

GRIPHI TYPE B PIEZOELECTRIC MICROGRIPPER

ABSTRACT

The DS describes the main features of the GriPhi Type B piezoelectric microgripper. It includes technical data and drawings.

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REVISION HISTORY

List of changes from original release to current revision.

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

CHANGES FROM REV. A

Page 3: size and dimensional drawing updated to the new Type B microgripper standard.

Page 4: mounting updated to the new Type B microgripper standard.

Page 5: force-opening plot updated to the new Type B microgripper standard.

CHANGES FROM REV. B

Page 5: grippers stroke corrected for Types B and C

Page 4: Symmetric and Asymmetric microgripper

Page 5: Main dimensions of the tips

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1. Features

- Gripper stroke – Up to 1.00 mm
- Clamping force – Up to 2 N
- Dimensions – 55 x 22 x 8 mm
- Initial opening – Adjustable by grub screw
- Shape – Available on request
- High vacuum version – Available on request
- Position sensor – Available on request
- Closed-loop control – Available on request

2. Applications

- Micro optics manipulation
- Fiber optics connection
- Fiber bundle positioning
- Precision mounting and adjusting
- Biological sample manipulation
- High-dynamic applications

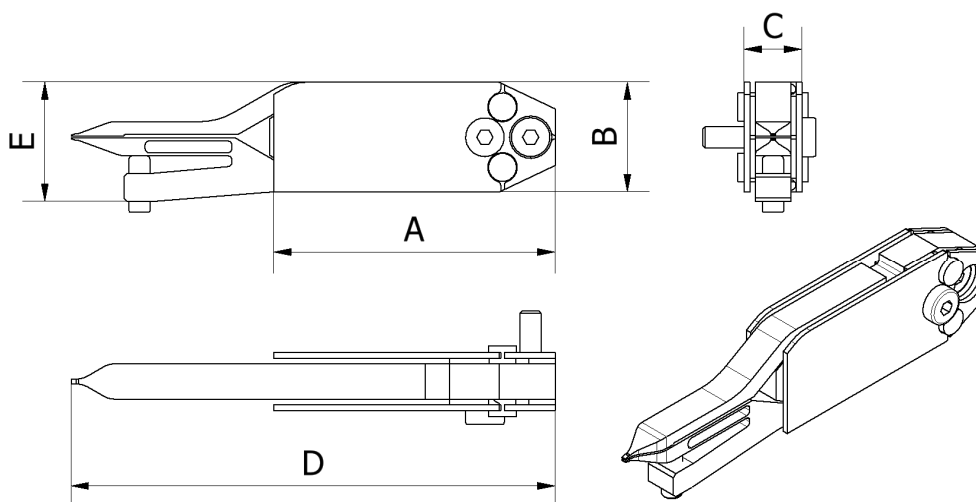
3. Description

The GriPhi Type B piezoelectric microgripper can handle small samples whose size stands between 0.2 mm and 1.0 mm. Thanks to its low inertia, it is suitable for high-dynamic applications. The mechanism which transforms the piezo stroke into the gripper stroke is designed by means of FEM (Finite Elements Method) analysis. This makes it possible to tune the opening and strength levels as desired by the customer.

The GriPhi Type B system is fully compatible with the GriPhi Driver devices provided by Phi Drive. Even if the GriPhi Type B system is highly customizable, this DS refers to the standard version of the microgripper.

4. Dimensions

Fig. 1: Main dimensions of the microgripper

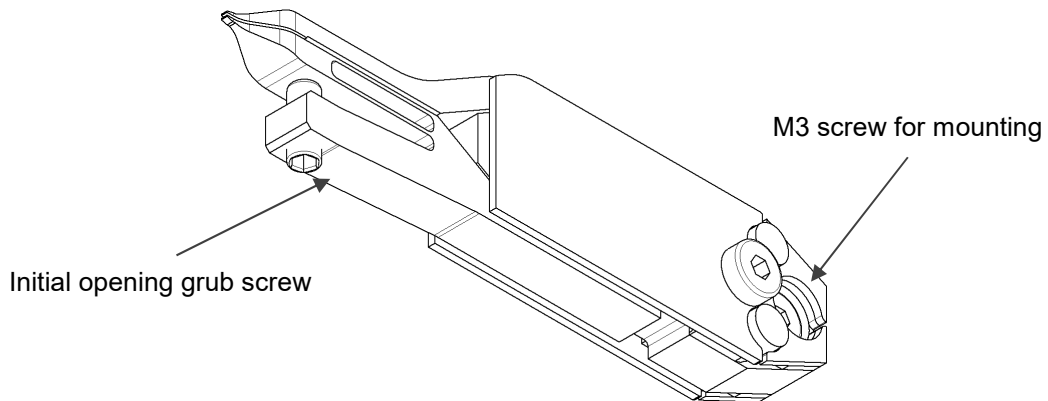


Tab. 1: Main dimensions of the microgripper

A		B		C		D		E	
40.0	mm	15.6	mm	8.20	mm	68.8	mm	16.9	mm

5. Mounting

Fig. 2: Mechanical interfaces



6. Jaws

The standard jaws for the GriPhi Type B piezoelectric microgripper are specifically designed to fully exploit the capabilities of the system. However, they can be customized as desired to meet specific needs.

Fig. 3: Symmetric microgripper code PH-GP20-0000

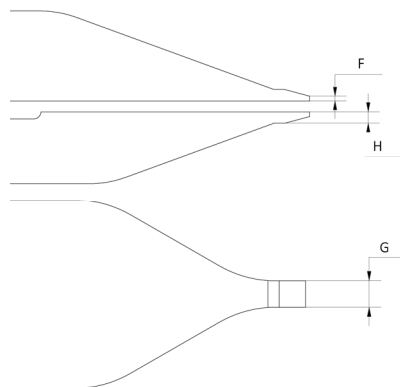
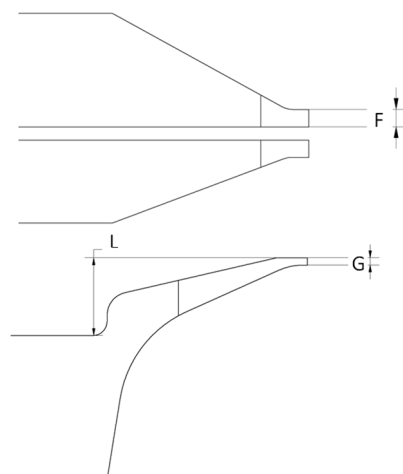


Fig. 4: Asymmetric microgripper code PH-GP30-0000



Tab. 2, Main dimensions of the tips

CODE	DESCRIPTION	F [mm]	G [mm]	H [mm]	L [mm]
PH-GP20-0000	STD monolithic Symmetric microgripper	0.13	0.7	0.32	-
PH-GP30-0000	STD monolithic Asymmetric microgripper	0.4	0.25	-	2.7

6.1. Replaceability

Jaws can be monolithic or interchangeable on request. The interchangeable jaws are only type C.

7. Technical data

7.1. Force-opening performance

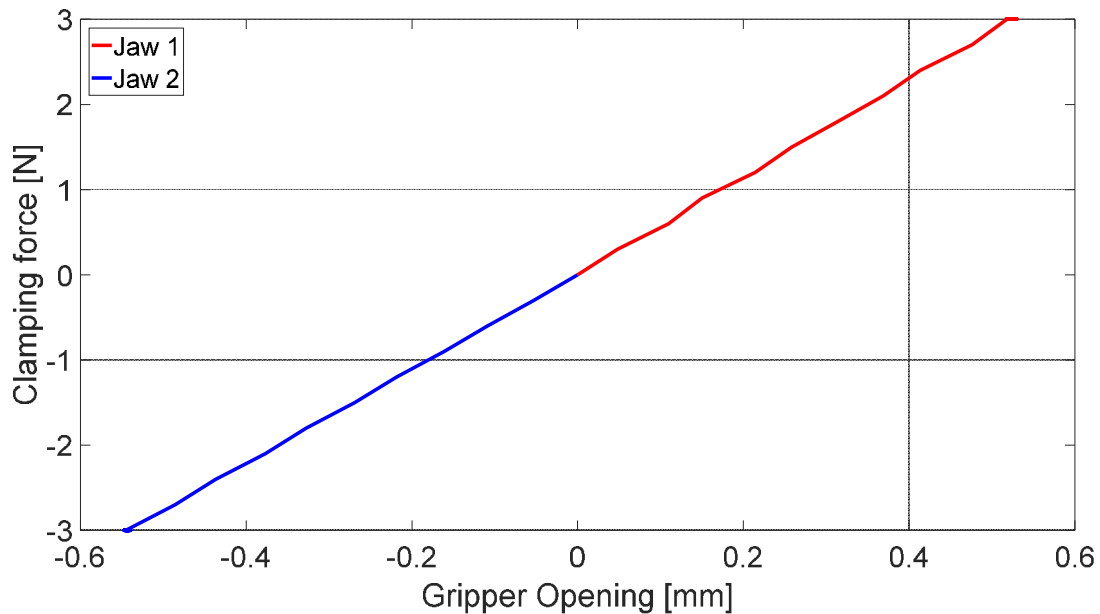


Fig. 5: Standard Type B force-opening performance

7.2. Mechanical specifications

Tab. 3: Mechanical specifications of the GriPhi microgrippers

	Type A	Type B	Type C	Unit
Axis of motion	X	X	X	
Gripping stroke	0.8	1.0	1.2	mm
	500	1000	1200	µm
Clamping force at ½ stroke	1	1	1	N
Opening/closing time	<50	<50	<50	ms
Resolution*	<100	<100	<80	nm
Speed	10	14	8	mm/s
Initial gap**	0.0-0.3	Up to 1.5	Up to 4.0	mm
Availability of the HV (High Vacuum) version	YES	YES	YES	
Rated opening-closing cycles	>40 million	>40 million	>40 million	

*Equipped with GriPhi Driver

**Customizable and adjustable via grub screw

7.3. Electrical specifications

The GriPhi Type C system is fully compatible with the GriPhi Driver devices cod. PH-DR10-0000 provided by Phi Drive.

NOTES:

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