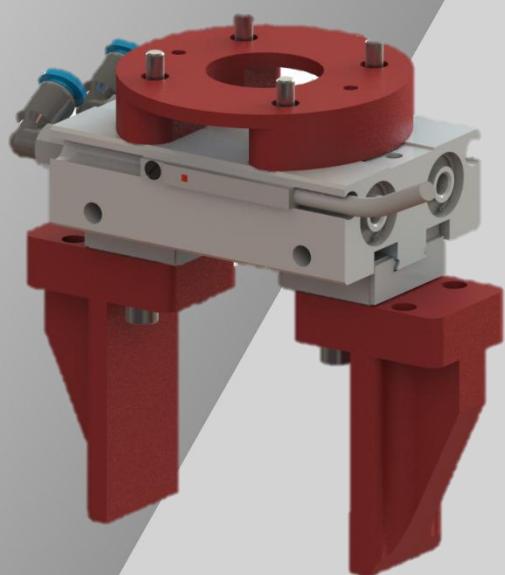


# ASTORINO

## Pneumatic Gripper Operation Manual



## **INTRODUCTION**

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This manual describes the pneumatic gripper for the "Kawasaki Robotics Astorino" educational robot.

ASTORINO is an educational robot that has been specially developed for training establishments and institutions. Pupils and students can use ASTORINO to learn the automation and robotization of industrial processes in practice.

If you have any further questions, please contact local Kawasaki Support.

1. The "astorino" software included with the ASTORINO is licensed for use with this robot only and may not be used, copied or distributed in any other environment.
2. Kawasaki shall not be liable for any accidents, damages, and/or problems caused by improper use of the ASTORINO robot.
3. Kawasaki reserves the right to change, revise, or update this manual without prior notice.
4. This manual may not be reprinted or copied in whole or in part without prior written permission from Kawasaki.
5. Keep this manual in a safe place and within easy reach so that it can be used at any time. If the manual is lost or seriously damaged, contact Kawasaki.

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## SYMBOLS

Items that require special attention in this manual are marked with the following symbols.

Ensure proper operation of the robot and prevent injury or property damage by following the safety instructions in the boxes with these symbols.

 **WARNING**

**Failure to observe the specified contents could possibly result in injury or, in the worst case, death.**

**[ATTENTION]**

Identifies precautions regarding robot specifications, handling, teaching, operation,

 **WARNING**

- 1. The accuracy and effectiveness of the diagrams, procedures and explanations in this manual cannot be confirmed with absolute certainty. Should any unexplained problems occur, contact Kawasaki Robotics GmbH at the above address.**
- 2. To ensure that all work is performed safely, read and understand this manual. In addition, refer to all applicable laws, regulations, and related materials, as well as the safety statements described in each chapter.**

## PARAPHRASES

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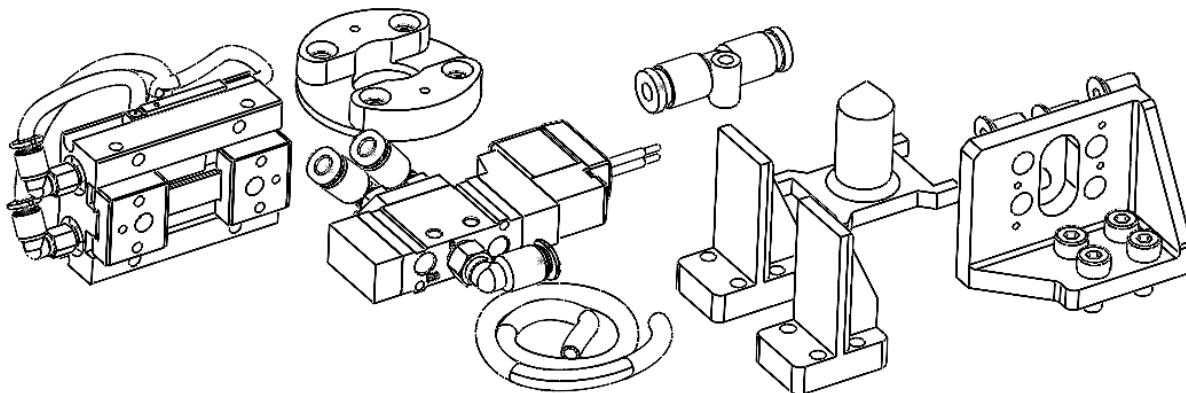
The following formatting rules are used in this manual:

- For a particular keystroke, the respective key is enclosed in angle brackets, e.g. <F1> or <Enter>.
- For the button of a dialog box or the toolbar, the button name is enclosed in square brackets, e.g. [Ok] or [Reset].
- Selectable fields are marked with a square box . If selected a check mark is shown inside the symbol .

## 1 TECHNICAL SPECIFICATIONS

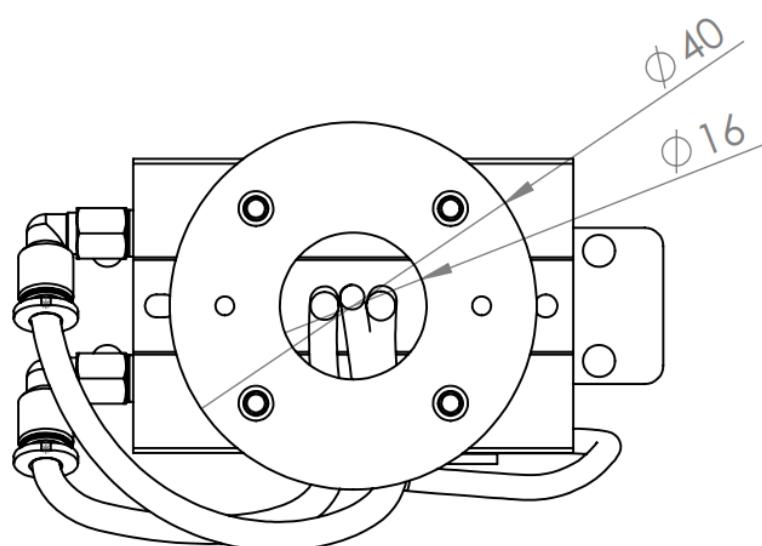
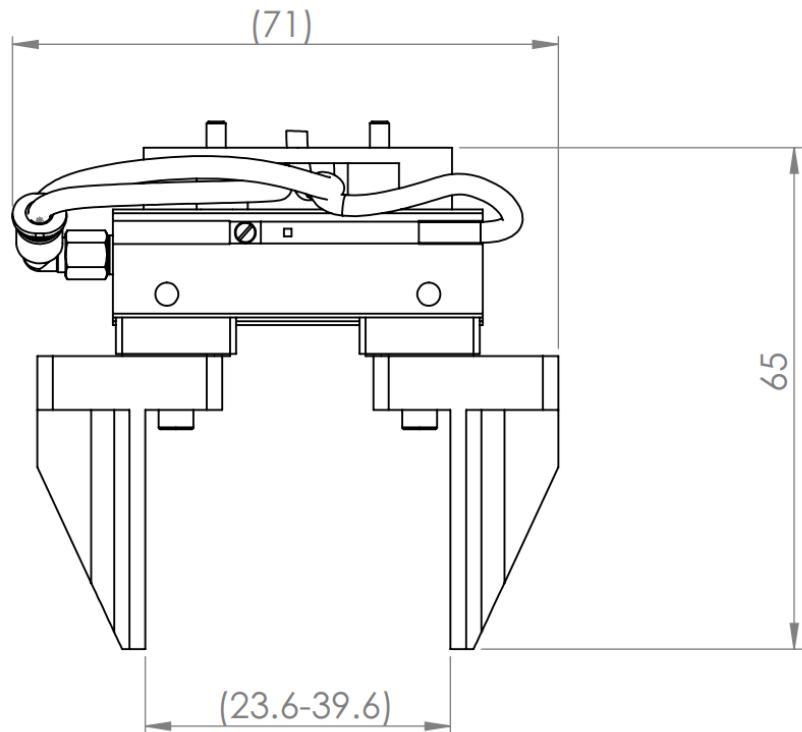
Characteristics	Astorino Pneumatic gripper	
Working environment	Temperature	15–35°C
	Humidity	35–60%
Max. pressure		8 Bar
Size		40x71x65mm
Total stroke		16 mm
Piston position sensor	Sensor power supply	24V
	Sensor output type	PNP
Weight		100 g
Material		Aluminium, PET-G, Steel
Colour		Silver/Red/Black
Valve	Valve type	5/2
	Valve power supply	24V
	Valve max current	100 mA

## 2 PNEUMATIC GRIPPER PACKAGE CONTENTS



Part	Qt
Valve 5/2	1
Gripper fingers	2
Calibration cone	1
Valve holder	1
Gripper	1
Mounting hub	1
Piston position sensor	1
Pressure pipe 3mm	2
Pressure pipe 4mm	1
Screws	20

## 3 DIMENSIONS



## 4 INSTALLATION

⚠ **WARNING**

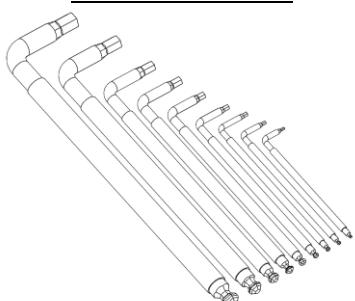
**Before installation make sure that the robot is TURNED OFF and is installed on the firm surface to avoid any injury!**

⚠ **WARNING**

**Before installation make sure that the pressure source is turned off and residual pressure contained in pressure banks is released!**

### 4.1 TOOLS REQUIRED

Allen wrenches



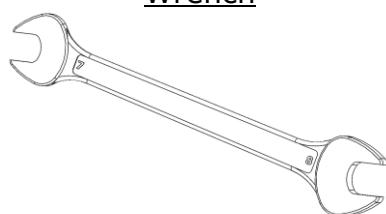
1,5 mm

2 mm

2,5 mm

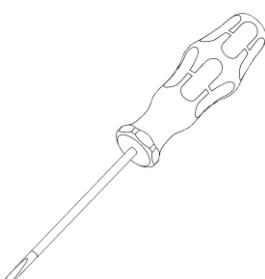
3 mm

Wrench



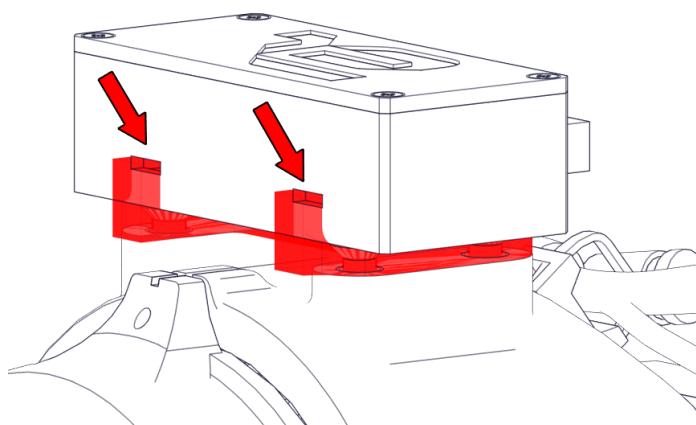
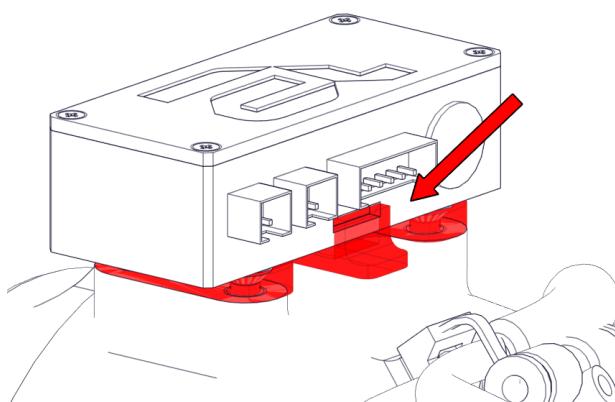
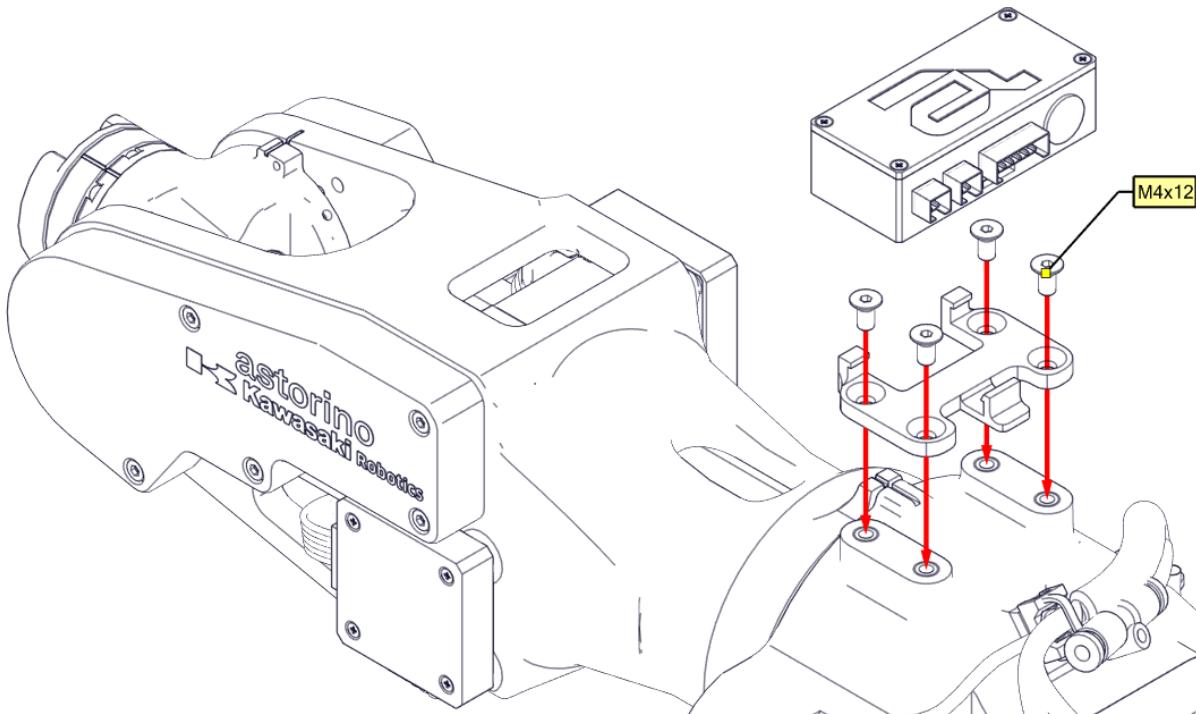
8 mm

Flathead screwdriver

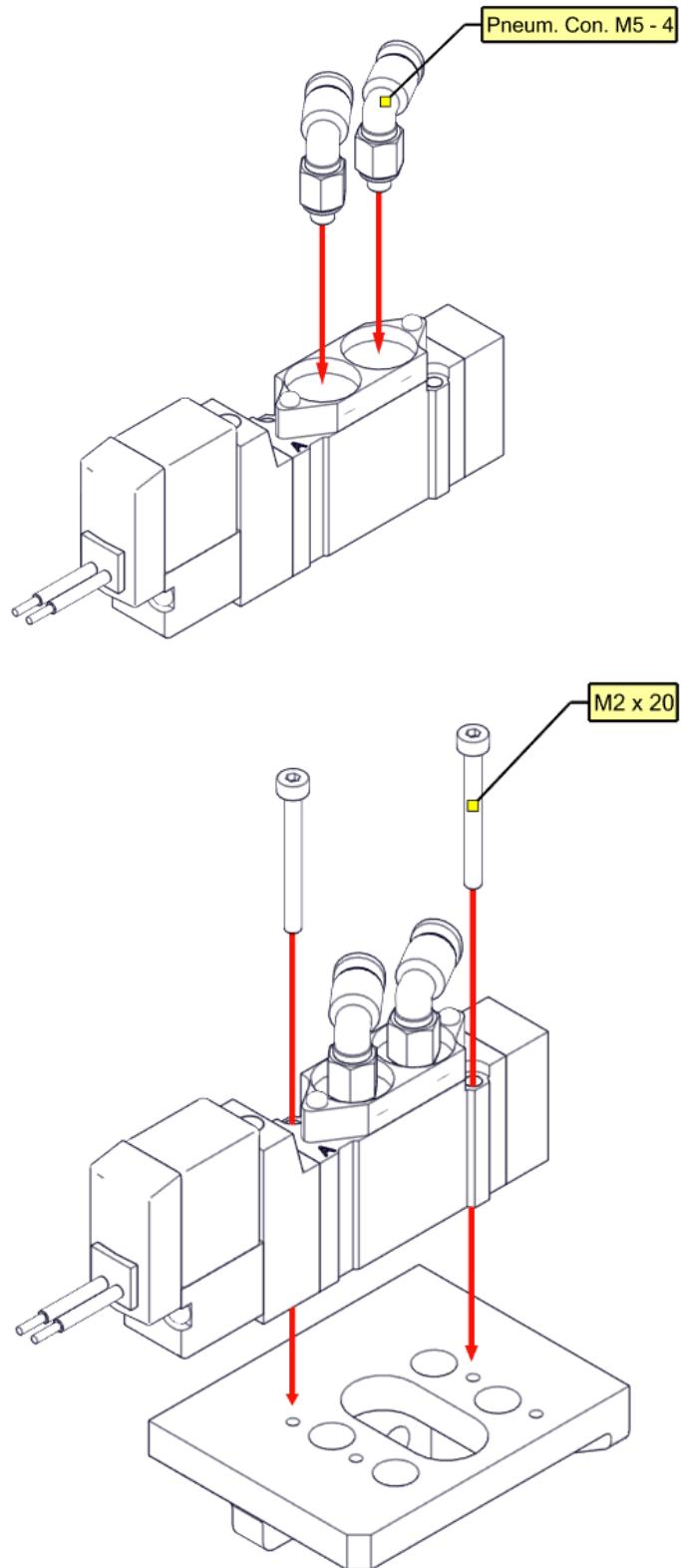


1,5 mm

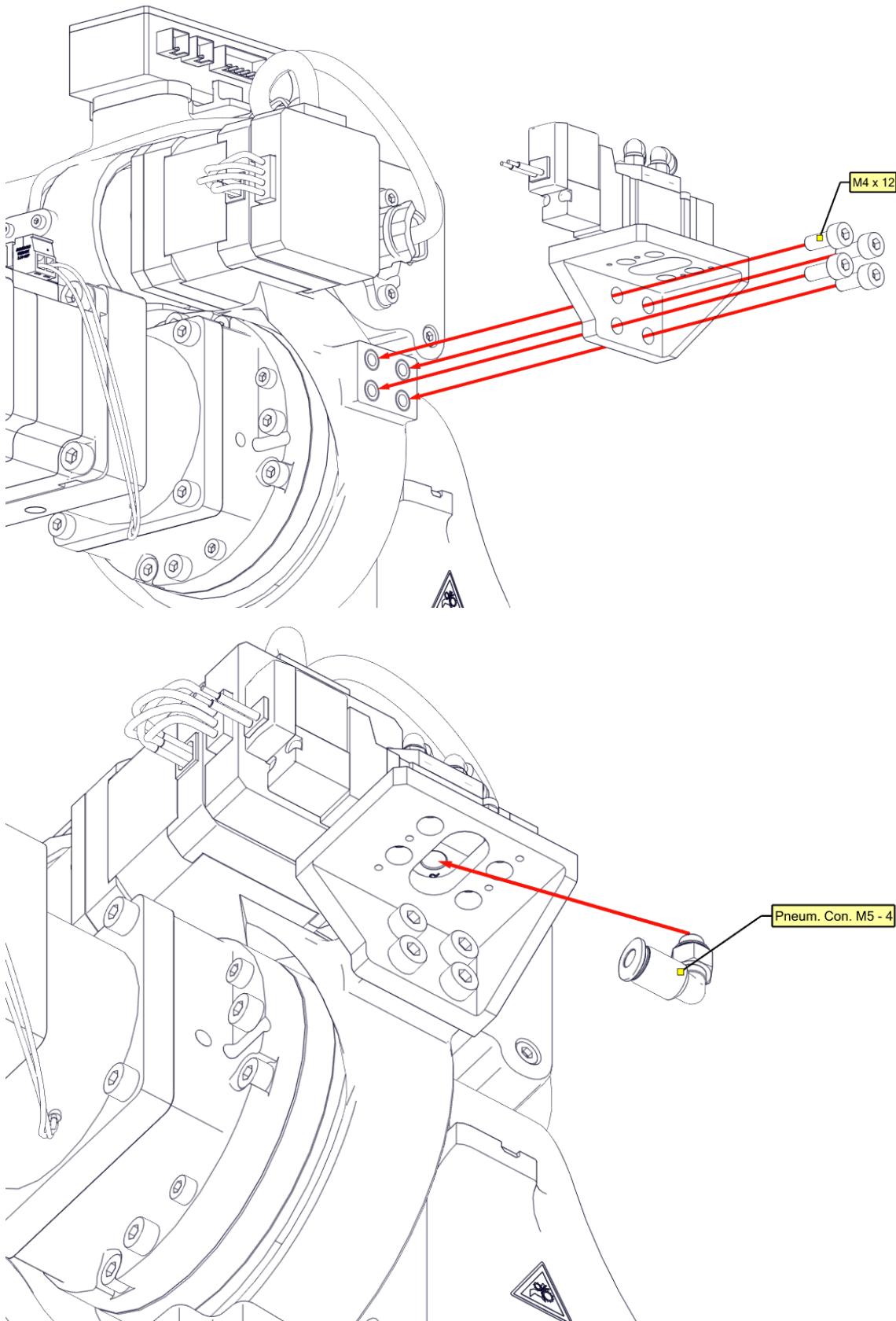
## 4.2 MOUNTING IO MODULE



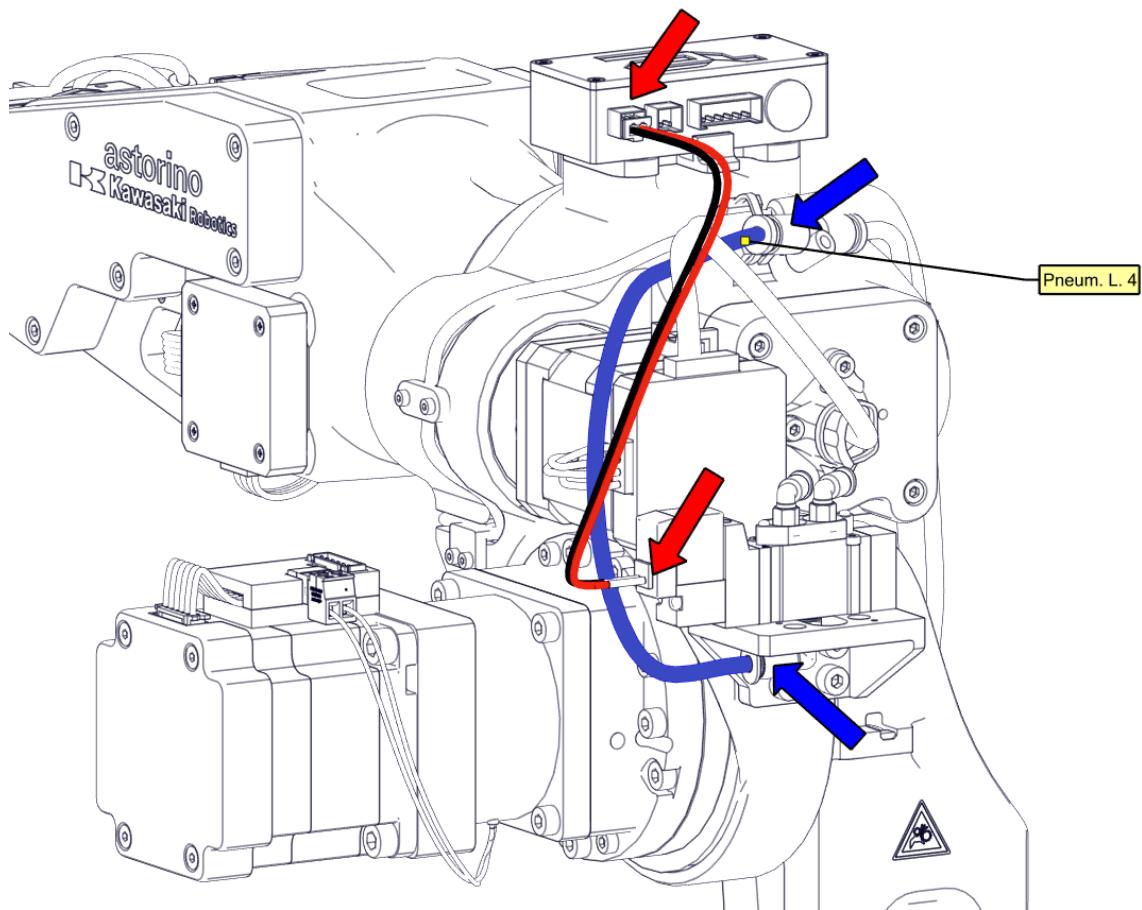
## 4.3 VALVE PREPARATION



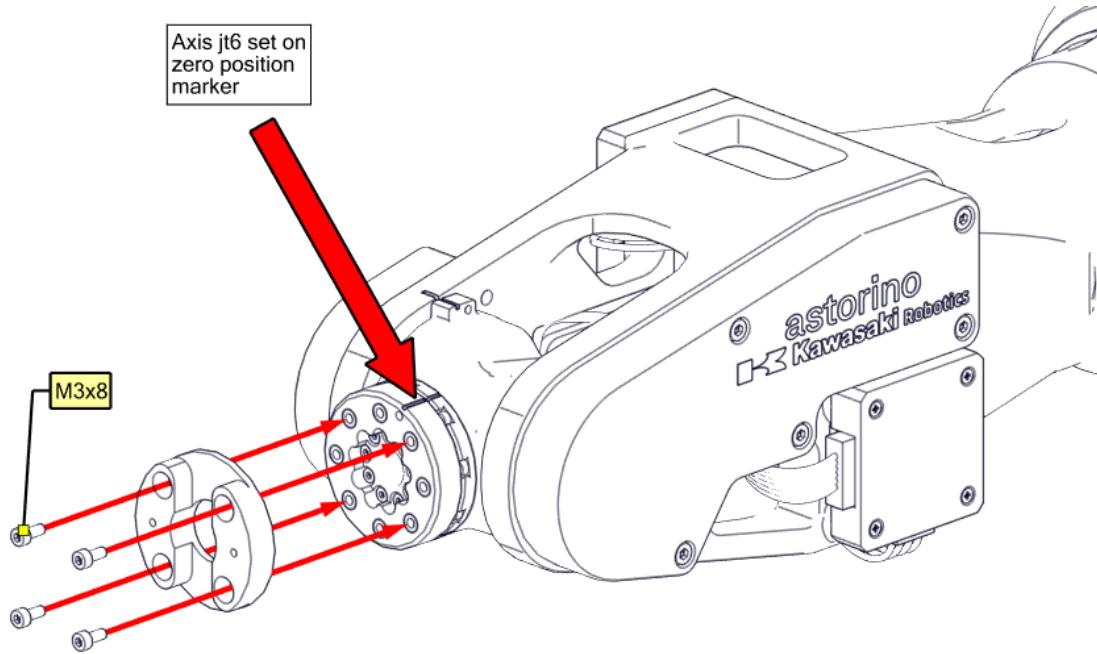
## 4.4 VALVE INSTALLATION



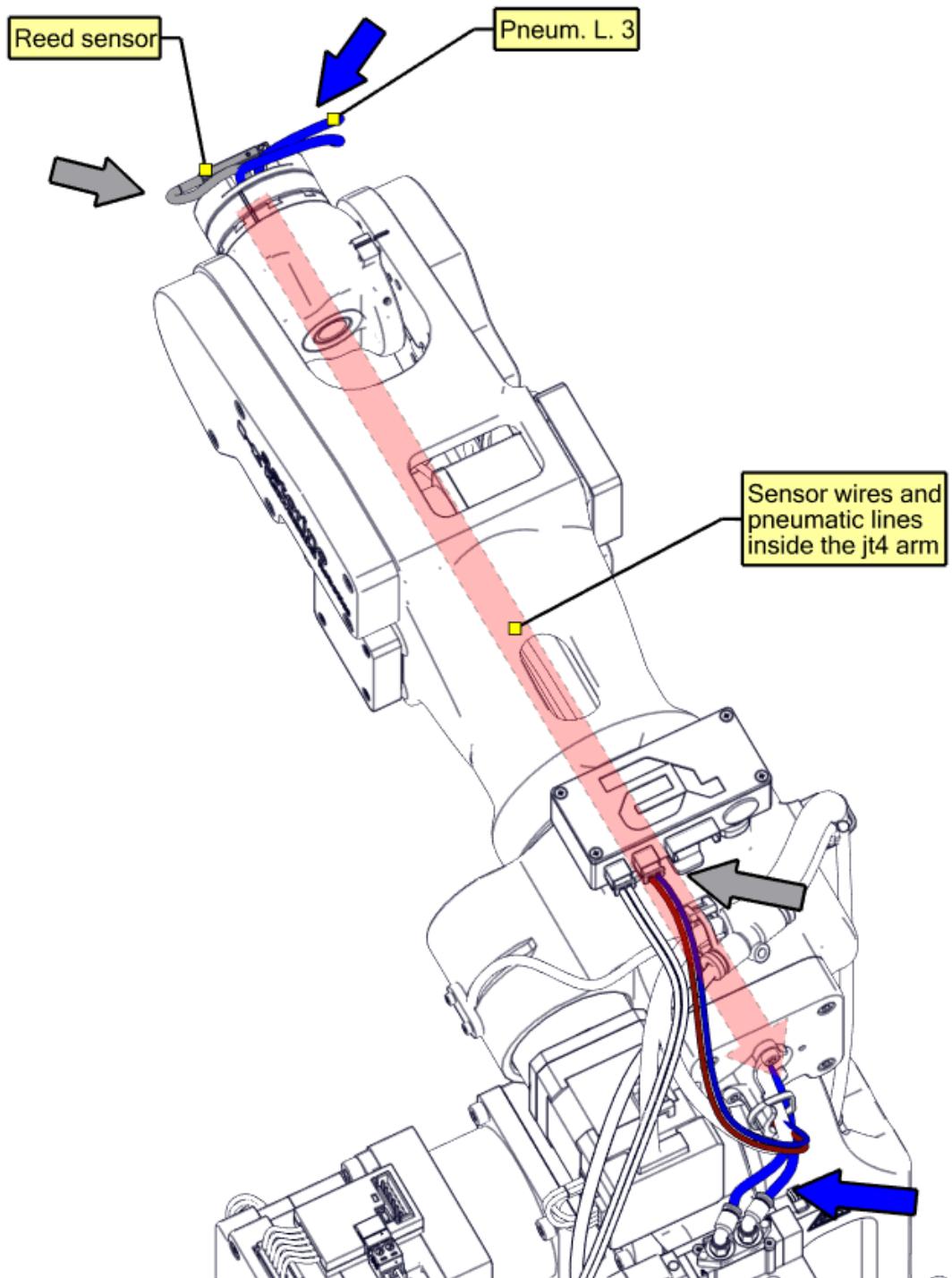
ASTORINO Pneumatic Gripper Operation Manual



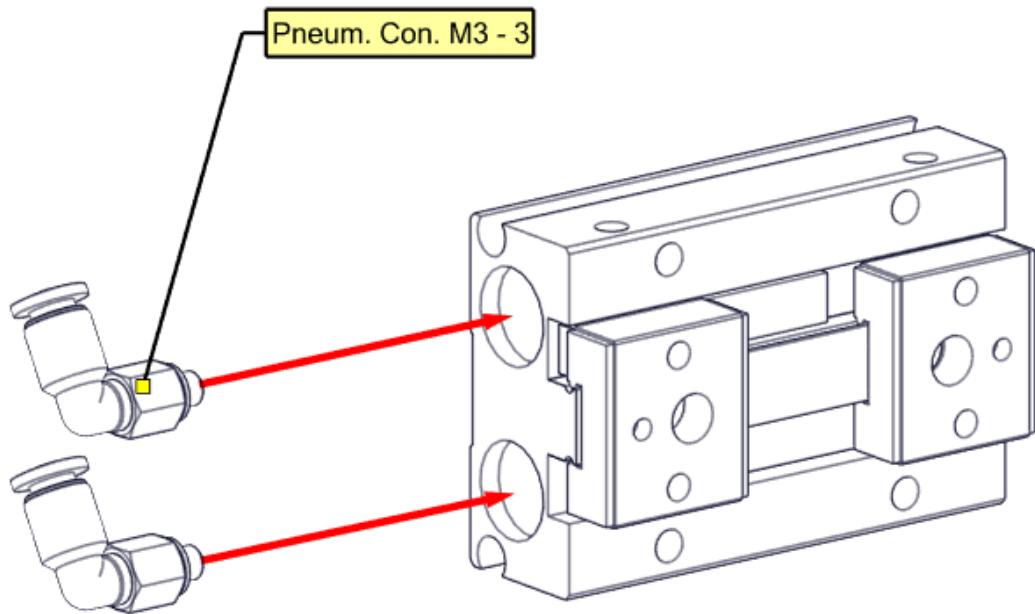
## 4.5 FLANSE ASSEMBLY



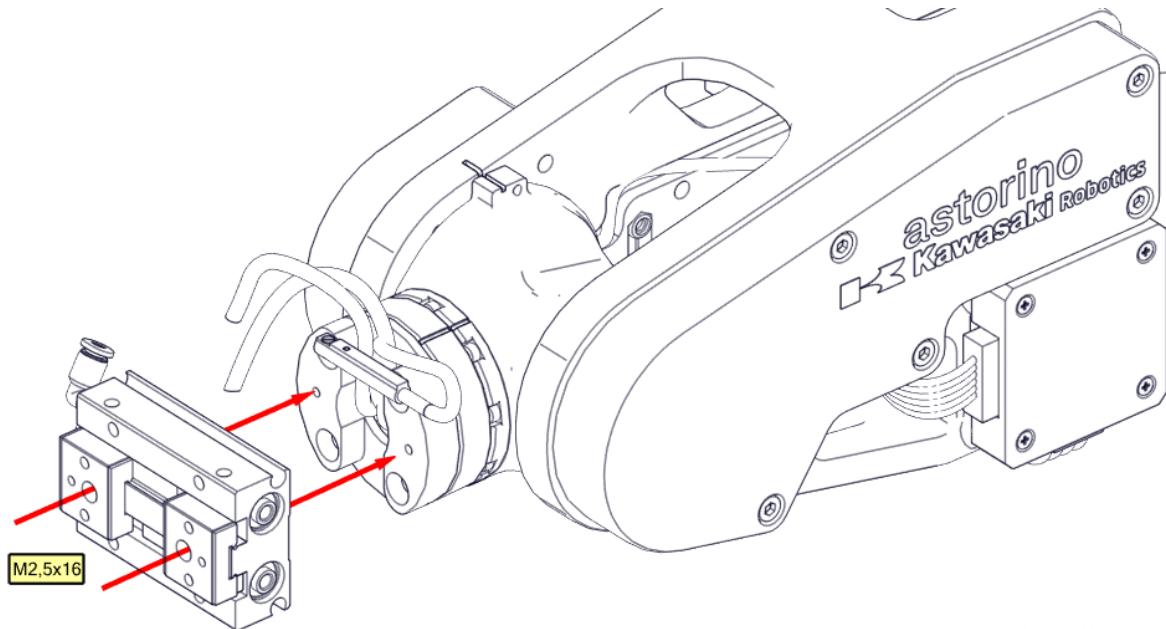
## 4.6 CABLE ROUTING



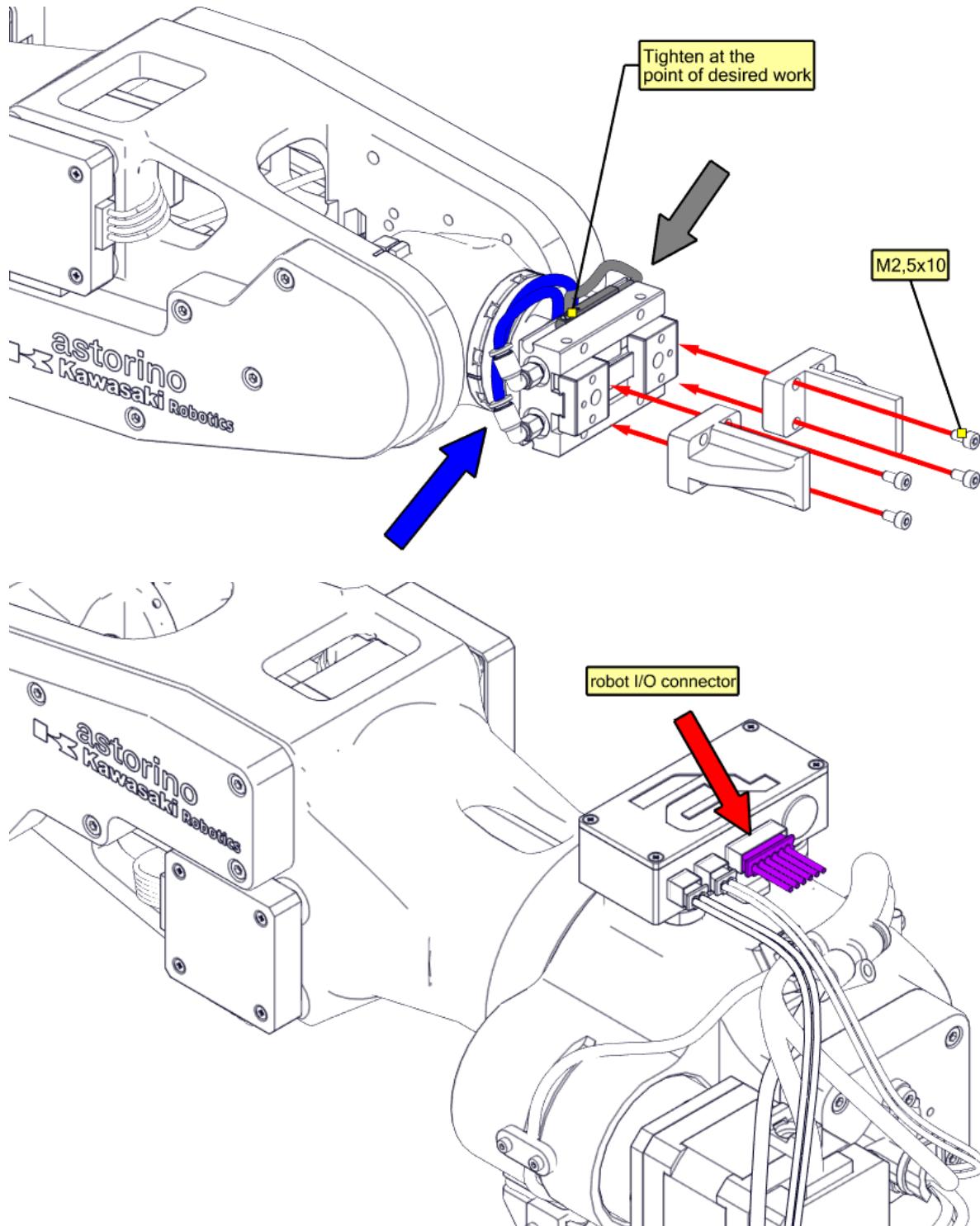
## 4.7 GRIPPER PREPARATION



## 4.8 GRIPPER ASSEMBLY

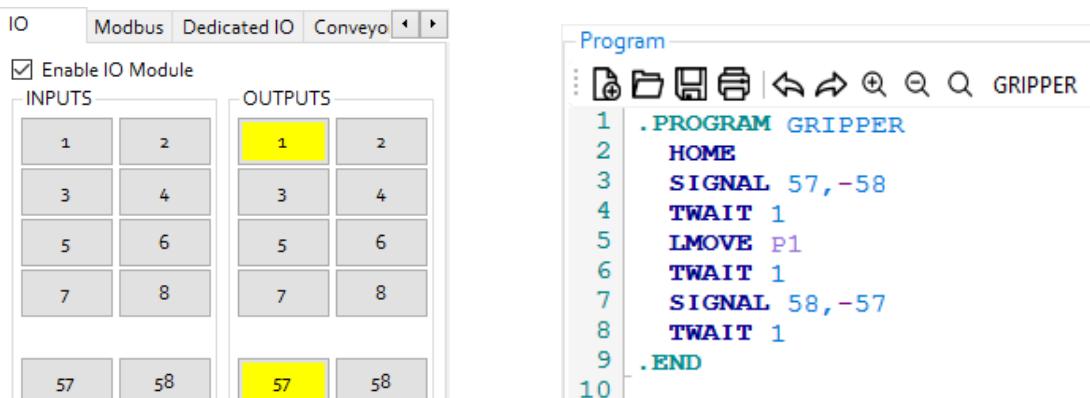


## 4.9 MOUNTING CLAWS AND ACCESORIES



## 5 CONTROLLING GRIPPER VIA OUTPUTS

To control gripper use astorino software or Teach Pendant to turn ON or OFF OUTPUTS that are connected to the gripper, or use SIGNAL command in your program.

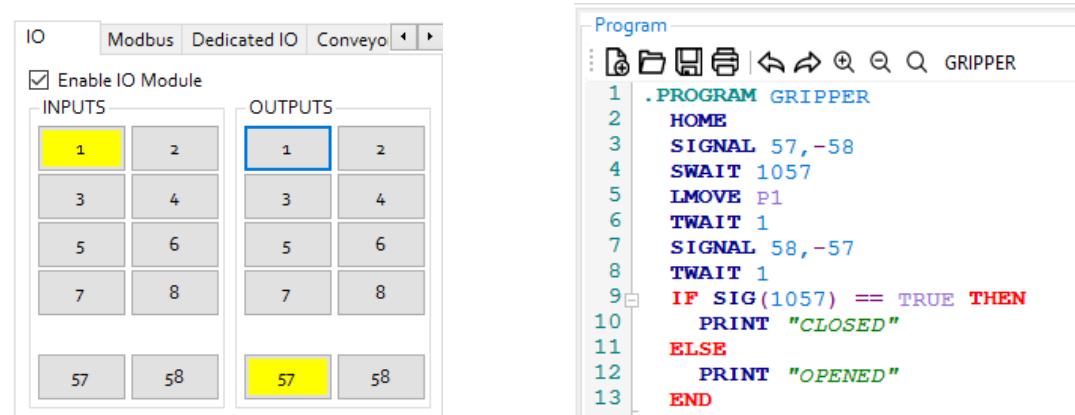


**[ATTENTION]**

B – version of the robot uses ARM IO for controlling grippers. Use 57 or 58 signal to switch gripper ON or OFF.

## 6 READING GRIPPER PISTON SENSOR

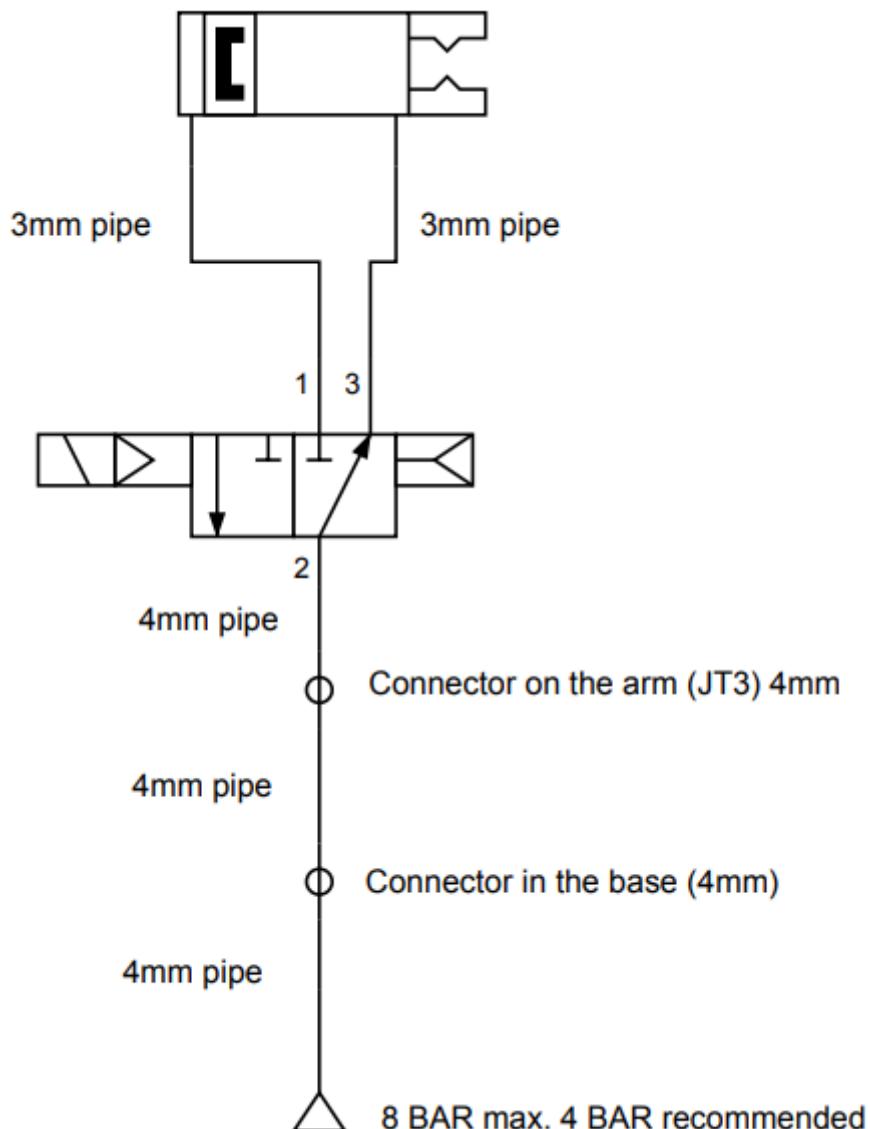
To read gripper piston position sensor use astorino software or Teach Pendant to view INPUT that is connected to the gripper sensor, or use SIG/SWAIT command in your program.



**[ATTENTION]**

B – version of the robot uses ARM IO for reading grippers sensor. Use 1057 or 1058 signal.

## 7 PNEUMATIC SCHEMATIC



## 8 MANUFACTURER DATA

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Pneumatic Gripper Operation Manual

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