

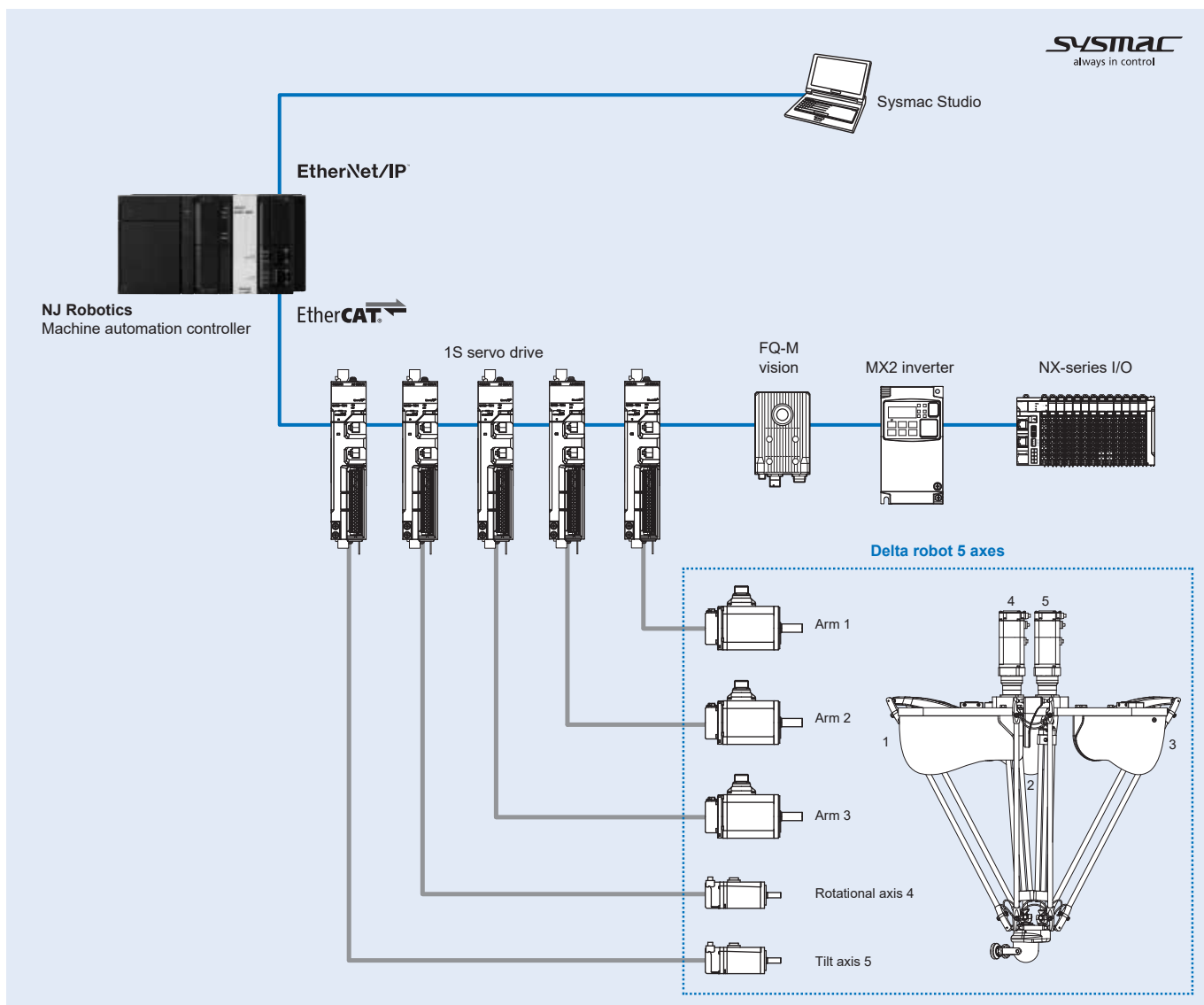
Delta robot 5 axes

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) ¹	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-1L1K030T-BS2	
		Capacity	1000 W	
	Rotational axis 4	Model	R88M-1M75030T-BS2	
		Capacity	750 W	
	Tilt axis 5	Model	R88M-1M75030T-BS2	
		Capacity	750 W	
Repeatability ²	X, Y, Z axis	±0.2 mm		
	RY, RZ axis	±0.3 deg		
Maximum payload		1 kg		
Maximum through-put ³		120 CPM ⁴	125 CPM ⁴	150 CPM ⁴
Gear box ratio	X, Y, Z axis	1:31		
	RY, RZ axis	1:10 ⁵		
Torque limitation	RZ axis	12.5 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

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

² This is the value at a constant ambient temperature.

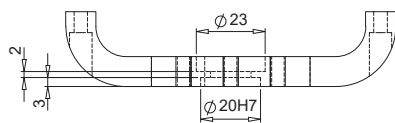
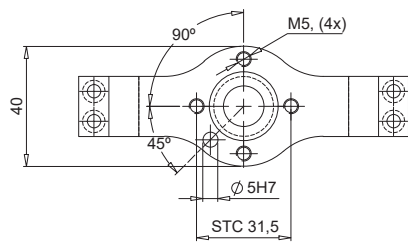
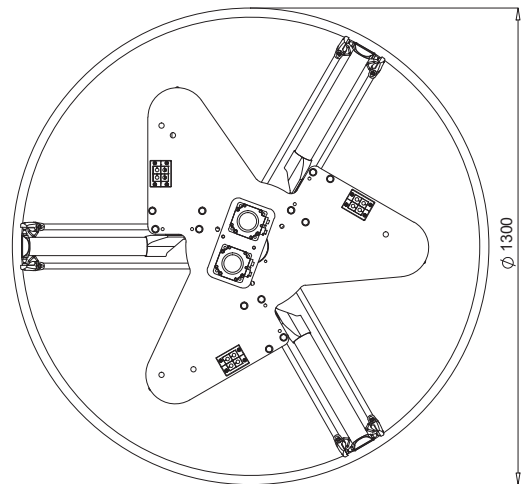
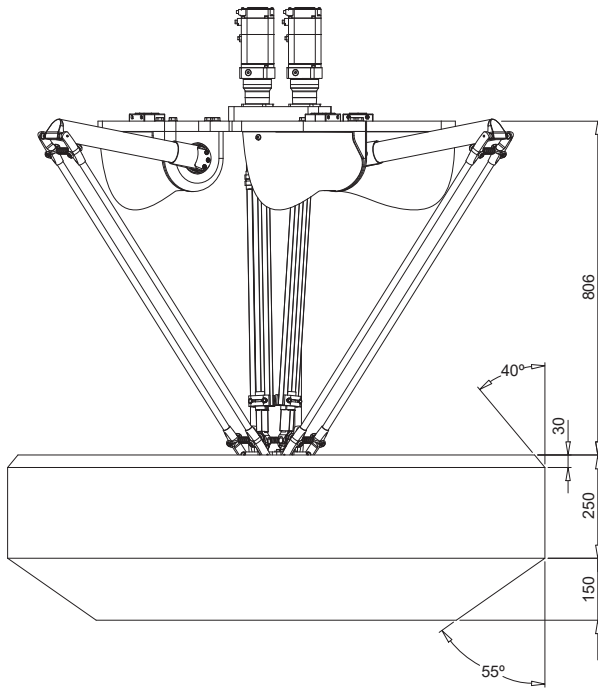
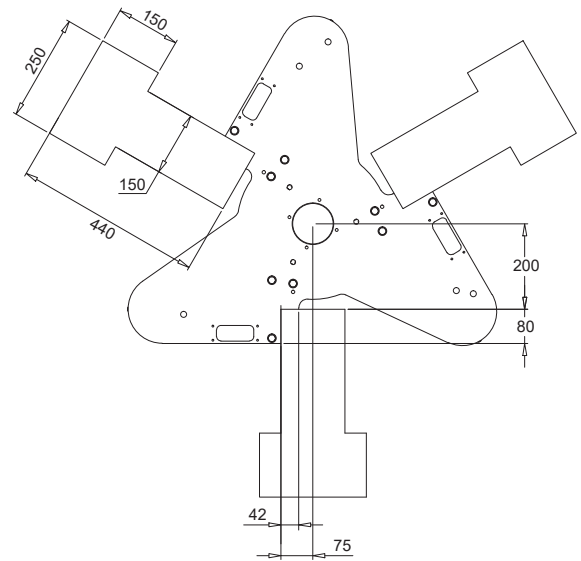
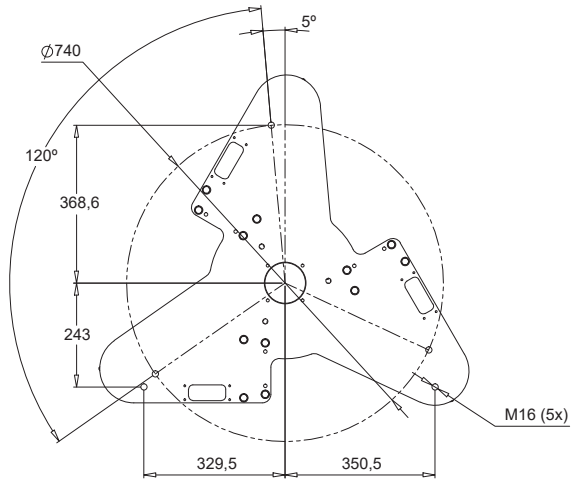
³ With 0.1 kg payload. When reciprocating 305 mm in horizontal and 25 mm in vertical directions.

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

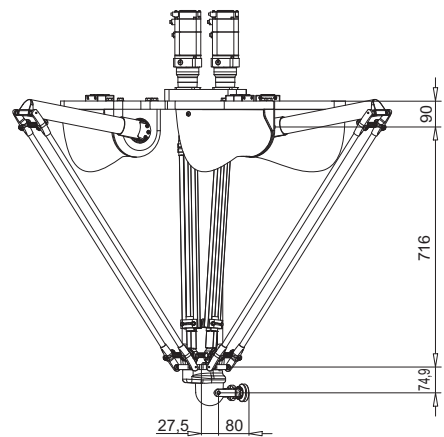
⁵ Ratio between rotational axis 1 and yaw rotation of the wrist (rotation around RZ) is 1:2. Ratio between rotational axis 2 and pitch rotation of the swing arm (rotation around RY) is 1:2.

Dimensions

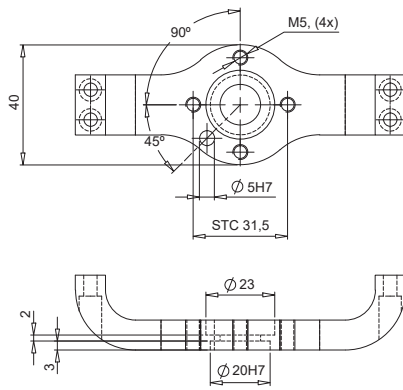
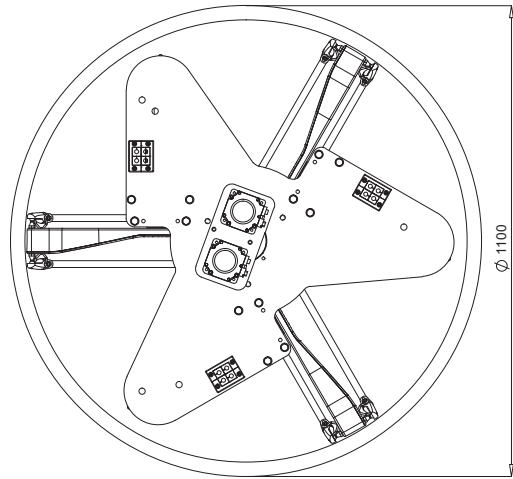
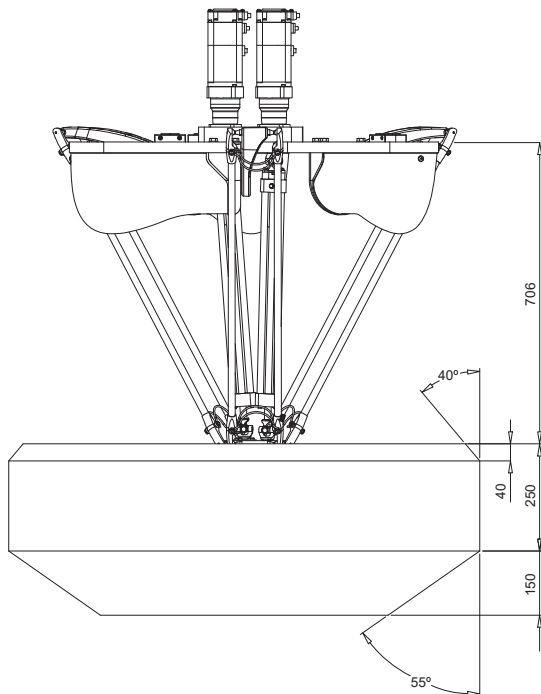
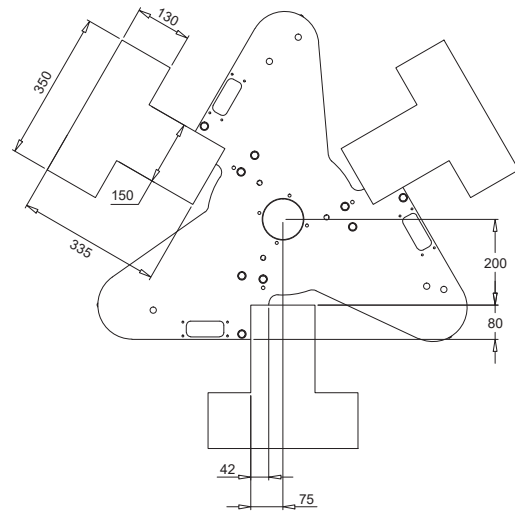
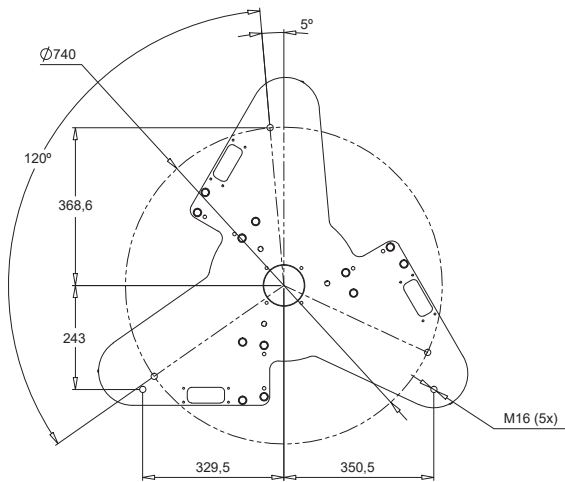
CR_UGD5_XL



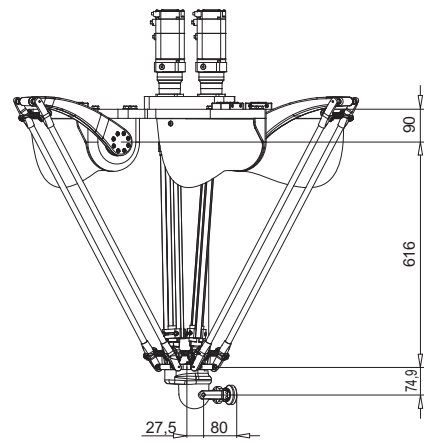
Gripper dimensions



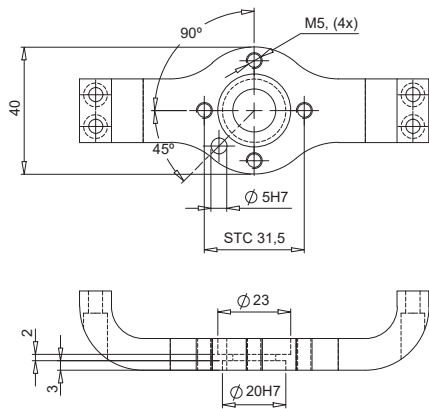
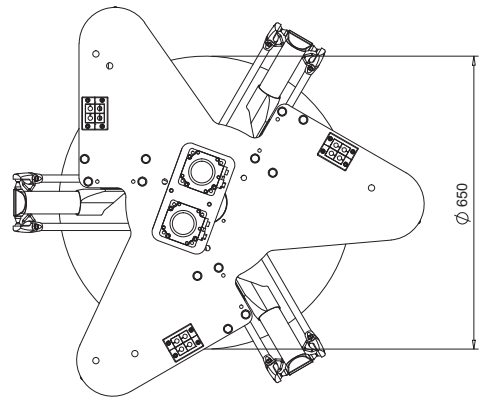
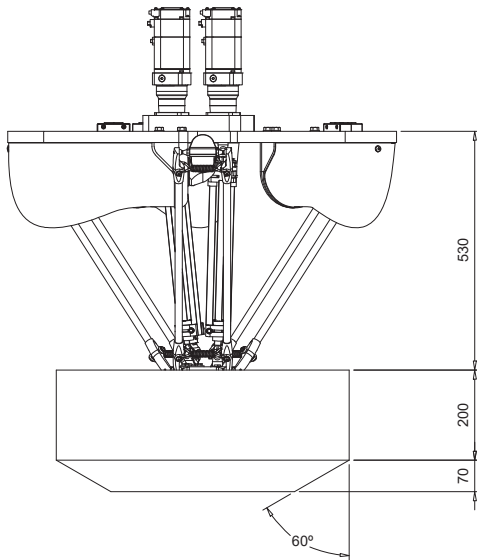
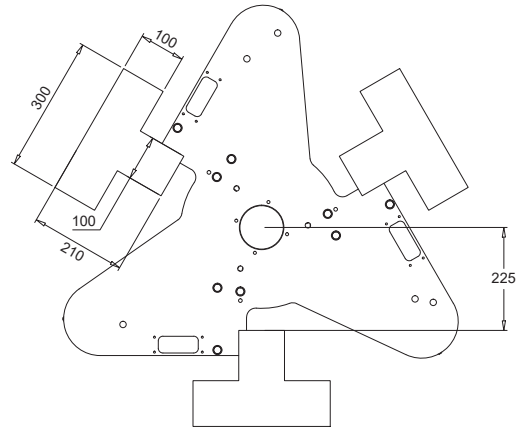
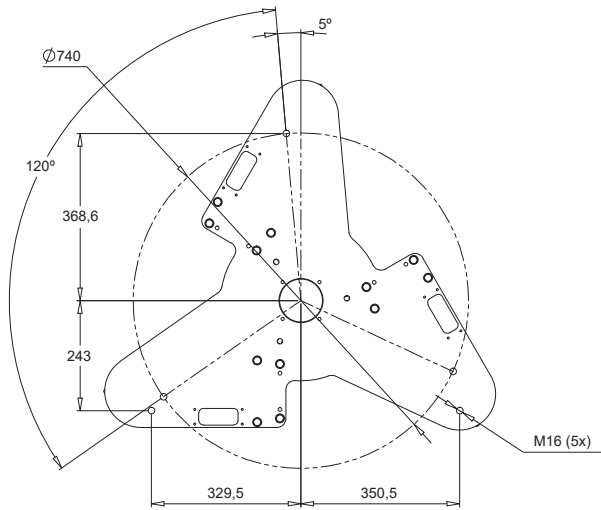
CR_UGD5



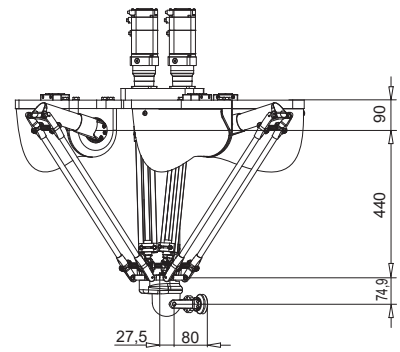
Gripper dimensions



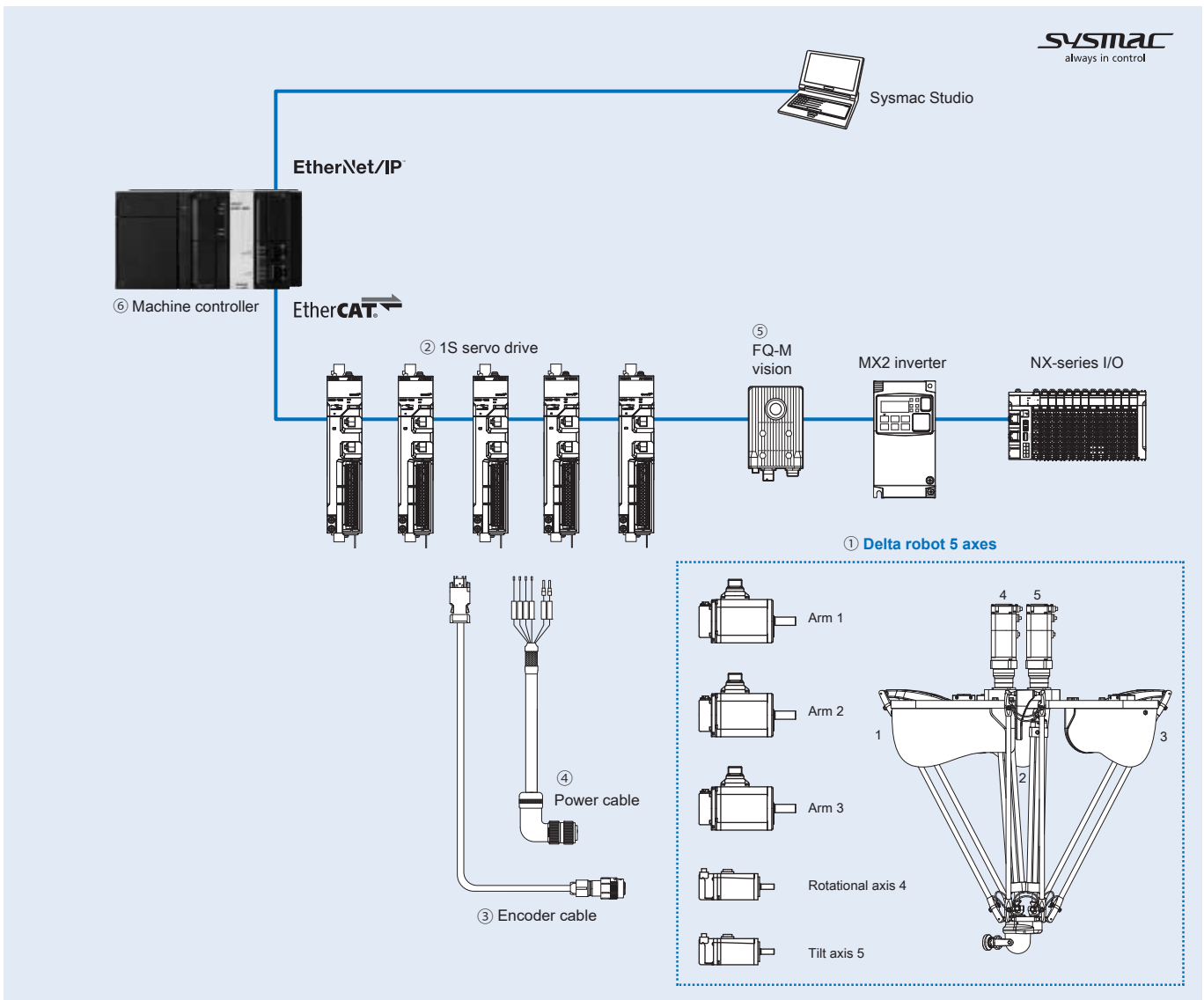
CR_UGD5_XS



Gripper dimensions






Ordering information

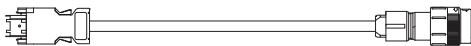



Note: Servo motors included in the Delta robot.

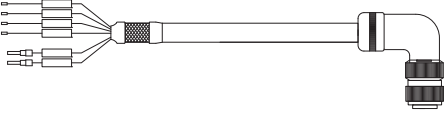
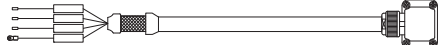
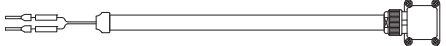
Delta robot 5 axes series

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-1SN15H-ECT
					Arm 2	R88D-1SN15H-ECT
					Arm 3	R88D-1SN15H-ECT
					Rotational 4	R88D-1SN08H-ECT
					Tilt 5	R88D-1SN08H-ECT
① 	CR_UGD5		Ø 1,100 x 250 mm (Max. 400)		Arm 1	R88D-1SN15H-ECT
					Arm 2	R88D-1SN15H-ECT
					Arm 3	R88D-1SN15H-ECT
					Rotational 4	R88D-1SN08H-ECT
					Tilt 5	R88D-1SN08H-ECT
① 	CR_UGD5_XS		Ø 650 x 200 mm (Max. 270)		Arm 1	R88D-1SN15H-ECT
					Arm 2	R88D-1SN15H-ECT
					Arm 3	R88D-1SN15H-ECT
					Rotational 4	R88D-1SN08H-ECT
					Tilt 5	R88D-1SN08H-ECT

Encoder cables

Symbol	Applicable Delta robots	Model	Appearance
③	CR_UGD5_XL (Arm 1, 2, 3) CR_UGD5 (Arm 1, 2, 3) CR_UGD5_XS (Arm 1, 2, 3)	1.5 m R88A-CR1B001-5NF-E	
		3 m R88A-CR1B003NF-E	
		5 m R88A-CR1B005NF-E	
		10 m R88A-CR1B010NF-E	
		15 m R88A-CR1B015NF-E	
		20 m R88A-CR1B020NF-E	
	CR_UGD5_XL (Rotational axis 4, Tilt axis 5) CR_UGD5 (Rotational axis 4, Tilt axis 5) CR_UGD5_XS (Rotational axis 4, Tilt axis 5)	1.5 m R88A-CR1A001-5CF-E	
		3 m R88A-CR1A003CF-E	
		5 m R88A-CR1A005CF-E	
		20 m R88A-CR1A020CF-E	

Power and brake cables

Symbol	Applicable Delta robots	Model	Appearance	
④	CR_UGD5_XL CR_UGD5 CR_UGD5_XS	Arm 1, 2, 3 Power cable with brake	1.5 m R88A-CA1C001-5BF-E	
			3 m R88A-CA1C003BF-E	
			5 m R88A-CA1C005BF-E	
			10 m R88A-CA1C010BF-E	
			15 m R88A-CA1C015BF-E	
			20 m R88A-CA1C020BF-E	
	Rotational axis 4, Tilt axis 5	Power cable without brake	1.5 m R88A-CA1A001-5SF-E	
			3 m R88A-CA1A003SF-E	
			5 m R88A-CA1A005SF-E	
			10 m R88A-CA1A010SF-E	
			15 m R88A-CA1A015SF-E	
			20 m R88A-CA1A020SF-E	
	Rotational axis 4, Tilt axis 5	Brake cable	1.5 m R88A-CA1A001-5BF-E	
			3 m R88A-CA1A003BF-E	
			5 m R88A-CA1A005BF-E	
			10 m R88A-CA1A010BF-E	
			15 m R88A-CA1A015BF-E	
			20 m R88A-CA1A020BF-E	

Vision

Name	Type	Model
⑤ 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	
⑥ 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.