



future of assembly



SpinMount Flexi

User manual v1.0 (original, en)



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Table of Contents

| | | |
|-----|-------------------------------|----|
| 1 | Technical datasheet | 4 |
| 2 | Getting started | 5 |
| 2.1 | What's in the box..... | 5 |
| 2.2 | Installation | 6 |
| 2.3 | Mounting..... | 7 |
| 2.4 | Unmounting | 9 |
| 3 | Mechanical specification..... | 10 |
| 3.1 | Static Load Capacity | 10 |
| 3.2 | Dimensions – Robot side..... | 11 |
| 3.1 | Dimensions – Tool side | 12 |
| 4 | Safety | 13 |
| 4.1 | Intended use | 14 |
| 5 | Product warranties | 15 |
| 5.1 | Disclaimer..... | 17 |
| 6 | Certification..... | 18 |

1 Technical datasheet

SpinMount Flexi it is a flexible tool changer that helps you to mount additional robotics tool like grippers and suction cups on a collaborative robot using the same quick changer principle as Spin Robotics’ end-of-arm screwdriver tools. The SpinMount Flexi makes it easy to swap tools to cover different applications simultaneously on the same collaborative robot.

Technical datasheet

| | |
|--------------------------------|-----------------------|
| Input/Output flange | ISO 9409-1-50-4-M6 |
| Max. Permissible force | 500 N* |
| Max. Permissible torque | 50 Nm* |
| Rated max. payload | 10 kg** 22 lbs |
| Tool side weight | 0.072 kg 0.159 lbs |
| Robot side weight | 113 g 0.249 lbs |
| Combined weight | 185 g 0.408 lbs |
| Combined height | 28 mm 1.14 in |
| Typical tool change | 5000 cycles |

**See Section 3.1 for force & torque threshold limits in all directions..*

***Typical payload – Do not exceed the Force & torque limits given in Section 3.1*

2 Getting started



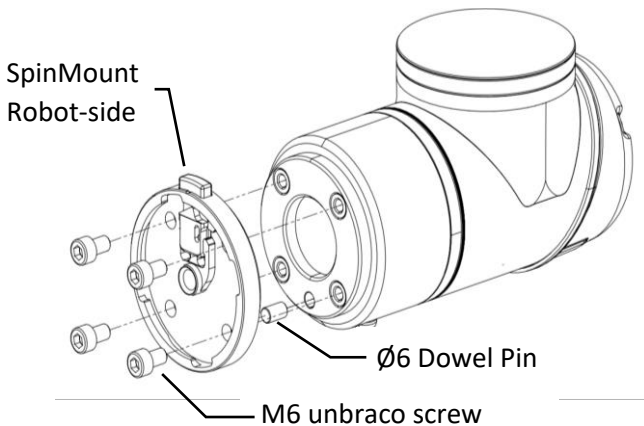
DANGER

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

2.1 What's in the box

When you receive the SpinMount Flexi, the following is included:

- 1 x SpinMount – Robot-side (Female)
- 2 x SpinMount – Tool-side (Male)
- 4 x M6 Unbraco screws + Allen key
- 1 x $\varnothing 6$ Dowel pin
- User manual



2.2 Installation



Step 1: Place the supplied $\varnothing 6$ Dovel pin inside of the UR flange so that you can easily find the right position for the SpinMount.



Step 2: Take the male part, align its holes with the holes on the robot and connect the part and the robot.



Step 3: Fasten the part with the 4 M6 screws that come in the package, using a hex key. The part should be well-adjusted, but pay attention to not fasten it too tight, as it can cause damage to the robot. Use 10 Nm tightening torque.

2.3 Mounting



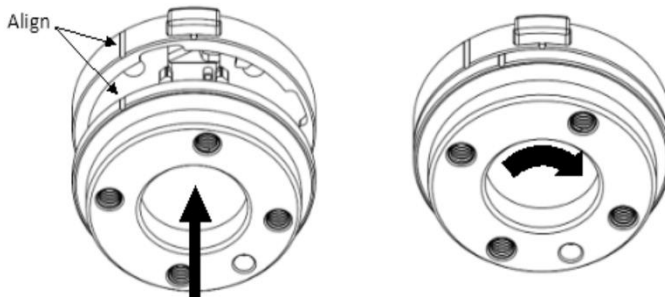
Step 1: Take the end-of-arm-tool with an attached female part and connect it to the male part in a way that the lines on the SpinMount and the male part connect.



Step 2: Turn it right until the spring-loaded mechanism pops out. SpinMount is ready to use.



Note: Align the markings before locking the SpinMount.



2.4 Unmounting



Step 1: Press the blue button on the male part all the way down.

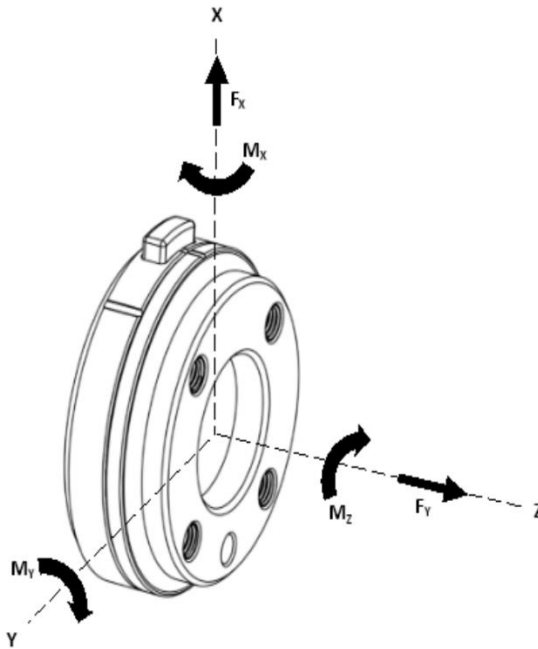


Step 2: Turn the tool 45 degrees to the right and take it off.

3 Mechanical specification

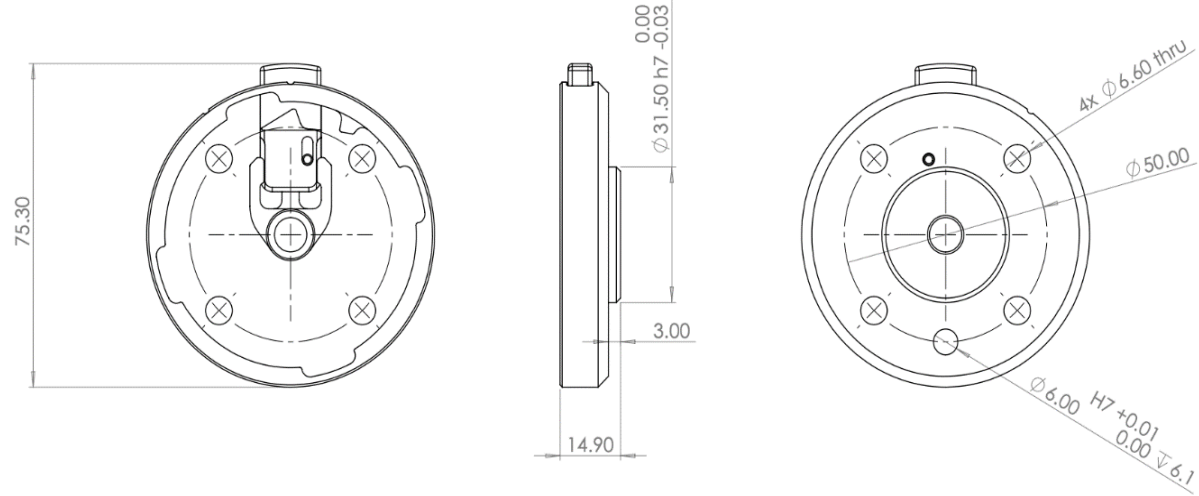
3.1 Static Load Capacity

The maximum static load capacity for the SpinMount is given below.

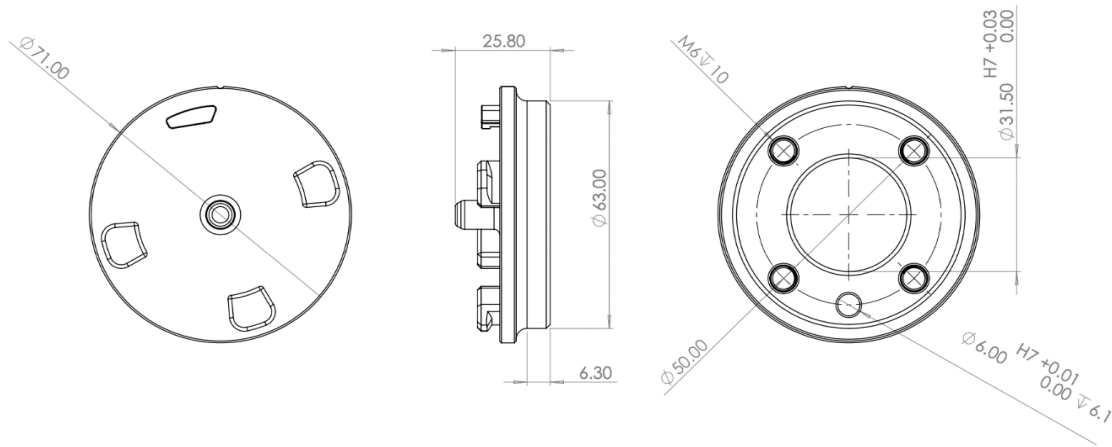


| | MOMENTS [NM] | | FORCE [N] |
|-------|--------------|---|-----------|
| M_x | 100 | X | 1000 |
| M_y | 100 | Y | 1000 |
| M_z | 50 | Z | 500 |

3.2 Dimensions – Robot side



3.1 Dimensions – Tool side



4 Safety

The information in this manual does not cover designing, constructing, and running a complete robot solution, nor does it cover other external equipment that can influence the safety of the complete robot system.

The complete robot 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 and tool are installed. The robot integrator or user are responsible for that, including but not limited to:

- a. Performing a risk assessment for the complete robot system e.g., in accordance with ISO12100
- b. Interfacing other machines and additional safety devices if defined by the risk assessment
- c. Setting up appropriate safety settings in the robot software
- d. Ensuring that the user cannot unintentionally modify any safety measures
- e. Validating that the total robot system is designed and installed correctly
- f. Specifying instructions for use
- g. Marking the robot installation with relevant signs and contact information of the integrator
- h. Collecting all documentation in a technical file; including the risk assessment and this manual



Any safety information provided in this manual must not be construed as warranty, by Spin Robotics Aps that the robot application will not cause injury or damage, even if robot application complies with all safety instructions. Spin Robotics Aps disclaims all liability if any of Spin Robotics tools are damaged, changed or modified in any way. Spin Robotics Aps cannot be held responsible for any damages caused to any of Spin Robotics tools, the robot, any other equipment, or humans due to programming errors or malfunctioning of any of Spin Robotics tools.

4.1 Intended use

The SpinMount is intended to be used in conjunction with - industrial robots and end-of-arm tooling up to 10 kg payload. The SpinMount must only be operated within the conditions stated in the *Technical datasheet* on page 4 of this manual. Any use or application deviation from intended use is deemed to be impermissible misuse. This includes, but not limited to:

- Use in medical and life critical applications
- Use before performing a risk assessment
- Use close to human's head, face or eye area
- Use outside the permissible operation conditions and specifications

5 Product warranties

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:

If a problem occurs with products and the problem is caused by manufacturing defects in material and workmanship, Spin Robotics will, at its discretion replace the Products in accordance with the warranty terms and conditions in accordance with Spin Robotics' Product warranty ("Product Warranty"). The Products are covered under the Product Warranty for i) a period of 12 months after delivery, or ii) a period of 15 months from the date the Products are shipped EXW (Incoterms 2020) from Spin Robotics' principal place of business in Odense, Denmark, or such shipping place as designated by Spin Robotics. As far as applicable laws permit, the Warranty Period will not be extended or renewed due to subsequent exchange, resale, repair, or replacement of the products. Part(s) repaired or replaced during the Warranty Period will be warranted for: (a) the remainder of the original Warranty Period; or (b) 180 days from the date of repair or replacement, whichever is longer. Spin Robotics 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.

The Warranty does not apply to:



- a. Products subjected to abnormal use or environmental conditions, accident, mishandling, neglect, unauthorized alteration, misuse, tampering improper installation or repair, or improper storage.
- b. Damage resulting from or caused using any attachment, accessory, connection, extension, etc. attached to the Products.
- c. Failure due to customer design, installation, programming and operating the Products outside the guidelines of Spin Robotics.
- d. Products damaged by external conditions including, but not limited to, battery leakage, fire, water, or interruptions in electric power supply.
- e. Down time, work stoppage, business interruption, loss of revenues or loss of anticipated savings, and loss of or damage to or corruption of data, due to Products failure.
- f. Software.

Prior to shipping back, the product to Spin Robotics, the customer must get a Returned Material Authorization (RMA) from Spin Robotics. A Returned Material Authorization (RMA) form can be acquired by contacting the vendor which the tool has been purchased from. Under no circumstances whatsoever shall Spin Robotics be liable to any person, firm, or corporation for any special, indirect, or consequential damages, whether for breach of contract, negligence, misrepresentation or otherwise and whether resulting in lost profits, interest on money borrowed or invested, impairment of goods, work stoppage or otherwise, in any way arising out of the sale of any products or services by Spin Robotics to customer. The liability of Spin Robotics and the exclusive remedy of



customer for any defect or breach or for any action relating to the sale of any products or services by Spin Robotics to customer, whether based in contract, negligence, strict liability, tort, breach of warranty, or otherwise, is limited, at Spin Robotics' option, to repair or replacement of the defective goods or services or refund of the purchase price, therefore. The foregoing shall constitute the sole and exclusive liability of Spin Robotics and the sole and exclusive remedy of customer or anyone claiming on behalf of or through customer.

5.1 Disclaimer

Spin Robotics continues to improve reliability and performance of its products, and therefore reserves the right to upgrade the product without prior warning. Spin Robotics takes every care that the contents of this manual are precise and correct but takes no responsibility for any errors or missing information.

6 Certification

Declarations, certificates and applied standards are listed in this chapter.

Applied standards

Standards applied under development of the product is listed in this section. When an EU Directive number is noted in brackets it indicates that the standard is harmonized under that Directive.

ISO 12100:2010

EN ISO 12100:2010 (E) [2006/42/EC]

Safety of machinery – General principles for design – Risk assessment and risk reduction The product is evaluated according to the principles of these standards.

ISO 10218-2:2011

EN ISO 10218-2:2011(E) [2006/42/EC]

ANSI/RIA R15.06-2012

CAN/CSA-Z434-14

Robots and robotic devices – Safety requirements for industrial robots Part 2: Robot systems and integration The product is prepared for compliance with robot system requirements defined in these standards.

ISO/TS 15066:2016

RIA TR R15.606

Robots and robotic devices – Safety requirements for industrial robots – Collaborative operation

This is a Technical Specification (TS), **not** a standard. The product is prepared for easy integration in compliance with



provisions in this Technical Specification, see more *in the safety chapter*.

ISO/TR 20218-1:2018

Robotics – Safety requirements for industrial robots Part 1: Industrial robot system end of arm tooling (end-effector) This is a Technical Report (TR), **not** a standard. The product is designed according to principles in this Technical Report.

ISO 9409-1:2004 [Type 50-4-M6]

Manipulating industrial robots – Mechanical interfaces Both parts of the SpinMount Flexi conforms to type 50-4-M6 of this standard. Robots should also be constructed according to this standard to ensure proper fitting.

UL 1740:2018, edition 4

Standard for Robots and Robotic Equipment The product is designed to meet the requirements in both this and other relevant UL standards. For more information about UL compliance and field certification in US, contact your supplier.



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Our mission is to revolutionize screwdriving in assembly through a truly safe employee-robot collaboration.

We aim to close the gap between humans and robots in assembly lines by introducing innovative and smart collaborative tools that improve working conditions among employees while at the same time increase assembly quality and output.

With our tools, we provide benefits for both employees and manufacturers.

Let's work together on the future of assembly!



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