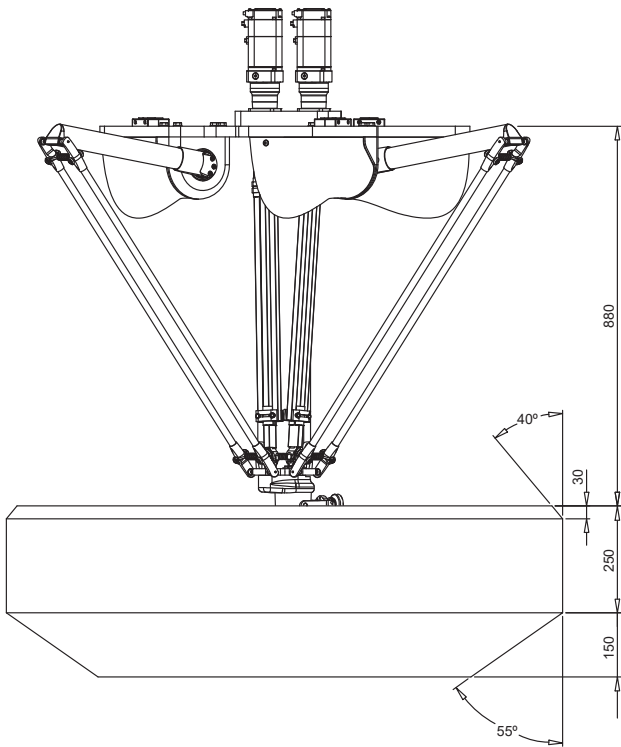
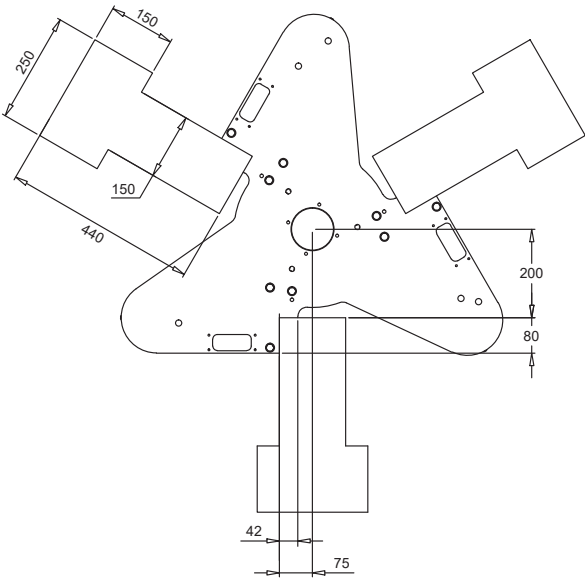
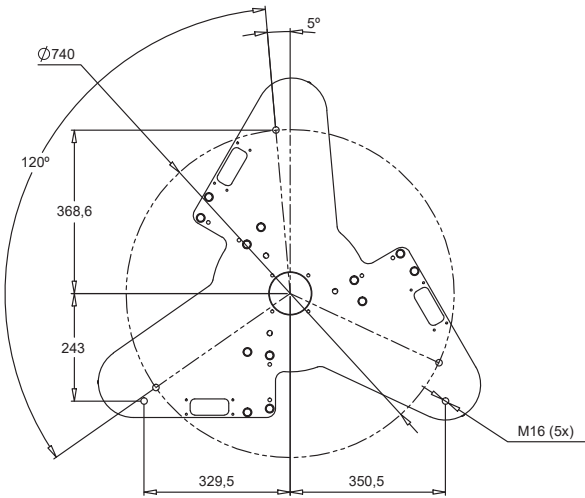
\*2 This is the value at a constant ambient temperature.

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\*4 CPM: Cycle per minutes. Check the note 3 for the cycle definition.

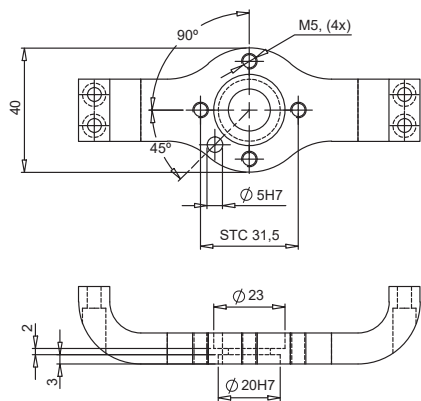
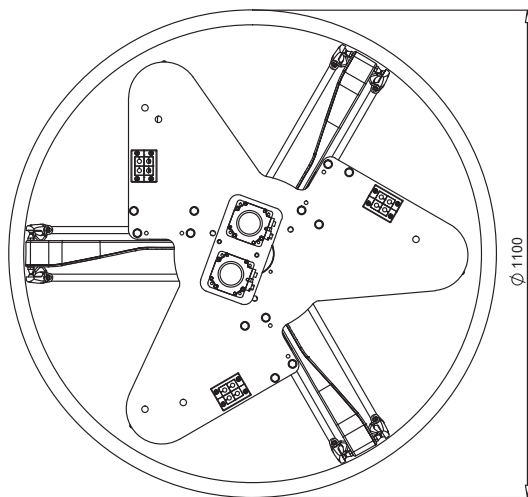
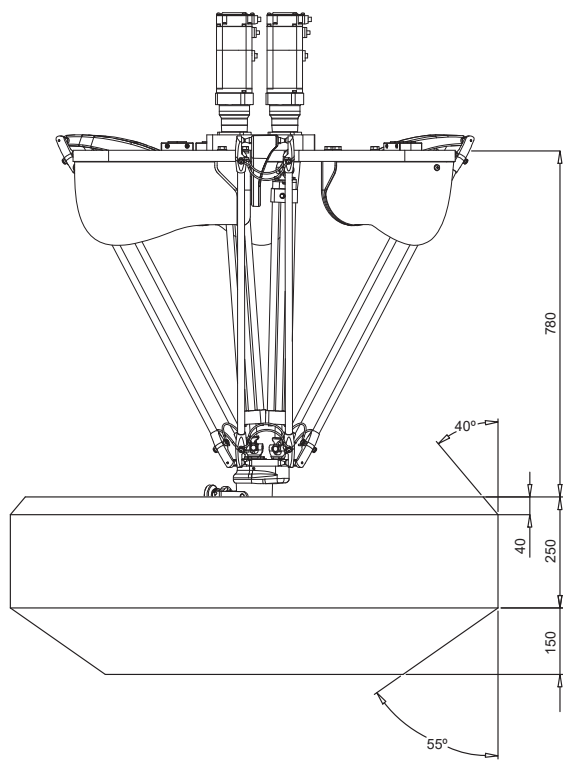
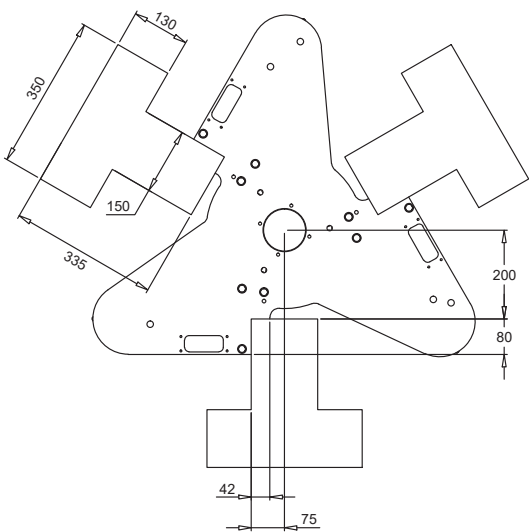
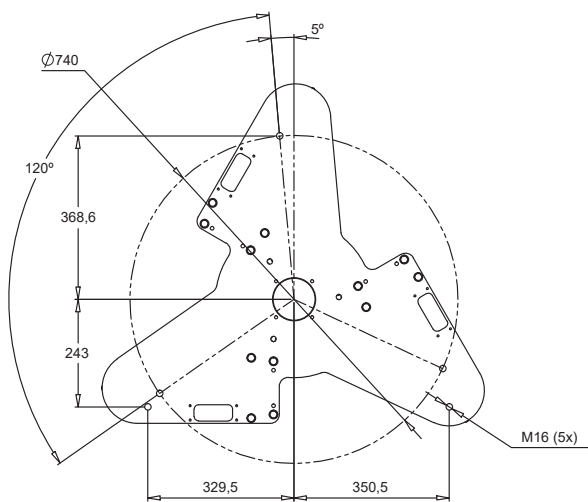
Dimensions

Delta robot XL  
CR\_UGD5\_XL



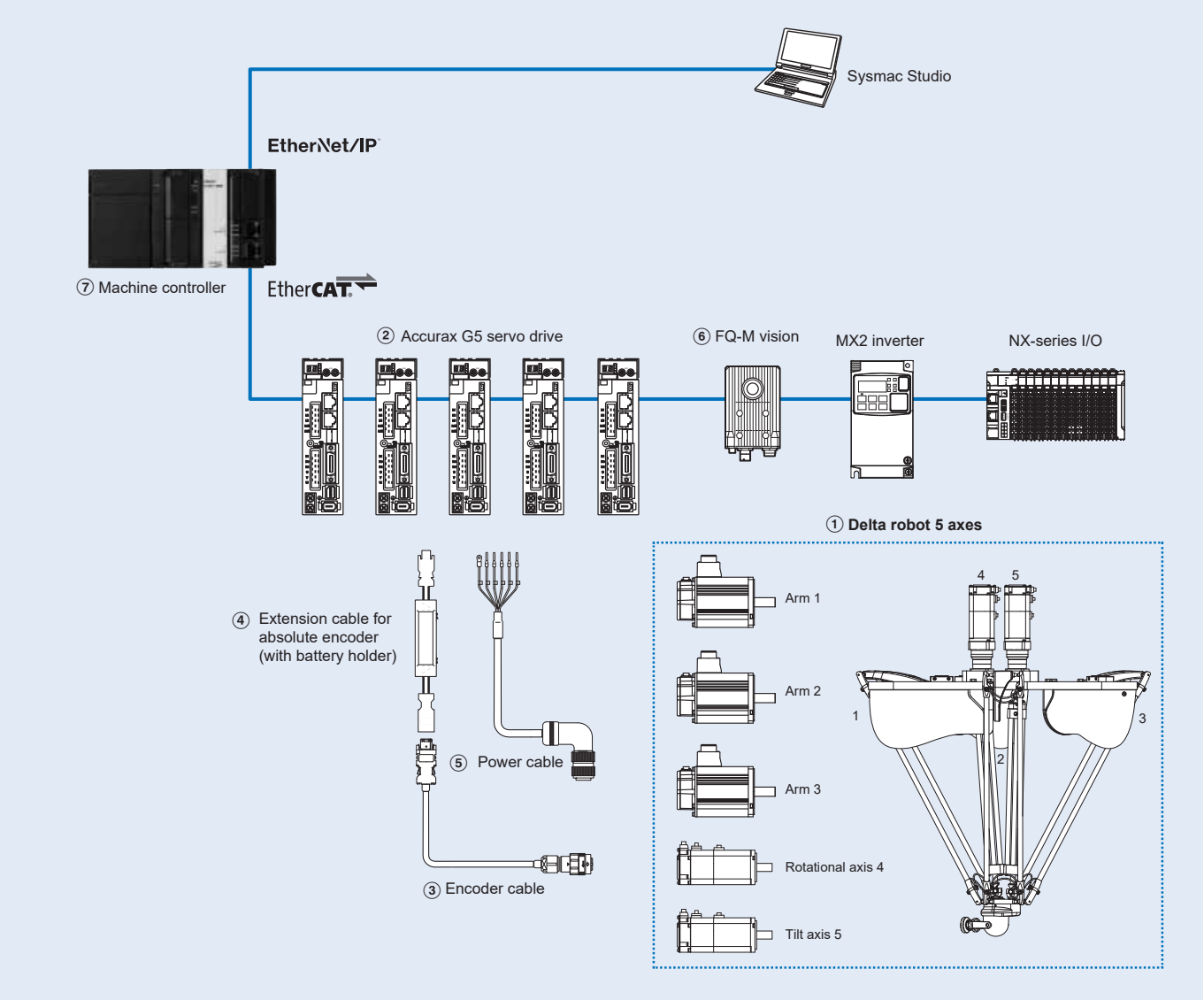
Gripper dimensions

Delta robot  
CR\_UGD5





Gripper dimensions

Ordering information



**Note:** Servo motors included in the Delta robot.

Delta robot 5 axes series

Symbol	Model	Max. payload	Working range	Description	Axis	Applicable servo drive (2)
<div>①</div> <div></div> <div>Delta robot XL</div>	CR_UGD5_XL	1 kg	Ø 1,300 x 250 mm (Max. 400)	5 axes	Arm 1	R88D-KN15H-ECT
					Arm 2	R88D-KN15H-ECT
					Arm 3	R88D-KN15H-ECT
					Rotational 4	R88D-KN08H-ECT
					Tilt 5	R88D-KN08H-ECT
<div>①</div> <div></div> <div>Delta robot</div>	CR_UGD5	1 kg	Ø 1,100 x 250 mm (Max. 400)	5 axes	Arm 1	R88D-KN15H-ECT
					Arm 2	R88D-KN15H-ECT
					Arm 3	R88D-KN15H-ECT
					Rotational 4	R88D-KN08H-ECT
					Tilt 5	R88D-KN08H-ECT

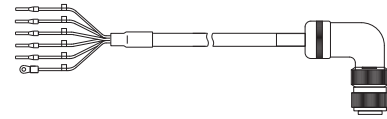
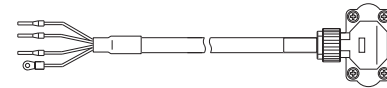

## Encoder cables

Symbol	Applicable Delta robots		Model	Appearance
③	CR_UGD5_XL (Arm 1, 2, 3) CR_UGD5 (Arm 1, 2, 3)	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	
	CR_UGD5_XL (Rotational axis 4, Tilt axis 5) CR_UGD5 (Rotational axis 4, Tilt axis 5)	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	

## 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-E
		Battery included	0.3 m	R88A-CRGD0R3C-BS-E
	Absolute encoder backup battery	2.000 mA.h, 3.6 V	—	R88A-BAT01G

## Power and brake cables

Symbol	Applicable Delta robots				Model	Appearance
⑤	CR_UGD5_XL CR_UGD5	Arm 1, 2, 3	Power cable with brake	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	
		Rotational axis 4, Tilt axis 5	Power cable 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	
			Brake cable	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					

## Vision

Name	Type		Model
⑥ FQ-M series	Color	NPN	FQ-MS120-ECT
		PNP	FQ-MS125-ECT
	Monochrome	NPN	FQ-MS120-M-ECT
		PNP	FQ-MS125-M-ECT

## Machine controller

Name		Functions	Delta robot control	Axes	Model
⑦ NJ Robotics	CPU unit	Logic sequence, motion, robotics and database connection	Control of up to 8 Delta robot depending on the number of axes supported by the CPU	16	NJ501-4320
		Logic sequence, motion and robotics		64	NJ501-4500
				32	NJ501-4400
				16	NJ501-4300
	Power supply unit		Control of one Delta robot	16	NJ501-4310
					NJ-PA3001 (220 VAC)
					NJ-PD3001 (24 VDC)

## Computer software

Specifications	Model
Sysmac Studio version 1.03 or higher	SYSMAC-SE2□□□

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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