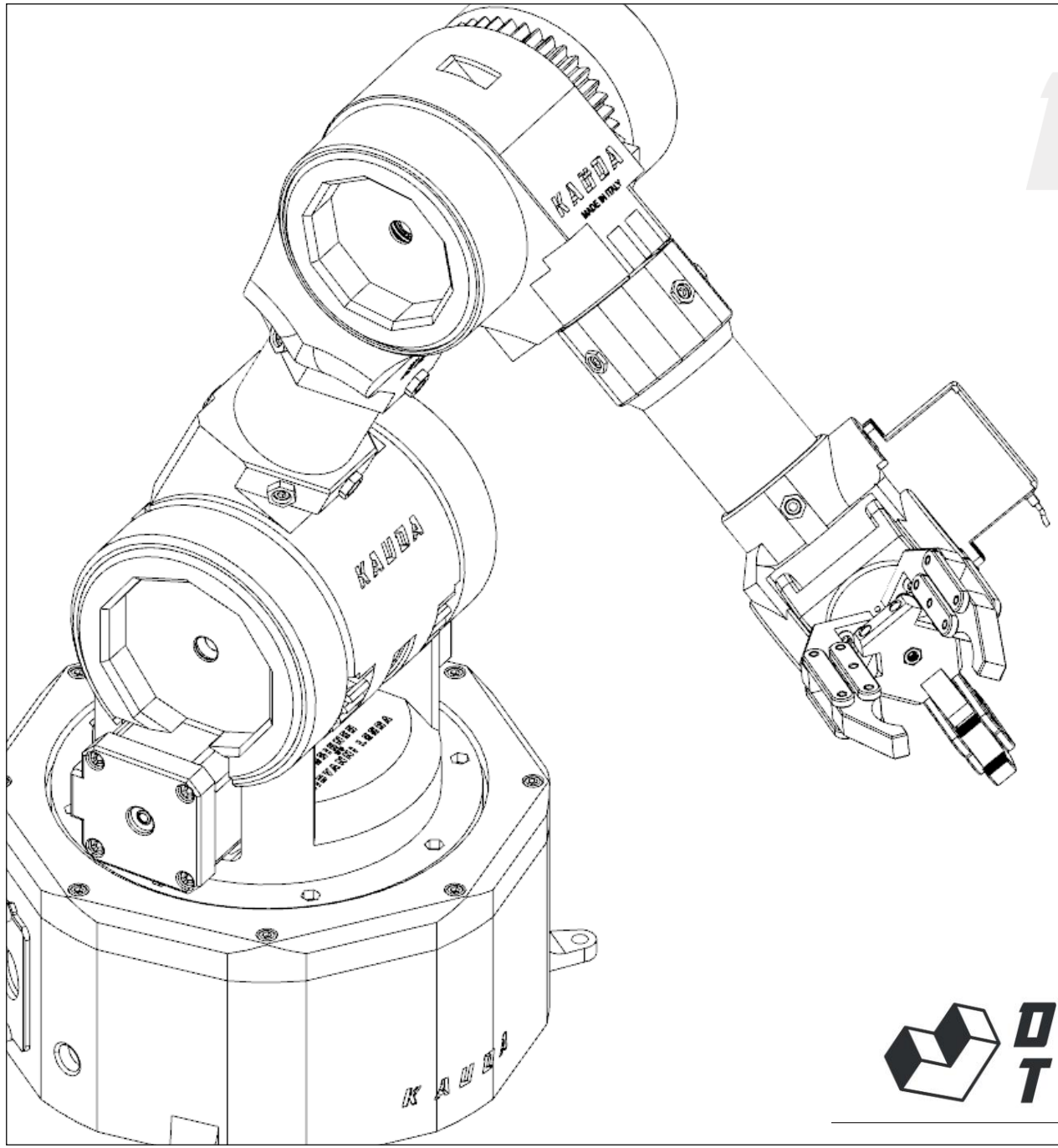


KAUDA
ROBOTIC ARM

Giovanni Lerda

KAUDA ROBOTIC ARM	
PROJECT NAME	010-EL.DRW_02
REV.	01
JOB	010-KaudaRA
P. SUPPLY	12V DC – 10A

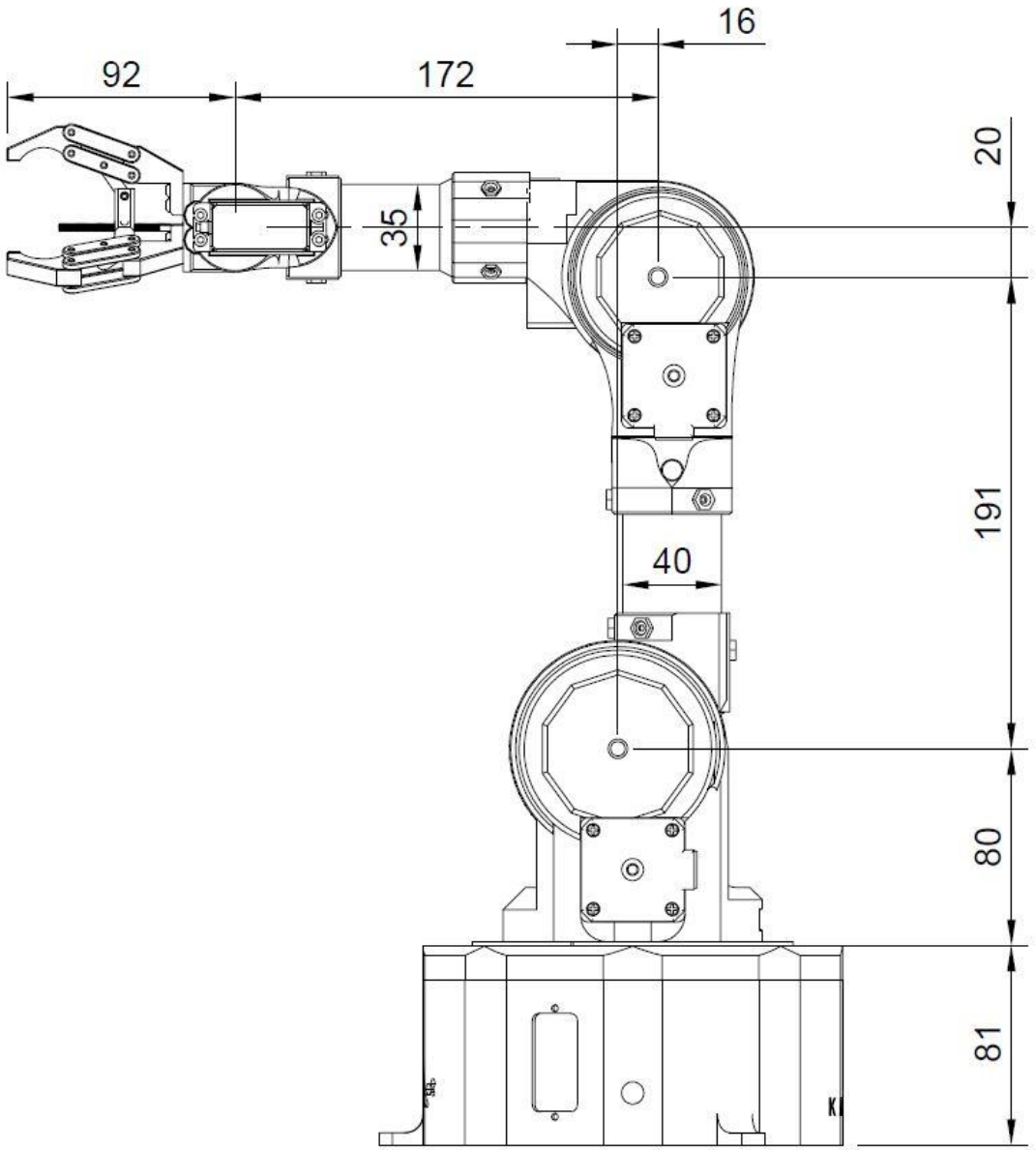
DIY TECH

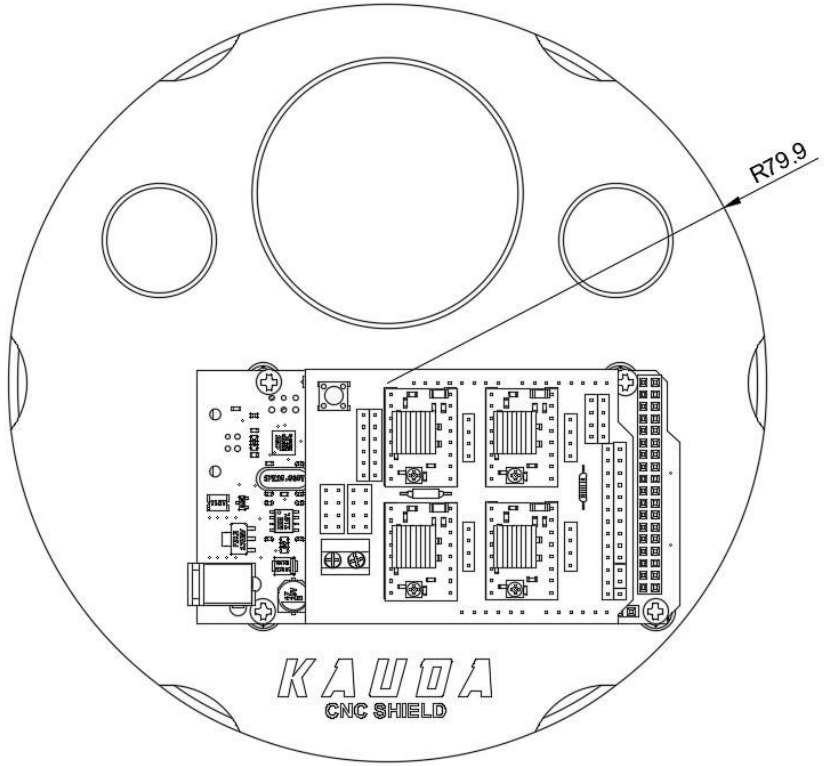
BILL OF MATERIALS				
N°	**Code**	**Description**	**Qty.**	**Note**
1	17HS19-2004S1	Stepper motor Nema17 - 0,59Nm	4	
2	MG995	Servomotor 20Kg – Metal Gear	2	
3	SG90	Servomotor 1,2 Kg – Metal Gear	1	
4	CNC Shield V3	CNC Shield V3	1	
5	Arduino Mega	Arduino Mega	1	
6	A4988	Stepper Motor driver	4	
7	LM2596S	DC-DC Step Down Buck Converter 3A	1	
8	Jack connector F	12V – 10A Female Jack Connector	1	
9	Jack connector M	12V – 10A Male Jack Connector	1	
10	L298N	DC Motor controller	1	(Used with standard gripper)

LAYOUT

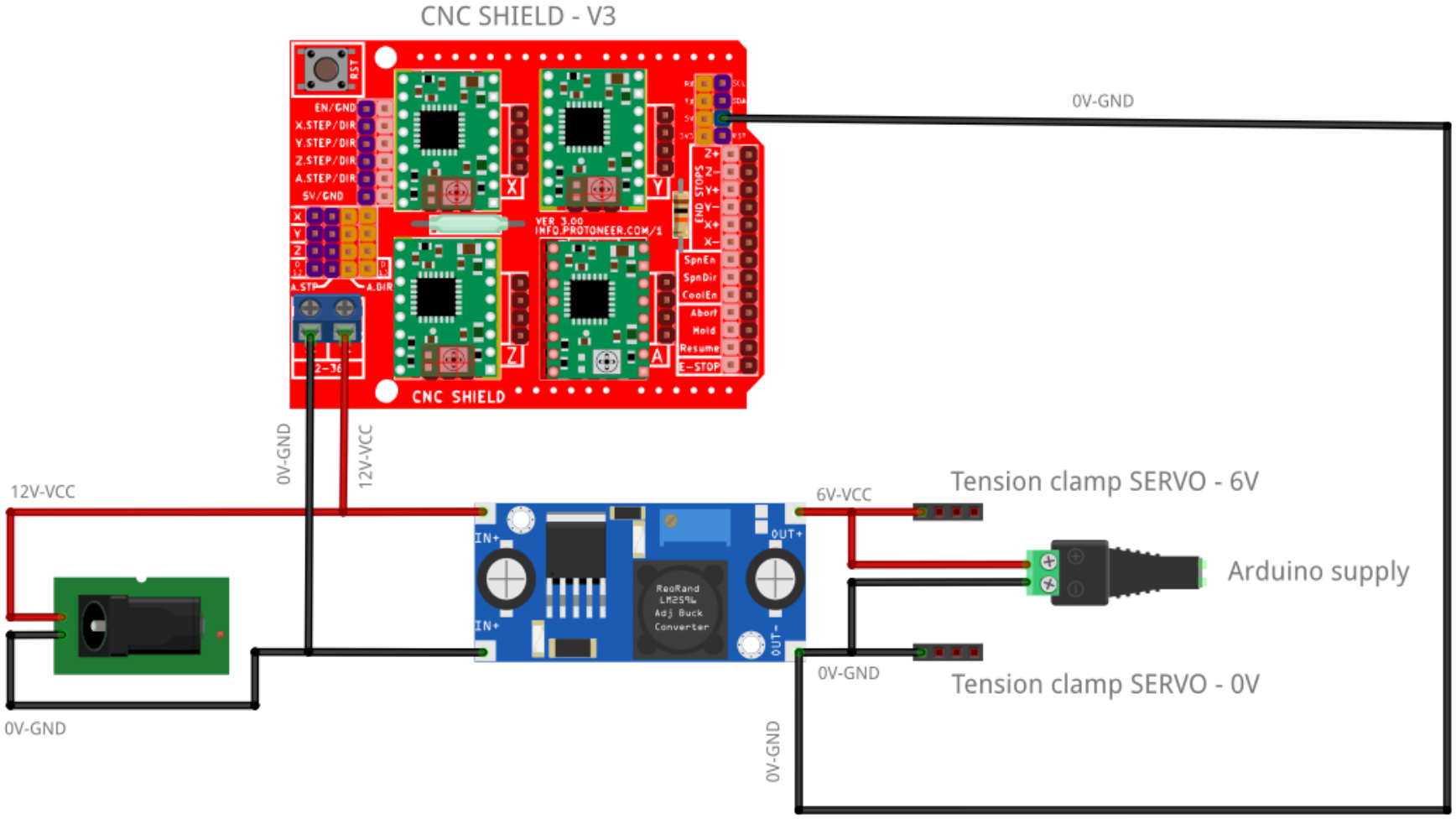
V1.1

Measurements expressed in mm





POWER SUPPLY



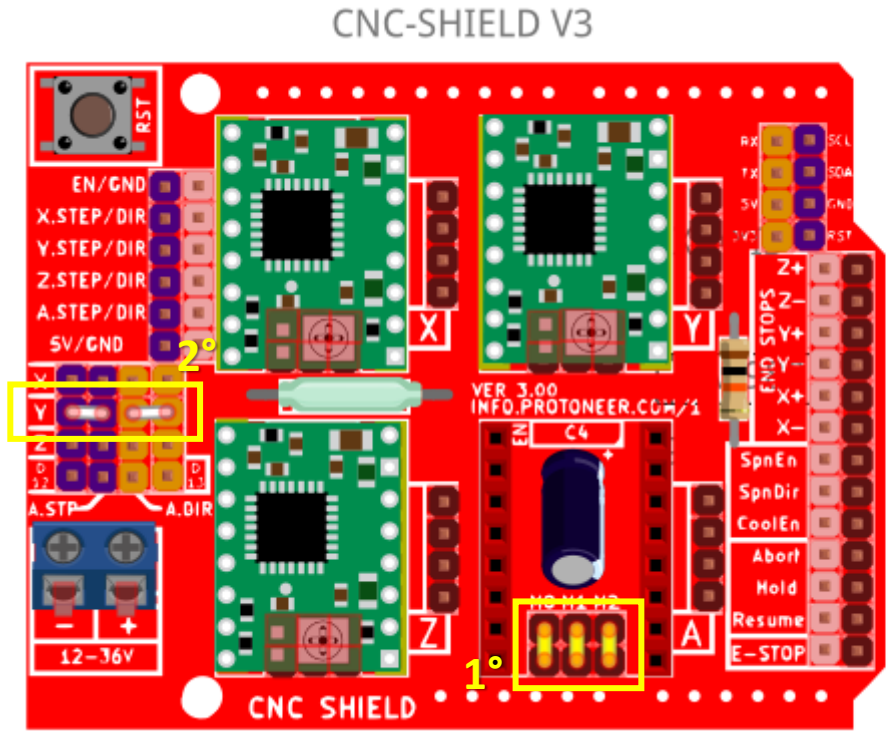
The converter The power supply section of the robot consists of a DCDC converter (to be set at an output voltage of 12V), the latter powered through a female Jack connector (connection made through soldering).

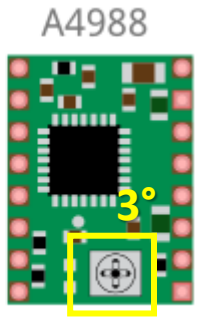
OUT must supply a splitter to which the servomotors and any 6 VDC utilities are connected.

The CNC card must be powered in parallel with the IN of the DCDC converter.

Note:
It is very important to connect the GND of the output converter to the GND of the CNC Shield.

CONFIGURATIONS





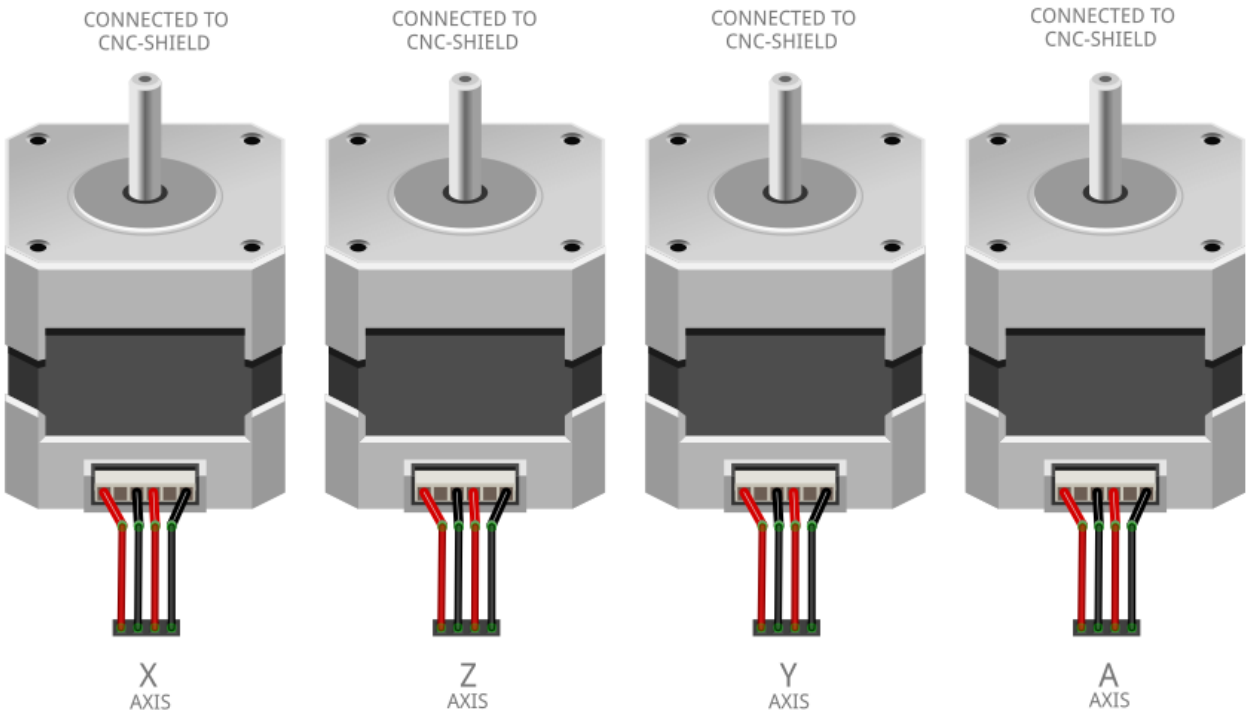
It is essential to carry out 3 operations useful for configuring the drivers and the CNC-Shield.

1°: Install **12** jumpers, 3 **for each driver station**, to configure the microstepping, inserting 3 will lead to 1/32 microstepping.

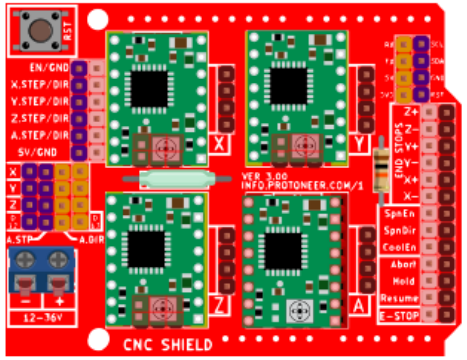
2°: Install **2** jumpers useful for the configuration of the A axis, inserting them on the PINs of the Y axis, the A axis will copy the movements of the latter.

3°: Configure the maximum current for each winding of the stepper motors, a value that can be calculated and configured using the appropriate trimmer.

Note:
*The configuration is **very important** for a correct functioning and a correct management of the motors!*



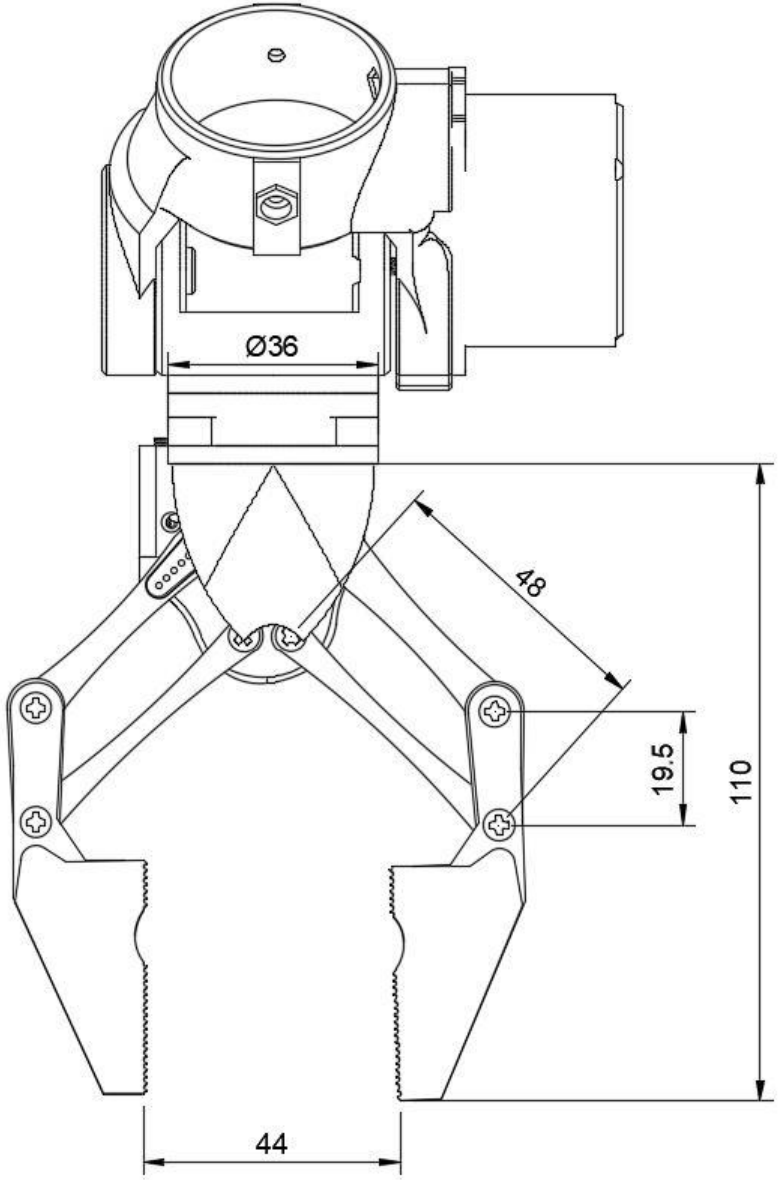
CNC SHIELD - V3



STEPPER MOTOR

The four stepper motors must be connected, through their pre-wired cable, to the CNC Shield, on the 4 dedicated connectors.

Note:
It is very important to jumper the 4 pins indicated in the figure, so that the A axis copies the movements of the Y axis (A and Y axis will be the axes parallel to the robot base).
The A and Y axes must be connected to their pins on the CNC board with the opposite direction, so that they rotate in the opposite direction with respect to each other.

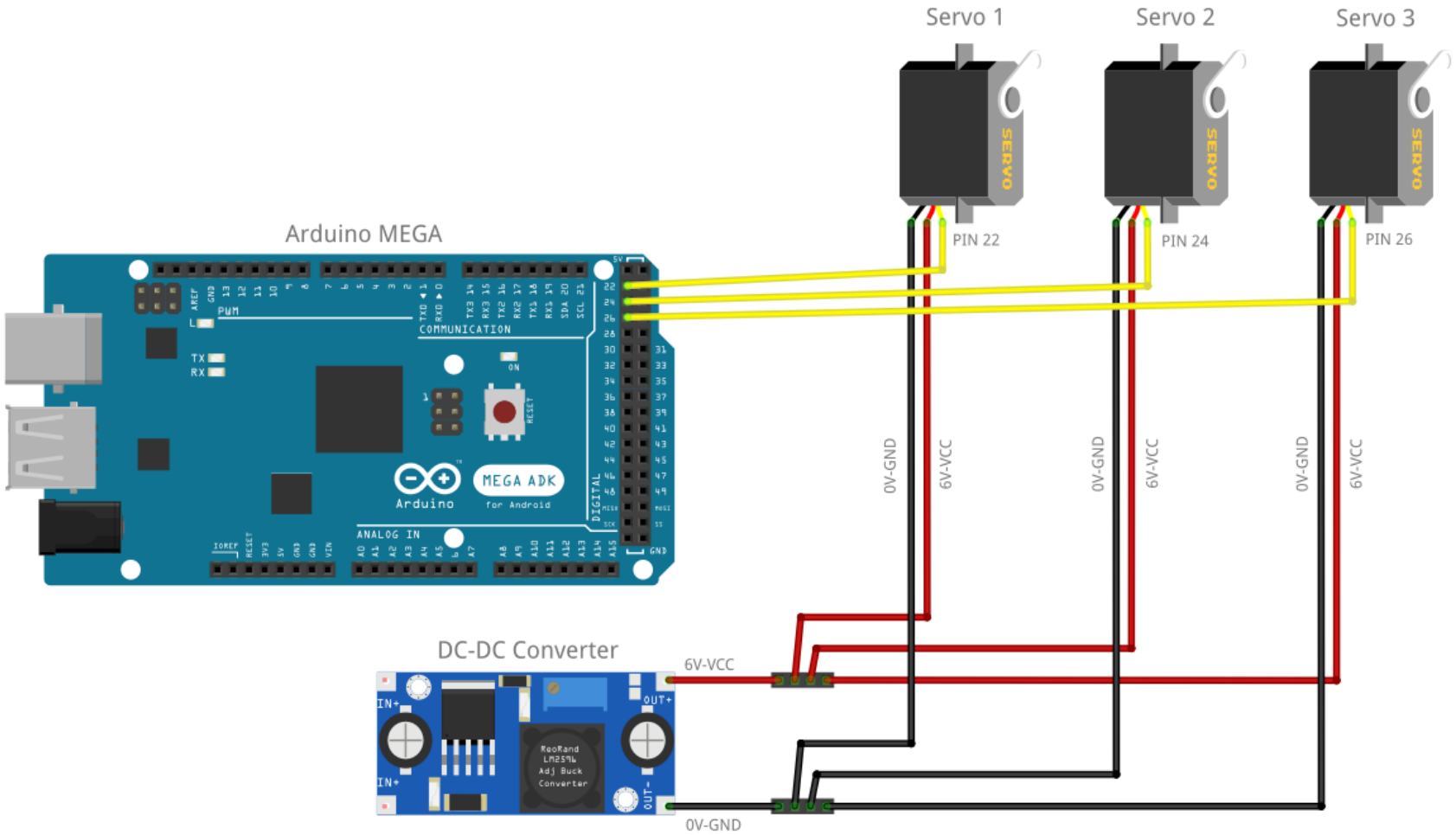


GRIPPER

The gripper, whose documentation can be downloaded from the section dedicated to optionals on the site, is highly recommended for more information and to facilitate use.

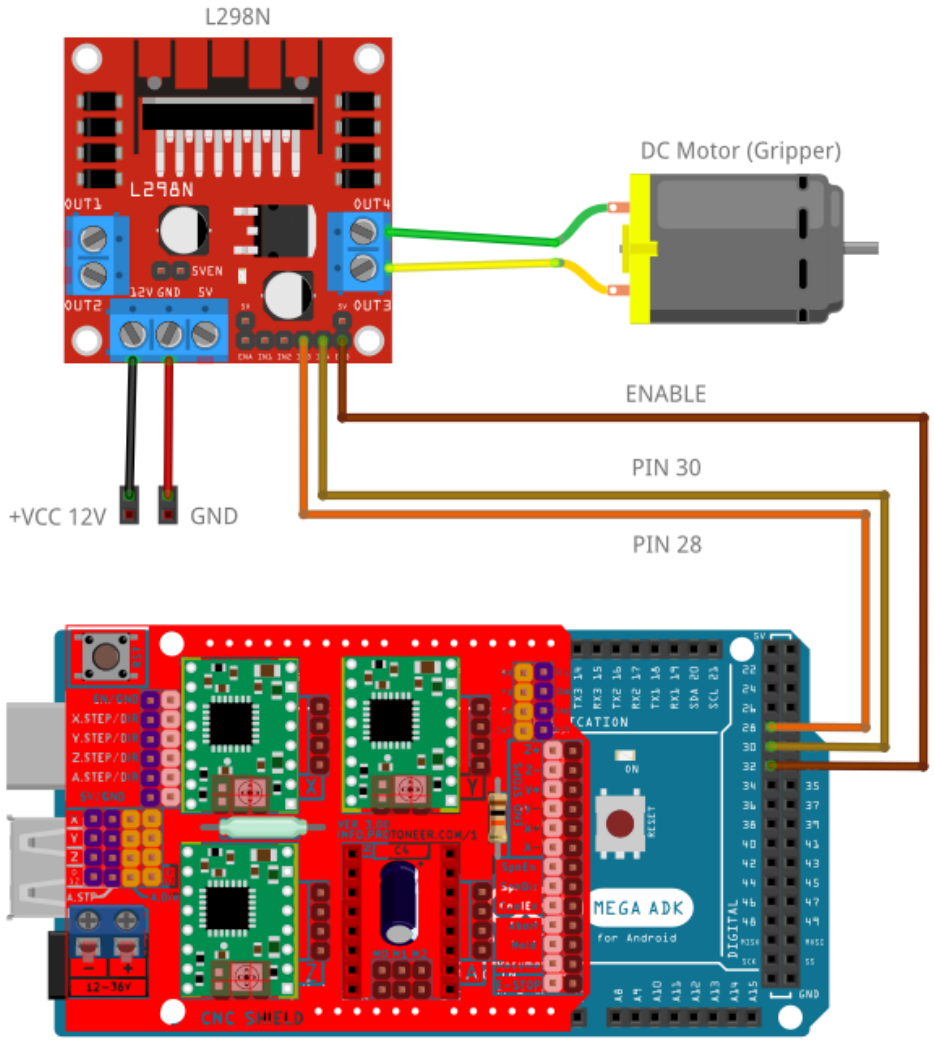
Measurements expressed in mm

SERVO MOTOR



The three servomotors must be connected to the splitters indicated on the page dedicated to the system power supply (6V power supply side). The signal cable must be connected to the arduino mega board.

Note:
The figure shows 3 servo motors, and all 3 must be connected if you use the gripper present in the optionals (Pictured on the previous page), if you use the clamp controlled by a DC motor, follow the instructions on the next page.



DC MOTOR

The DC motor used to control the clamp (standard, not optional) must be managed using a control module, the L298N, which must be connected as indicated in the figure.

Note:
The DC motor is only present if the original robot gripper is used, not the optional version controlled with a servo motor.

FINAL NOTES

DIY-TECH
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https://www.diy-technology.com