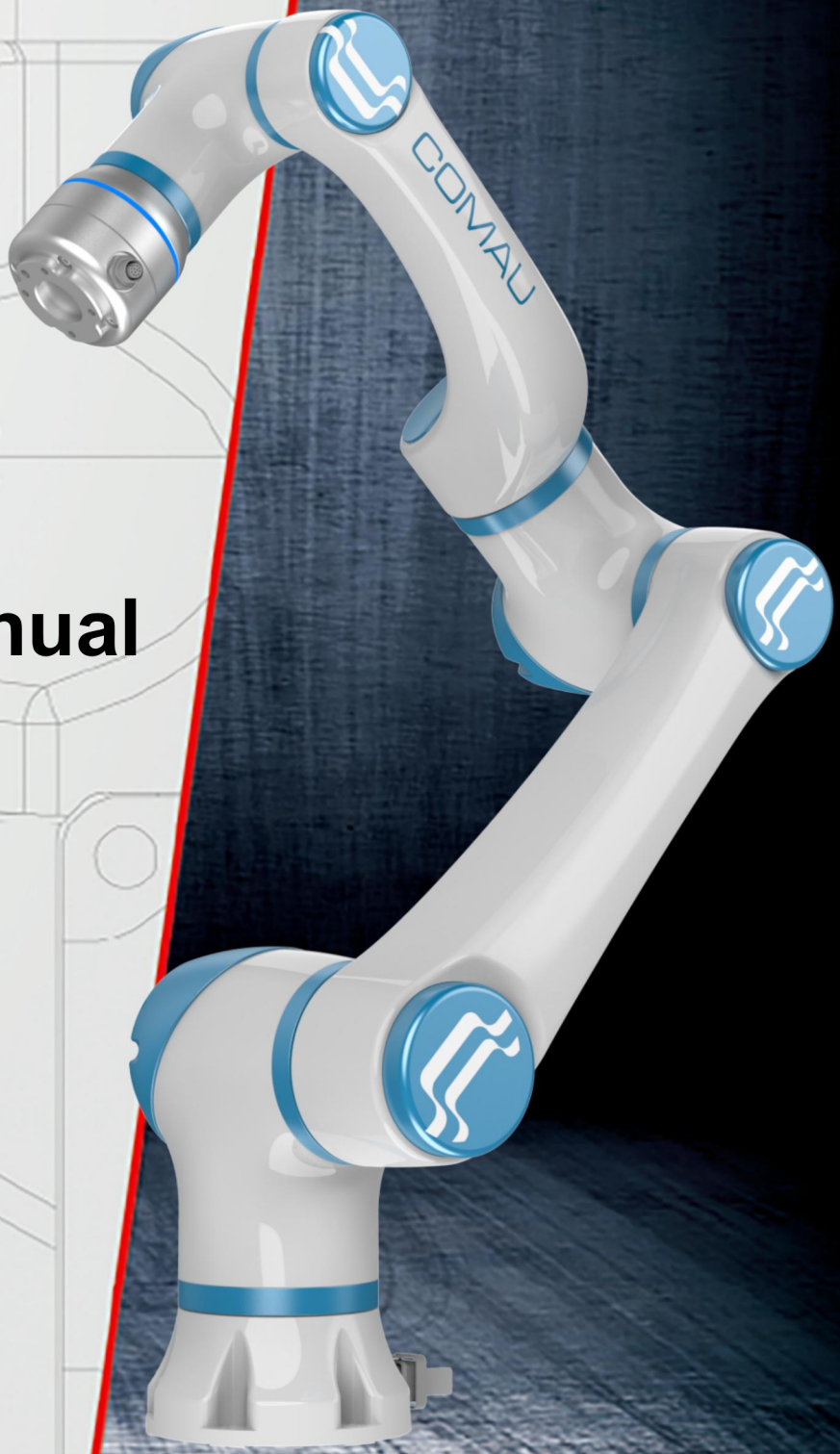
MyCo Robot Series

Comau Cobot Mechanical Manual



CR00758372-en_00/2025.08

Instruction Handbook

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Introduction

This chapter contains:

- How to Use this Manual
- Safety Advice for users
- Comau Service Center
- Contact Details

How to Use This Manual

This manual is aimed at operators of the MyCo Robot who have some knowledge of electricity and programming. The manual will guide the operators in the use of the MyCo in the following ways.

- Safety matters: The operators should bear in mind all safety instructions.
- Mechanical installation: The operators are instructed on the installation of the robot.
- Electrical interfaces: The open interfaces of MyCo are presented to facilitate secondary development.
    - Software control: The operators are instructed on the installation and operation of the software.
    - Safety configuration: Basic safety settings are presented.

Safety Advice for users

There is a potential risk during operation in collaborative mode. It is the integrator's or user's responsibility to acknowledge the manufacturer's warnings, evaluate the risks associated with their specific application (as example: specific mechanical tools, grippers, etc.), and take all necessary precautions to avoid potential hazards. This includes configuring the robot's speed and sensitivity thresholds appropriately to ensure safe collaborative behavior.
The manufacturer disclaims all responsibility for any injury, accident, or damage to persons or property caused by improper use of the robot.

Comau Service Center

In case of need it is possible to contact the Comau Service Centre at the following addresses:

Sector	Address	Service provided
Service	https://www.comau.com/en/contact-us/after-salesl	Assistance in troubleshooting and software options request
		To require spare parts
		To require repair activities

Contact Details

Address: Via Rivalta, 30, 10095 Grugliasco (TO), Italy

Website: https://www.comau.com/

Modification History

Date	Edition of the Handbook	Contents
2025-08	00/2025.08	First release of the handbook

Safety Matters

This chapter contains the following topics:

– Warning Signs
– Safety
– Safety Precautions
– Responsibilities and Norms
– Intended Use
– Dealing with Emergencies
– Braking Distance and Braking Time
– Handling and Precautions
– Other Potential Risks
– Repair and Maintenance Instructions

1.1 Warning Signs

The following different levels of safety markings will appear in this manual.



Danger: Failure to follow instructions can result in death or serious injury.



Warning: Failure to follow instructions can result in injury to persons or serious damage to the equipment.



Caution: Failure to follow the instructions may result in damage to the appliance.

1.2 Safety

1.2.1 Introduction

This chapter describes the safety principles and regulations that should be observed when operating a robot or the system of robot. This manual must be read carefully by the integrator and the user, with the warning signs being highlighted and strictly observed. Due to the complex and dangerous nature of robotic systems, users need to be fully aware of the risks involved in operating them and to comply with and enforce the specifications and requirements in this manual. Users and integrator need to be fully aware of the safety aspects and comply with ISO 10218, the safety standard for industrial robots.

MyCo robots are equipped with a wide range of built-in safety functions as well as safety I/O, digital and analogue control signals to and from the electrical interface for connection to other machines and additional protection devices.

Note:



- The use and configuration of safety features and interfaces must follow the risk assessment procedures for each robot application.
- If the robot detects a fault or violation in the safety system (e.g. a wire in the emergency stop circuit is cut or a safety limit violation occurs) the robot will immediately cut off the power and stop.
- Stopping time should be considered as part of the application risk assessment.

Danger:



- The use of safety configuration parameters that differ from those identified in the risk assessment can result in hazards that cannot reasonably be eliminated or risks that cannot be adequately mitigated.
- The connection of the tool and jaws is ensured to be correct to avoid danger in the event of a power interruption.
- The end-effector is not protected by the safety system of Comau S.p.A. The end-effector and/or the function of the connection cable are not monitored.

1.3 Safety Precautions

1.3.1 Overview

This manual contains safety measures to protect the user and to prevent damage to the machine. The user needs to read all the relevant descriptions in the manual and be fully familiar with the safety matters. In this manual, we have tried to describe as many situations as possible. However, as there are so many possibilities, it is not possible to document all the situations that cannot or should not be done.

1.3.2 Instructions for Use

The following basic information needs to be understood and followed when starting up a robot or the system of robot for the first time, and other safety-related information is described elsewhere in the manual. However, it is not possible to be exhaustive and, in practice, specific issues need to be addressed.

1.3.3 For installation Operations



- Always install the robot and all electrical equipment in accordance with the requirements and specifications in these instructions.
- Initial testing and inspection of the robot and its protection system is required before the robot is used for the first time and before it is put into production.
- Before starting up the system and equipment for the first time, the equipment and system must be checked for integrity, safety of operation and any damage detected. Compliance with national or regional safety regulations is to be observed during this test and all safety functions must be tested.
- The user must check and ensure that all safety parameters and user programs are correct and that all safety functions are working correctly. A person qualified to operate the robot is required to check each safety function. The robot must only be started after a thorough and careful safety test has been carried out and the safety level has been reached.
- Specialist personnel are required to install and commission the robot in accordance with the installation standards.
- Once the robot has been installed and built, a full risk assessment will be carried out again and documentation will be kept.
- The security parameters are set and changed by authorized personnel, and passwords or isolation measures are used to prevent unauthorized personnel from changing or setting the security parameters. After the security factor has been modified, the relevant security functions need to be analyzed.



- In the event of an accident or abnormal operation, the robot can be stopped by pressing the emergency stop switch.
- MyCo Robots joint module is fitted with brakes to maintain the robot's stance during power failures.
- MyCo Robots have a collision detection function. When the robot is energized by an external force that exceeds the normal range of forces set by the user for safety, the robot will automatically stop to prevent the robot or the operator from being injured in a collision. This feature is specifically designed by MyCo Robots for the safety of human-robot collaboration, but it requires the system of robot to be within normal operating limits and to use the MyCo range of control cabinets. If the user develops his/her own controller, the robot will not have these functions. The user is responsible for the consequences of this hazard.

1.3.4 Operational and Thermal Aspects



- The robot body and control cabinet generate heat during operation. Do not operate or touch the robot while it is in operation or when it has just stopped working.
- Turn off the power and wait one hour before the machine cools down.
- Do not put your fingers into the hot area of the control cabinet.

1.3.5 Usage



- Ensure that the robot's arms and tools are correctly and securely fitted in place.
- Ensure that the robot's arms have enough space to move freely.
- If the robot is damaged, please do not use it and contact the technical support of Comau S.p.A.
- Do not connect safety devices to normal I/O interfaces, only use safety I/O interfaces.
- Ensure that the correct installation settings are made (e.g. mounting angle of the robot body, weight in TCP, TCP tool coordinates, safety configuration). Save the installation file and load it into the program.
- Tools and obstacles must not have sharp corners or twisted points. Ensure that the heads and faces of all people are out of reach of the robot.
- Pay attention to the motion of the robot when using the Teach Pendant. Any impact will release a large amount of kinetic energy, which is much higher than at high speeds and high payloads.
- Connecting different pieces of machinery may aggravate hazards or create new ones. Always carry out a thorough risk assessment of the entire installation. When different safety and emergency stop performance levels are required, always select the highest performance level. Always read and understand the manuals for all equipment used in the installation.
- Do not modify the robot. Changes to the robot may cause unpredictable hazards for integrator. The robot is authorized to be rebuilt in accordance with the latest version of all relevant service manuals. If the robot is altered or modified in any way, Comau S.p.A. declines all responsibility.

1.3.6 Application Environment



- When the robot is connected to or working with machinery that can cause damage to the robot, it is strongly recommended that all functions of the robot and the robot program are checked separately. It is recommended to use temporary way points outside the working space of other machines to check the robot program.
- Comau S.p.A. is not responsible for damage to the robot or injury to persons caused by errors in the script or improper operation of the robot.
- Do not expose the robot to permanent magnetic fields at all times. Strong magnetic fields can damage the robot

1.3.7 Personnel Security

When operating the system of robot, the safety of the operator must be ensured first and foremost. The following are general precautions to be taken to ensure the safety of the operator.



Each operator using the system of robot should receive training through a training course organized by Comau S.p.A Users are required to ensure that they are fully qualified to operate the robot in accordance with safe and standard operating procedures. For more information on training, please contact us at https://www.comau.com/

- Do not wear loose clothing or jewellery when using the system of robot. When operating the robot, ensure that long hair is tied back behind the head.
- When the machine is in operation, even if the robot appears to have stopped, it may be in a state of imminent motion because it is waiting for a start signal. Even in such a state, the robot should be considered as being in motion.
- Lines should be drawn on the floor to mark the robot's range of motion so that the operator understands the range of motion of the robot including the gripping tools (manipulators, tools, etc.).
- Ensure that safety measures (e.g. guardrails, ropes, or protective screens) are in place near the robot's operating area to protect the operator and the surrounding population. Locks should be installed as necessary so that no one other than the operator can access the robot's power source.
- When using the operating panel and Teach Pendant, it is important to remove gloves before working as gloves may cause operational errors.
- In emergency and unusual situations, such as when a person is caught in or surrounded by the robot, force the joint to move by pushing or pulling on the robot arm with force. Manual movement of the robot arm without electric drive is limited to emergency situations and may damage the joint.

1.4 Responsibilities and Norms

MyCo Robots can form complete machines with other equipment and are not complete in their own right. Therefore, the information in this manual does not cover how to design, install and operate a complete robot comprehensively, and it does not cover all the possibilities that have an impact on the safety of the peripheral equipment of this complete system. The safety of a complete robot installation depends on how the robot is integrated. The integrator is required to carry out a risk assessment of the design and installation of the complete system in accordance with the laws, regulations and safety codes and standards of the country in which it is located. The risk assessment is one of the most important tasks that the integrator must complete and the following criteria can be used to implement the risk assessment process.

- ISO 12100:2010 Safety of machinery - General principles of design - Risk assessment and risk reduction.
- ISO 10218-2:2011 Robots and robotic equipment - Safety requirements - Part 2: Industrial

the system of robots and integration.

- RIA TR R15.306-2014 Technical report on industrial robots and robotic systems - Safety requirements, task-based risk assessment methods.
- ANSI B11.0-2010 Safety of machinery; general requirements and risk assessment.

Integrator of MyCo robots are required to perform, but not limited to, the following responsibilities.



- Comprehensive risk assessment of complete robotic systems;
- Confirmation of accurate design and installation of the entire system;
- Providing training to users and staff.
- Creating a complete and systematic code of practice, with clear instructions on how to use it; establish appropriate security measures.
- Use appropriate methods to eliminate hazards or minimize all hazards to an acceptable level at the time of final installation;
- Communicate the residual risk to the end user.

Marking the robot with the integrator logo and contact information; archiving the relevant technical documentation.

For a guide to the applicable standards and laws, please visit the website at https://www.comau.com/

All safety information contained in this manual should not be considered as a guarantee by Comau S.p.A.

Comau S.p.A. is committed to continuously improving the reliability and performance of its products and therefore reserves the right to upgrade its products without prior notice.

1.4.1 Hazard Identification

The risk assessment should consider all potential contact between the operator and the robot during normal use as well as foreseeable mishandling. The operator's neck, face and head should not be exposed to contact. The use of the robot without the use of peripheral safety guards requires a risk assessment to be carried out first to determine whether the hazards involved would constitute an unacceptable risk, for example:



- The use of sharp end-effector or tool connectors may be dangerous.
- The handling of toxic or otherwise hazardous substances may be hazardous.
- The risk of the operator's fingers being caught in the base or joints of the robot.
- The risk of collision by robots.
- The danger of the robot or the tools attached to the end not being secured properly.
- Hazards caused by impacts between the robot payload and solid surfaces.

Integrator must measure such hazards and their associated risk levels through a risk assessment, and identify and implement measures to reduce the risk to an acceptable level. Please note that there may be other significant hazards associated with specific robotic equipment.

The risks associated with the collaborative operation of the MyCo range of robots are reduced to as low a level as reasonably practicable by combining the inherent safety design measures applied to MyCo robots with the safety specifications or risk assessments implemented by

integrator and end users. This document allows any residual risks to be communicated to the integrator and end user prior to the installation of the robot. If the integrators' risk assessment determines that there are hazards in their particular application that may pose an unacceptable risk to the user, the integrator must take appropriate risk reduction measures to eliminate or minimize these hazards until the risk is reduced to an acceptable level. It is not safe to use it until appropriate risk reduction measures (if required) have been taken.

If the robot is installed non-cooperatively (e.g. when dangerous tools are used), the risk assessment may infer that integrator need to be programmed with additional safety equipment (e.g. safe start devices) to ensure the safety of people and equipment

1.5 Intended Use

The following statements of use are made when MyCo robots are used only as general industrial equipment, e.g. to operate or hold tools, equipment, process or deliver parts or products. The MyCo robots are only permitted to be used under specified environmental conditions. For specific information on the operating environment and operating conditions, please refer to the Appendix section.

MyCo robots have special safety level features that allow them to be operated collaboratively, i.e. without peripheral safety guards. However, this is only possible if the risk has been assessed as non-hazardous. This means that anticipated or accidental contact between the worker and the MyCo robot or its end-effector or components does not pose an unacceptable risk, nor does anticipated or accidental contact with other objects (tools, equipment, surfaces, etc.) in the work area, provided that no safety guards or field sensing devices are used.

Robot controllers and robots are restricted to general industrial use and may not be used in applications contrary to their intended use. Prohibited uses include, but are not limited to, the following.



- For use in hazardous environments such as flammable and explosive atmospheres.
- A device for moving or handling people or other animals.
- For devices such as medical equipment involving human life.
- For installations that have a significant impact on social and public nature.
- For use in vibration-sensitive environments such as vehicles and ships.
- For use as a climbing tool.

1.6 Dealing with Emergencies

1.6.1 Emergency Stop

Pressing the emergency stop button will stop all robot movements. The emergency stop cannot be used as a risk reduction measure, but can be used as a secondary protection device.



If multiple emergency stop buttons are to be connected, a risk assessment of the robot application must be included. The emergency stop button meets the requirements of IEC

60947-5-5.

The MyCo robots are equipped with an emergency stop button on the control cabinet and on the Teach Pendant, which must be pressed in the event of a dangerous situation or emergency. The control cabinet is equipped with an external emergency stop button port, which can be used by integrator or users as appropriate.

Tools or equipment connected to the end point that pose a potential threat must be integrated into the system's emergency stop circuit and failure to comply with this warning may result in death, serious personal injury or substantial property damage.

1.6.2 Recovery from Emergency



All push-button emergency stop devices have a "locking" function. This "lock" must be opened in order to end the emergency stop of the device. The "lock" can be opened by turning the emergency stop button.

Resuming from an emergency stop is a simple but very important step that should only be carried out once the danger to the system of robot has been completely removed.

1.6.3 Emergency Movement of Forced Joints



On rare occasions, it may be necessary to move one or more robot joints in an emergency situation where the robot's power supply has failed or is not wanted, this can be done by forcing the robot joints to move by.

Forced reverse drive: push or pull the robot arm with force to force the joints to move

Forced manual movement of the robot arm is limited to emergency situations and may damage the joints.

1.6.4 Robotic Body Overpowering Safety Protection



The robot body is protected by an over force safety function. When the robot body is powered up and stationary, the robot body will passively move in the direction of the collision force if an operator or other object accidentally touches the robot body and the collision force exceeds the safety threshold. This function ensures that in the event of a collision between an operator or other object and the robot body, damage to the operator, other objects and the robot body is reduced.

This function reduces the risk of collision damage and is subject to risk assessment for other uses. Safety emergency handling.

1.7 Braking Distance and Braking Time



Braking distance and braking time for category 1 stop

When the robot triggers a category 1 stop in the following configuration, the braking distance and braking time are measured in the following table.

- Extension: 100% (robot is fully extended horizontally at maximum arm length).

- Speed: 100% (general speed of the robot is set to 100% and the movement is performed at a joint speed of 150°/s).
- Payload: The maximum payload handled by the robot connected to TCP.

Braking distance (rad)	Braking time (ms)
1 axis (J1)	0.637	320
2 axis (J2)	0.637	250
3 axis (J3)	0.637	174

1.8 Handling and Precautions



When lifting the robot, the moving parts should be positioned in such a way that they do not cause unintended movements during lifting and transport, which can be harmful.

When packing for transport, the robot should be packed in accordance with packaging standards and marked with the required markings on the outside of the box. When transporting the robot, it is important that it is stable and that it is held in place. The control cabinet should be lifted using the handles. When moving the robot from its packaging material to the installation position, hold the robot until all the bolts in the robot base have been tightened.

After fixing the robot, power up the robot and use the robot dragging and teaching function to adjust the robot's attitude to the right position. After transport, keep the robot in its original packaging. Store the packaging material in a dry place in case you need to repack and move the robot in the future.

The angles of each axis of the robot in the packing posture are as follows.

Robot	J1	J2	J3	J4	J5	J6
MyCo-3-0.59	90°	0°	145°	0°	0°	0°
MyCo-5-0.80	90°	0°	145°	0°	0°	0°
MyCo-3.5-0.95	90°	0°	145°	0°	35°	0°
MyCo-10-1.00	90°	0°	145°	0°	35°	0°
MyCo-8-1.30	90°	0°	145°	0°	35°	0°
MyCo-15-1.30	90°	0°	145°	0°	35°	0°

1.9 Other Potential Risks

Please note that there may be other significant hazards associated with specific robotic equipment.

- The fingers are pinned between the lower and upper arms.
- Sharp edges and points on tools or tool connectors pierce the skin.
- Sharp edges and pointy points on obstacles near the robot's trajectory pierce the skin.
- Injured by a robot collision.
- Sprains or fractures caused by impact between the robot's payload and a solid surface.
- Consequences due to loose bolts used to secure robot arms or tools.
- Objects fall off the tool, e.g. due to inappropriate clamping or power failure.
- Operating errors due to different emergency stop buttons on different machines.

1.10 Repair and Maintenance Instructions

All safety instructions in this manual must be strictly observed during maintenance work.

Note:



- Please read the MyCo electrical Control Unit interface instructions before installing the electrical Control Unit.
- Place the electrical Control Unit as far away from the noise source as possible. Too close to the noise source may lead to misalignment or malfunction.
- Do not apply excessive force to the connector and do not bend the cable excessively. Failure to do so may result in poor contact or disconnection.
- Please ensure that the equipment is well earthed.
- After connecting the cable please use the accessory nylon clips to secure the cable.
- Do not disassemble the electrical Control Unit yourself, as this may lead to electrical leakage and electric shock.
- The electrical Control Unit is equipped with fans at both ends, so do not block them when installing and keep them well ventilated.

Dangers:

Remove the main input cable from the bottom of the electrical Control Unit to ensure it is completely disconnected. Disconnect any other energy sources connected to the robot arm or the electrical Control Unit. Take the necessary precautions to prevent others from reconnecting the system energy during maintenance.



- Please check the earth connection before switching the system back on.
- Please observe ESD regulations when dismantling the robot arm or electrical Control Unit.
- Avoid splitting the power supply in the electrical Control Unit. The electrical Control Unit can retain high voltage (up to 600V) for several hours after it has been switched off.
- Avoid water or dust entering the robot arm or the electrical Control Unit.
- After maintenance and repair, checks must be carried out to ensure the required level of safety for the service. In doing so, valid national or local safety laws and regulations must be observed. At the same time, all safety functions should be tested to ensure that they are in order.

Product Introduction

This chapter contains the following topics:

– Introduction to the MyCo Collaborative Robot
– List of Components
– Robot Body
– Electrical Control Unit

2.1 Introduction to the MyCo Collaborative Robot

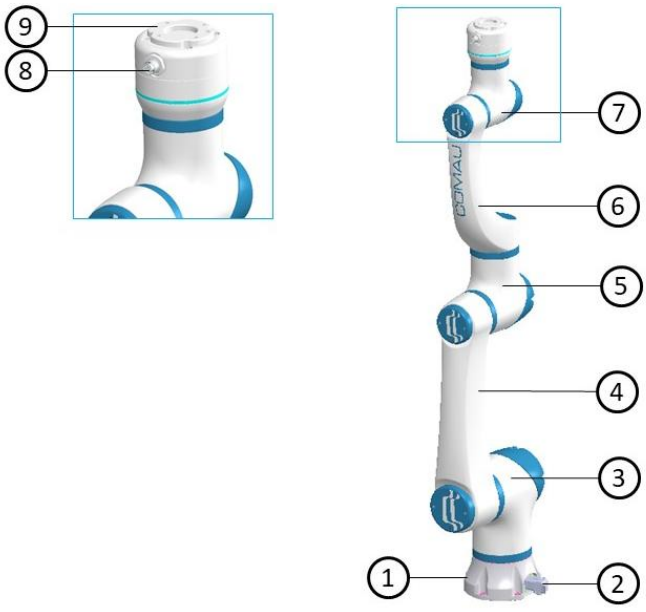
The MyCo robot is a new type of collaborative human-robot with a lightweight, modular, compact and aesthetically pleasing design that can be flexibly adapted to a variety of complex and changing industrial environments.

2.2 List of Components

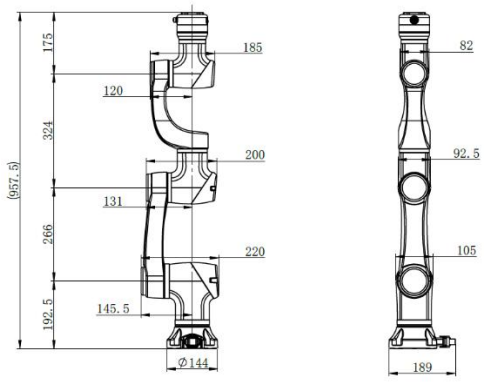
Robots	Robot body	× 1
	Terminal connection line	× 1
Electrical Control Unit	Electrical Control Unit	× 1
	Power cable	× 1
	Connection cable	× 1
Teach Pendant	Teach Pendant	× 1
Instruction manual	Stored in U disk	× 1

2.3 Robot Body

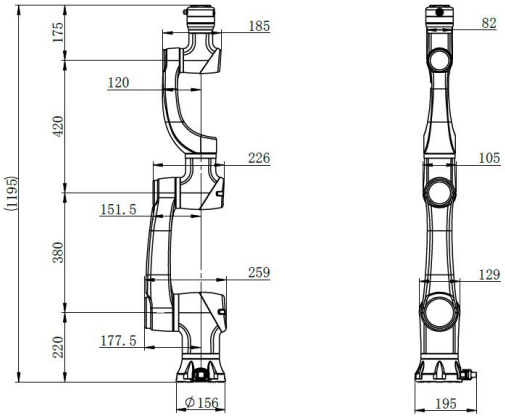
2.3.1 Names of the Components



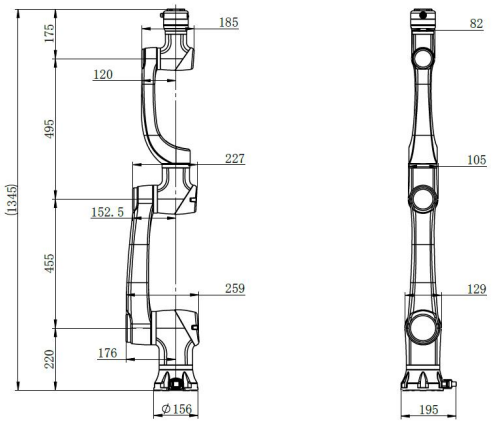
1	Base
2	Communication and power cable
3	JI-J2 Module
4	Lower arm
5	J3-J4 Module
6	Upper arm
7	J5-J6 Module
8	Tool IO
9	Tool flange



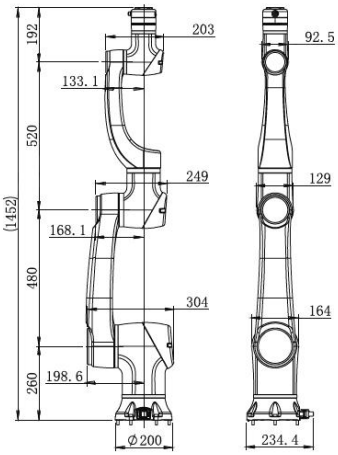
Dimensional drawing of the conventional arm model with a maximum load of Myco-3-0.59



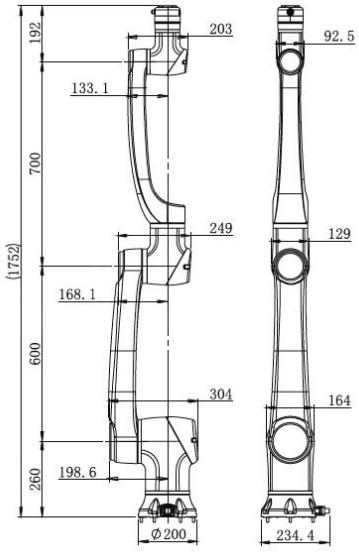
Dimensional drawing of the conventional arm model
with a maximum load of MyCo-5-0.80



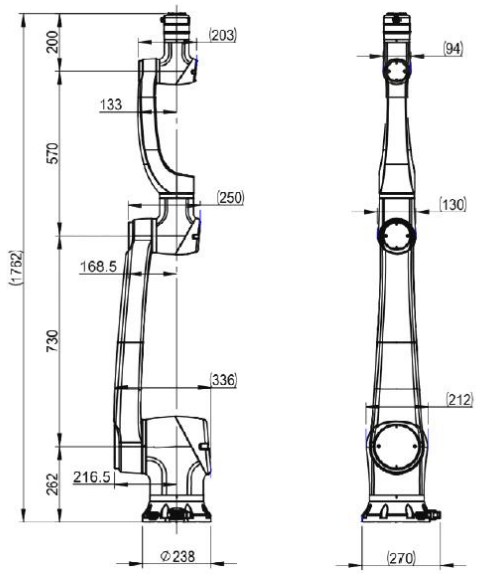
Dimensional drawing of the conventional arm model with a maximum load of MyCo-3.5-0.95



Dimensional drawing of the conventional arm model
with a maximum load of MyCo-10-1.0



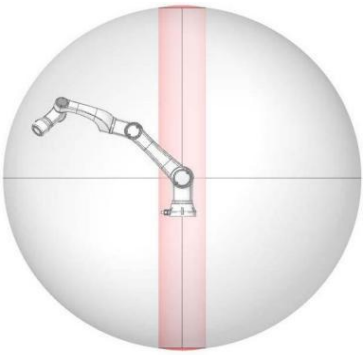
Dimensional drawing of the conventional arm model with a maximum load of MyCo-8-1.30



Dimensional drawing of the conventional arm model
with a maximum load of MyCo-15-1.30

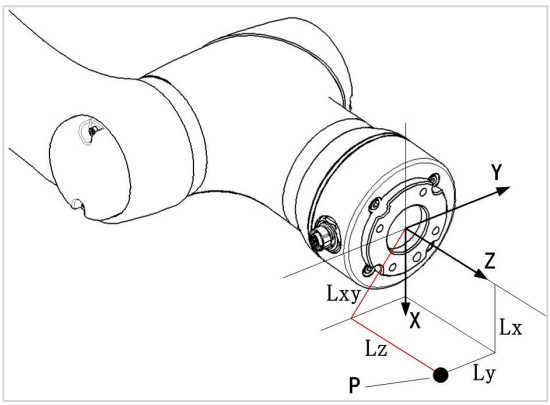
2.3.2 Robot Working Area

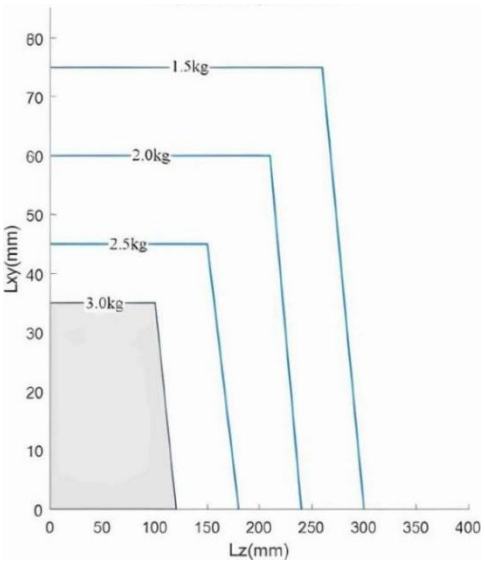
The robot's working space is the area within a specified range around the base joint (as shown in the table below). When selecting the robot mounting position, always consider the cylinder space directly above and below the robot. Whenever possible, avoid moving the tool into the cylindrical space. This can cause the joints to move too fast when the tool is moving slowly, which can lead to inefficient robot work and make it difficult to carry out risk assessments.

Model	Scope of work
Myco-3-0.59	590mm
MyCo-5-0.80	800mm
MyCo-3.5-0.95	950mm
MyCo-10-1.0	1000mm
MyCo-8-1.30	1300mm
MyCo-15-1.30	1300mm
	

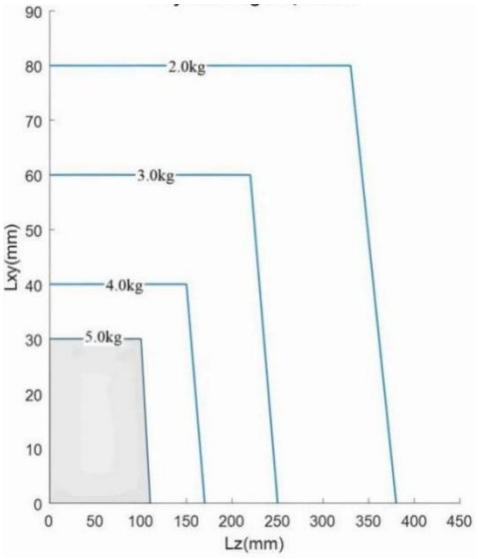
2.3.3 Maximum Tool Load Range

The distance between the centre of gravity of the robot's end load and the centre of the mounting flange varies accordingly to the maximum permissible load. The relationship between the distance from the centre of gravity and the maximum permissible load is as follows.

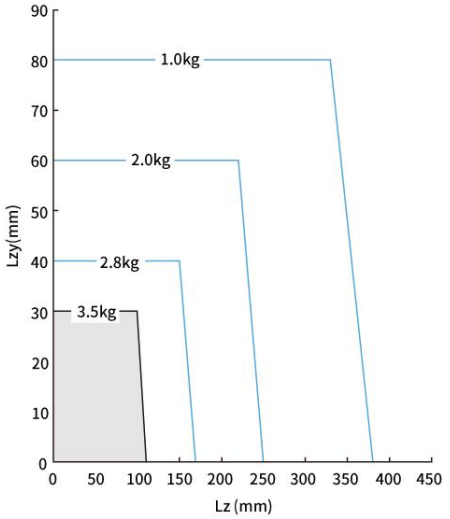




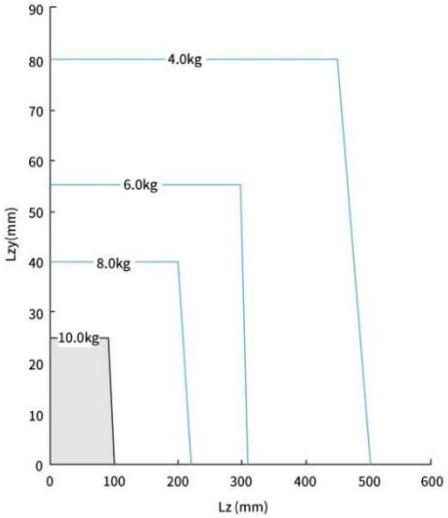
Payload diagram of Myco-3-0.59



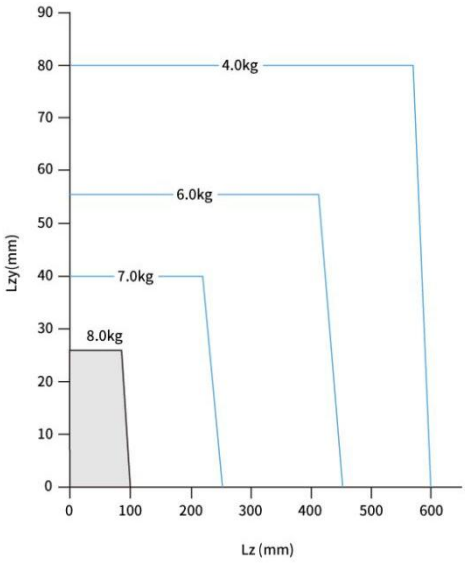
Payload diagram of MyCo-5-0.80



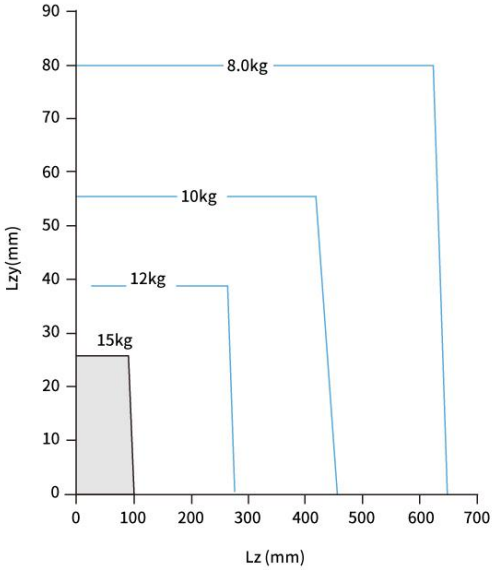
Payload diagram of MyCo-3.5-0.95



Payload diagram of MyCo-10-1.0



Payload diagram of MyCo-8-1.30



Payload diagram of MyCo-15-1.30

2.3.4 Joint motion angle range

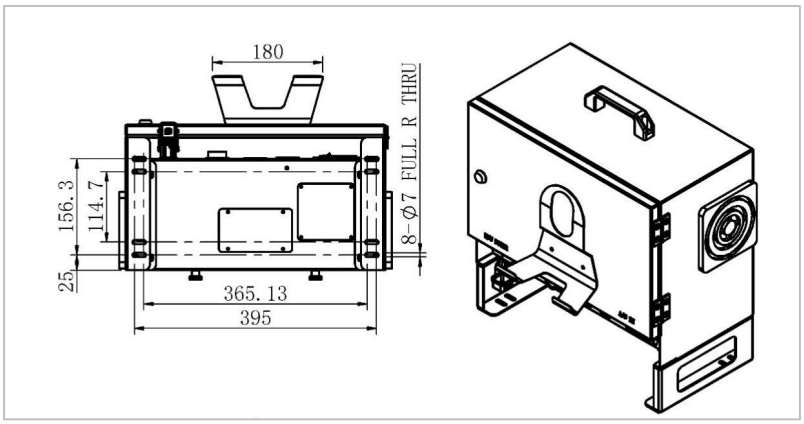
	Myco-3-0.59	MyCo-5-0.80
J6	±360°	±360°
J5	±147°	±180°
J4	±360°	±360°
J3	±150°	±153°
J2	±135°	±135°
J1	±360°	±360°

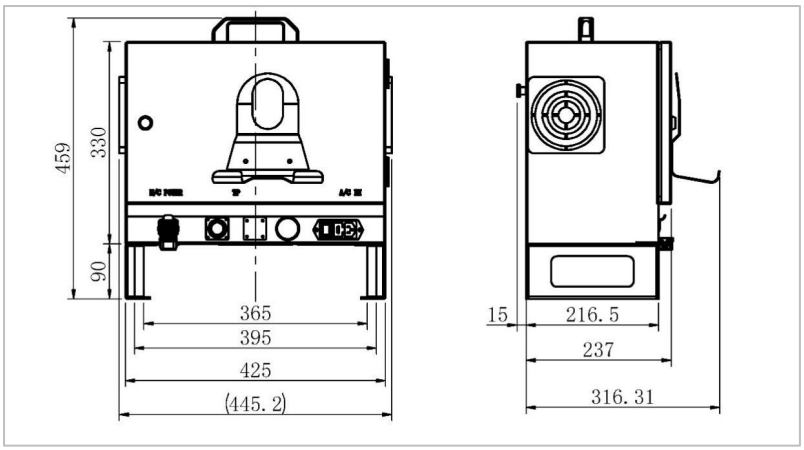
	MyCo-3.5-0.95	MyCo-10-1.0
J6	±360°	±360°
J5	±180°	±180°
J4	±360°	±360°
J3	±153°	±153°
J2	±135°	±135°
J1	±360°	±360°

	MyCo-8-1.30	MyCo-15-1.30
J6	±360°	±360°
J5	±180°	±180°
J4	±360°	±360°
J3	±153°	±153°
J2	±135°	±135°
J1	±360°	±360°

2.4 Electrical Control Unit

2.4.1 Size specification





2.4.2 Technical specifications

Projects	Specification
Weight	18kg
Operating temperature range	0 ~50 °C
Electrical Control Unit dimensions	459*446*332mm
Paint colors	Dark gray + white
External power input	100-240V AC,50-60Hz

Mechanical Installation

This chapter contains the following topics:

– Unpacking
– Installation Environment Requirements
– Installation Space
– Stationary Robots
– Mounting Tools to the End of the Robot
– Stress·to the supporting structure

3.1 Unpacking

Step 1

Open the carton and check that the contents are as listed on the packing list. If there are any missing or extra items, please contact your local sales office.

Step 2

Remove the robot and check that it is complete in appearance and that there are no obvious defects such as scratches. If you find any cosmetic quality problems, please contact your local sales office promptly.

Step 3

Handling of the robot to the designated installation station.

Warning:



Avoid violent opening and retrieval to prevent scratches on the robot surface or shocks and collisions to the robot.

Please open the box in a dry and clean external environment. When removing the case, please take care to protect the exterior of the robot from bumps and scratches. The robot needs to be packed and transported in such a way as to prevent it from being bumped, which could lead to scratches on the surface or damage to the internal structure of the robot. It is recommended that the robot's surface is wrapped in the robot's original wooden case or foam during transport..

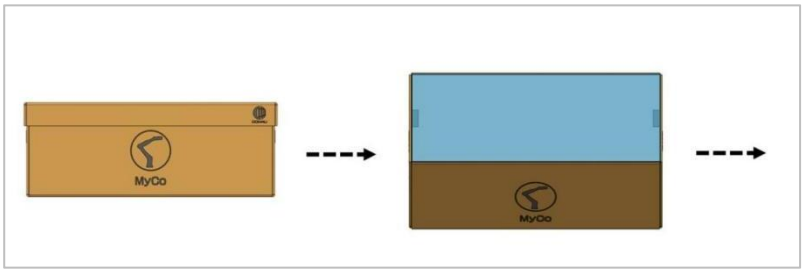
When lifting the robot, ensure that the lifting equipment can support the weight of the individual robot

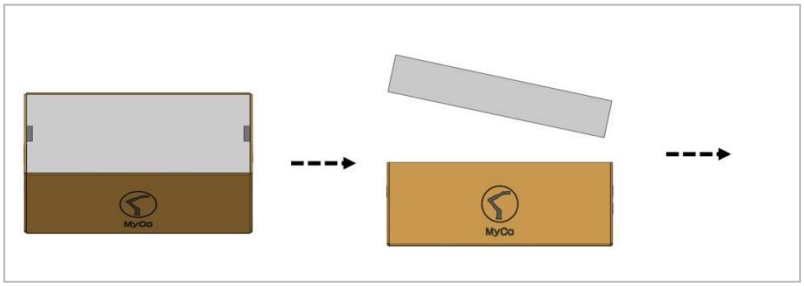
components to prevent them falling, which could lead to surface scratches, damage to the internal structure of the

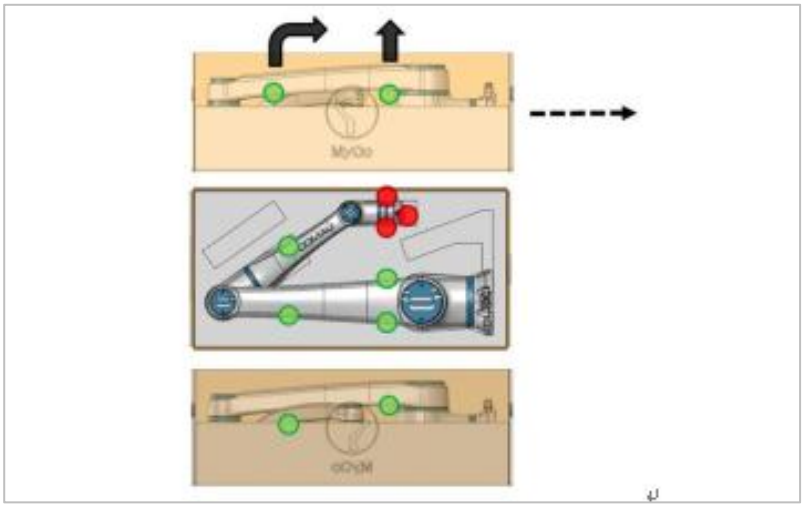
robot and injury or death. When handling the robot manually, the robot's base should be dragged by hand and should

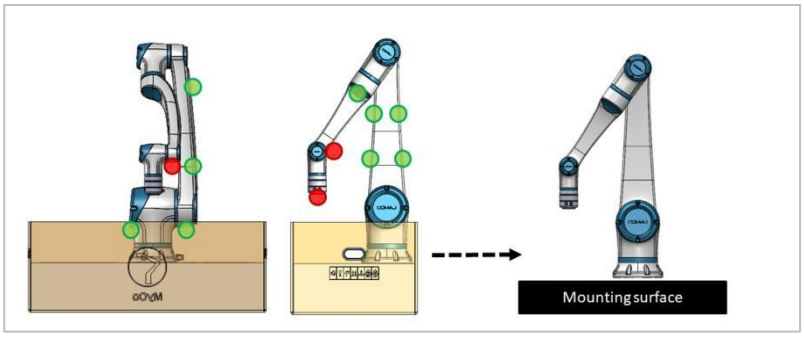
be handled by two or more people.

When using other tools for handling the robot, ensure that the robot is secured to the handling tool to prevent it from tipping over.









Remarks：

The green areas mark the recommended gripping points for operators when manually handling the robotic arm. The red areas are not recommended, as applying force there may cause the robotic arm to lose its zero position.

3.2 Installation Environment Requirements

The robot should be installed indoors and meet the following requirements.

- Room temperature 0 - 50°C (to prevent excessive temperature changes).
- Relative humidity 10-80% (no condensation).
- Avoid direct sunlight.
- Avoid dust, fumes, salt, metal powders and water.
- Avoid shocks and vibrations.
- Keep away from flammable, explosive and corrosive gas-solid liquids.
- Keep away from sources of electrical interference.
- The range of installation space for the robot is detailed in the robot dimension drawing and the specification sheet for the electrical Control Unit.

- Mount the robot arm on a vibration-damped, rigid surface. Verify that the surface can withstand at least 10 times the static torque of the base joint(J1） and at least 5 times the weight of the robot arm.

3.3 Installation Space

Please check the installation space with reference to the robot working area and the electrical Control Unit dimensions.



Waring:

In addition to the space required for the installation of the robot and the electrical Control Unit, etc., please ensure the minimum space required for the following conditions: space for the installation and working of the robot end fixture; space for the robot teaching; space for the movement of the operator for installation, inspection and maintenance; space for the air circuit.

The minimum bend radius for the robot power cable is 120 mm. When installing the cables, make sure that you leave enough space for the power and signal cables and other cables to prevent them from being bent excessively.

Make sure that the safety distance is at least 100 mm greater than the maximum working space at the end of the robot with the clamps installed.

3.4 Stationary Robots

Secure the machine to the mounting base with bolt M6 (according to ISO898-1 performance class 10.9 or 12.9) and fasten the screws with a torque of 15Nm.

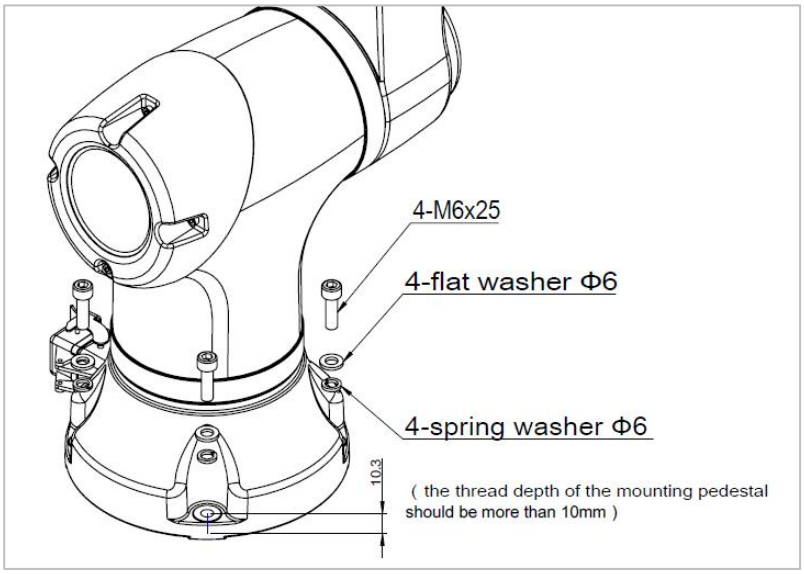
Secure the machine to the mounting abutment with bolt M8 (to ISO898-1 performance class 10.9 or 12.9) and fasten the screws with a torque of 35Nm.

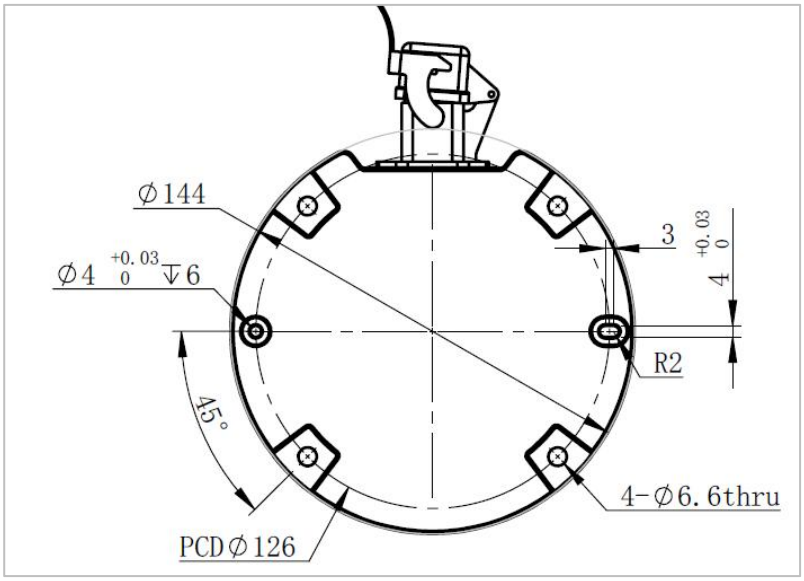
The dimensions of the robot basement are shown below and are measured in mm

Mounting abutments are not supplied with the robot at the time of purchase, so please make your own or purchase a separate robot mounting abutment. The size and shape of the abutment will vary depending on the system of robot, but please follow the basic requirements below.

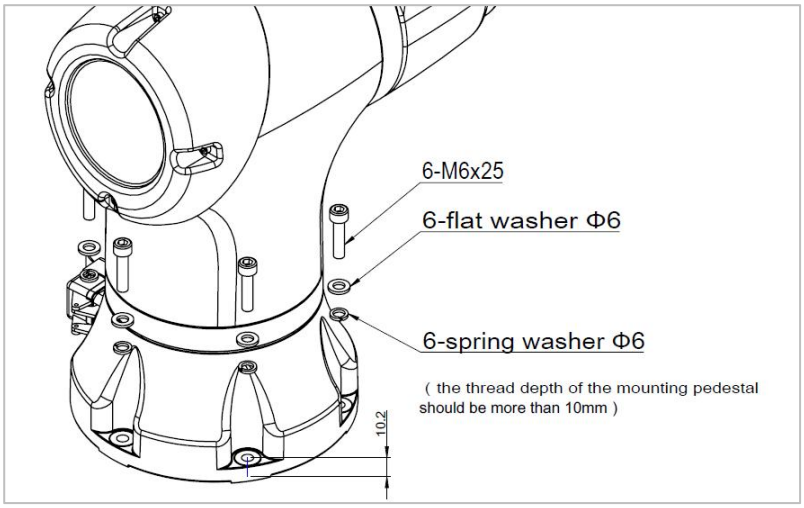
- The abutment should be at least 20mm thick and it is recommended to use steel plates to suppress vibrations.
- The mounting abutments are recommended to have a surface roughness of 25μ m or less on the mounting surface.

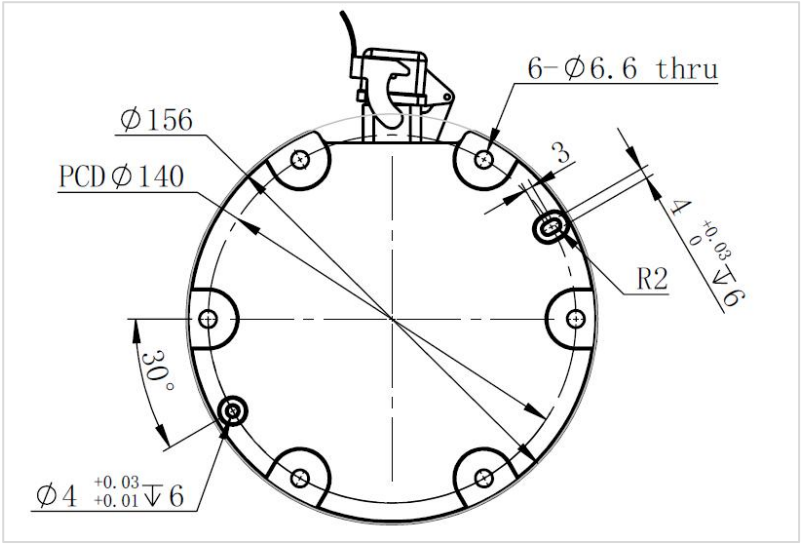
(Myco-3-0.59)



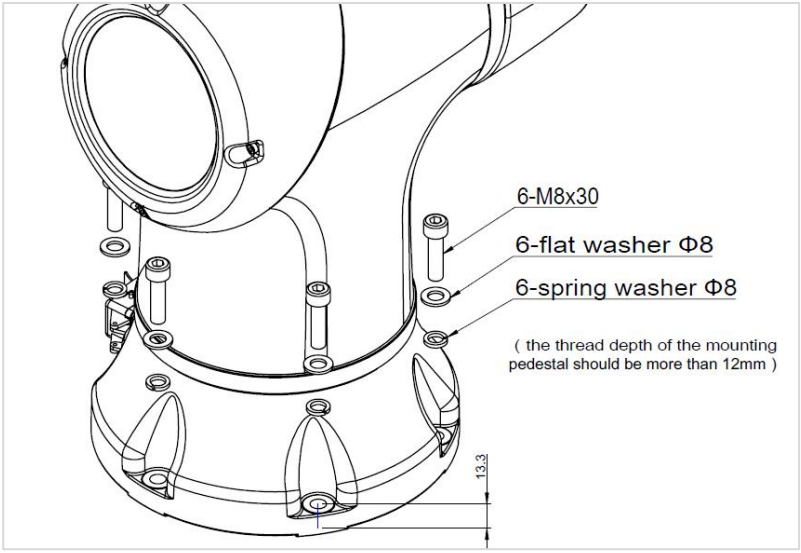


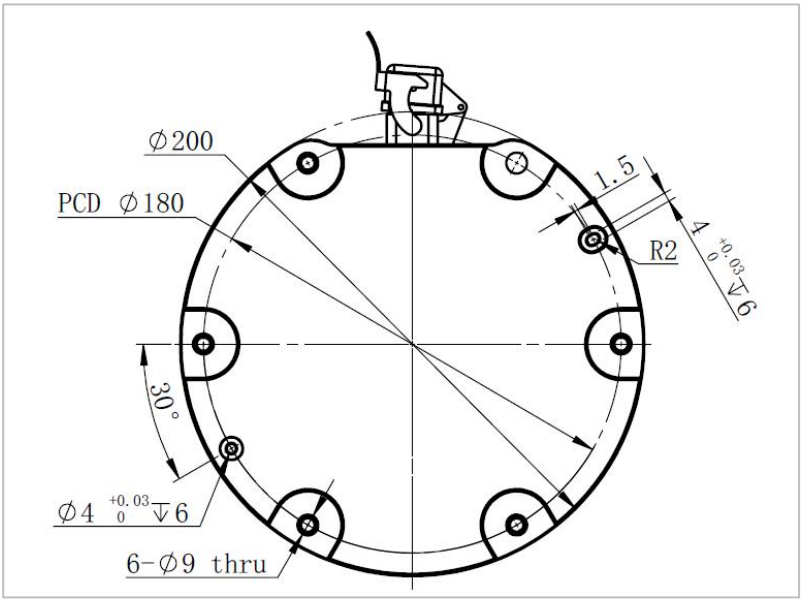
(MyCo-5-0.80, MyCo-3.5-0.95)



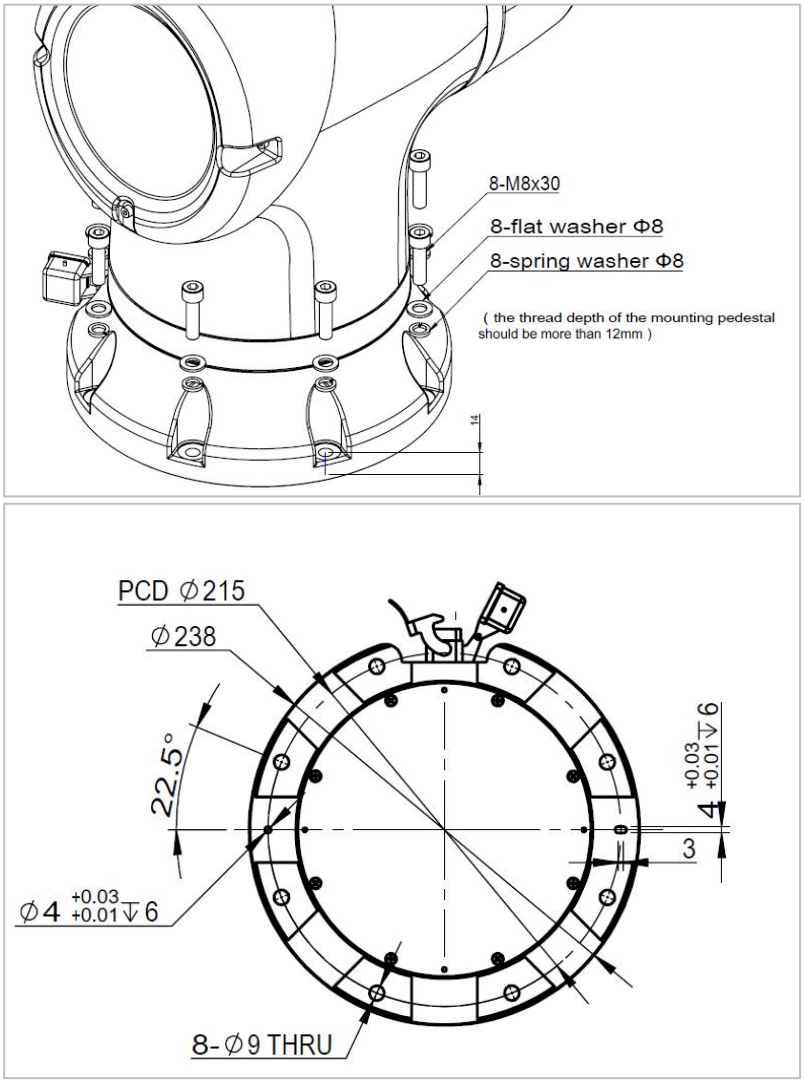


(Myco-10-1.0, MyCo-8-1.30)





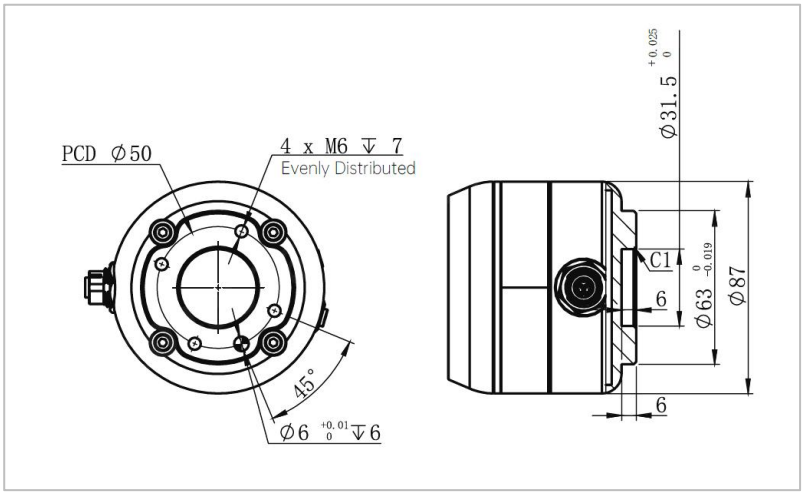
(MyCo-15-1.30)



3.5 Mounting Tools to the End of the Robot

The robot is not supplied with an end tool at the time of purchase, so please make your own or purchase one separately.

The threaded hole in the end of the robot for fixing the tool is M6.When fixing the tool, use bolts with a tightening torque of 15 Nm in accordance with ISO 898-1 performance class 10.9 or 12.9.



The dimensions of the robot end mounting are shown below and are measured in mm

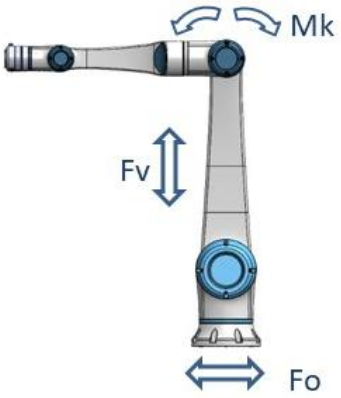
3.6 Stress to the supporting structure

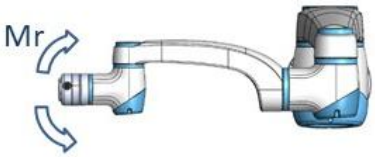
The possible vibrations transmitted by machines nearby the Robot installation area can reduce the precision and repeatability of the Robot motions.

It is recommended to prepare a suitable foundation in order to reduce at minimum level the transmitted vibrations.

Because of the considerable stresses discharged to the ground by the Robot and the need to have appropriate supporting surfaces, direct fixing on the floor is not foreseen.

The values of the stresses created by the Robot on the supporting structure are listed in the following.





Robot	Motion Type	Fv (N)	Fo (N)	Mr (Nm)	Mk (Nm)
MyCo-15-1.30	Accelerating	883.74	272.84	58.66	103.25
	Emergency breaking	1300.67	1288.40	277.01	487.58
MyCo-8-1.30	Accelerating	636.72	250.52	45.09	72.70
	Emergency breaking	1033.97	1183.03	212.94	343.29
MyCo-10-1.00	Accelerating	681.81	287.16	51.69	83.22
	Emergency breaking	888.43	678.02	122.04	196.48
MyCo-5-0.80	Accelerating	369.29	137.72	19.28	30.96
	Emergency breaking	463.60	325.18	45.53	73.11
MyCo-3.5-0.95	Accelerating	374.44	146.70	20.54	39.44
	Emergency breaking	482.57	346.36	48.49	93.13
MyCo-3-0.59	Accelerating	255.40	93.71	11.81	16.71
	Emergency breaking	317.20	221.26	27.88	39.45

Quality Assurance

This chapter contains the following topics:

– Product Quality Assurance
– Disclaimers

4.1 Product Quality Assurance

Without prejudice to any claim agreement the user (customer) may have with the distributor or retailer, the manufacturer shall grant the customer a "Product Quality Guarantee" in accordance with the following terms.
In the event of defects in the new equipment and its components due to manufacturing or material defects within 12 months (up to 15 months if transport time is included) after the commissioning of the equipment, Comau S.p.A shall provide the necessary spare parts. The user (customer) shall provide labour to replace the spare part, to replace it with another part reflecting the latest state of the art or to repair the part in question. This "Product Quality Guarantee" shall be void if the defect is caused by improper handling or failure to follow the relevant information stated in the user's instructions. This "Product Quality Guarantee" does not apply to or extend to maintenance (e.g. installation, software downloads) carried out by the authorized dealer or by the customer. The user (customer) must provide a receipt of purchase and the date of purchase as valid evidence of entitlement to the "Product Quality Guarantee". Claims under this "Product Quality Guarantee" must be made within two months of the apparent non-fulfillment of the "Product Quality Guarantee". The ownership of the equipment or components replaced or returned to Comau S.p.A shall remain with Comau S.p.A. Any other claims arising out of or in connection with the equipment are not covered by this "Product Quality Guarantee". Nothing in this Warranty is intended to limit or exclude the statutory rights of the Customer, nor is it intended to limit or exclude the liability of the manufacturer for injury or death caused by its negligence. The duration of this "Product Quality Guarantee" shall not be extended by the services provided under the terms of the "Product Quality Guarantee". Subject to this "Product Quality Guarantee", Comau S.p.A reserves the right to charge the customer for the cost of replacement or repair. The foregoing is not intended to imply a change in the burden of proof to the detriment of the customer. Han' s Robot is not liable for any damage or loss arising from defects in the equipment, such as loss of production or damage to other production equipment.

4.2 Disclaimers

Comau S.p.A is committed to continually improving the reliability and performance of its products and therefore reserves the right to upgrade its products without notice. Comau S.p.A endeavors to ensure the accuracy and reliability of the contents of this manual, but accepts no responsibility for any errors or omissions in the information contained herein.

Maintenance Instructions

This chapter contains the following topics:

– Cleaning
– Check
– Detection

5.1 Cleaning

Cleaning Robot

Cleaning Area	Cleaning Tools	Clean Materials	Cleaning Method	Cleaning Frequency	Precautions
Outer Surface	Dust-free Cloth	70% Ethanol	Take a lint-free cloth, wet it with ethanol, and then gently wipe the outer surface of the mechanical hand with it	1 Times/week (Can be adjusted according to the actual usage environment)	Shut down for cleaning

5.2 Check

Inspect the Components	Check Items	Inspection Method	Countermeasures	Check Frequency	Precautions
Teaching device connector	Is there any bending or breakage of the joint pins	Visual inspection	Replace the connector of the teaching device	1 Times/month (Can be adjusted according to the actual usage environment)	Shut down for inspection

5.3 Detection

Inspection Items	Detection Tool	Detection Method	Countermeasures	Detection Frequency	Precautions
Emergency Stop Function	Emergency Stop Button	Press the emergency stop button of the teaching device or press the emergency stop button connected externally to the electrical Control Unit, and the mechanical hand will immediately lose power	Check the emergency stop line	1 Times/month	Detection under abnormal working conditions

Appendices

This chapter contains the following topics:

– Technical Specifications
– Restricting Security-related Functions
– Electrical Safety Specifications

6.1 Technical Specifications

MyCo-3-0.59 Arm technical specifications

Name	Parameters
Self-weight	18kg
Payload	3kg
Static torques	J1-J2 90 Nm J3-J4 50 Nm J5-J6 20 Nm
Scope of work	590mm
Joint range	J1、J4、J6: ±360° J2: ±135° J3: ±150° J5: ±147°
Joint speed	J1-J4 180°/s J5-J6 200°/s
Tool speed	≤2m/s
Repeatable accuracy	±0 .02mm
Installation area	Φ 264mm
Freedom	6 rotating joints
Control cabinet dimensions	459*446*332mm
End I/O ports	Digital input 3
	Digital output 3
	Analogue input 2
Electrical Control Unit I/O port	Digital input 16
	Digital output 16
	Analogue input 2
	Analogue output 2
I/O Power Supplies	24V 2A
Communication	TCP/IP and modbus
Programming	Graphical programming , remote call interface
IP Classification	IP54
Power consumption	100W typical application
Co-operation	10 advanced safety configuration functions
Main materials	Aluminum
Operating ambient temperature	0-50°C
External power input	100~240V AC,50~60Hz
Wires and cables	Cable to control cabinet: 5m
	Cable to Teach Pendant: 5m
Force sensor of TCP	Rang of force x-y-z: 200N Rang of torque Rx-Ry-Rz: 10Nm
	Precision of force x-y-z: 2N Precision of torque Rx-Ry-Rz: 0.1Nm
	Accuracy of force x-y-z: 4N Accuracy of torque Rx-Ry-Rz: 0.2Nm

MyCo-5-0.80 Arm technical specifications

Name	Parameters
Self-weight	25kg
Payload	5kg
Static torques	J1-J2 176 Nm J3-J4 90 Nm J5-J6 20 Nm
Scope of work	800mm
Joint range	J1、J4、J6: ±360° J2: ±135° J3: ±153° J5: ±180°
Joint speed	J1-J4 180°/s J5-J6 200°/s
Tool speed	≤3m/s
Repeatable accuracy	±0.02mm
Installation area	Φ 276mm
Freedom	6 rotating joints
Control cabinet dimensions	459*446*332mm
End I/O ports	Digital input 3
	Digital output 3
	Analogue input 2
Electrical Control Unit I/O port	Digital input 16
	Digital output 16
	Analogue input 2
	Analogue output 2
I/O Power Supplies	24V 2A
Communication	TCP/IP and modbus
Programming	Graphical programming , remote call interface
IP Classification	IP54
Power consumption	180W typical application
Co-operation	10 advanced safety configuration functions
Main materials	Aluminum
Operating ambient temperature	0-50°C
External power input	100~240V AC, 50~60Hz
Wires and cables	Cable to control cabinet: 5m
	Cable to Teach Pendant: 5m
Force sensor of TCP	Rang of force x-y-z：200N Rang of torque Rx-Ry-Rz：10Nm
	Precision of force x-y-z：2N Precision of torque Rx-Ry-Rz：0.1Nm
	Accuracy of force x-y-z：4N Accuracy of torque Rx-Ry-Rz：0.2Nm

MyCo-3.5-0.95 Arm technical specifications

Name	Parameters
Self-weight	26kg
Payload	3.5kg
Static torques	J1-J2 176 Nm J3-J4 90 Nm J5-J6 20 Nm
Scope of work	950mm
Joint range	J1、J4、J6: ±360° J2: ±135° J3: ±153° J5: ±180°
Joint speed	J1-J4 180°/s J5-J6 200°/s
Tool speed	≤3m/s
Repeatable accuracy	±0.02mm
Installation area	Φ 276mm
Freedom	6 rotating joints
Control cabinet dimensions	459*446*332mm
End I/O ports	Digital input 3
	Digital output 3
	Analogue input 2
Electrical Control Unit I/O port	Digital input 16
	Digital output 16
	Analogue input 2
	Analogue output 2
I/O Power Supplies	24V 2A
Communication	TCP/IP and modbus
Programming	Graphical programming , remote call interface
IP Classification	IP54
Power consumption	180W typical application
Co-operation	10 advanced safety configuration functions
Main materials	Aluminum
Operating ambient temperature	0-50°C
External power input	100~240VAC,50~60Hz
Wires and cables	Cable to control cabinet: 5m
	Cable to Teach Pendant: 5m
Force sensor of TCP	Rang of force x-y-z：200N Rang of torque Rx-Ry-Rz：10Nm
	Precision of force x-y-z：2N Precision of torque Rx-Ry-Rz：0.1Nm
	Accuracy of force x-y-z：4N Accuracy of torque Rx-Ry-Rz：0.2Nm

MyCo-10-1.0 Arm technical specifications

Name	Parameters
Self-weight	43kg
Payload	10kg
Static torques	J1-J2 417 Nm J3-J4 176 Nm J5-J6 50 Nm
Scope of work	1000mm
Joint range	J1、 J4、J6: ±360° J2: ±135° J3: ±153° J5: ±180°
Joint speed	J1-J2:100°/s J3-J4:150°/s J5-J6:180°/s
Tool speed	≤2m/s
Repeatable accuracy	±0.03mm
Installation area	Φ 320mm
Freedom	6 rotating joints
Control cabinet dimensions	459*446*332mm
End I/O ports	Digital input 3
	Digital output 3
	Analogue input 2
Electrical Control Unit I/O port	Digital input 16
	Digital output 16
	Analogue input 2
	Analogue output 2
I/O Power Supplies	Electrical Control Unit: 24V 2A
Communication	TCP/IP and modbus
Programming	Graphical programming , remote call interface
IP Classification	IP54
Power consumption	350W typical application
Co-operation	10 advanced safety configuration functions
Main materials	Aluminum
Operating ambient temperature	0-50°C
External power input	100~240V AC,50~60Hz
Wires and cables	Cable to control cabinet: 5m
	Cable to Teach Pendant: 5m
Force sensor of TCP	Rang of force x-y-z：200N Rang of torque Rx-Ry-Rz：10Nm
	Precision of force x-y-z：2N Precision of torque Rx-Ry-Rz：0.1Nm
	Accuracy of force x-y-z：4N Accuracy of torque Rx-Ry-Rz：0.2Nm

MyCo-8-1.30 Arm technical specifications

Name	Parameters
Self-weight	45kg
Payload	8kg
Static torques	J1-J2 417 Nm J3-J4 176 Nm J5-J6 50 Nm
Scope of work	1300mm
Joint range	J1、J4、J6: ±360° J2: ±135° J3: ±153° J5: ±180°
Joint speed	J1-J2:100°/s J3-J4:150°/s J5-J6:180°/s
Tool speed	≤2.5m/s
Repeatable accuracy	±0. 03mm
Installation area	Φ 320mm
Freedom	6 rotating joints
Control cabinet dimensions	459*446*332mm
End I/O ports	Digital input 3
	Digital output 3
	Analogue input 2
Electrical Control Unit I/O port	Digital input 16
	Digital output 16
	Analogue input 2
	Analogue output 2
I/O Power Supplies	24V 2A
Communication	TCP/IP and modbus
Programming	Graphical programming , remote call interface
IP Classification	IP54
Power consumption	350W typical application
Co-operation	10 advanced safety configuration functions
Main materials	Aluminum
Operating ambient temperature	0-50°C
External power input	100~240V AC,50~60Hz
Wires and cables	Cable to control cabinet: 5m
	Cable to Teach Pendant: 5m
Force sensor of TCP	Rang of force x-y-z：200N Rang of torque Rx-Ry-Rz：10Nm
	Precision of force x-y-z：2N Precision of torque Rx-Ry-Rz：0.1Nm
	Accuracy of force x-y-z：4N Accuracy of torque Rx-Ry-Rz：0.2Nm

MyCo-15-1.30 Arm technical specifications

Name	Parameters
Self-weight	60kg
Payload	15kg
Static torques	J1-J2 484 Nm J3-J4 211 Nm J5-J6 50 Nm
Scope of work	1300mm
Joint range	J1、J4、J6: ±360° J2: ±135° J3: ±155° J5: ±180°
Joint speed	J1-J2:80°/s J3-J4:120°/s J5-J6:150°/s
Tool speed	≤2m/s
Repeatable accuracy	±0. 05mm
Installation area	Φ 358mm
Freedom	6 rotating joints
Control cabinet dimensions	459*446*332mm
End I/O ports	Digital input 3
	Digital output 3
	Analogue input 2
Electrical Control Unit I/O port	Digital input 16
	Digital output 16
	Analogue input 2
	Analogue output 2
I/O Power Supplies	24V 2A
Communication	TCP/IP and modbus
Programming	Graphical programming , remote call interface
IP Classification	IP54
Power consumption	600W typical application
Co-operation	10 advanced safety configuration functions
Main materials	Aluminum
Operating ambient temperature	0-50°C
External power input	100~240V AC,50~60Hz
Wires and cables	Cable to control cabinet: 5m
	Cable to Teach Pendant: 5m
Force sensor of TCP	Rang of force x-y：500N Rang of force z：900N Rang of torque Rx-Ry-Rz：48Nm
	Precision of force x-y：2N Precision of force z：3N Precision of torque Rx-Ry-Rz：0.12Nm
	Accuracy of force x-y：3N Accuracy of force z：4.5N Accuracy of torque Rx-Ry-Rz：0.24Nm

6.2 Restricting Security-related Functions

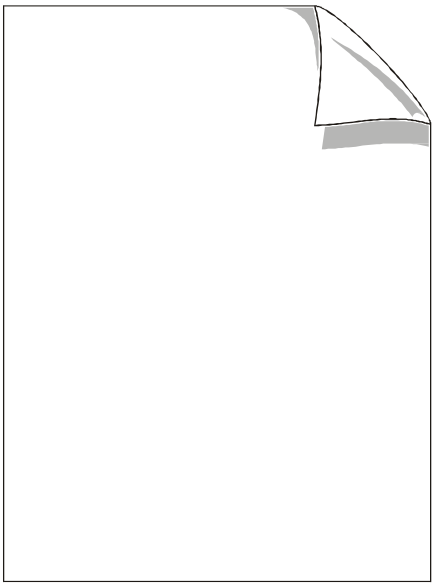
Restricted security features	Description
Joint location	Minimum and maximum angle position of joint
Joint speed	Maximum angular velocity of joint
TCP position	Plane restricting robot TCP position in Cartesian space
TCP speed	Maximum speed of the robot TCP
TCP force	Maximum thrust of the robot TCP

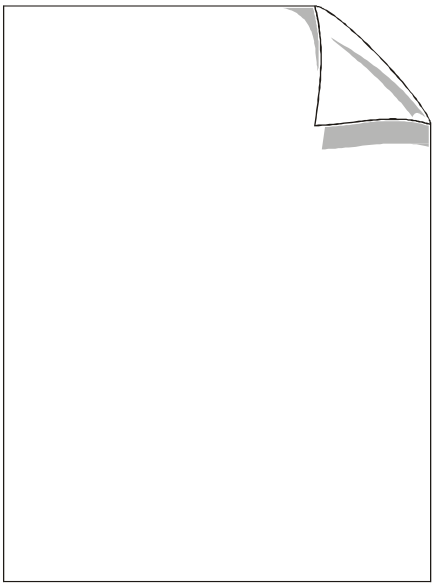
6.3 Electrical Safety Specifications

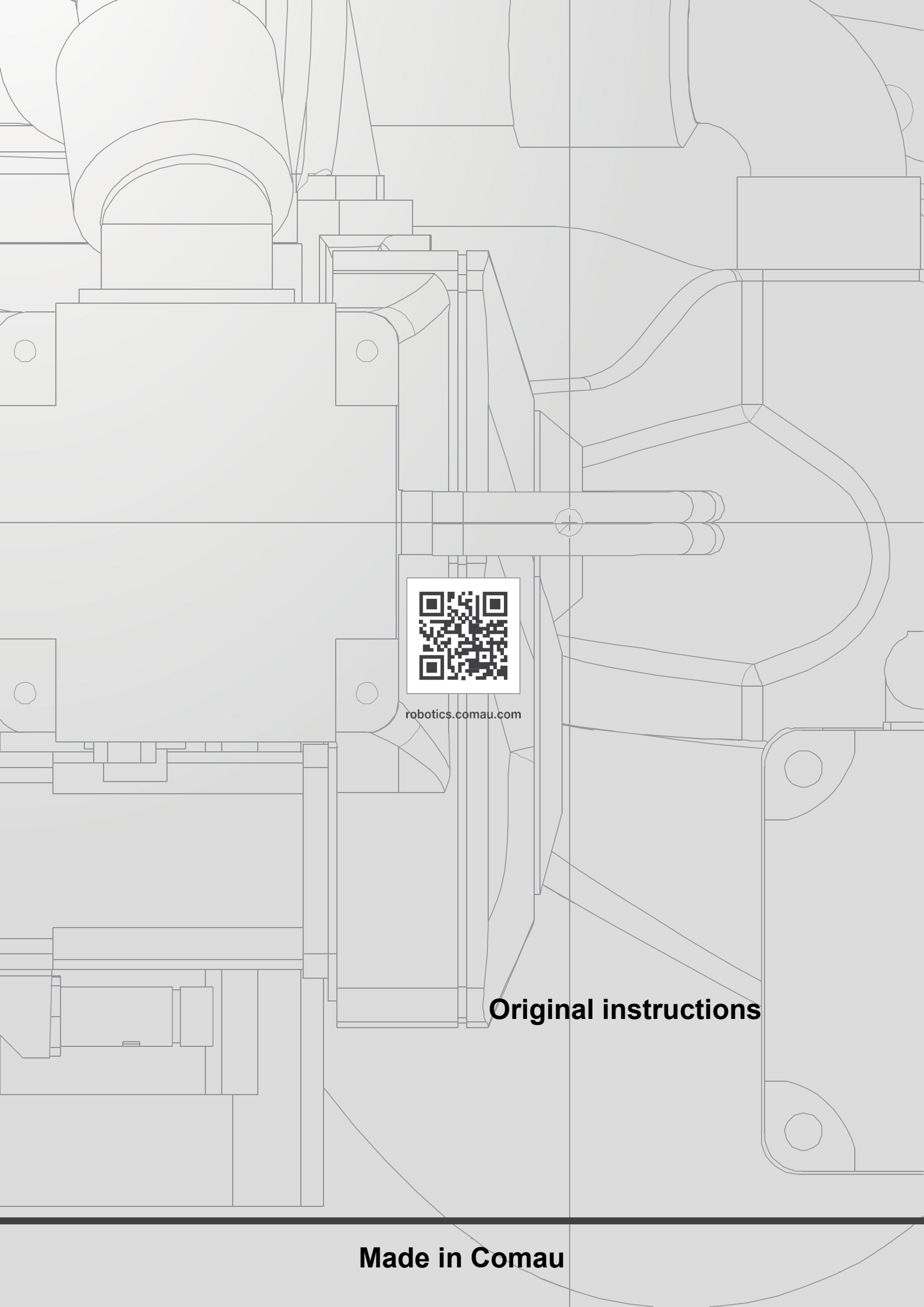
Secure input	Description
Robot emergency stop	Performing a category 1 shutdown* to notify the body using the system emergency stop
Emergency stop button	Performing a category 1 shutdown* to notify the body using the system emergency stop
System emergency stop	Perform a category 1 shutdown*.
Protection stop	Performing a category 2 shutdown*
Emergency stop reset	Resuming robot from protective stop

***Nomenclature interpretation:**

- Category 0 stop: The robot stops as soon as the power to the robot is cut off. This is an uncontrolled stop, where each joint brakes at maximum speed. As a result, the robot may deviate from the programmed path.
- This protective stop should only be used when the safety assessment limits are exceeded, or if there is an error in the safety assessment section of the control system.
- Category 1 stop: The robot stops when power is supplied to the robot to bring it to a stop. The power is cut off when the robot has come to a stop. This is a controlled stop and the robot will follow the programmed path. The power is cut off after one second or once the robot has stood still.
- Category 2 stop: Controlled stop when the robot is powered on. The robot stops all movements within one second. The manipulation of the safety assessment control system allows the robot to stay in the stopped position.







Original instructions

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