OnRobot

USER MANUAL

FOR TECHMAN ROBOTS

v1.8.0

Original Instructions

Contents

1. Introduction

1.1. Important Safety Notice

DANGER:

You must read, understand, and follow all safety information in this manual, and the robot manual and all associated equipment before initiating robot motion. Failure to comply with safety information could result in death or serious injury.

1.2. Scope of the Manual

The manual covers the following OnRobot products and their components:

1.2.1. Gecko SP1/3/5

Tool	Version
Gecko SP1/3/5	v1

1.3. Copyright

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2. Safety

The robot integrators are responsible for ensuring that the applicable safety laws and regulations in the country concerned are observed and that any significant hazards in the complete robot application are eliminated. This includes, but is not limited to:

- Performing a risk assessment for the complete robot system
- Interfacing other machines and additional safety devices if defined by the risk assessment
- Setting up the appropriate safety settings in the robot software
- Ensuring that the user will not modify any safety measures
- Validating that the total robot system is designed and installed correctly
- Specifying instructions for use
- Marking the robot installation with relevant signs and contact information of the integrator
- Collecting all documentation in a technical file; including the risk assessment and this manual

2.1. Intended Use

OnRobot tools are intended to be used on collaborative robots and light industrial robots with different payloads depending on the end-of-arm tooling specifications. OnRobot tools are normally use in pick-and-place, palletizing, machine tending, assembly, quality testing and inspection and surface finishing applications.

The end-of-arm tooling should only operate under conditions noted in **6.1. Technical Sheets** section.

Any use or application deviating from intended use is deemed to be impermissible misuse. This includes, but is not limited to:

- Use in potentially explosive atmospheres
- Use in medical and life critical applications
- Use before performing a risk assessment
- Use outside the permissible operational conditions and specifications
- Use close to a human's head, face and eye area
- Use as a climbing aid

2.2. General Safety Instructions

Generally, all national regulations, legislations and laws in the country of installation must be observed. Integration and use of the product must be done in compliance with precautions in this manual. Particular attention must be paid to the following warnings:

DANGER:

You must read, understand, and follow all safety information in this manual, and the robot manual and all associated equipment before initiating robot motion. Failure to comply with safety information could result in death or serious injury.

The information in this manual does not cover designing, installing, and operating a complete robot application, nor does it cover other peripheral equipment that can influence the safety of the complete system. The complete system must be designed and installed in accordance with the safety requirements set forth in the standards and regulations of the country where the robot is installed.

Any safety information provided in this manual must not be construed as a warranty, by OnRobot A/S, that the robot application will not cause injury or damage, even if robot application complies with all safety instructions.

OnRobot A/S disclaims any and all liability if any of OnRobot tools tooling are damaged, changed or modified in any way. OnRobot A/S cannot be held responsible for any damages caused to any of OnRobot tools tooling, the robot, or any other equipment due to programming errors or malfunctioning of any of OnRobot tools.

WARNING:

OnRobot tools are not allowed to be exposed to condensing conditions when power is on or when connected to a robot. If condensing conditions appear during transport or storage, the product must be placed between 20 and 40 Celsius degrees for 24 hours before power is applied or before connected to a robot.

It is recommended that OnRobot tools are integrated in compliance with the following guides and standards:

- ISO 10218-2
- ISO 12100
- ISO/TR 20218-1
- ISO/TS 15066

2.3. Risk Assessment

The robot integrator must perform a risk assessment on the complete robot application. OnRobot tools are only components in a robot application and therefore they can be only safely operated if the integrator has considered the safety aspects of the whole application. OnRobot tools are designed with relatively smooth and round design with a limited amount of sharp edges and pinch points

In collaborative applications, the trajectory of the robot can play a significant safety role. The integrator must consider the angle of contact with a human body, e.g. orientate OnRobot tools and workpieces so that the contact surface in the direction of movement is as large as possible. It is recommended that the tool connectors are pointed in the direction opposite to the movement.

OnRobot A/S have identified the potential hazards listed below as significant hazards that must be considered by the integrator:

- Objects flying from OnRobot tools due to loss of grip
- Objects falling down from OnRobot tools due to loss of grip
- Injuries due to collisions between humans and workpieces, OnRobot tools tooling, robot or other obstacles
- Consequences due to loosen of bolts
- Consequences if OnRobot tools cable gets stuck to something
- Workpiece itself represents a hazard

2.4. Environmental Safety

OnRobot A/S products must be disposed of in accordance with the applicable national laws, regulations and standards.

The product is produced with restricted use of hazardous substances to protect the environment; as defined by the EU RoHS Directive 2011/65/EU. These substances include mercury, cadmium, lead, chromium VI, polybrominated biphenyls and polybrominated diphenyl ethers.

Observe national **registration** requirements for importers according to EU WEEE Directive 2012/19/EU.

3. HW Installation

3.1. Overview

For a successful installation the following steps will be required:

- Mount the components
- Setup the software

In the following sections, these installation steps will be described.

3.2. Robot Mount

1. Mount the robot-specific adapter (if applicable)
2. Mount any optional accessories
3. Mount the Quick Changer option
4. Mount the tool(s) (if applicable)

3.2.1. Quick Changer Mounting

3.2.1.1. Quick Changer - Robot Side
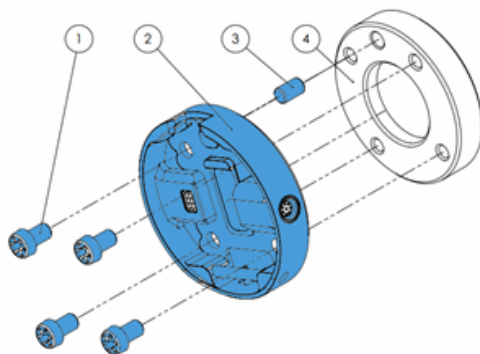
Quick Changer - Robot Side

1. M6x8mm (ISO14580 8.8)
2. Quick Changer (ISO 9409-1-50-4-M6)
3. Dowel pin Ø6x10 (ISO2338 h8)
4. Adapter/ Robot tool flange (ISO 9409-1-50-4-M6)

Use 10 Nm tightening torque.

3.2.1.2. Gecko SP1/3/5

Tool	QC-R v2	QC-R v2-4.5 A
Gecko SP1/3/5	✓	✓

3.2.2. Tools

3.2.2.1. Gecko SP1/3/5

First, install the single Gecko SP pad. The pad simply screws into the Gecko SP base.

Then:
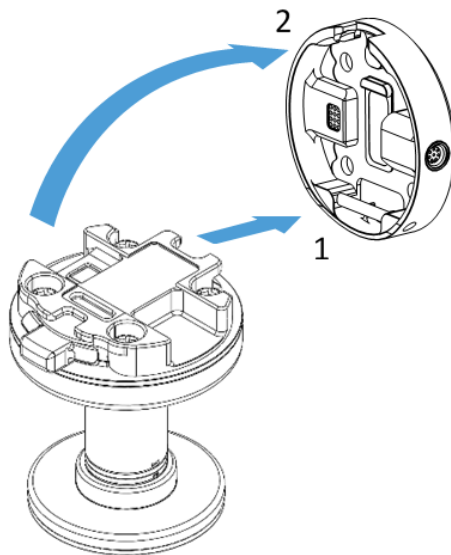
Step 1:

Move the tool close to the Quick Changer as illustrated.

The hook mechanism (rod and hook tongue) will keep the lower part locked once mounted.

Step 2:

Flip the tool until it is fully mated, and you hear a clicking sound.

To unmount the tool, press the aluminum button on the Quick Changer and repeat the steps in the reverse order.

4. SW Installation

4.1. Robot Software Setup

4.1.1. Import Component

OnRobot provides the component in one of the following ways:

1. The component is stored in the accompanying USB stick (OPTIONAL - may not be part of the delivery for some of the devices). Prepare the supplied OnRobot USB stick and plug it into the robot controller.

2. The component can be downloaded from **www.onrobot.com**. Copy the `TM_Export` folder to the root of an empty USB stick, then rename the USB stick to "TMROBOT". Plug the USB stick into the robot controller.

Click on the main menu ☰ icon and go to 🎛 **System** menu.
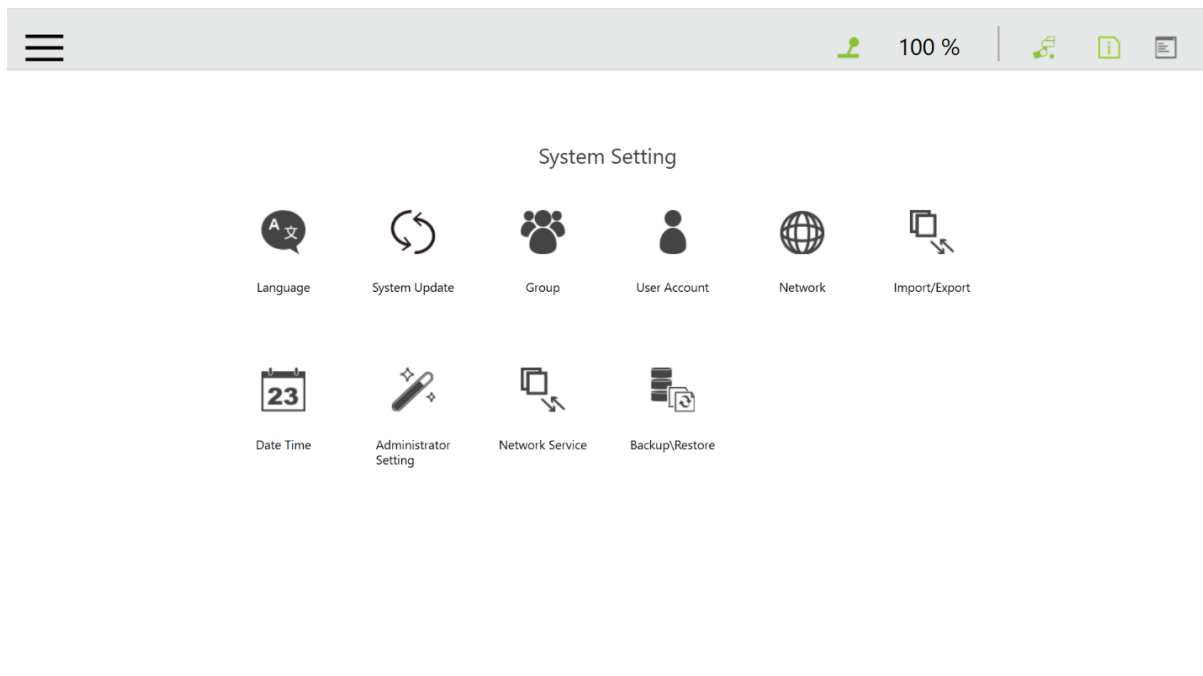
Go to **Import/Export** and click **Import** (upper left corner). Then select your robot from the list and click **OK**.
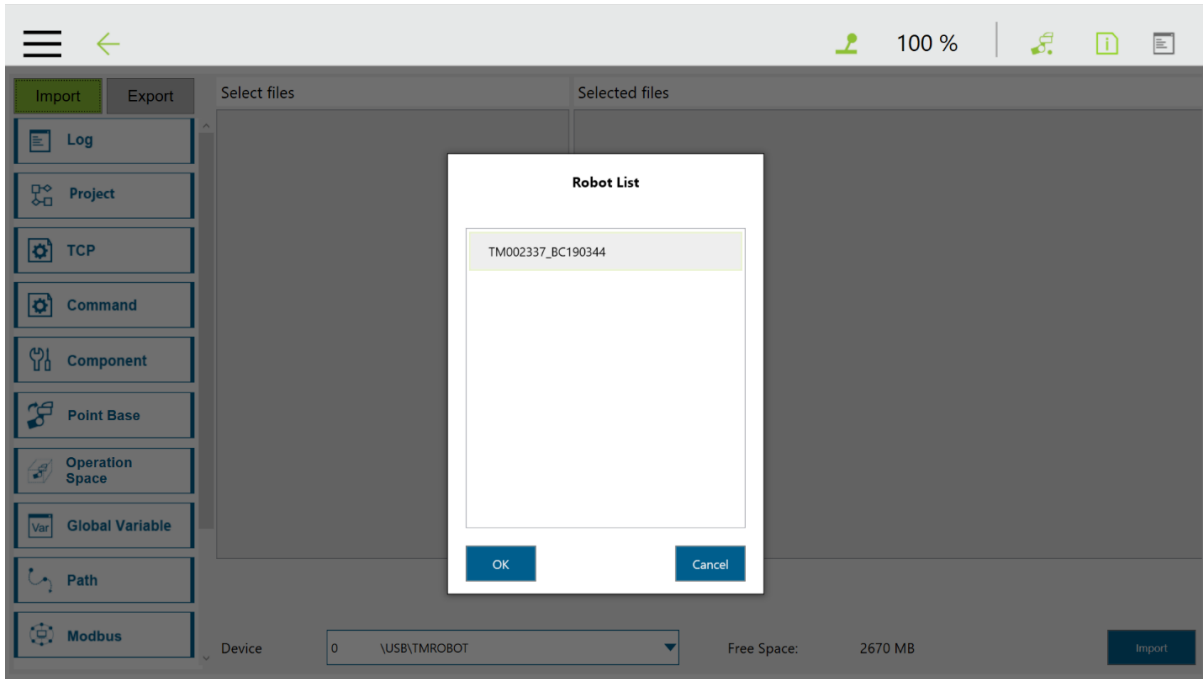
Select the relevant OnRobot components to be added and click **Import**.
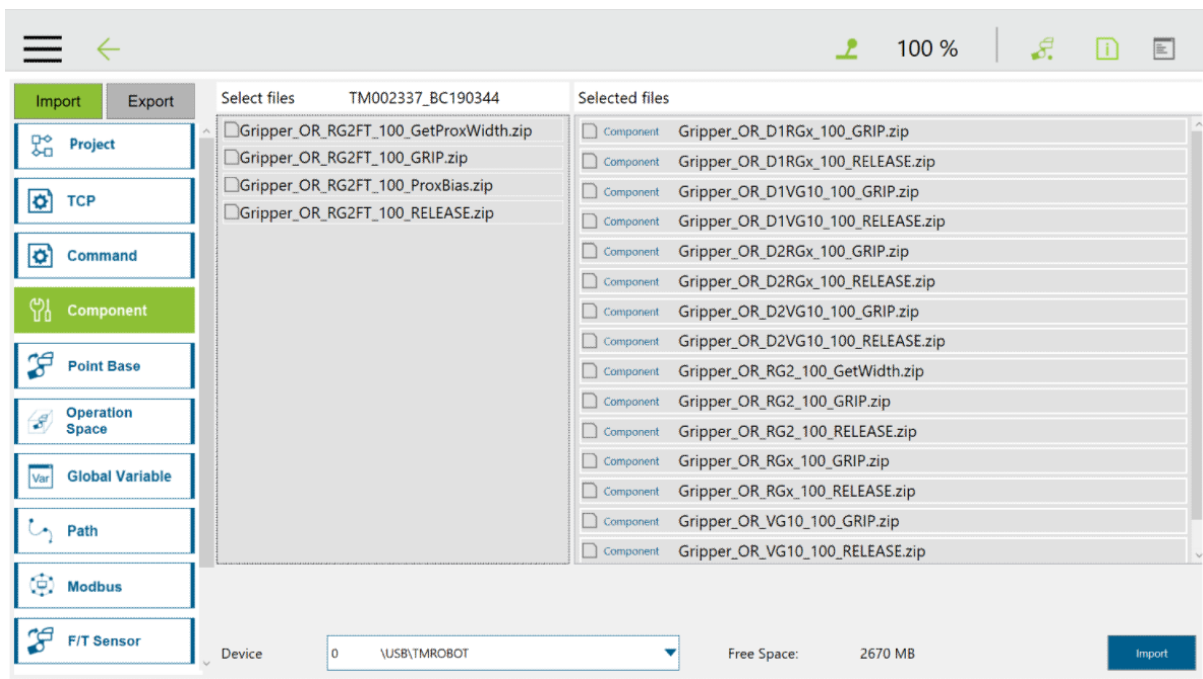
Go back to the main menu (≡) and go to ⊞ **Settings**.
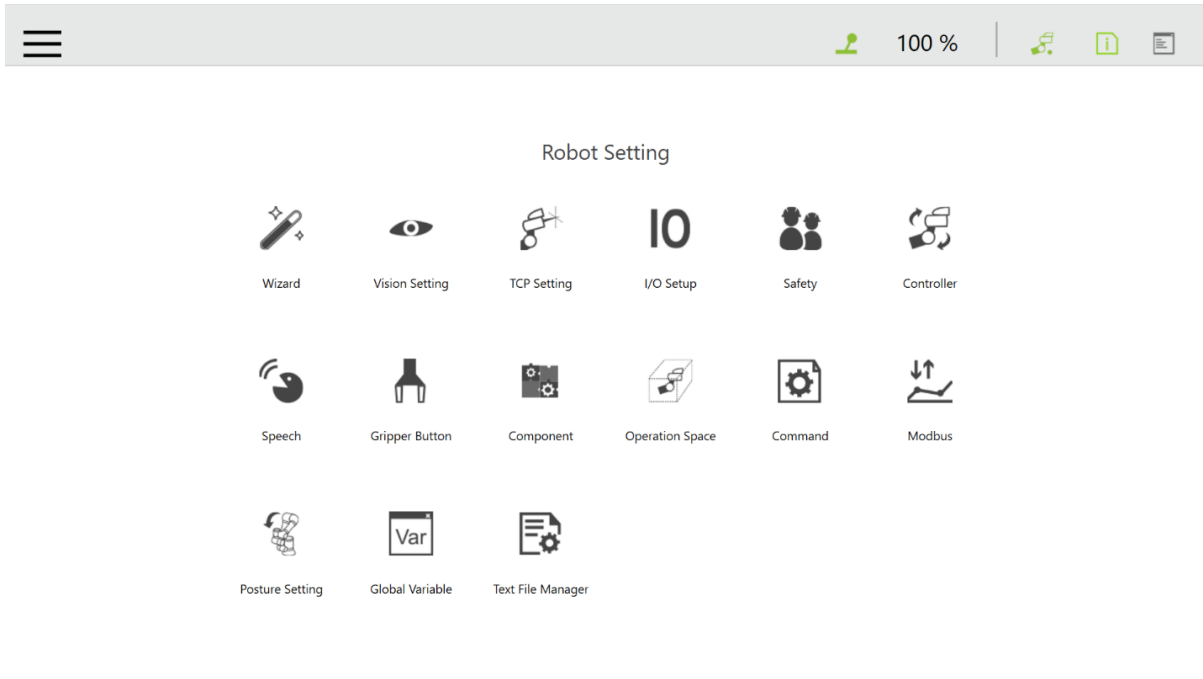
Click **Component** and make sure that all components are enabled that you would like to use.

Component List

Enable	Component Name	
●	Gripper_OR_VG10_100_GRIP.Component	✕
●	Gripper_OR_VG10_100_RELEASE.Component	✕
●	Gripper_OR_RG2FT_100_GetProxWidth.Component	✕
●	Gripper_OR_RG2FT_100_GetWidth.Component	✕
●	Gripper_OR_RG2FT_100_ProxBias.Component	✕
●	Gripper_OR_RG2FT_100_RELEASE.Component	✕
●	Gripper_OR_RG2FT_100_GRIP.Component	✕
●	Gripper_OR_D1RGx_100_GRIP.Component	✕
●	Gripper_OR_D1RGx_100_RELEASE.Component	✕
●	Gripper_OR_D1VG10_100_GRIP.Component	✕
●	Gripper_OR_D1VG10_100_RELEASE.Component	✕
●	Gripper_OR_D2RGx_100_GRIP.Component	✕
●	Gripper_OR_D2RGx_100_RELEASE.Component	✕
●	Gripper_OR_D2VG10_100_GRIP.Component	✕
●	Gripper_OR_D2VG10_100_RELEASE.Component	✕
●	Gripper_OR_RGx_100_GRIP.Component	✕
●	Gripper_OR_RGx_100_RELEASE.Component	✕

Save

5. Operation

> **NOTE:**
>
> It is assumed that the Installation has finished successfully. If not, first do the installation steps in the previous section.

5.1. Gecko SP Operation

The Gecko SP is a gripper that uses gecko-inspired adhesion to pick up flat objects without an external power source such as an air system. There are three Gecko SP (Single Pad) versions (SP 1, SP 3, SP 5) that have different maximum payload capacities (1 kg, 3 kg, and 5 kg, respectively).

In the following sections you will find instructions on:

- How the Gecko SP works.
- How to setup the right TCP for the peeling.
- How to Grip and Release with the Gecko SP.

5.1.1. How the Gecko SP Works

Gripper pick and place is entirely mechanical, and operation is controlled by the robot arm.

The Gecko Gripper attaches to flat and smooth object surfaces through the same mechanism used by an actual gecko (van der Waals forces). This is accomplished through contact with adhesive pads in a preload-hold-detach fashion.

The gripper creates adhesion by preloading the pads with a small force normal to the object's surface. This is achieved by pressing the gripper directly against the object's surface.
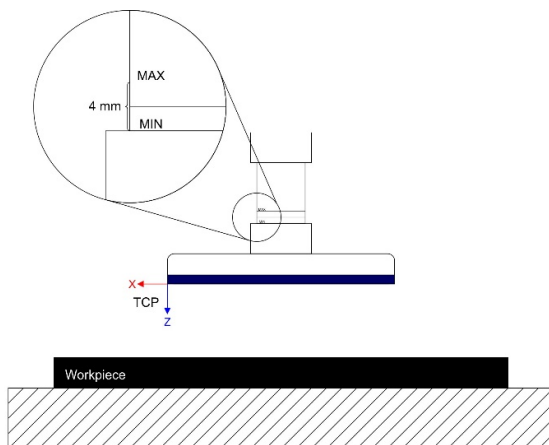
The Gecko SP has a preload indicator.

By compressing the internal spring, a maximum deflection of 4 mm can be achieved, which results the maximum allowed preload (for example 46N for a Gecko SP5).

MAX	4 mm	50 N
	2 mm	25 N
MIN	0 mm	0 N
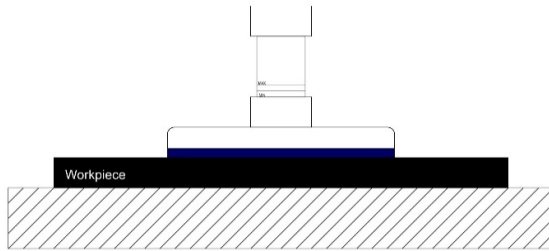
When teaching the pickup position, the gecko pad needs to be aligned on the workpiece surface without compressing the spring. The **MIN** sign of the preload indicator can be used for checking.
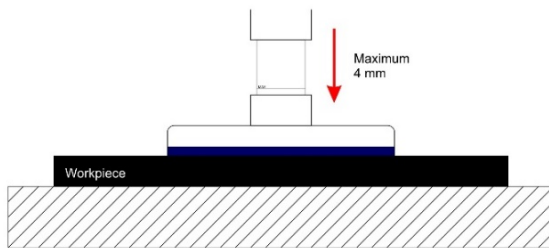
To pick up a workpiece the robot needs to be moved down a maximum of 4 mm to apply the required preload.

(When fragile object needs to be handled, less then 4mm downward movement can be made for smaller preload force.)
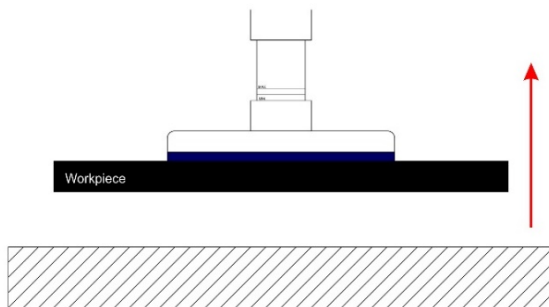
Now the workpiece is gripped so it can be lifted.
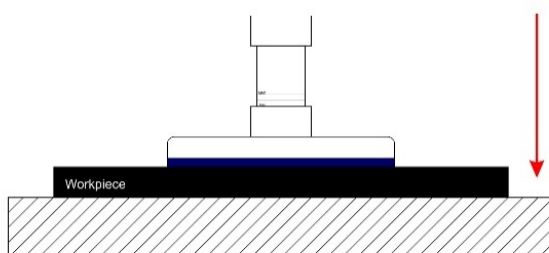
For putting down the workpiece, it must be placed on its target place without pushing in the spring. Again, the MIN mark can be used to setup the correct position.
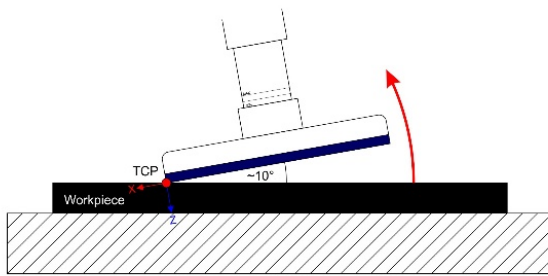
To peel off the Gecko SP pad from the workpiece, the tool needs to be turned about 10 degrees around a set point on the pad's outer diameter while the object rests on a stiff surface that resists the rotation.

Therefore, it is very important to set the right TCP (Tool Center Point) before the peeling motion.
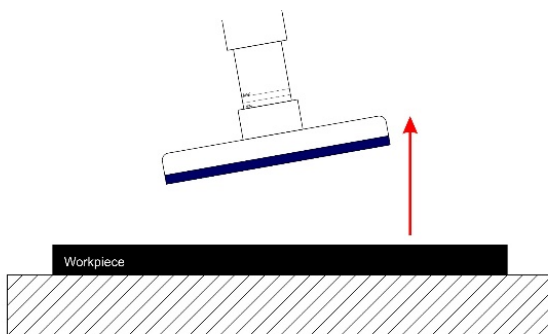
The part is released so the Gecko SP can be moved away.

NOTE:

It is also possible for users to craft their own custom fixture to assist in peeling off an object if the above method is not desirable. For example, the Gecko SP could grip a panel and then visit a forked tool to slide between, move up and release the object. The fixture design is completely at the user's discretion.

5.1.2. TCP Setup

As highlighted in the previous section, it is very important to set the right TCP before the peeling.

The peeling function will require X or Y and Z direction offset parameter to be set correctly.


NOTE:

If a Dual Quick Changer is used, the TCP rotation parameters must also be specified according to the used side (Primary or Secondary).

Go to the **TCP Setting** and choose **Manual input parameters of TCP** option.

There are three types of circular pads with the following diameters: 35, 60 and 75 mm.

When you program the peel off motion for the gripper, it is simpler to rotate it around a point on the edge of the pad, therefore you should enter the half of the mounted pad size either in the X or the Y coordinate field.

You can use any directions, so it can be positive or negative.
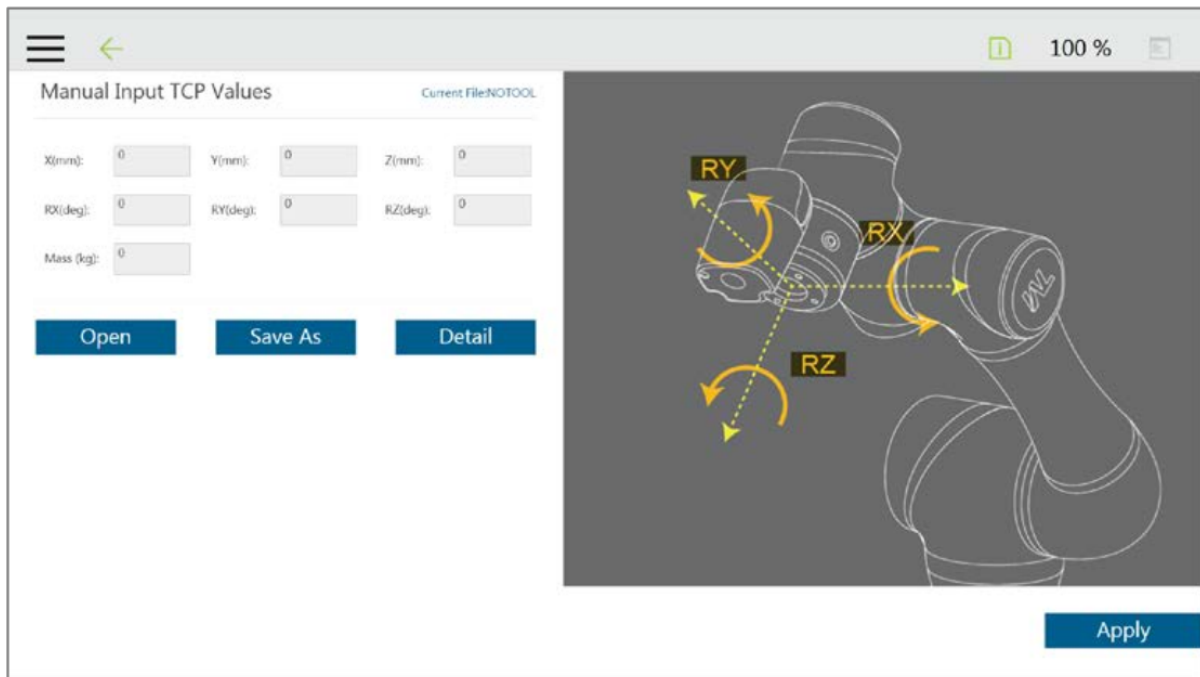
5.2. Gecko SP1/3/5 Components

5.2.1. Grip and Release

The gripper has two functions:

- Grip - to pick up a part
- Release - to drop off a part

Grip

To grip a part, move the robot according to the instructions in the **5.1.1. How the Gecko SP Works** section.

Release

To release a gripped part, follow the instructions in the **5.1.1. How the Gecko SP Works** section and use the following command to peel:

Gripper_OR_GeckoSP_100_PEEL

Separates the Gecko SP1/3/5 gripper from an object by doing a peel move with the robot.

This component has two parameters:

- `peelDirection`: 1, 2, 3, 4 means the peel direction is set to +x, -x, +y, -y respectively.
- `padSize`: The pad size is given as either 1, 2, 3 for 30, 60, 75 mm in diameter. Both the single number and the diameter in mm can be used.
- `Peel angle` is fixed to a 10° angle.

The output has two gates:

- `Success`: Peel operation was successfully completed.
- `ConfigError`: Input parameters invalid or out of range

6. Hardware Specification

6.1. Technical Sheets

6.1.1. Gecko SP1/3/5

General Properties		SP1	SP3	SP5	Unit
Maximum Payload		1 2.2	3 6.6	5 11	[kg] [lb]
Preload	Minimum	3	8	12	[N]
	Medium	7	20	29	[N]
	Maximum	11	32	46	[N]
Detachment time		100-1000 (dependent on robot speed)			[ms]
Holds workpiece on power loss?		Yes, for days if well centered			
IP Classification		IP42			
Dimensions (HxW)		69 x 71 2.7 x 2.8			[mm] [inch]
Weight		0.267 0.587	0.297 0.653	0.318 0.7	[kg] [lb]

Pads general properties		Unit
Material	Proprietary silicone blend	
Wear properties	Depends on surface roughness	
Change-out interval	~200.000	[cycles]
Cleaning systems	1) OnRobot cleaning station 2) Silicone roller 3) Isopropyl Alcohol and lint-free cloth	
Cleaning interval	variable	
Recovery	100%	

Conditions	Minimum	Optimal	Maximum	Unit
Operating temperature	0 32	- -	50 122	[°C] [°F]
Storage temperature	-30 -22	- -	150 302	[°C] [°F]
Surface Characteristics	Matte finish	Highly polished	N/A	Note: Smoother surfaces require less preload force for a desired payload force.
Spring lifetime*	1000000+	-	-	[cycles]

* Replacement information in the Maintenance section.

How to Pick a Part Using the Gecko Gripper SP

Grip		
Position	Contact & Preload	Lift

How to Release a Part

Method 1 – Robot Peeling Movement:

Release	
Place	Tilt to Release

Method 2 – Fixturing:

It is also possible for users to craft their own custom fixture to assist in peeling off an object if the above method is not desirable. For example, the Gecko SP1/3/5 could grip a panel and then visit a forked tool to slide between, move up and release the object. The fixture design is completely at the user's discretion.

Usage Notes

Because of the Gecko Gripper SP's unique mechanism of action, it is important to understand the following key operating principles to use the gripper correctly and to achieve optimal gripper performance. This is VERY important.

- Surface Roughness Affects Gripping

  The Gecko Gripper works best with highly polished surfaces that allow for maximal contact between the adhesive pads and the substrate surface. As the surface becomes less smooth, more preload force is required to grip substrates. Matte surfaces should be considered the maximal surface roughness limit which the gripper is able to grip.

- Environmental Conditions Affect Gripping

  The adhesive pads use van der Waals forces to attach to a substrate. If there is dust or debris on the substrate surface, the pads will interact with these particles instead. Dusty,

greasy, oily, or wet substrates will not adhere to the Gecko Gripper SP. The Gripper works best with clean, smooth, and dry surfaces.

- Preload Force Determines Maximum Payload Force

  The adhesion force is also dependent on the amount of preload force applied to the surface. This preload force also depends on the surface smoothness or roughness. Payload force is also saturable at some preload force specific to the material and operating conditions; here maximal preload is applied.

- Reconcile Gripper Function with Robot Collision Detection or Other Safety Systems

  When using the Gecko Gripper with a robot in position control, care must be taken during the gripping phase of the object as to not trip off the robot's collision detection system. The most force of the gripper is dependent on pad size. Approximate maximum force values for the SP gripper series are as follows: SP1 = 15N; SP2 = 40N; SP3 = 60N. Based upon your robot type and object, it may be necessary to adjust the robot's collaborative or collision settings to preclude tripping off the robot upon contact.

- Pick Location and Object Moments Can Overcome Gripping Force

  Gripper adhesion specifications assume that the center of gravity of the object is centered on the gripper pad. If the center of gravity of the object is not centered on the pad or moments are applied to the object, robot-object movement can decrease the adhesion force of the gripper causing it to drop the objects.

- Pads will Wear Out

  Over time, the gecko pads will wear and require replacement. There is no deterministic way to determine how worn the pads are, so the user must be mindful of the pad change-out interval. This will depend on the environment in which the pads are used.

Effectiveness on Different Materials

There are several factors that affect the gecko gripper's ability to handle items: the micro scale roughness of the surface (average roughness), the macro scale peaks and valleys on the surface (spatial frequency of peaks – also waviness), also the orientation of these features (lay – or the way it was finished, e.g. lapped, ground, Blanchard, etc.) and stiffness of the material. If the material is too soft, the gecko adhesive will not be able to force itself against the material to grip. To make this easier to interpret, we have included the below table that shows texture roughness and stiffness on the left (scales of 1, 5 and 10 – the highest) versus the payload of the Gecko SP1, SP3 and SP5. Green indicates that it is possible to pick this object, yellow is questionable and red does not result in a pick. The scale is relative and semi-arbitrary, meant to act as a general guide. More scientific information can be found in the Gecko SP user guide.

Stiffness	Roughness	Example of material / substrate	Gecko SP-1					
			Payload [kg]					
			0.02	0.05	0.1	0.25	0.5	1
1	1	Loose Mylar	🟨	🟨	🟥	🟥	🟥	🟥
5	1	Transparency sheet	🟩	🟩	🟨	🟨	🟨	🟥
10	1	Polished mirror-like steel, metal, solar panel	🟩	🟩	🟩	🟩	🟩	🟩

Stiffness	Roughness	Example of material / substrate	Gecko SP-1					
1	5	Cling film, ziploc bags	Yellow	Red	Red	Red	Red	Red
5	5	Glossy carboard (cereal box)	Green	Green	Yellow	Yellow	Yellow	Red
10	5	Printed circuit board	Green	Green	Green	Yellow	Red	Red
1	10	Laminating plastic / film	Red	Red	Red	Red	Red	Red
5	10	Corrugated cardboard	Yellow	Red	Red	Red	Red	Red
10	10	Sandblasted aluminum	Yellow	Yellow	Red	Red	Red	Red

Stiffness	Roughness	Example of material / substrate	Gecko SP-3					
			Payload [kg]					
			0.1	0.2	0.3	0.75	1.5	3
1	1	Loose Mylar	Yellow	Yellow	Red	Red	Red	Red
5	1	Transparency sheet	Green	Green	Yellow	Yellow	Yellow	Red
10	1	Polished mirror-like steel, metal, solar panel	Green	Green	Green	Green	Green	Green
1	5	Cling film, ziploc bags	Yellow	Red	Red	Red	Red	Red
5	5	Glossy carboard (cereal box)	Green	Green	Yellow	Yellow	Red	Red
10	5	Printed circuit board	Green	Green	Green	Yellow	Red	Red
1	10	Laminating plastic / film	Red	Red	Red	Red	Red	Red
5	10	Corrugated cardboard	Yellow	Red	Red	Red	Red	Red
10	10	Sandblasted aluminum	Yellow	Yellow	Red	Red	Red	Red

Stiffness	Roughness	Example of material / substrate	Gecko SP-5					
			Payload [kg]					
			0.1	0.25	0.5	1.0	2.5	5
1	1	Loose Mylar	Yellow	Yellow	Red	Red	Red	Red
5	1	Transparency sheet	Green	Green	Yellow	Yellow	Yellow	Red
10	1	Polished mirror-like steel, metal, solar panel	Green	Green	Green	Green	Green	Green
1	5	Cling film, ziploc bags	Yellow	Red	Red	Red	Red	Red
5	5	Glossy carboard (cereal box)	Green	Green	Yellow	Yellow	Yellow	Red
10	5	Printed circuit board	Green	Green	Green	Yellow	Red	Red
1	10	Laminating plastic / film	Red	Red	Red	Red	Red	Red
5	10	Corrugated cardboard	Yellow	Red	Red	Red	Red	Red
10	10	Sandblasted aluminum	Yellow	Yellow	Red	Red	Red	Red

NOTE:

These tables are to be utilized as a guide to better understand the payload capacity and substrate type for the Gecko Gripper SP1/3/5.

The criteria for stiffness and roughness is a basic scale from 1-10, here are the benchmarks used to determine the values.
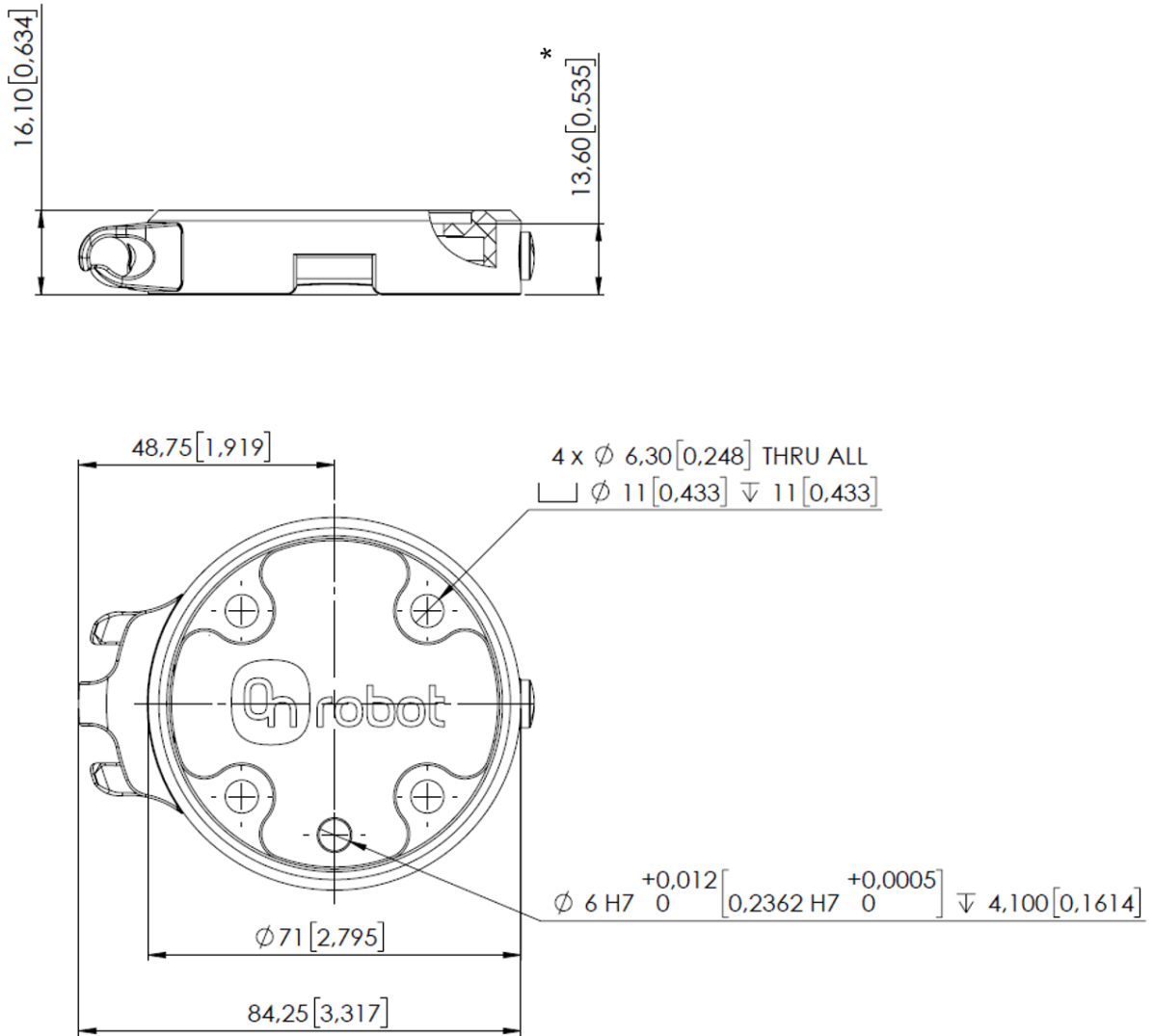
Stiffness	Description	Example
1	Flexible	Fabric
5	Semi-flexible	Cardboard
10	Stiff	Metal

Roughness	Description	Example	RMS Value
1	Polished/Smooth	Polished Metal	0.1 micron
5	Textured	Carboard	7 microns
10	Rough	Sandblasted Metal	28 microns

6.2. Mechanical Drawings

6.2.1. Mountings

6.2.1.1. Quick Changer - Robot Side

* Distance from Robot flange interface to OnRobot tool.

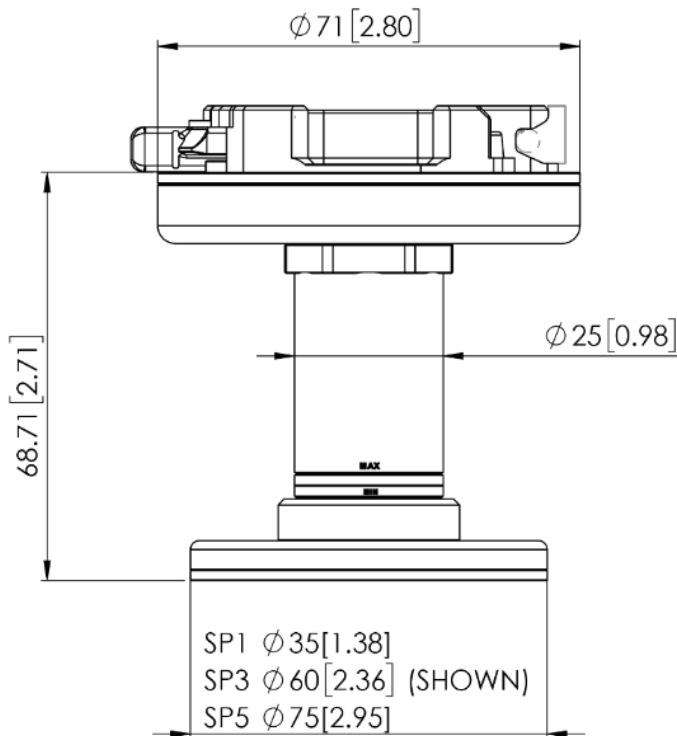All dimensions are in mm and [inches].

NOTE:

The cable holder (on the left side) is only required with the long (5 meter) cable.

6.2.2. Tools

6.2.2.1. Gecko SP1/3/5

All dimensions are in mm and [inches].

6.3. COG, TCP

COG, TCP, and weight parameters of the single devices (without any mounting/adapter):

6.3.1. Gecko SP1/3/5

Coordinate system	TCP [mm]	Center of Gravity [mm]	Weight
	X = 0 Y = 0 Z = 69	cX = 0 cY = -1 cZ = 11	0.262 kg 0.577 lb

* With Ø60 pad size.

Use the TCP/COG Calculator to calculate the TCP and COG values for your OnRobot product combination.

The TCP/COG Calculator can be downloaded from **www.onrobot.com/downloads**.

7. Maintenance

⚠️ **WARNING:**

An overall inspection of the OnRobot's End of Arm Tooling must be performed regularly and at least once every 6 months. This inspection must include but is not limited to check for defective material and clean gripping surfaces.

Use original spare parts, and original service instructions for the OnRobot's End of Arm Tooling and the robot. Failure to comply with this precaution can cause unexpected risks, resulting in severe injury.

If you have questions regarding spare parts and repair, please visit our website **www.onrobot.com** to contact us.

7.1. Gecko SP1/3/5

Gecko Gripper SP pads are made from a precision cast silicone or polyurethane film with a gecko microstructure. Contact with sharp objects may damage the pad surface and impair function. The Gecko Gripper performance is maximized when the pads are clean and dry. The pads can collect dust, so it is best to use the Gecko Gripper SP in a clean environment and/or establish a routine cleaning schedule.

Part	Description of Maintenance	Frequency
Pad Cleaning	Routine cleaning: Cleaning Station	Dependent on operating conditions. Guidelines are: See Cleaning Station User Guide
Pad Wear	Replacement due to wear	150000 – 200000 for HIGH preload operation 200000 – 250000 for LOW preload operation
Spring	Replacement due to wear	Replace every two pad changes
Bearing	Reapply grease	When spring is changed

The pads can be cleaned by wiping off dust and debris using isopropyl alcohol and a lint-free cloth.

For best pad performance:

- Do not touch pad (with fingers, with tools etc). Use latex gloves if possible.
- Do not use with oils/grease/lubricants/coolant.
- Only clean pads with the OnRobot cleaning station, approved solvents (isopropyl alcohol) and a lint-free cloth, or a pressure-sensitive adhesive tape/roller.
- Ensure that the pads are dry post cleaning prior to next use.

7.1.1. Replacing the Gripper Pads

- Unscrew previous pad in the counterclockwise direction (by hand if possible, if stuck then use pliers or a pipe wrench)
- Leave protective film on new pad during installation.
- Screw on new pad firmly by hand, being careful not to stress the film.
- Remove protective film before operation
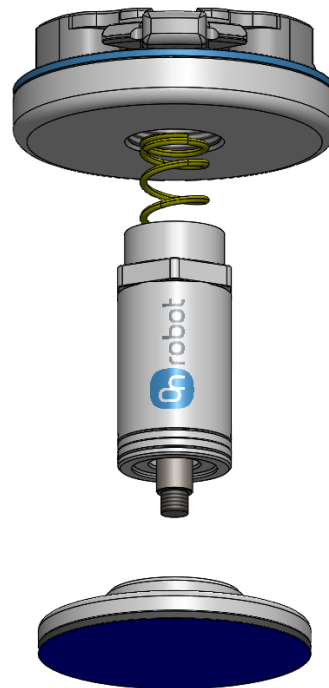
7.1.2. Replacing the Spring /Greasing the Bearing

- Remove pad while being careful to protect the bottom contact area.
- Remove main body from mount feature by unscrewing in the counterclockwise direction.
- Remove old spring and any remaining spring fragments.
- Remove pin and clean it.
- Apply grease to bearing, pin, and spring cavity.
- Install pin and new spring.
- Screw main body back onto the mount firmly.
- Reattach pad, while being careful not to touch the bottom contact surface.

WARNING:

The springs are color coded, make sure to use the right replacement spring for your gripper.

- Gecko SP1 spring - Zinc
- Gecko SP3 spring - Gold
- Gecko SP5 spring - Uncoated

8. Troubleshooting

8.1. Error During Operation

If an error occurs during operation, try the following:

1. Restart the robot and check the functionality.
2. If the error is still present, contact the distributor from where the product has been purchased.

9. Warranties

9.1. Patents

Products of OnRobot A/S are protected by several patents; some still in global publication process (Patents pending). All manufacturers of copies and similar products violating any patent claims will be prosecuted.

9.2. Product Warranty

Without prejudice to any claim the user (customer) may have in relation to the dealer or retailer, the customer shall be granted a manufacturer's warranty under the conditions set out below:

In the case of new devices and their components exhibiting defects resulting from manufacturing and/or material faults within 12 months of entry into service (maximum of 15 months from shipment), OnRobot A/S shall provide the necessary spare parts, while the customer (user) shall provide working hours to replace the spare parts, either replace the part with another part reflecting the current state of the art, or repair the said part. This warranty shall be invalid if the device defect is attributable to improper treatment and/or failure to comply with information contained in the user guides. This warranty shall not apply to or extend to services performed by the authorized dealer or the customer themselves (e.g. installation, configuration, software downloads). The purchase receipt, together with the date of purchase, shall be required as evidence for invoking the warranty. Claims under the warranty must be submitted within two months of the warranty default becoming evident. Ownership of devices or components replaced by and returned to OnRobot A/S shall vest in OnRobot A/S. Any other claims resulting out of or in connection with the device shall be excluded from this warranty. Nothing in this warranty shall attempt to limit or exclude a customer's statutory rights nor the manufacturer's liability for death or personal injury resulting from its negligence. The duration of the warranty shall not be extended by services rendered under the terms of the warranty. Insofar as no warranty default exists, OnRobot A/S reserves the right to charge the customer for replacement or repair. The above provisions do not imply a change in the burden of proof to the detriment of the customer. In case of a device exhibiting defects, OnRobot A/S shall not be liable for any indirect, incidental, special or consequential damages, including but not limited to, lost profits, loss of use, loss of production or damage to other production equipment.

In case of a device exhibiting defects, OnRobot A/S shall not cover any consequential damage or loss, such as loss of production or damage to other production equipment.

9.3. Disclaimer

OnRobot A/S continues to improve reliability and performance of its products, and therefore reserves the right to upgrade the product without prior warning. OnRobot A/S ensures that the content of this manual is precise and correct but takes no responsibility for any errors or missing information.

10. Certifications

intertek
Total Quality. Assured.

CERTIFICATE
OF REGISTRATION

This is to certify that the management system of:

OnRobot A/S

Main Site: Teglværksvej 47 H, 5220 Odense SØ, Denmark
Chamber of Commerce: 36492449

Additional Site: OnRobot A/S, Cikorievej 44, 5220 Odense SØ, Denmark

has been registered by Intertek as conforming to the requirements of

ISO 9001:2015

The management system is applicable to:

Development and sales of End-of-Arms tools for industrial customers worldwide.

Certificate Number:
0096721

Initial Certification Date:
26 November 2019

Date of Certification Decision:
26 November 2019

Issuing Date:
26 November 2019

Valid Until:
25 November 2022

Accred. no. 1639
Certification of
Management
Systems
ISO/IEC 17021-1

Intertek

Carl-Johan von Plomgren
MD, Business Assurance Nordics

Intertek Certification AB
P.O. Box 1103, SE-164 22 Kista, Sweden

10.1. EMC

Attestation of Conformity no. 120-33441-A1

FORCE Technology has performed compliance testing on electrical products since 1967. FORCE Technology is an accredited test house according to EN17025 and participates in international standardization with organizations such as CEN/CENELEC, IEC/CISPR and ETSI. This attestation of conformity with the below mentioned standards and/or normative documents is based on accredited tests and/or technical assessments carried out at FORCE Technology.

Attestation holder	
OnRobot A/S	
Teglværksvej 47H	
5220 Odense SØ	
Denmark	

Product identification - Name (Part no.)
Power Supplies: PSU (104788), VER36U240-JA, VES120PS24, VES150PS24.
Controllers: UR Kit with Compute Box (102344), Doosan Robot kit (102345), Techman/OMRON TM Robot Kit (102359), KUKA-A Robot kit (102360), KUKA-B Robot kit (102361), FANUC Robot kit (102362), Kawasaki-B Robot kit (102363), Kawasaki-C Robot kit (102364), Kawasaki-D Robot kit (102365), Kawasaki-E Robot kit (102366), Yaskawa-F Robot kit (102367), Yaskawa-G Robot kit (102368), Yaskawa-H Robot kit (102369), NACHI-I Robot kit (102370), NACHI-J Robot kit (102371), Hanwha Robot Kit (103208), Eye Box (103707).
Mountings: Dual Quick Changer (101788), Quick Changer Robot side (102037), HEX-E QC (102111), Quick Changer Kit (102277), HEX-H QC (102376), Quick Changer Robot side 4,5A (104277), Dual Quick Changer 4,5A (104293), Quick Changer Kit 4,5A (104388).
Tools: 2FG7 (106376), 3FG15 (103666), MG10 (105202), OnRobot Eyes (103903), RG2 (102012), RG2-FT (102075), RG6 (102021), Sander (106376), Screwdriver (103961), SG Base Part (103546), VG10 (101661), VGC10 (102844), VGP20 (107242).

Manufacturer
OnRobot A/S

Technical documentation
Assessment no. 120-33441-A1

Standards/Normative documents

IEC 61000-3-2:2018	EMC Directive 2014/30/EU, Article 6
IEC 61000-3-3:2013/AMD1:2017	EN 61000-3-2:2014
IEC 61000-6-2:2016	EN IEC 61000-3-2:2019
IEC 61000-6-4:2018	EN 61000-3-3:2013/A1:2019
	EN 61000-6-2:2005/AC:2005
	EN IEC 61000-6-2:2019
	EN 61000-6-4:2007/A1:2011
	EN IEC 61000-6-4:2019

Additionally, for RG2 (102012) and RG6 (102021):
IEC 61326-3-1:2017, Industry locations, SIL 2

The product identified above has been assessed and complies with the specified standards/normative documents. The attestation does not include any market surveillance. It is the responsibility of the manufacturer that mass-produced apparatus have the same properties and quality. This attestation does not contain any statements pertaining to the requirements pursuant to other standards, directives or laws other than the above mentioned.

Signature

Knud A. Baltsen

Digitally signed by
Knud A. Baltsen
Date: 2021.03.02
16:14:10 +01'00'

Signed by: Knud A. Baltsen, Senior Specialist, Product Compliance

GTS   ADVANCED TECHNOLOGY GROUP

FORCE Technology	FORCE Technology Norway AS	FORCE Technology
Venlighedsvej 4	Nye Vakås vei 32	Park Allé 345
2970 Hørsholm, Denmark	1395 Hvalstad, Norway	2605 Brøndby, Denmark
+45 43 25 14 00	+47 64 00 35 00	+45 43 25 00 00
+45 43 25 00 10	+47 64 00 35 01	+45 43 25 00 10
info@forcetechnology.dk	info@forcetechnology.no	info@forcetechnology.dk

10.2. Declaration of Incorporation

10.2.1. Gecko SP1/3/5

CE/EU Declaration of Incorporation (Original)

According to European Machinery Directive 2006/42/EC annex II 1.B.

The manufacturer:

OnRobot A/S
Teglværskvej 47H
DK-5220, Odense SØ
DENMARK

declares that the product:

Type: Industrial Robot Gripper
Model: Gecko SP1/3/5
Generation: V1
Serial: 1000000000-1009999999

may not be put into service before the machinery in which it will be incorporated is declared in conformity with the provisions of Directive 2006/42/EC, including amendments, and with the regulations transposing it into national law.

The product is prepared for compliance with all essential requirements of Directive 2006/42/EC under the correct incorporation conditions, see instructions and guidance in this manual. The following essential requirements of Directive 2006/42/EC are fulfilled: 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4, 1.5.1, 1.5.2, 1.5.4, 1.5.5, 1.5.10, 1.5.11, 1.5.12, 1.6.1. Compliance with all essential requirements of Directive 2006/42/EC relies on the specific robot installation and the final risk assessment.

Technical documentation is compiled according to Directive 2006/42/EC annex VII part B and available in electronic form to national authorities upon legitimate request. Undersigned is based on the manufacturer address and authorized to compile this documentation.

Additionally, the product declares in conformity with the following directives, according to which the product is CE marked:

2011/65/EU — Restriction of the use of certain hazardous substances (RoHS)

A list of applied harmonized standards, including associated specifications, is provided in this manual.

Budapest, November 11th, 2020

Group Management

Vilmos Beskid
CTO