

Quality Assurance Companion
QUACO

QUACO Pro - D - Product Features & Engineering Specifications



For illustration only



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Features & Specifications:

No	Features	QUACO Pro - D with MTZ
1	Type of test rig	Standard single arm manipulator model
2	Type of manipulator inside the rig	SR-DIMENZIO : Advanced Cartesian manipulator.
3	Manipulator height adjustment	GUI based automated height adjustment
4	Manipulator Working Plane	Horizontal
5	Type of finger module on manipulator (stylus)	Force-controlled MTZ (Multi Touch and Zoom module) upto 2 fingers
6	Type of stylus tips (standard offering*)	Bubble Crown (7 mm) / Flat(2-12 mm) / Pen type
7	Touch indicator on the manipulator	Yes, LED indication
8	Standard single finger gestures supported	Tap, Double tap, Swipe, Scroll, Flick, Touch & hold.
9	Standard Two finger gestures supported	Two point tap, two point press and hold, two point press, hold & rotate, pinch zoom in, pinch zoom out,
10	Teach function compatibility	Optional - UI click and mouse drag
11	Slanted DUT supported	Upto 10° inclination in 200 mm.
12	Curved Display support	Supports curved display with continuous force control / monitoring
13	DUT Persona memory	Yes (upto 5 devices)
14	Type of DUT interface supported	Flat & Curved Touch screens and Tactile buttons, push buttons & Knobs
15	DUT Power controllability	ON-OFF control via Telnet API & Soft push button switch Standard offering: fixed DC 5V(3A), 12V(1A) Optional: Inbuilt 0-30V(1A), External bench power supply
16	Camera mounting capabilities/position	Global - top of the rig with manual position control Local - on end effector for closed view
17	Camera options	60fps/90fps/120fps(global position) Standard webcam(end effector position) Optional - Thermal Camera (for surface thermal mapping)
18	Compatibility to front-end software	Yes
19	Primary safety control	1X Emergency Stop switch on rig 1X Auxiliary emergency switch Smart Doors
20	Secondary safety	User GPIO configurable system halt Light curtain compatibility(Optional)

No	Features	QUACO Pro - D with MTZ
21	Smart Error indications	1. On the test rig 2. Manipulator base (API Controllable) 3. Over End effector (API Controllable)
22	User communication Interfaces	Ethernet
23	Programming APIs	Telnet API commands
24	Event/Error Logging and troubleshooting capabilities	Yes
25	User SOP violation tracking	Yes
26	Servicability of the equipment	Diagnostics console port, Modular design for easy service
27	Service alerts	Yes
28	Accessory Expansion Connector	Yes
29	User Interface on the rig	Front panel with 3.5" TFT display and 8 Switches
30	Rig Cabin light	Cool White LED (API Controllable)

* - standard offering comes with Bubble Crown (7 mm) & Flat(2-12 mm), different custom models sizes are possible on an order basis.

Engineering Specifications:

No	Engineering Specifications		QUACO Pro - D with MTZ
1	Power Supply requirements ^(a)		110V AC / 60 Hz
			240V AC / 50 Hz
2	Power consumption (maximum)		330 Watts
3	User GPIOs		5V / 3V compatible.
4	Connectivity		Ethernet
5	Controllability		Software front end with Telnet based API compatibility Optional - Remote operation capability
6	Gross Weight (Including standard Rig & Dimenzio manipulator)		128 Kg
7	Operating Temperature Range		10°C to 50°C
8	Humidity		Upto 60 RH
9	Degrees of Freedom (DOF) of the manipulator		5 DOF
10	Weight of the manipulator		9 Kg
11	Accuracy		± 0.5 mm
12	Working Envelope	X - axis	0 - 550 mm
		Y - axis	0 - 300 mm
		Z - axis (stylus stroke length)	0 - 40 mm
13	Maximum speed ^(b)	X - axis	350 mm/s
		Y - axis	350 mm/s
		Stylus speed with force sensing	72 mm/s (Standard) 0 - 72 mm/s (Configurable)
14	Total work area (Manipulator) ^(c)		1,65,000 mm ²
15	Rectangular Workspace compatibility		550 x 300 mm Diagonal: 24 inch (16:9)
16	Single finger (STM)	Stroke range of the stylus	40 mm
		Force Ranges	0.3 N to 3.6 N Tolerance: 0.01 N
			0 N to 10 N Tolerance: 0.1 N
Force tolerance (tap accuracy)	Fast mode: ± 25 g Precision mode: ± 10 g		

No	Engineering Specifications	QUACO Pro - D with MTZ	
16	Single finger (STM)	Force controlled clicks/min ^(d)	Fast mode: 240 Nos Precision mode: 120 Nos
		Max no of clicks/min (without F) ^(e)	480 Nos
		Duration of touch action	0.05 sec to 5.0 sec (API controllable)
17	Multi Touch and Zoom (MTZ)	Maximum opening	77 mm/s
		Rotation	-180° to +180°
		Stroke and Force	Same as that of STM (16)
18	Maximum interpolated motion speed (max flick speed)	500 mm/s	
19	CMM plate Dimension	Overall dimension	780 (W) X 480 (L) mm
		Hole Dimension	M8 through hole
		Pitch	Standard - 50 mm Optional - 25 mm
20	Rig Dimension (Size including footprint)	850(W) x 600(D) x 900(H)	
21	Manipulator height adjustment	Stroke length	250 mm
		Speed of operation	10 mm/s
22	Manipulator position callibration method	Homing	
23	Recommended continuous operation hours ^(f)	8640 hr (360 days)	

a - Factory Configurable

b - Acceleration/deceleration rates may be limited according to the motion pattern, load mass and amount of offset.

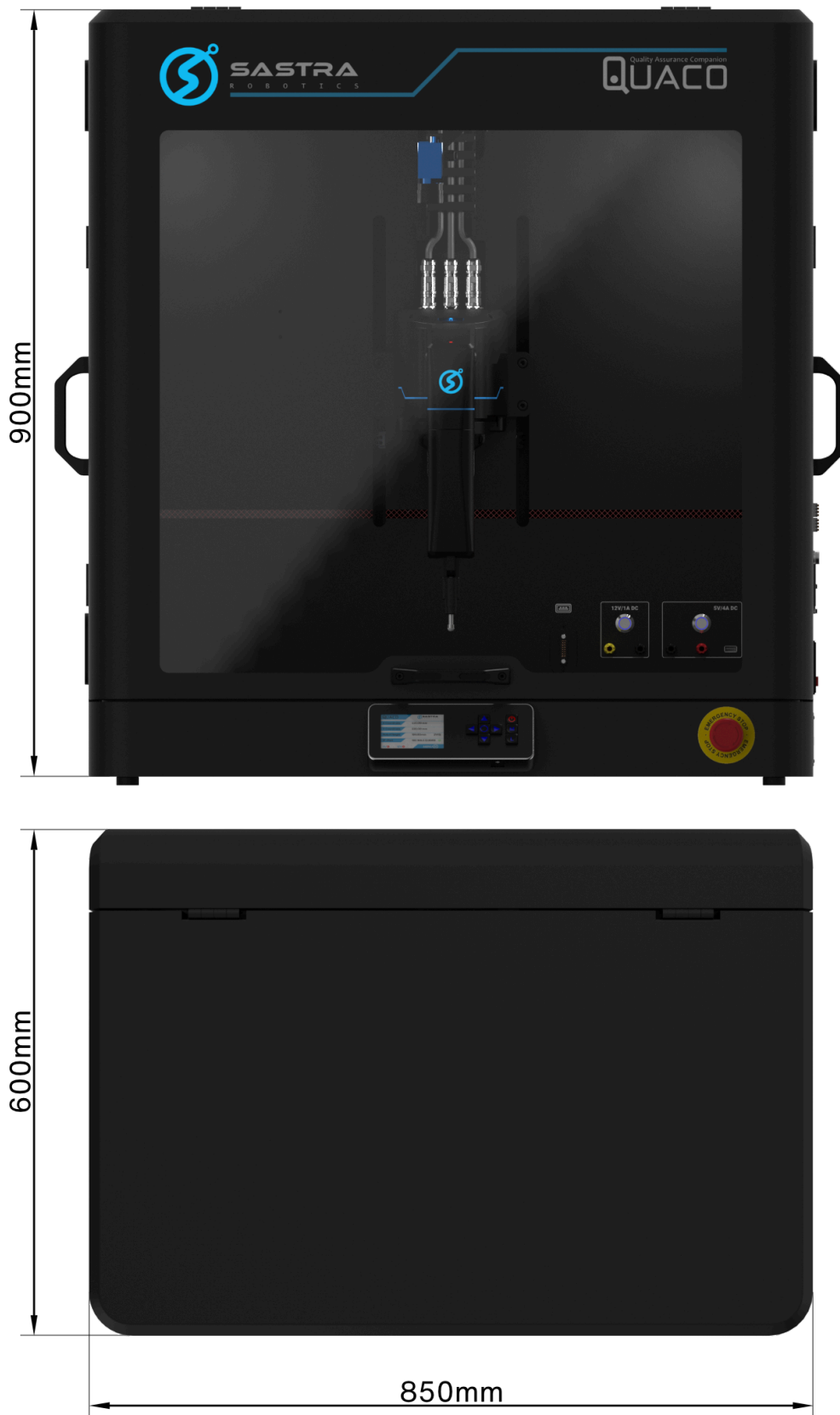
c - See Annexure for more details

d - Test Conditions: Retract Stroke: 8 mm, Test Force: 150 gm.

e - Recommended speed of operation with precision, the hardware is able to achieve 360+ clicks without force control which can be implemented with a software upgrade if needed.

f - Consumables/accessories need to be changed regularly as per user manual guidance to ensure the maximum performance.

Annexure



The work area of Quaco Pro with SR-DIMENZIO Cartesian manipulator arm is shown below.

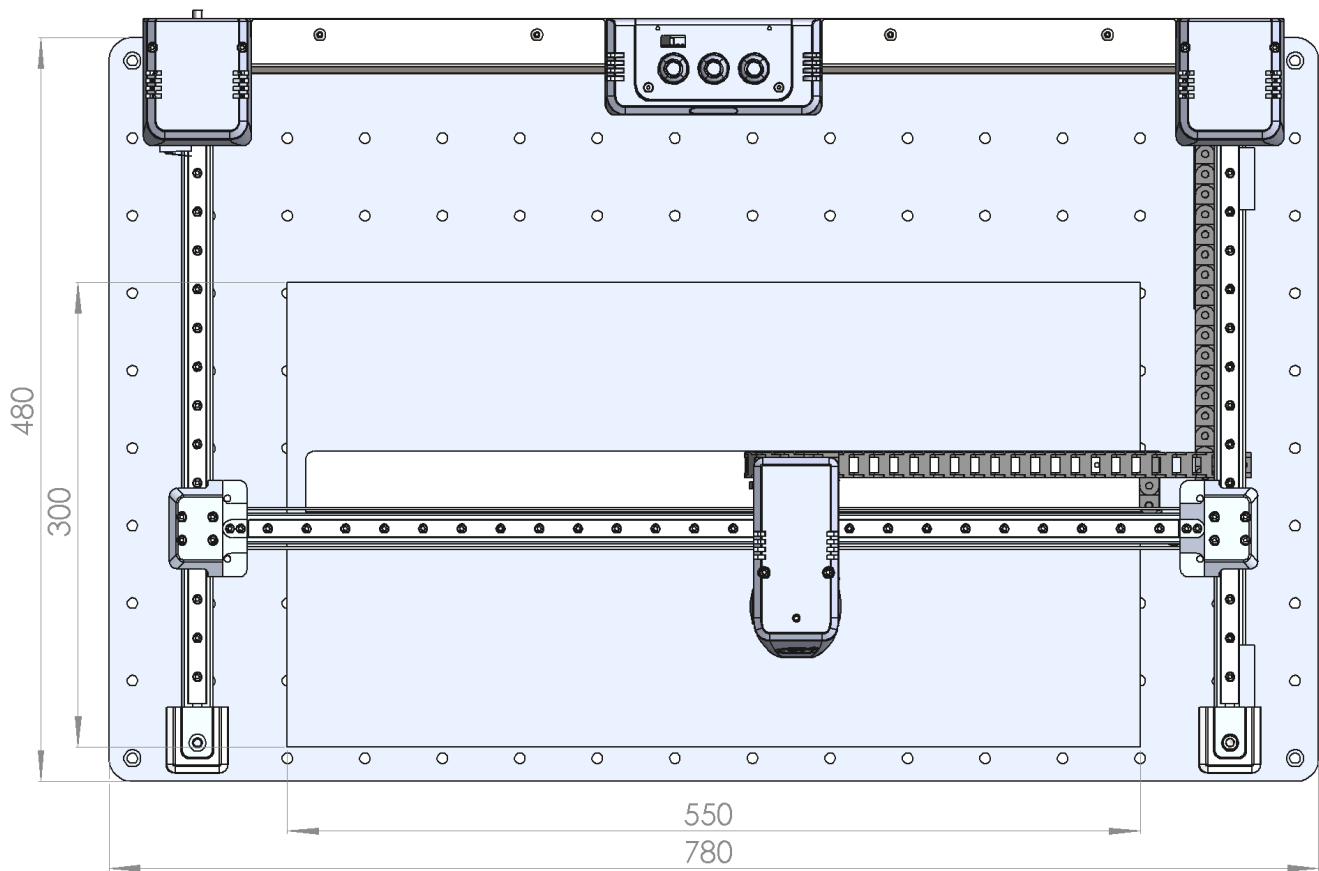


FIG 1: WORK AREA REPRESENTATION OF QUACO PRO - DIMENZIO