

Omron TM Collaborative Robot: Robot Stand

User's Manual



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Statement of Responsibilities for Cybersecurity Threats

To maintain the security and reliability of the system, a robust cybersecurity defense program should be implemented, which may include some or all of the following:

Anti-virus protection

- Install the latest commercial-quality anti-virus software on the computer connected to the control system and keep the software and virus definitions up-to-date.
- Scan USB drives or other external storage devices before connecting them to control systems and equipment.

Security measures to prevent unauthorized network access

- Install physical controls so that only authorized personnel can access control systems and equipment.
- Reduce connections to control systems and equipment via networks to prevent access from untrusted devices.
- Install firewalls to block unused communications ports and limit communication between systems. Limit access between control systems and systems from the IT network.
- Control remote access and adopt multifactor authentication to devices with remote access to control systems and equipment.
- Set strong password policies and monitor for compliance frequently.

Data input and output protection

- Backup data and keep the data up-to-date periodically to prepare for data loss.
- Validate backups and retention policies to cope with unintentional modification of input/output data to control systems and equipment.
- Validate the scope of data protection regularly to accommodate changes.
- Check validity of backups by scheduling test restores to ensure successful recovery from incidents.
- Safety design, such as emergency shutdown and fail-soft operations in case of data tampering and incidents.

Additional recommendations

- When using an external network environment to connect to an unauthorized terminal such as a SCADA, HMI or to an unauthorized server may result in network security issues such as spoofing and tampering.
- You must take sufficient measures such as restricting access to the terminal, using a terminal equipped with a secure function, and locking the installation area by yourself.
- When constructing network infrastructure, communication failure may occur due to cable disconnection or the influence of unauthorized network equipment.
- Take adequate measures, such as restricting physical access to network devices, by means such as locking the installation area.
- When using devices equipped with an SD Memory Card, there is a security risk that a third party may acquire, alter, or replace the files and data in the removable media by removing or unmounting the media.

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Revision History

Revision	Date	Revised Content
01	October, 2018	Original release
02	June, 2023	Minor updates

1. Product Function and Specification

1.1 Function

TM Robot Stand is a convenient tool for users to adjust the height of the platform. Users can move TM Robot Stand with TM Robot to different work cells to achieve easy and flexible deployment.

1.2 Specification

Depth	630 mm
Width	750 mm
Height	700~1000 mm
Weight	125 kg
Applicable Robot	TM5-700, TM5-900, TM7S, TM5S only
Applicable control box	HW3.0, HW3.1, HW3.2, HW5.0 AC version only
Max. Recommended Profile*	Up to 80% of the max speed with the half max payload and the default acceleration rate (500 ms of Time to top speed).

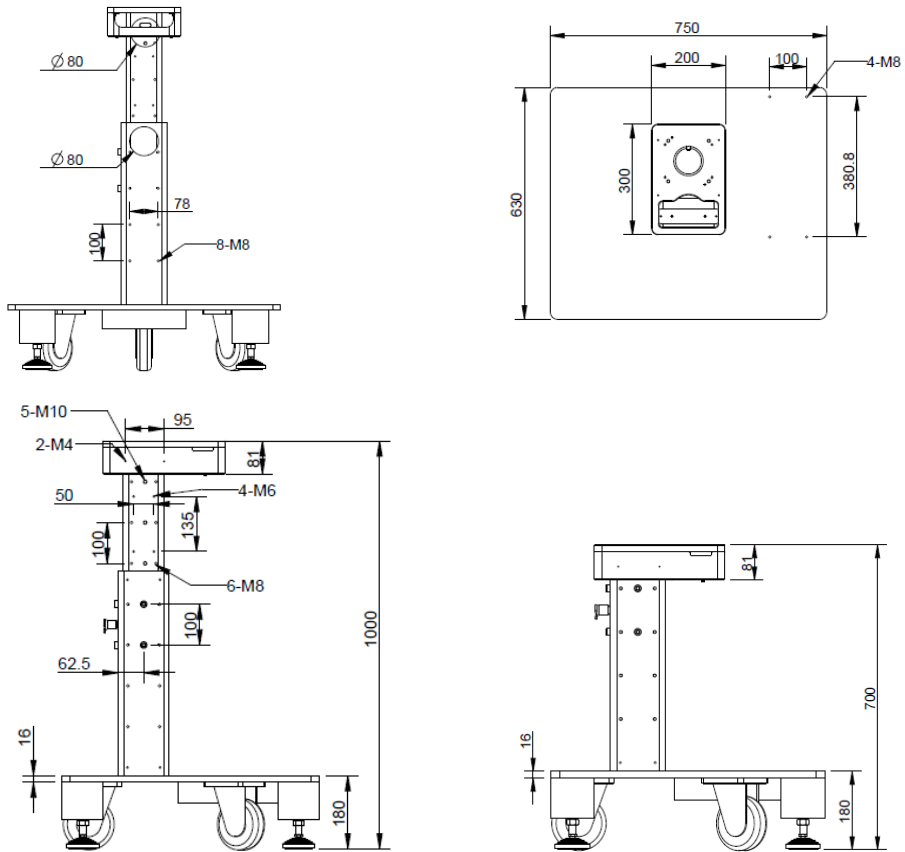
*The Max. Recommended profile has much to with the pose, the motion, the acceleration, and the characteristics of the ground surface.



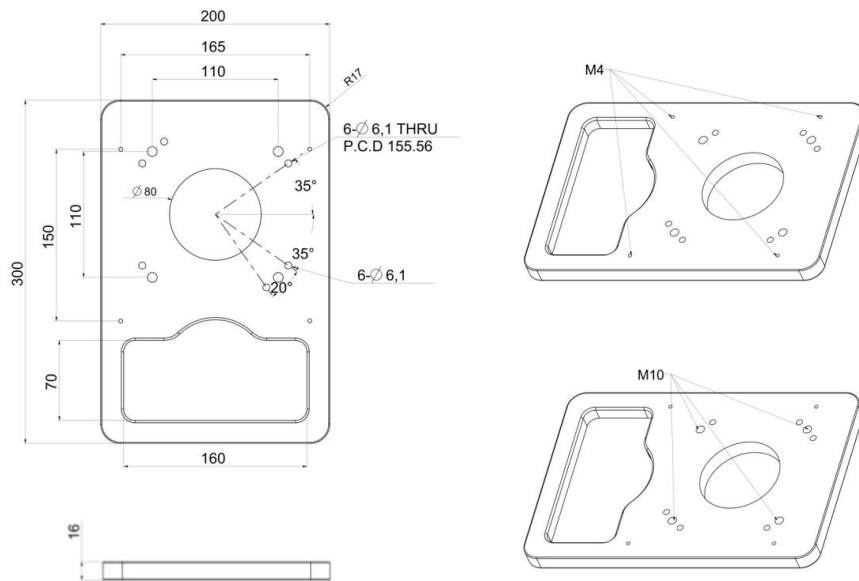
WARNING:

Before installing and using this product, users must first perform a risk assessment based on the conditions of use. Due to its high center of gravity, the stability of the TM Robot Stand has much to do with the robot kinematics (including velocity, acceleration, and poses) and the environment (including characteristics of the floor surface and structure). TM Robot states the following risks: Operating the product without proper risk evaluation, testing, and carefully reading the product's operating manual may result in tilt, pinches, and even life-threatening dangers. Failure to perform a proper risk assessment or comply with the TM product manuals may increase the risk of injury or death. Do not mistakenly regard the recommended maximum operating conditions and the related data about the product as the guarantee of the Corporation.

1.3 Three-View Diagram



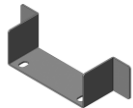







1.4 Flange Surface Diagram



2. Packing List

TM Robot Stand comes with the following items in the package.

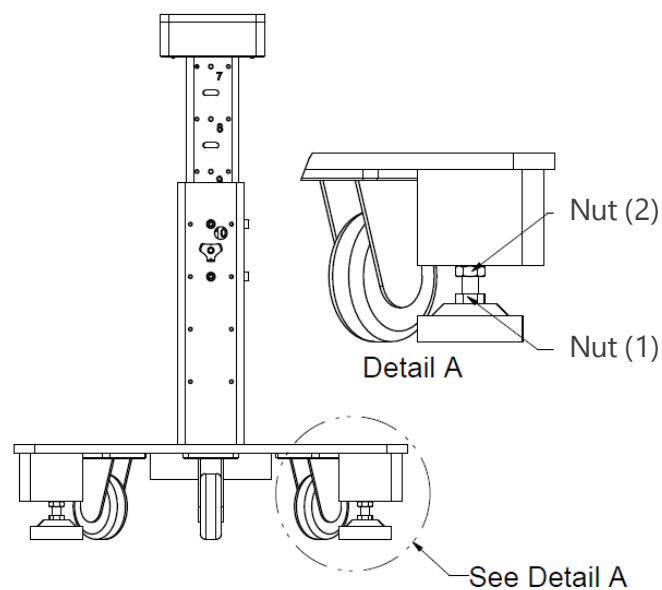
#	Item	Description	Quantity
1		TM Robot Stand	1
2		HW5.0 Robot Stick Holder	1
3		Bracket for Control Box HW3.X	2
4		Bracket for Control Box HW5.0 - LEFT	1
5		Bracket for Control Box HW5.0 - RIGHT	1
6		M4*12 mm Screw	2
7		M8*15 mm Screw + Washer	4
8		M10*30 mm Screw + Washer	4

3. Installation

3.1 TM Robot Stand Assembly

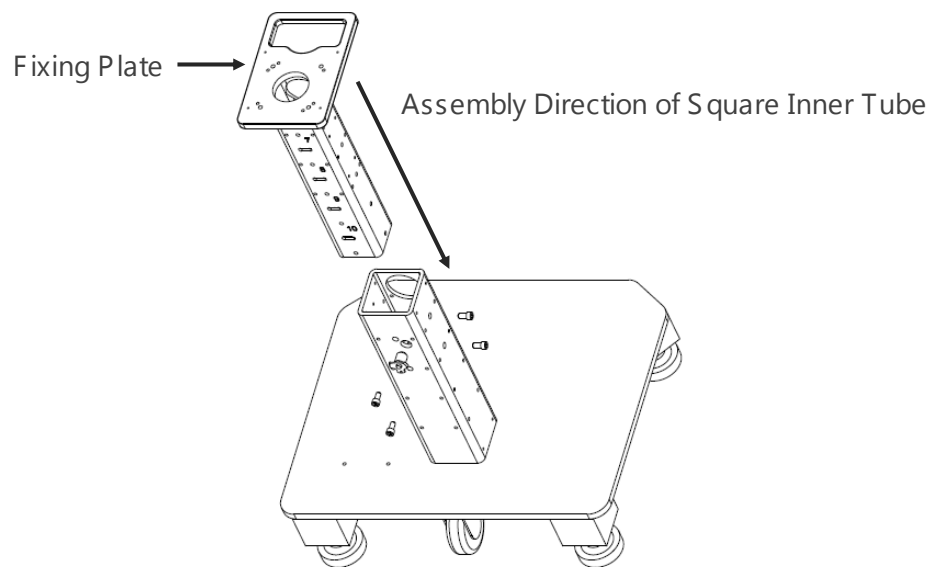
3.1.1 Fix the Adjustable Feet

1. Loosen Nut (1) to release the adjustable feet by whether if the movable casters rotate free.
2. Adjust the required height and verify the adjustable feet to touch the ground.
3. Tighten Nut (2) to keep the adjustable feet from loosening.
4. For the safety and the stability of operation, users should always put down the adjustable feet to avoid sliding when proceeding with the robot disassembly or using the robot assembled TM Robot Stand.

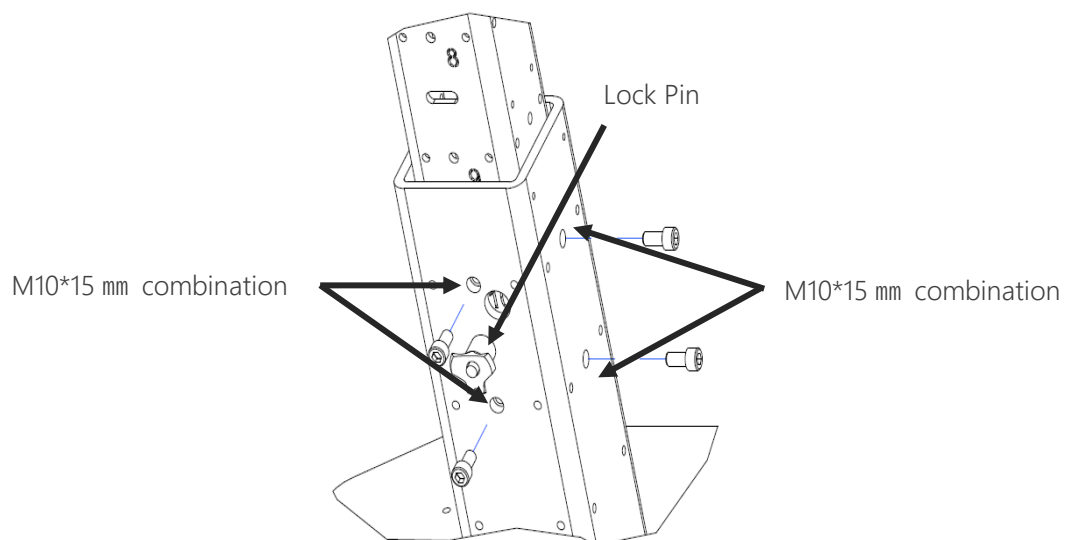


3.1.2 Adjust the Height of TM Robot Stand

1. Ensure that the TM Robot Stand does not move freely. Then insert the square inner tube into the square outer tube as shown. The installation direction of the robot fixing plate above the square inner tube should be the same as the diagram above.



2. Adjust the square inner tube to the required position and insert the lock pins.
3. The height indicator on the square inner tube shows the current height from the fixing plate to the ground. Available tiers of four to choose from are 7, 8, 9, and 10.
4. The number of the height indicator denotes the approximate clearance between the fixing plate and the ground. To multiply the number by 100 mm is the clearance, such as 7 for 700 mm.
5. After ensuring that the square inner tube height fits the operation height, tighten the coming along M10*15 mm screws on both sides of the square outer tube, as shown. There are two positions to fix the screws on each side. Use nyloc before tightening the screws.



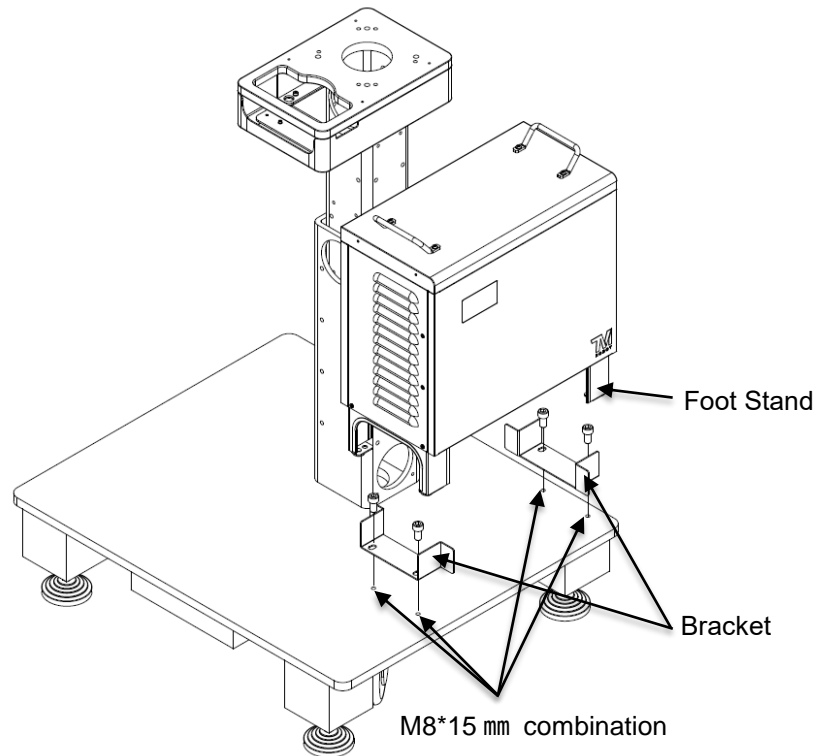


DANGER:

When adjusting the height of the TM Robot Stand, there must be two operators to avoid danger. One helps hold the inner tube, and the other changes the extent. The Corporation will not be liable for any injuries caused during operation.

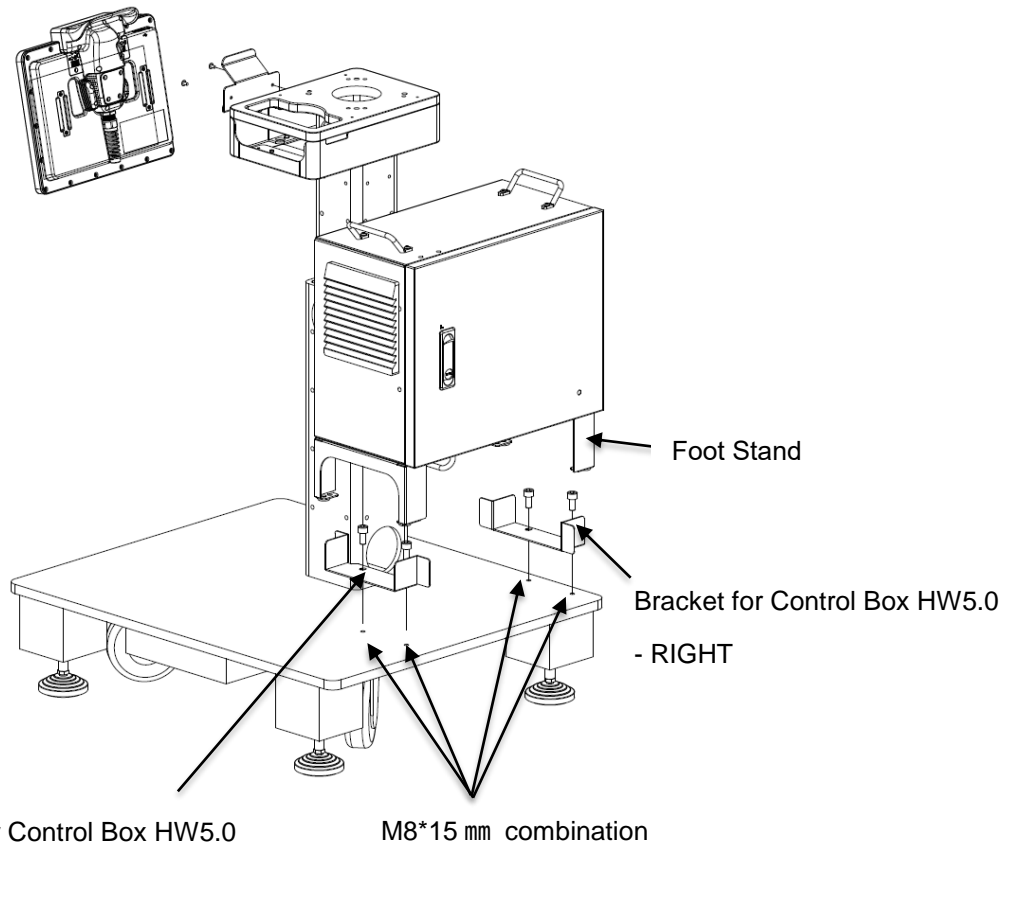
3.2 Control Box Assembly for HW 3.X

Tighten the brackets by fastening two M8*15 mm screws for each side on the base plate. Stuck the foot stands on the outside corners.

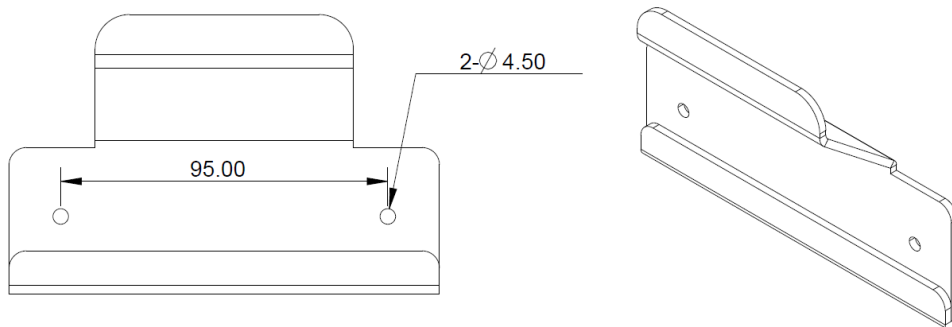


3.3 Control Box Assembly for HW 5.0

Tighten the brackets by fastening two M8*15 mm screws for each side on the base plate. Stuck the foot stands on the outside corners.



HW5.0 Robot Stick and its holder should be installed properly by the integrated applications or outside the safeguarded space based on the risk assessment. The distance of screw holes is 95 mm with M4*5 mm screws



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