

TOSHIBA MACHINE'S EASY-USE SCARA RANGE



COMPACT SCARA ROBOT

MODEL	TH180	TH250A	TH350A
Arm length 1 st arm and 2 nd arm	180mm (70+110)	250mm (125+125)	350mm (225+125)
Working envelope	Axis 1	±120°	±115°
	Axis 2	±140°	±140°
	Axis 3 (Z-axis)	120mm	120mm (150mm)
	Axis 4 (Z-axis rotation)	±360°	±360°
Maximum speed	Axis 1	533°/sec	540°/sec
	Axis 2	480°/sec	540°/sec
	Axis 3 (Z-axis)	1013mm/sec	1120mm/sec
	Axis 4 (Z-axis rotation)	1186mm/sec	1143°/sec
Composite	2.6m/s	3.53m/s	3.24m/s
Standard cycle time	0.35s *1 (With 1kg payload)	0.41s *2 (With 1kg payload)	0.41s *2 (With 1kg payload)
Maximum payload mass	2kg	3kg	3kg
Allowable moment of inertia at end	0.01kg·m ² *3	0.017kg·m ² *3	0.017kg·m ² *3
Repeatability	X, Y, Z	±0.01mm	±0.01mm
	Axis 4	±0.005°	±0.005°
Input/output signals for hand	5 inputs / 4 outputs	5 inputs / 4 outputs	5 inputs / 4 outputs
Air piping for hand	φ4×4 pcs	φ4×4 pcs	φ4×4 pcs
Robot-controller cable length	3m (Option 5m)	3m (Option 5m)	3m (Option 5m)
Mass	9kg	14kg	14kg
Controller	TS1000	TS1000	TS1000

ALLOWABLE MOMENT OF INERTIA

*3 The acceleration/deceleration rates may be limited depending on motion patterns, load mass and offset amount



HIGH SPEED, HIGH ACCURACY SCARA ROBOT

MODEL	TH450A	TH550A
Arm length 1 st arm and 2 nd arm	450mm (200+250)	550mm (300+250)
Working envelope	Axis 1	±120°
	Axis 2	±145°
	Axis 3 (Z-axis)	150mm (300mm)
	Axis 4 (Z-axis rotation)	±360°
Maximum speed	Axis 1	600°/sec
	Axis 2	600°/sec
	Axis 3 (Z-axis)	2000mm/sec
	Axis 4 (Z-axis rotation)	2000°/sec
Composite	7.33m/sec	6.21m/sec
Standard cycle time	0.33s *2 (With 2kg payload)	0.33s *2 (With 2kg payload)
Maximum payload mass	5kg	5kg
Allowable moment of inertia at end	0.05kg·m ² *3	0.05kg·m ² *3
Repeatability	X, Y, Z	±0.015mm
	Axis 4	±0.005°
Input/output signals for hand	5 inputs / 4 outputs	5 inputs / 4 outputs
Air piping for hand	φ4×4 pcs	φ4×4 pcs
Robot-controller cable length	5m (Option max.25m)	5m (Option max.25m)
Mass	27kg	29kg
Controller	TS2000	TS2000

MOTION PATTERNS FOR STANDARD CYCLE TIME

*1: 100mm for horizontal direction, 25mm for vertical direction, round trip
*2: 300mm for horizontal direction, 25mm for vertical direction, round trip

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HIGH SPEED, HIGH ACCURACY SCARA ROBOT

MODEL	TH650A	TH850A	TH1050A
Arm length 1 st arm and 2 nd arm	650mm (300+350)	850mm (350+500)	1050mm (550+500)
Working envelope	Axis 1	±160°	±160°
	Axis 2	±143°	±145°
	Axis 3 (Z-axis)	200mm (400mm)	200mm (400mm)
	Axis 4 (Z-axis rotation)	±360°	±360°
Maximum speed	Axis 1	340°/sec	300°/sec
	Axis 2	600°/sec	420°/sec
	Axis 3 (Z-axis)	2050mm/sec	2050mm/sec
	Axis 4 (Z-axis rotation)	1700°/sec	1200°/sec
Composite	7.52m/sec	8.13m/sec	9.15m/sec
Standard cycle time	0.31s *2 (With 2kg payload)	0.39s *2 (With 2kg payload)	0.39s *2 (With 2kg payload)
Maximum payload mass	10kg	20kg	20kg
Allowable moment of inertia at end	0.1kg·m ² *3	0.2kg·m ² *3	0.2kg·m ² *3
Repeatability	X, Y, Z	±0.01mm	±0.01mm
	Axis 4	±0.004°	±0.004°
Input/output signals for hand	5 inputs, 4 outputs	5 inputs, 4 outputs	5 inputs, 4 outputs
Air piping for hand	φ6×4 pcs	φ6×4 pcs	φ6×4 pcs
Robot-controller cable length	5m (Option max.25m)	5m (Option max.25m)	5m (Option max.25m)
Mass	51kg	76kg	80kg
Controller	TS2100	TS2100	TS2100

Straightforward control from the TS range

MODEL	TS1000	TS2000	TS2100
No. of controlled axes	Standard 4 axes (Maximum 5 axes: TS2000/TS2100)		
Motion Modes	PTP (point-to-point), CP (Continuous Path; Linear, Circular), Short-Cut, Arch Motion		
Position Detection	Absolute encoders		
Storage capacity	Approx. Total: 6400 points + 12800 steps 1 program: 2000 points + 3000 steps		
No. of Registrable Programs	Maximum 256 (247 user files + 9 system files)		
Programming Language	SCOL (similar to BASIC)		
Teaching Unit	Teach pendant TP1000: Cable length 5 m / Programming support PC software TSPC also available		
External I/O Signals	16 inputs / 16 outputs 8/8 can be assigned to system signals	31+7 inputs / 22+10 outputs 7/10 can be assigned to system signals	
Hand Control Signals	5 inputs / 4 outputs		
External Operation Signal	Input: cycle operation mode, start, stop, program reset, etc. Output: Servo ON, operation ready, fault, etc.		
Serial Communication Ports	RS232C: 2 ports		
Power Supply and Capacity	Single phase AC190 V - 250 V, 50/60 Hz, 1.1 kVA	Single phase AC190 V - 250 V, 50/60 Hz, 2.3 kVA	Three phase AC190 V - 250 V, 50/60 Hz, 3.5 - 4.4 kVA
Outer Dimensions and Mass	170W×290H×280D (mm)/10kg	290W×230H×280D (mm)/12kg	420W×230H×300D (mm)/16kg
Other Functions	Interruption processing, robot motion ON signal, communication processing, arithmetic operation, torque limit, PLC, self-diagnosis, etc.		
PC Software for Programming Support (optional)	TSPC: Program editor, teaching, remote operation TCPRGOS: PLC sequence program creation (Supporting OS: Windows2000, WindowsXP)		
Options	Conveyor synchronization (not supported by TS1000), Additional I/O, I/O cable, position data latch function, smooth (constant speed) function, separated operation panel, network (Ethernet: Not supported by TS1000, CC-Link, DeviceNet, Profibus), CE-compliant		

A simple solution to every challenge

OPTIONS

- Clean room class 10 (0.1μm - 0.3μm)
TH180 / TH250A / TH350A / TH450A
TH550A / THP550 / TH650A / TH850A
TH1050A
- Waterproof Design IP65
THP550 / TH650A / TH850A / TH1050A
(Limitation is imposed on acceleration/deceleration rates)
- Z Axis long stroke (Z)
TH250A / TH350A: 150mm
TH450 / TH550 / THP550: 300mm
TH650A / TH850A / TH1050A: 400mm
- Protective bellows for Z axis
TH180 - TH1050A / THP550
Limited acceleration / deceleration
- Protective cover for Z axis
TH650A - TH1050A
- Ceiling Mount (T)
TH350A - TH1050A / THP550
- Optional cable lengths
Between robot and controller:
Maximum 10m (TH180 - TH350A)
Maximum 25m (TH450 - TH1050A)
- Teach pendant: Maximum 15m
- Additional 5th Axis
(Traverse, Wrist etc...) TH450 - TH050A

Share vision amongst multiple robots with conveyor synchronisation

Our 'one line = one camera' philosophy means you can:

- Cut costs by 'sharing' a single camera between all of the robots on a conveyor
- Sort large quantities and multiple types of workpieces and goods
- Take advantage of easy programming via dedicated commands
- Perfectly synchronized automation reduces damage to conveyed items

