NITTOSEIKO

Yθ (Linear Motion + Swivel Movement) Screw Driving Robot

NITOMAN® SR580Yθ-Z
Successor to SR565Yθ-Z

Changing manufacturing with Turnkey Screw-Driving System

Applicable screw size
Nominal diameter
2～5mm

Reduces cycle time　**Space-saving**

Screw self-fed type

Screw pick-up type　　　Screw self-fed type

Approx. 30% of cycle time reduction
*In the case of 100mm stroke spec
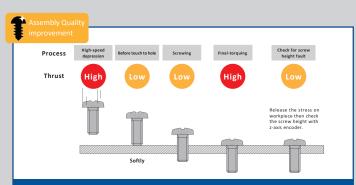
Cycle time for self-fed type is shorter than for pick-up type. Flexibility of feeder placement helps with space constraints.

Space-saving

XY type

Yθ type

Approx. 30% of space reduction
*In the case of 500mm width x 200mm deep operating envelope

Yθ(Linear Motion + Swivel Movement) Type

Requires less space than cartesian robots thus reducing length of assembly line.

Assembly Quality improvement

Process	High-speed depression	Before touch to hole	Screwing	Final-torquing	Check for screw height fault
Thrust	High	Low	Low	High	Low

Softly

Release the stress on workpiece then check the screw height with z-axis encoder.
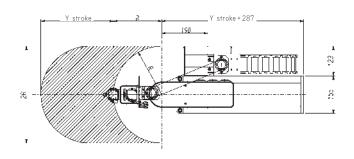
Variable Thrust Force Control

Allows for accurate and precise setting of thrust and travelling speed of screw-driving tool. Optimum thrust control effectively prevents damage to internal threads and cam-out.

Improved maintainability
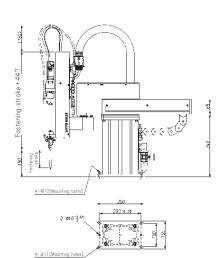
Controller

Teach pendant

Unified control of robot and screw driver

One controller for both robot and screw driver. Allows for easy settin and maintenance. Ability to view Torque waveform and change screw-driving parameters through teach pendant. (Optional)
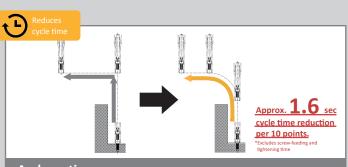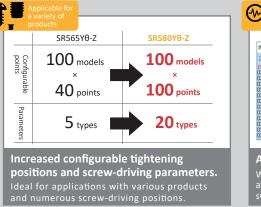

┃ Outside dimensions (: mm)

Y stroke　　　Y stroke + 287

Fastening stroke + 447

Fastening stroke

4-M10[Mounting bolts]

4-φ11[Mounting holes]

2-φ10

Click here for functions of on-board driver

Reduces cycle time

Approx. 1.6 sec cycle time reduction per 10 points.
*Excludes screw-feeding and tightening time

Arch motion
Reduces cycle time by Arch-motion when robot returns to the ready position.

Assembly Quality improvement

Screwdriver Bit
Screw Guide
Hit!

2-Stage motion
2-Stage motion avoids interference between screw guide and workpiece for products with steps or obstructions.

Applicable for a variety of products

	SR565Yθ-Z	SR580Yθ-Z
Configurable points	100 models × 40 points	100 models × 100 points
Parameters	5 types	20 types

Increased configurable tightening positions and screw-driving parameters.
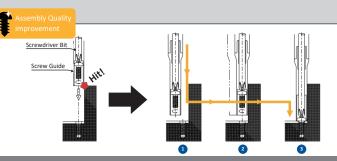Ideal for applications with various products and numerous screw-driving positions.

Error analysis

Ability to save error history in CSV format
With former system, ability to see error history only available on teach pendent; however with new system, error history can be saved in CSV format.

Improved maintainability

BATTERY
BATTERY
Connector

Encoder batteries are eliminated
No need to change encoder batteries. Reduces maintenance costs and time.

||Specifications of robot

Inside of 【 】 is the option.

Type			SR580Yθ	SR580Yθ-Z
Screw driving unit	Number of axis to be controlled		Tow axes, simultaneously	Three axes, simultaneously
	Fastening torque control function		—	○
	Applicable Screws ＊1 ＊2	Nom Dia.	Machine screw, Tapping screw 2〜5mm (except M5 truss head screws)	
		Length	max. 18mm 【25】, min. Screw head Dia.×1.1mm	
	Tightening torque ＊3		0.3〜3.0N・m	
	Method of supplying screw		Blow feed or Picking up	
	Driver		KX driver, 【NX driver】	
	Tightening stroke		100, 【150】 mm	
	Screw holding system		Vacuum tube suction system	
	Fault detections		Torque fault (screw stripping), Low screw (in screw feeder)	
			Screw height fault (Micro Photo Sensor)	Screw height fault (Z-axis encoder pulse)
Robot	Work envelope	Y-axis	200, 300, 400, 500mm	
		Turning radius	200, 250, 300mm	
		θ-axis	180°	
	Maximum moving speed	Y-axis	1000mm/sec.	
		θ-axis	360° /sec.	
		Z-axis	—	720mm/sec.
	Locating accuracy		±0.05mm	
Air pressure			0.4〜0.5MPa	
Machine weight ＊4			Approximately 36kg	Approximately 37kg
Screw feeder			FF503H	

＊1 Products will be built up based on specification of screws, therefore it can be used for one kind of screws only.
＊2 Application range of screws will be changed by type of screw head, or size. Please contact us to make sure for it.
＊3 The type of driver varies depending on target torque.
＊4 Weight will be changed by stroke, or type of driver. Please contact us to make sure for it.

||Specifications of robot controller

Inside of 【 】 is the option.

Type	RC7000-S
Supply voltage	Single phase AC200 〜 230V 50/60Hz
Number of axis to be controlled	Six axes, max
Robot movement	PTP, linear interpolation, circular interpolation (interpolation operation is not supported by Yθ type robot)
Position feedback	Absolute encoder method (batteryless)
Ethernet port	8-port HUB inside (3 ports of which are located on the front panel)
Memory	SRAM：(Battery backup:approximately five years)
External input ＊5 ＊6	Standard user port 16points 【I/O expansion possible ＊7】
External output ＊5 ＊6	Standard user port 16points 【I/O expansion possible ＊7】
Field network	Option ＊8
Teaching method	MDI, Remote teaching, Direct teaching
Point control	Work area：100 points ×100 types Fixed area： 40 points
Program memory capacity	15MB
Robot program	Special motion language
Outside dimensions (W×H×D)	250×450×470mm
Weight	Approximately 20kg
Teaching pendant	Handy Type touch panel (with Key switch, Emergency switch and Dead-man's switch) Pendant can be used as manual control panel
PC software	【CPMC-MPE780D】 ＊9

＊5 External I/O might be used to system programing, which depend on some device specification.
＊6 PNP type also available. (Need to specify at order timing. NPN or PNP.)
＊7 NPN: Maximum number of additional I/O points 64 input points, 64 output points
　　PNP: Maximum number of additional I/O points 32 input points, 32 output points
＊8 Ethernet, EtherNet/IP, EtherCAT, PROFINET, Modbus-TCP, CC-Link IE Field, FL-net, CC-Link, DeviceNet, PROFIBUS
＊9 CPMC-MPE780D is a software provided by YASKAWA Electric Corporation.

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Assembly Machine Division
Global Sales Section

URL：https://global.nittoseiko.com/

【Website】　【Inquiry Form】

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