

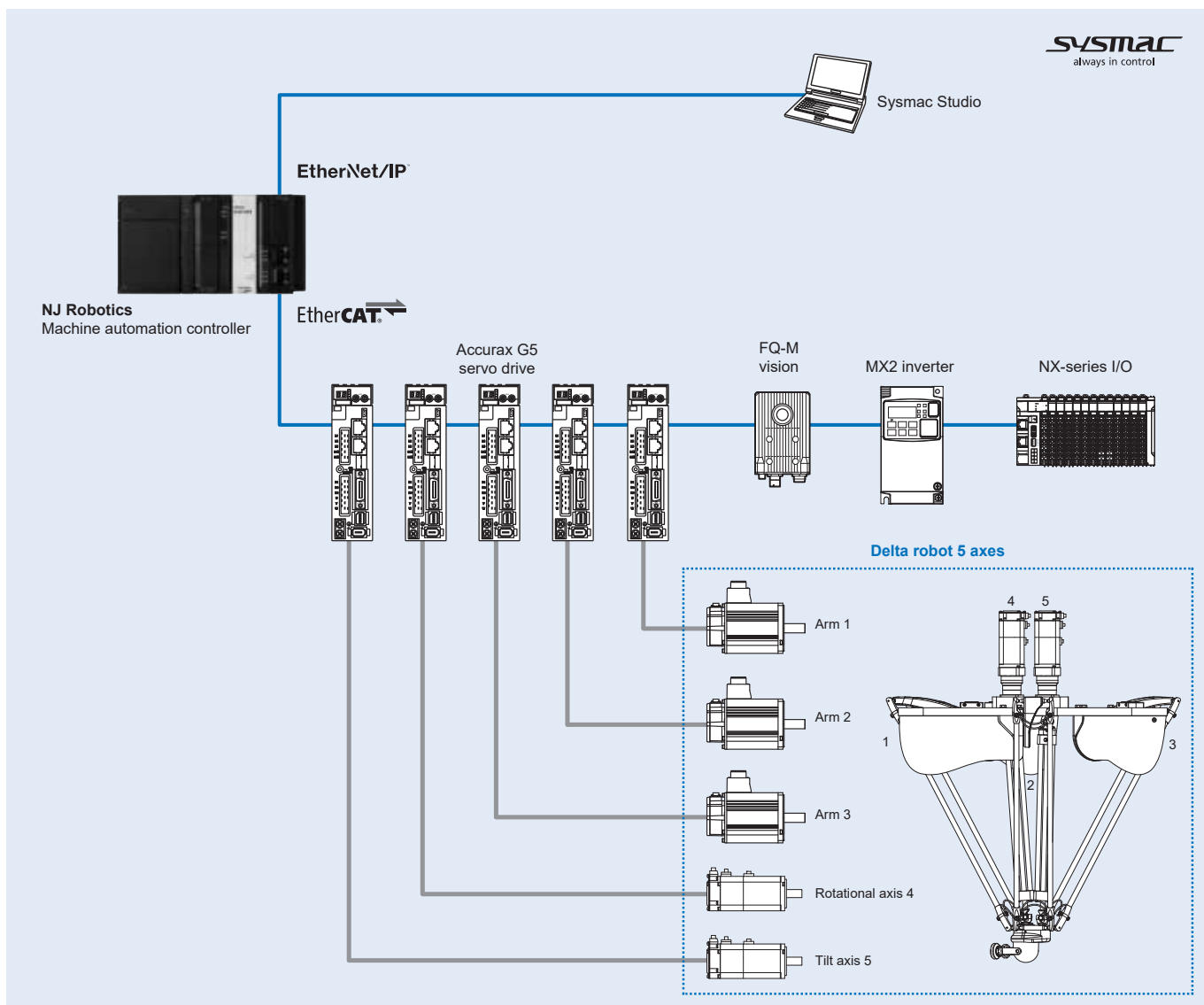
# Delta robot 5 axes

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 150 cycle per minute
- Models from 650 to 1,300 mm working range
- 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 5 axes series

Model		CR_UGD5_XL	CR_UGD5	CR_UGD5_XS
Working volume	X, Y axis (stroke)	Ø 1,300 mm	Ø 1,100 mm	Ø 650 mm
	Z axis (stroke) <sup>1</sup>	250 mm (maximum Ø 1,300 mm) / 400 mm (center Ø 870 mm)	250 mm (maximum Ø 1,100 mm) / 400 mm (center Ø 670 mm)	200 mm (maximum Ø 650 mm) / 270 mm (center Ø 407.5 mm)
	RZ axis (rotation angle)	±180 deg (default setting, it can be changed)		
	RY axis (tilt angle)	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		
	RY, RZ axis	±0.3 deg		
Maximum payload		1 kg		
Maximum through-put <sup>3</sup>		120 CPM <sup>4</sup>	125 CPM <sup>4</sup>	150 CPM <sup>4</sup>
Gear box ratio	X, Y, Z axis	1:31		
	RY, RZ axis	1:10 <sup>5</sup>		
Torque limitation	RZ axis	7 Nm		
	RY axis	12.5 Nm		
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		65 kg

<sup>1</sup> For further details please check the dimensional drawing in the next section.

<sup>2</sup> This is the value at a constant ambient temperature.

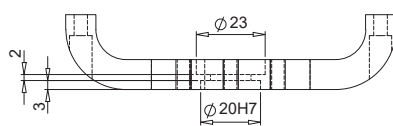
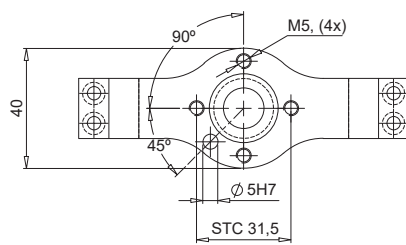
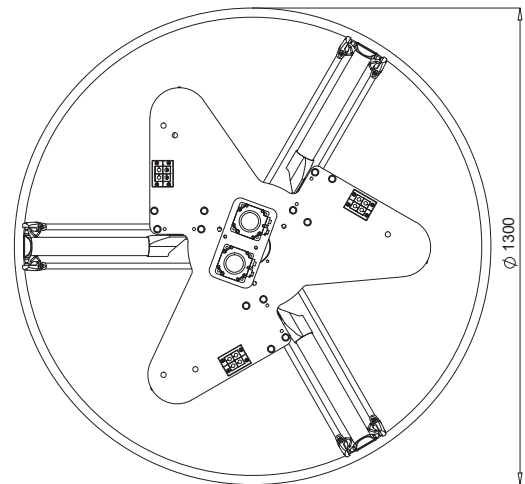
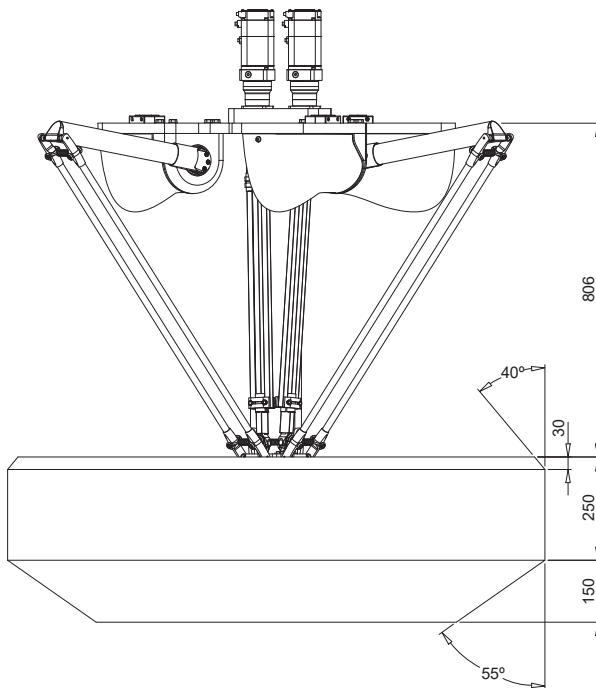
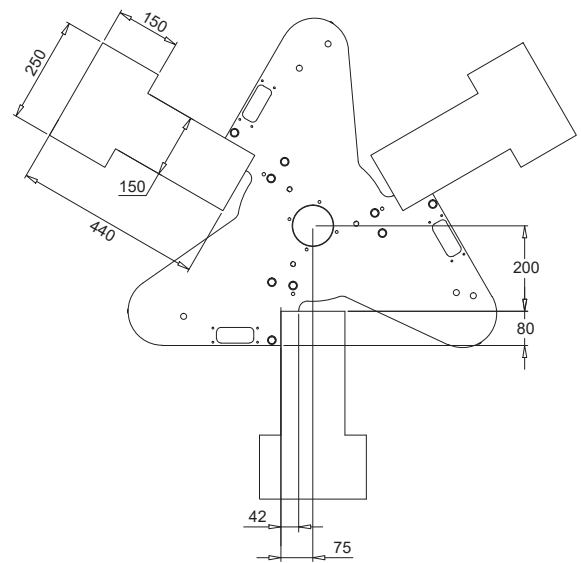
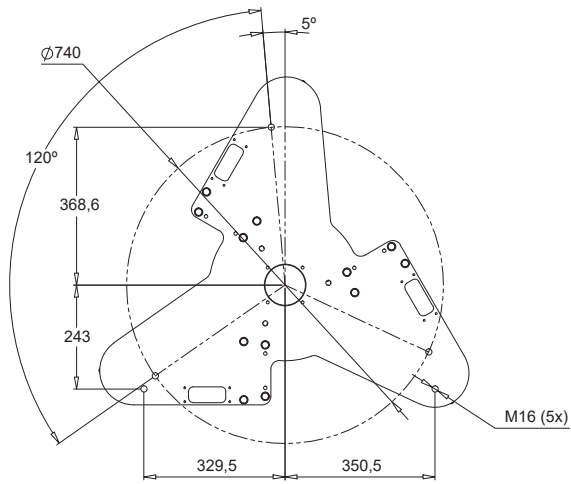
<sup>3</sup> With 0.1 kg payload. When reciprocating 305 mm in horizontal and 25 mm in vertical directions.

<sup>4</sup> CPM: Cycle per minutes. Check the note 3 for the cycle definition.

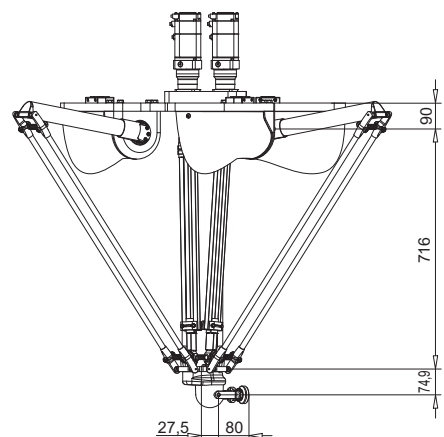
<sup>5</sup> Ratio between rotational axis 1 and yaw rotation of the wrist (rotation around RZ) is 1:2. Ratio between rotational axis 2 and pitch rotation of the swing arm (rotation around RY) is 1:2.

Dimensions

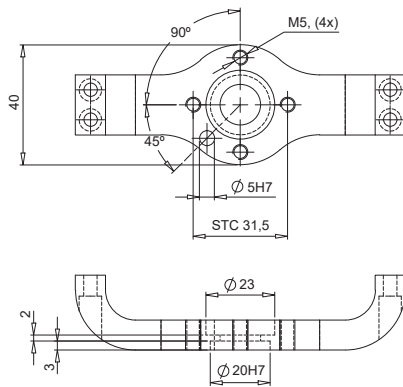
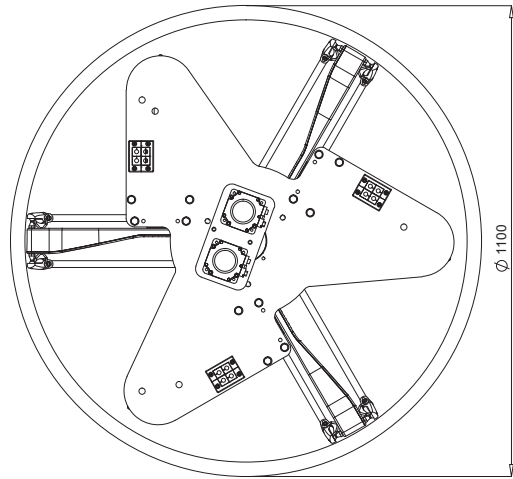
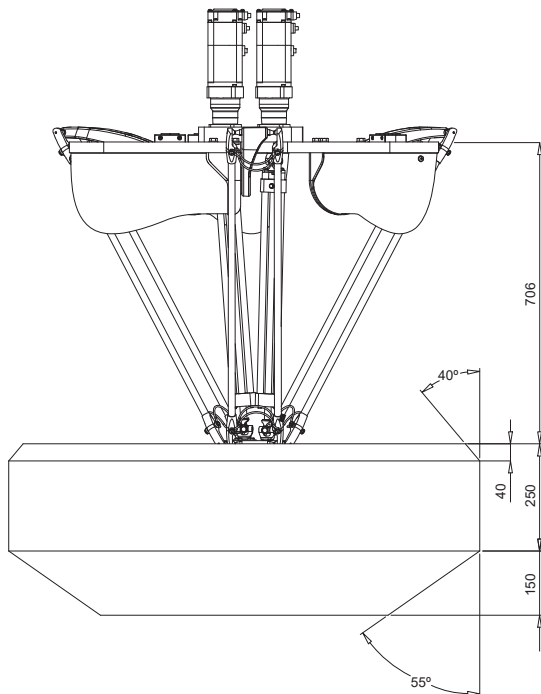
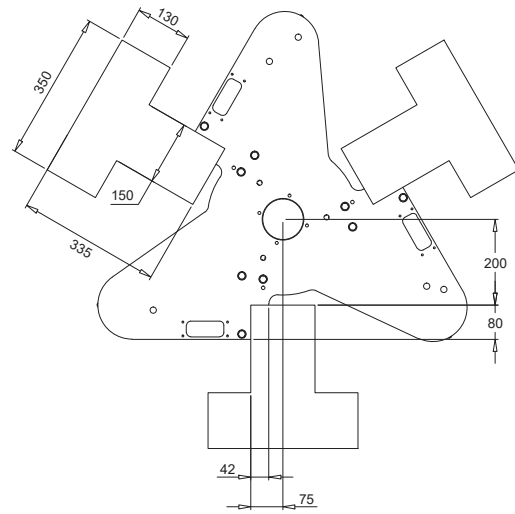
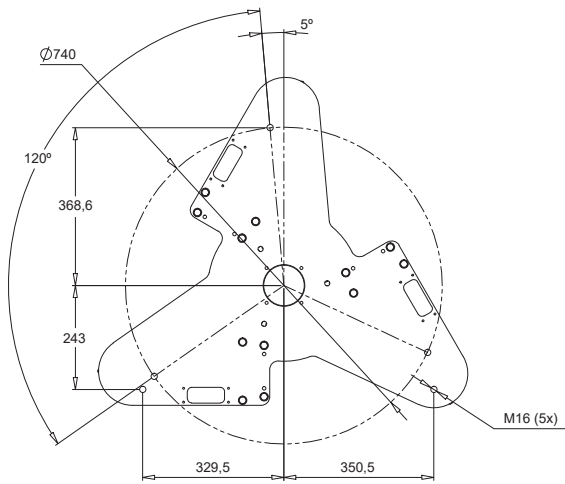
CR\_UGD5\_XL



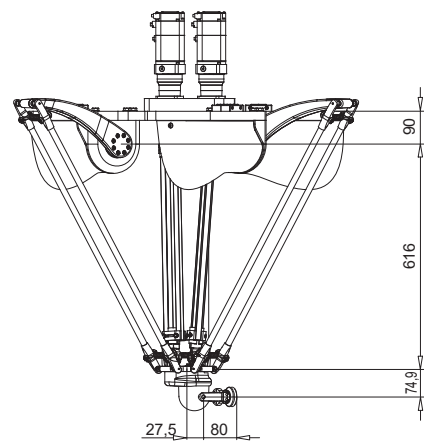
Gripper dimensions



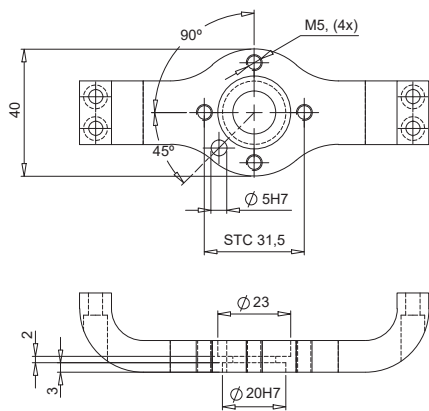
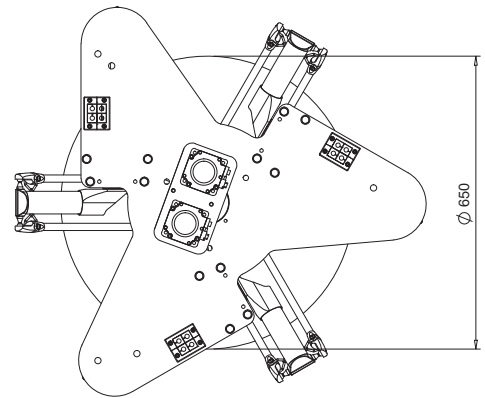
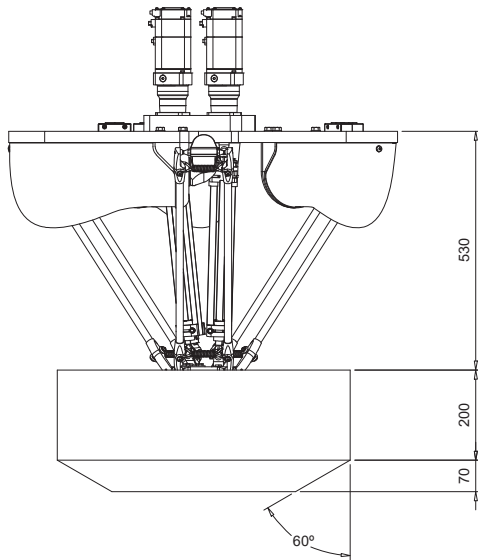
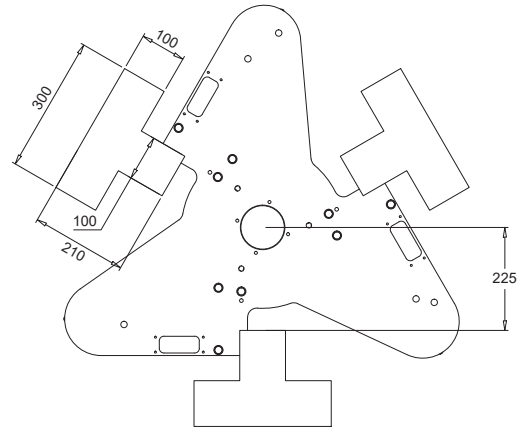
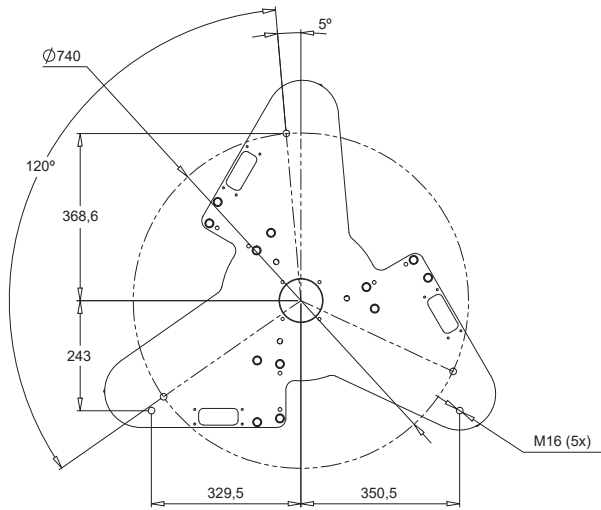
## CR\_UGD5



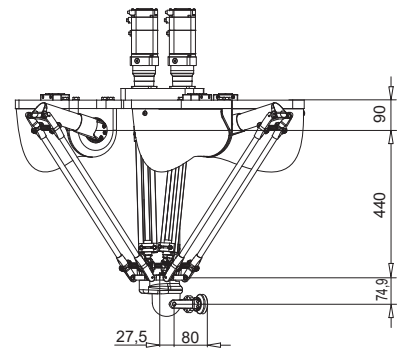
Gripper dimensions



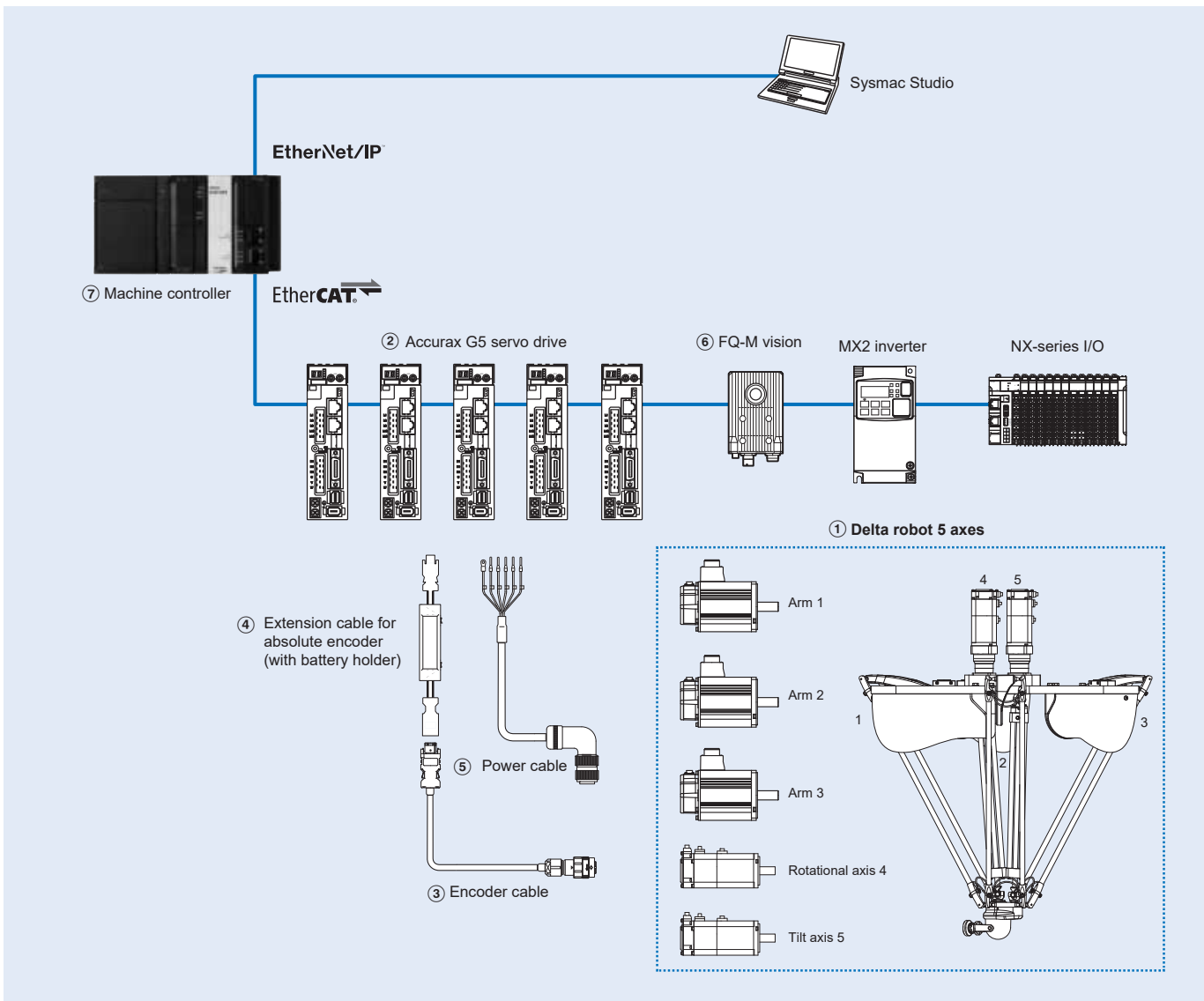
CR\_UGD5\_XS



Gripper dimensions

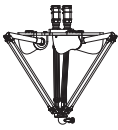
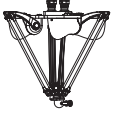
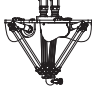


## Ordering information





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

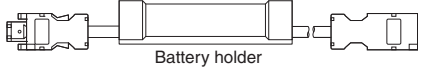
Delta robot 5 axes series

Symbol	Model	Max. payload	Working range	Description	Axis	Applicable servo drive (2)
① 	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
① 	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
① 	CR_UGD5_XS	1 kg	Ø 650 x 200 mm (Max. 270)	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

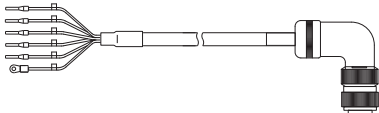


Encoder cables

Symbol	Applicable Delta robots	Model	Appearance	
③	CR_UGD5_XL (Arm 1, 2, 3)	1.5 m		
	CR_UGD5 (Arm 1, 2, 3)	3 m		
	CR_UGD5_XS (Arm 1, 2, 3)	5 m		
		10 m		
		15 m		
		20 m		
	CR_UGD5_XL (Rotational axis 4, Tilt axis 5)	1.5 m		
	CR_UGD5 (Rotational axis 4, Tilt axis 5)	3 m		
	CR_UGD5_XS (Rotational axis 4, Tilt axis 5)	5 m		
		10 m		
	15 m			
	20 m			

Absolute encoder battery cable (encoder extension cable only)

Symbol	Specifications	Model	Appearance
④	Absolute encoder battery cable	Battery not included	 Battery holder
		Battery included	
	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 CR_UGD5_XS	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
				64	NJ501-4500
				32	NJ501-4400
				16	NJ501-4300
				16	NJ501-4310
	Power supply unit				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.