DH-ROBOTICS

Comprehensively Upgraded

ADVANCE Series Electric Grippers

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CN-2025.05

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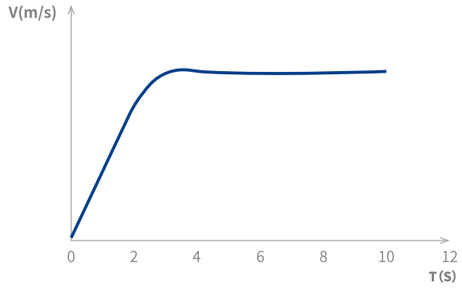
Advantages of Electric Grippers over Pneumatic Grippers

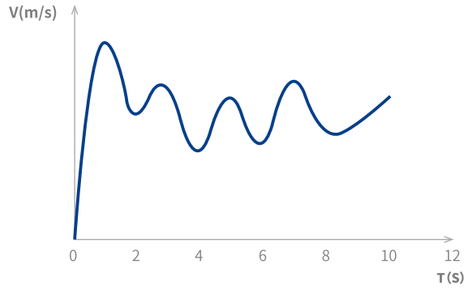
Speed Stability and Adjustable Force Control

	Electric Grippers	Pneumatic Grippers
Speed	1、Stable speed – consistent operation Without fluctuation 2、No actuation delay – immediate response	1、Large speed fluctuations 2、Actuation delay
Force	1、Adjustable and controllable – rapid Parameter tuning via rs-485 communication 2、Precision force control – achieves force Repeatability of up to 0.1n	1、Requires air circuit pressure Adjustment 2、Speed and force coupled – cannot Achieve high force at low speed

Speed Comparison

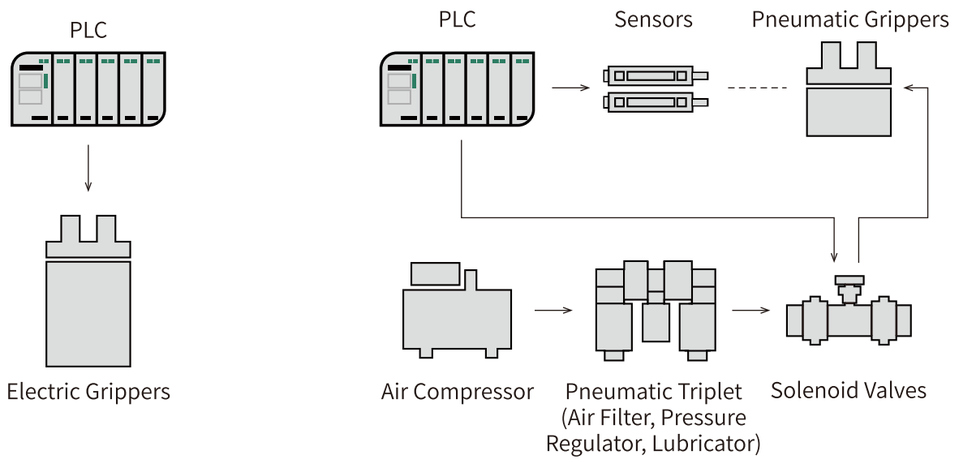


Speed of Electric Grippers



Speed of Pneumatic Grippers

Comparison of Connection Types



Advantages of the Upgraded Version Compared to the Previous Generation

Improved Cost-Effectiveness

The PGEA series offers a more affordable pricing structure across all models compared to the previous generation, while delivering enhanced performance. This provides users with a more competitive and cost-effective solution.

Shorter Lead Time

Optimized production process shortens delivery lead time to 10 days, enabling rapid response to customer demands and improving manufacturing efficiency.

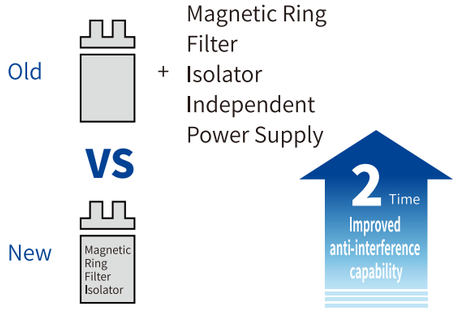
New

Simplified Selection

The external design has been streamlined from five variations to just two — external controller and integrated controller. Force Selection has been optimized, a brake function has been added, and cable outlet direction is adjustable without changing the gripper's dimensions or mounting hole positions.These improvements enhance internal compatibility and simplify Selection process.

Double the Interference Resistance

Equipped with high-performance isolation, anti-interference, and shielding ICs, improving power and signal interference immunity threefold. Products are tested by national-level reliability labs, ensuring suitability for complex electromagnetic environments and reducing abnormal operation rates and environmental dependency.



Features a Replaceable Straight-exit Cable Design

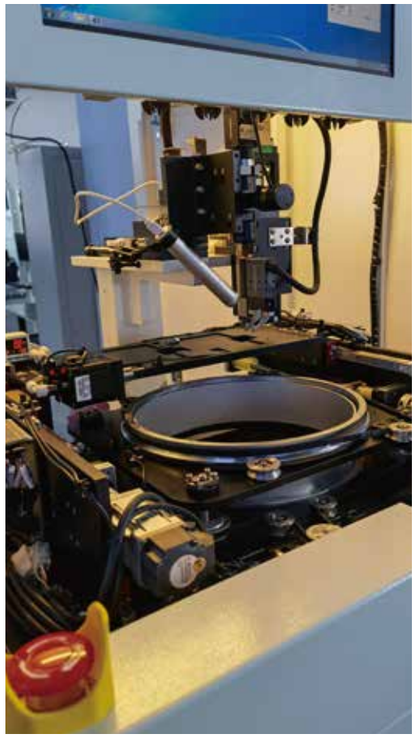
Features a replaceable straight-exit cable design, eliminating the need for aviation connectors.Cable direction can be changed simply by loosening and refastening screws — avoiding drag chain compatibility issues caused by bulky connectors.Even if the wrong Selection is selected, the cable direction can be adjusted on-site.When replacing the gripper, only the base of the cable needs to be removed — the existing cable can be retained for simplified maintenance.

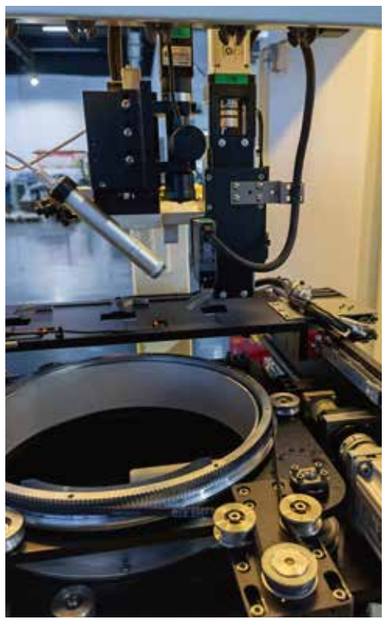
Compact Size and Flexible Deployment

With a minimum thickness of just 18mm, the compact structure reduces the robot's end-effector load and inertia, enabling lighter payloads and faster operation speeds.Supports multiple mounting ways to meet diverse gripping application requirements while saving machine space.

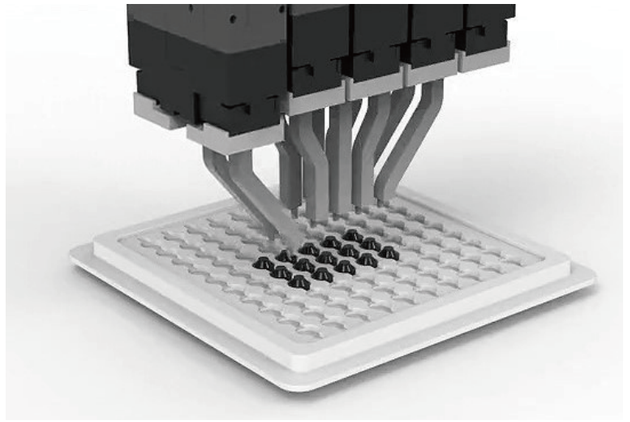
Application











Precautions on Model Selection

Note 1: Confirm the required gripping force and the mass of the workpiece to be manipulated.

① Selection of Effective Gripping Force ▶ ② Confirm Gripping Point ▶ ③ Confirm External Force Applied

As shown in the diagram, for general material handling with potential impact, a safety factor (a) of 4 is recommended. In this case, the gripping force should be 10–20 times the object's weight.

As shown in the right diagram:

- F: Clamping force (N)
- μ: Friction coefficient
- m: Workpiece quality (kg)
- g: Acceleration due to gravity (=9.8m/s)

Friction coefficient μ	Fingertip and workpiece material (benchmark)
0.1	Metal(Surface roughness under Rz3.2)
0.2	Metal
Over 0.2	Rubber, resin

(Reference) The friction coefficient(μ) varies depending on the usage environment, surface pressure, workpiece shape, etc.

To ensure the object doesn't fall:

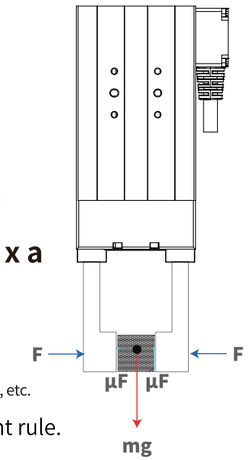
$$2 \times \mu F > mg$$

Number of fingers on the electric gripper

$$\text{Thus: } F > \frac{mg}{2 \times \mu}$$

Safety Factor a

$$\text{Thus: } F = \frac{mg}{2 \times \mu} \times a$$



When friction coefficient μ>0.2, gripping force should still follow the 10–20x weight rule. For high acceleration or impact applications, a larger safety factor is required.

Note 2: Confirm gripper stroke and fingertip

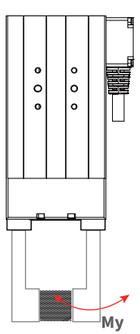
·The stroke of the gripper needs to be greater than the difference between the maximum and minimum dimensions of the workpiece.
·Choose the right fingertip: The fingertip is too long, too big, and the weight is too heavy, the inertia force or bending moment when opening and closing will affect the gripper, which may cause the performance of the gripper to decrease or shorten the service life.

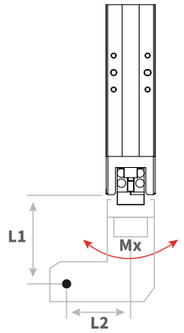
Note 3: Check the external force exerted on the gripper

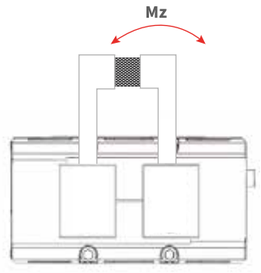
·The vertical load borne by the clamping jaw must be within the allowable load.
·The moment the clamping jaws bear must be within the maximum allowable load moment.

$$\cdot\text{Allowable load } F(N) = \frac{M(\text{Load allowable moment}) \ (N \cdot m)}{L(mm) \times 10^{-3}}$$

Note: Mx and My are calculated by L1, and Mz is calculated by L2. Confirm whether the calculated gripper can withstand the external force (based on the smaller F value calculated from Mx, My, Mz).







On-Site Wiring Guidelines for Electric Grippers

To ensure precision and reliability under complex EMI environments, follow below operation requirements:

A、Installation and Wiring (Required)

1. Mechanical Isolation

a. Avoid mounting directly on high-interference devices (e.g., VFDs, servos, linear motors). Use shock-absorbing brackets or insulating backplates (e.g., aluminum).

b. Do not bundle electric grippers control cables with power lines of other devices (e.g., solenoids, sensors).

c. Ensure good conductivity between metal mounting surface and electric grippers shell to prevent static buildup (conductive paste is recommended).

2. Cable Management

a. Power and signal cables must be routed separately:
i. Power cables: Twisted pair with metal shielding, grounded at both ends.
ii. Signal cables (CAN/RS485/EtherCAT): Shielded twisted pair, shield grounded at controller end.
iii. PE Grounding Cable: Cross-sectional area ⩾ 2.5 mm^2; grounding resistance ⩽ 2 Ω (measured values must be recorded in the maintenance log).For multiple devices, use a star grounding topology—series connection is strictly prohibited.

b. Keep cables short; if over 3 m, use ferrite cores to suppress high-frequency noise.

c. Prohibited Practices (to avoid communication errors):
⚠ Do not route cables in the same Wire duct as pneumatic solenoids or sensors.
⚠ Do not wrap ties directly on electric grippers (use Velcro straps to minimize EMI).

B、Enhancements for Power & Signal Protection (Optional)

1. Power Isolation and Filtering

a. Use an isolated power module dedicated to the electric grippers to avoid voltage fluctuation from shared motor supply.

b. Install an EMI filter at the power input to suppress conducted switching noise. The recommended wiring sequence is: AC mains → EMI filter → isolation transformer → electric grippers controller.EMI filter shell must be grounded to cabinet ground bar.

2. Communication Interference Protection

a. Install signal isolation modules to block external EMI and prevent leakage currents from other devices.

Pre-sales Q&A

Q: How to quickly select the appropriate electric gripper?

A: Selection can be made based on five criteria:
1. Determine gripping force according to workpiece weight
2. Select stroke based on workpiece dimensions
3. Choose suitable gripper model and size for application scenario
4. Select functional options (e.g., power-off holding, adaptive enveloping, infinite rotation)
5. Match IP rating to operating environment

Q: What is effective stroke?

A: The maximum free movement range of gripper fingers. A gripper is suitable when its stroke exceeds the required maximum finger movement distance.

Q: What motor is used in the gripper?

A: Dahuan electric grippers utilize high-energy-density permanent magnet synchronous motors with slotless design, offering advantages over stepper and standard servo motors including: high continuous torque; high efficiency; precise speed control; compact size and light weight; low friction and minimal loss; excellent dynamic acceleration/deceleration.

Q: What is the gripper's precision?

A: Repeat positioning accuracy: ±0.02mm; position resolution: ±0.03mm; force control accuracy: 0.1N (Validated by mass production for top 10 global manufacturers).

Q: How to handle objects larger than the stroke?

A: The stroke specified in the parameter table refers to the effective stroke. For handling oversized items, custom-designed fingertips can be implemented. The gripper with corresponding stroke can be used as long as the dimensional variation between the largest and smallest items during gripping remains within the effective stroke range.

Q: Is a separate driver controller required?

A: Integrated drive-control design incorporates the controller within the gripper housing, eliminating need for external components. For specific model configurations, please consult our product selection guide or contact our sales representatives.

Q: What parameters in the electric grippers are adjustable?

A: All parameters (gripping position, clamping force, operating speed, rotation angle, etc.) are flexibly adjustable. It can be used for multiple functions in the same scenario and complete different tasks. Therefore, it can meet the various flexible requirements of manufacturing plants, including equipment unitization, parameter adjustment, agile manufacturing, quick line changing, and low-noise operation. Easily achieve efficient control over the production process in future intelligent manufacturing.

Q: Does the gripper support drop detection?

A: Yes. It can sense the gripping status and dropping events in real time and provide feedback on those situations.

Q: How to confirm successful gripping?

A: The four states (moving, positioned, gripping, dropped) can be monitored via infomation feedback and indicator lights. For specific instructions of the indicator lights, please refer to the operation manual of each series of gripper products.

Q: What robots are the electric grippers compatible with ?

A: The Dahuan electric gripper is compatible with all mainstream brands of industrial robots and collaborative robots on the market. It has developed plug-and-play plugins for the vast majority of robot brands, making it easy to install and use.

Q: What is the operating environment of the electric gripper?

A: The working voltage of the electric gripper is 24V DC ±10%. The recommended operating environment is at room temperature of 0~40°C and below 85% RH. The rated current, peak current, and protection environment need to be determined according to the specific product model. For details, please refer to the selection manual or contact our sales personnel.

Q: Will the electric gripper heat up after working for a period of time?

A: According to third-party temperature rise tests, when the gripper works continuously in an environment with a room temperature of 27°C ±2°C and a relative humidity of 45%~75% RH, its surface temperature can still be kept below 50°C. For temperature performance under special working conditions, please contact our sales personnel for details.

Q: Is the electric gripper waterproof and dustproof?

A: The waterproof and dustproof capability depends on the protection level corresponding to each model, with the highest reaching IP67. The protection level of our products has passed professional third-party testing and holds inspection report certificates.

Slim-type Electric Parallel Gripper

PGEA Series

Product Features

The PGEA series is an industrial slim-type electric parallel gripper. With its precise force control, compact size and highly working speed, it has become a “Hot sell product” in the field of industrial electric gripper.

Small size | Flexible Installation

The thinnest size is 18 mm with compact structure, supports at least five flexible installation methods to meet the needs of clamping tasks & saves design space.

High Working Speed

The fastest opening and closing time can reach 0.15 s / 0.15 s, which can meet the high-speed and stable clamping requirements of the production line.

Precise Force Control

With special driver design and driving algorithm compensation, the gripping force is continuously adjustable, and the force repeat ability could reach 0.1 N.

Serie	Gripping Force (Per Jaw)	Recommended Workpiece Weight	Stroke	Reference Page
PGEA-2/15-10	0.8~2 N/6~15 N	0.05 kg/0.1 kg	10 mm	P09-12
PGEA-15/50/100-26	6~15 N/15~50 N/30~100 N	0.25 kg/1 kg/2 kg	26 mm	P13-16
PGEA-15/50/100-40	6~15 N/15~50 N/30~100 N	0.25 kg/1 kg/2 kg	40 mm	P17-20

PGEA-2/15-10

Slim-type Electric Parallel Gripper

Selection Method

Serie	Gripping Force	Stroke	Brake	Cable Direction	Communication Protocol	Cable Selection	Fingertip Selection
PGEA	2	10	O	B	M1	L1	J0

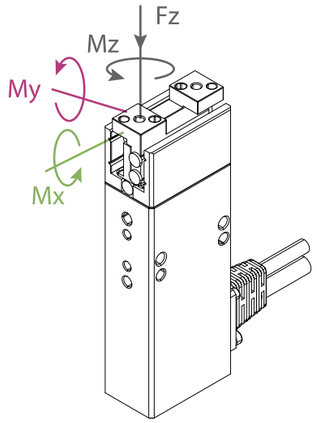
Gripping Force	Stroke
2	10
15	

Brake	Cable Direction
O Without Brake	B Side
	S Bottom

Communication Protocol *①*②	Cable Selection *③	Fingertip Selection
M1 Modbus (RS485)+I/O (NN)	L1 1m Direct Cable Outlet	J0 Without Fingertip
M2 Modbus (RS485)+I/O (PP)	L3 3m Direct Cable Outlet	J1 Standard Fingertip
M3 Modbus (RS485)+I/O (NP)	L5 5m Direct Cable Outlet	
M4 Modbus (RS485)+I/O (PN)	L10 10m Direct Cable Outlet	

*① I/O(NN)：NPN/NPN　I/O(PP)：PNP/PNP　I/O(NP)：NPN/PNP　I/O(PN)：PNP/NPN
*② It is recommended that no more than 4units of DH-Robotics products be accessed on a single 485 bus, otherwise 485 communication anomalies may occur.
*③ Cables longer than 10 meters pose a risk of communication interference.
Note：The RS485 module option has been removed from the selection parameters. Please purchase separately if needed.

TECHNICAL SPECIFICATIONS



Static Vertical Allowable Load

Fz	35 N

Allowable Loading Moment

Mx	0.45 N·m
My	0.4 N·m
Mz	0.45 N·m

Product Parameter	PGEA-2-10	PGEA-15-10
Gripping force(per jaw)	0.8~2 N	6~15 N
Recommended workpiece weight *④	0.05 kg	0.1 kg
Stroke	10 mm	10 mm
Repeat accuracy (positioning)	± 0.02 mm	± 0.02 mm
Weight	0.15 kg	0.15 kg
Dimensions (L xW x H)	Side：89mm x 30mm x 18mm　Bottom：94mm x 30mm x 18mm Controller Size:78 mm x 52.4 mm x 27.2 mm	
Noise emission	< 50 dB	
Driving method	Rack and Pinion Crossed Roller Guide	
Working Environment		
Communication interface	Standard: Modbus RTU (RS485)、Digital I/O(2 inputs 2 outputs) Optional: TCP/IP、USB2.0、CAN2.0A、PROFINET、EtherCAT *⑤	
Nominal voltage	24 V DC ± 10%	
Nominal & Max. current	0.1 A ((Rated) 0.2 A (Peak)	0.2 A ((Rated) 0.3 A (Peak) *⑥
Max power	5 W	8 W
IP protection class	IP 40	
Recommended operating environment	0~40°C, under 85% RH	
Overseas standards	CE, FCC, RoHS	

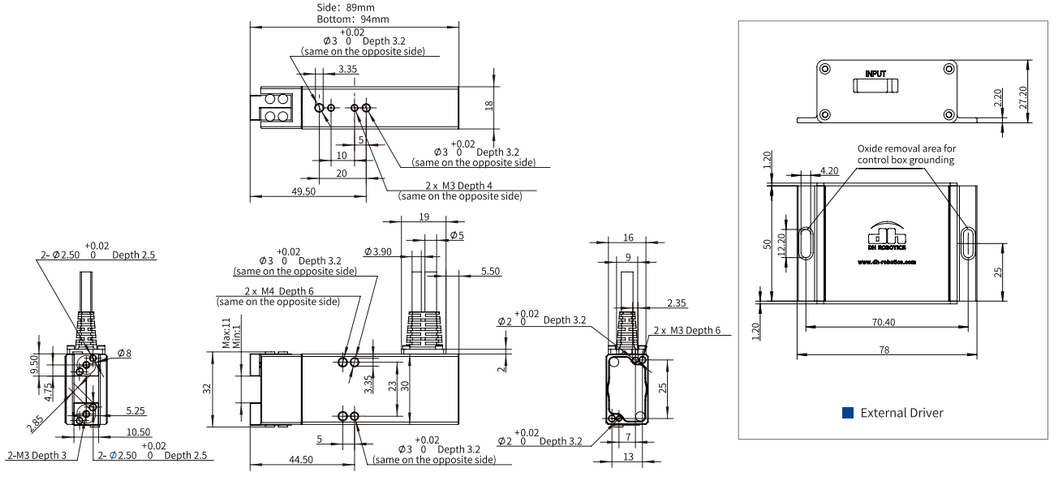
External Driver　Gripping Force Adjustable　Position Adjustable　Speed Adjustable　Drop Detection　Self-locking Mechanism

*④ The shift in the center of gravity of the object being gripped can also affect the load, depending on factors such as the shape of the object, the material of the contact surface, friction, and the acceleration of movement. If you have any questions, please feel free to contact us.

*⑤ Requires external communication convertor or customization, pleass contact sales or technical support.

*⑥ When selecting the power supply, please select according to the peak current. If the current is lower than the parameter, it will cause the product can not work normally.

Technical Drawings



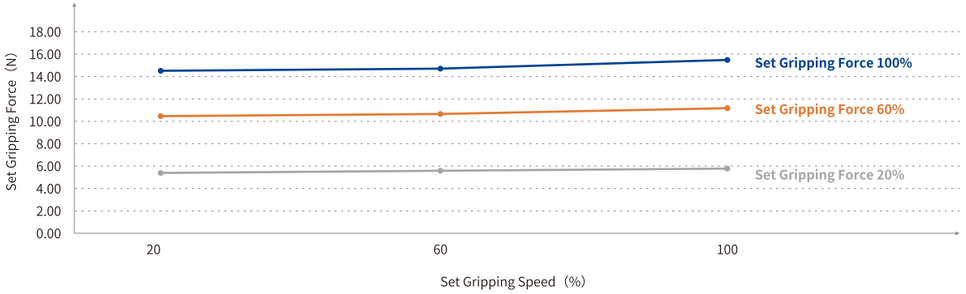
Gripping CT Reference Table

Test Type	Gripping Time (ms) [Impact, gripped object, target position set to 0, 50% force, 100% speed]		Gripping Time (ms) [Impact, gripped object, target position set to 0, 100% force, 100% speed]	
Test Item / Model	Side Avoidance 3mm	Full Stroke Clamping	Side Avoidance 3mm	Full Stroke Clamping
PGEA-15-10	266	336	178	236
PGEA-2-10	204	298	141	182

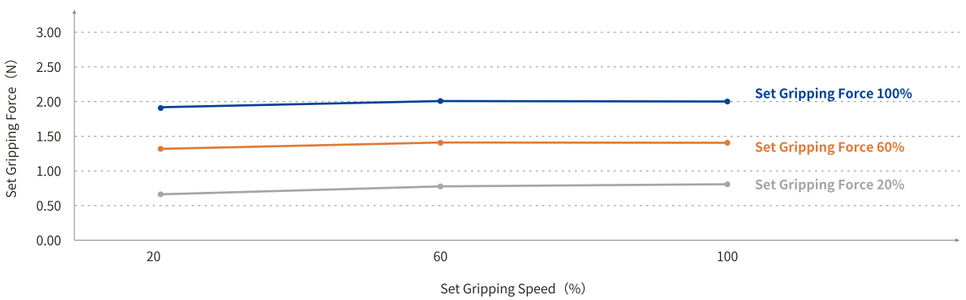
测试类型	Opening Time (ms) [50% force, 100% speed to position]		Opening Time (ms) [100% force, 100% speed to position]	
Test Item / Model	Side Avoidance 3mm	Full Stroke Clamping	Side Avoidance 3mm	Full Stroke Clamping
PGEA-15-10	260	339	186	236
PGEA-2-10	207	298	204	183

Actual Output Reference Curve for Different Force and Speed

PGEA-15-10



PGEA-2-10

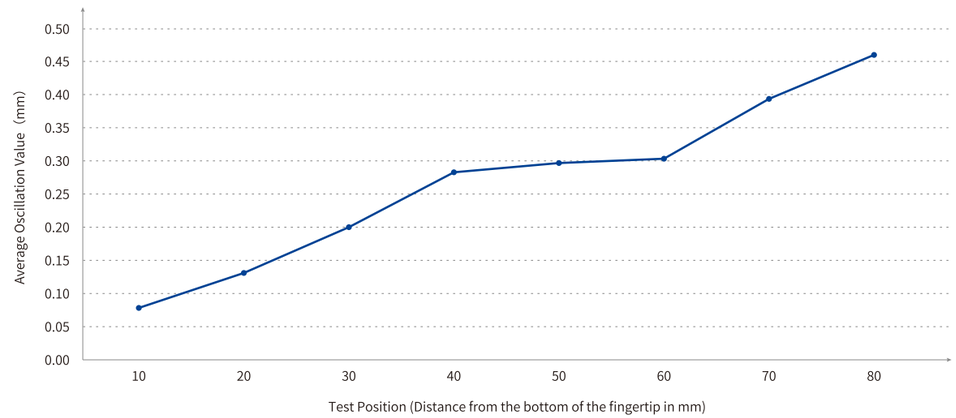


Gripping Distance Force Decay Reference Curve

PGEA-15-10 Finger Length and Gripping Force Test

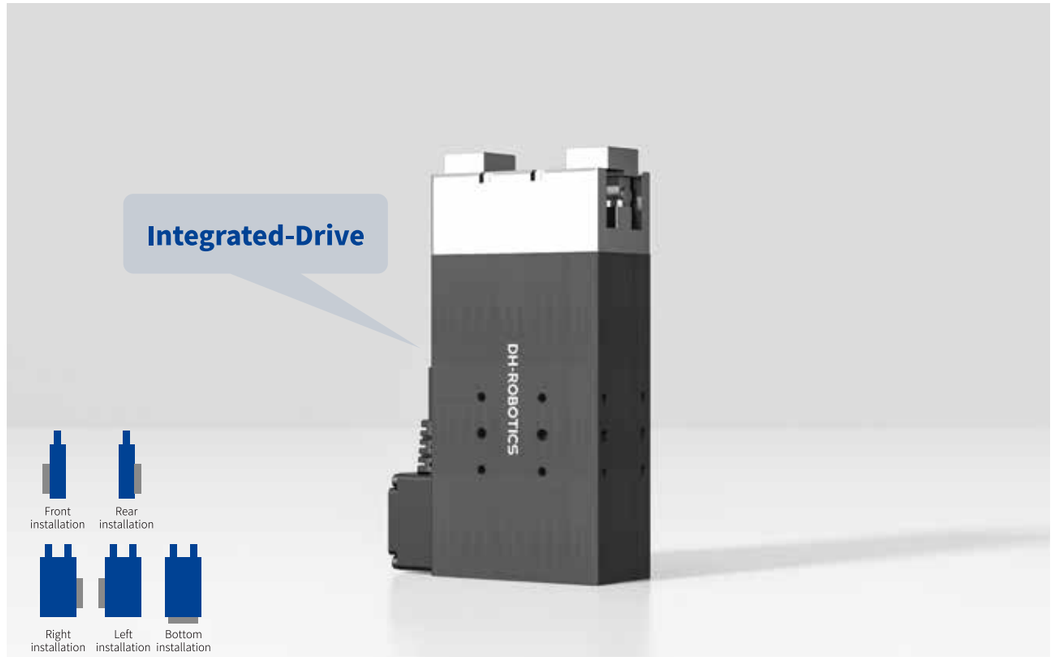
PGEA-2-10 Finger Length and Gripping Force Test

Gripping Distance Oscillation Reference Curve



PGEA-15/50/100-26

Slim-type Electric Parallel Gripper



Selection Method

Serie	Gripping Force	Stroke	Brake	Cable Direction	Communication Protocol	Cable Selection	Fingertip Selection
PGEA	15	26	O	F1	M1	L1	J0

Gripping Force	Stroke	Brake	Cable Direction *⑤	Communication Protocol *①*②	Cable Selection	Fingertip Selection
15	26	O Without Brake	F1	M1 Modbus (RS485)+I/O (NN)	L1 1m Direct Cable Outlet	J0 Without Fingertip
50		W With Brake*③	F2	M2 Modbus (RS485)+I/O (PP)	L3 3m Direct Cable Outlet	J1 Standard Fingertip
100			F3	M3 Modbus (RS485)+I/O (NP)	L5 5m Direct Cable Outlet	
			F4	M4 Modbus (RS485)+I/O (PN)	L10 10m Direct Cable Outlet	
					Robot Cable*④	
					C01	
					C02	

*① I/O(NN)：NPN/NPN　I/O(PP)：PNP/PNP　I/O(NP)：NPN/PNP　I/O(PN)：PNP/NPN

*② It is recommended that no more than 4units of DH-Robotics products be accessed on a single 485 bus, otherwise 485 communication anomalies may occur.

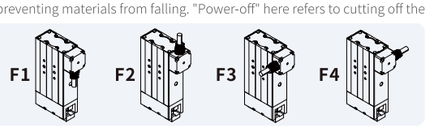
*③When selecting a model with a brake, the gripper can maintain a certain gripping force after power-off, preventing materials from falling. "Power-off" here refers to cutting off the 220V power supply, at which point the gripping force will decrease to 85% of the powered-on level.

*④

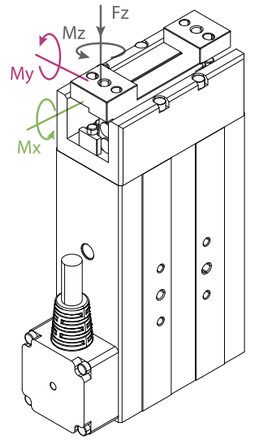
C01 Elite CS	SIASUN Hanwha A	DOBOT CR DOBOT Nova	UR CB UR E	**C02** JAKA

Note：The RS485 module option has been removed from the selection parameters. Please purchase separately if needed.

*⑤



TECHNICAL SPECIFICATIONS



Static Vertical Allowable Load

Fz	150 N

Allowable Loading Moment

Mx	2.5 N·m
My	2 N·m
Mz	3 N·m

Product Parameter	PGEA-15-26	PGEA-50-26	PGEA-100-26
Gripping force(per jaw)	6~15 N	15~50 N	30~100 N
Recommended workpiece weight*⑥	0.25 kg	1 kg	2 kg
Stroke	26 mm	26 mm	26 mm
Repeat accuracy (positioning)	± 0.02 mm	± 0.02 mm	± 0.02 mm
Weight	0.5kg with or without brake	0.5kg with or without brake	0.53kg/0.6kg with brake
Dimensions (L xW x H)	118mm*55mm*29mm with or without brake		118mm*55mm*29mm (without brake) 138mm*55mm*29mm (with brake)
Noise emission	< 50 dB	< 50 dB	< 50 dB
Driving method	Rack and Pinion Crossed Roller Guide		
Working Environment			
Communication interface	Standard: Modbus RTU (RS485)、Digital I/O Optional: TCP/IP、USB2.0、CAN2.0A、PROFINET、EtherCAT*⑦		
Nominal voltage	24 V DC ± 10%		
Nominal & Max. current	0.3 A (Rated) 0.8 A (Peak)	0.2 A (Rated) 0.8 A (Peak)	0.3 A (Rated) 1.2 A (Peak)*⑧
Max power	20 W	20 W	30 W
IP protection class	IP 40		
Recommended operating environment	0~40°C, under 85% RH		
Overseas standards	CE, FCC, RoHS		

Build-in Controller　Gripping Force Adjustable　Position Adjustable　Speed Adjustable　Drop Detection　Self-locking Mechanism (Optional)

*⑥ The shift in the center of gravity of the object being gripped can also affect the load, depending on factors such as the shape of the object, the material of the contact surface, friction, and the acceleration of movement. If you have any questions, please feel free to contact us.

*⑦ Requires external communication convertor or customization, pleass contact sales or technical support.

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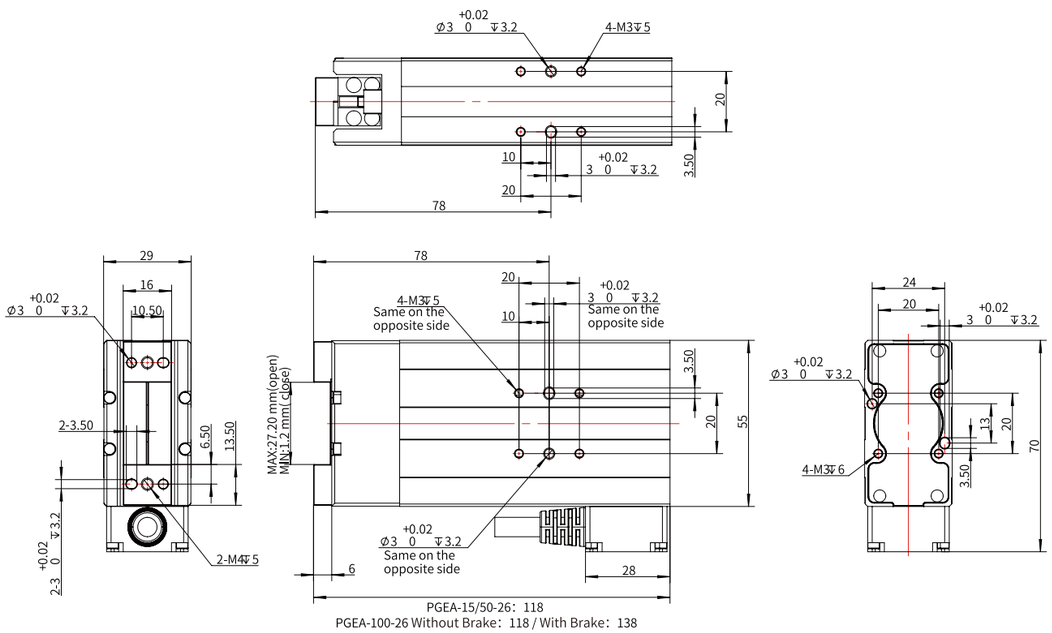
Technical Drawings



PGEA-15/50-26：118
PGEA-100-26 Without Brake：118 / With Brake：138

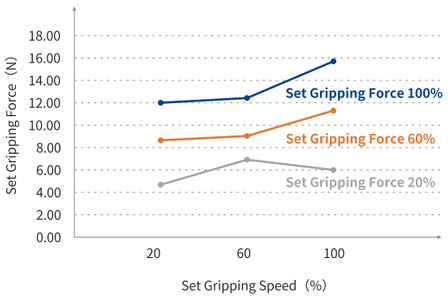
Gripping CT Reference Table

Test Type	Gripping Time (ms) [Impact, gripped object, target position set to 0, 50% force, 100% speed]				Gripping Time (ms) [Impact, gripped object, target position set to 0, 100% force, 100% speed]			
Test Item / Model	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping
PGEA-15-26	172	215	298	376	168	208	269	329
PGEA-50-26	177	244	413	571	142	190	306	452
PGEA-100-26	222	303	508	646	151	198	327	447

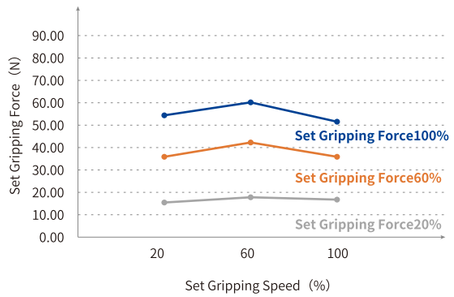
Test Type	Opening Time (ms) [50% force, 100% speed to position]				Opening Time (ms) [100% force, 100% speed to position]			
Test Item / Model	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping
PGEA-15-26	238	267	331	372	228	251	300	323
PGEA-50-26	240	307	473	566	237	273	383	447
PGEA-100-26	254	333	536	641	236	274	383	441

Actual Output Reference Curve for Different Force and Speed

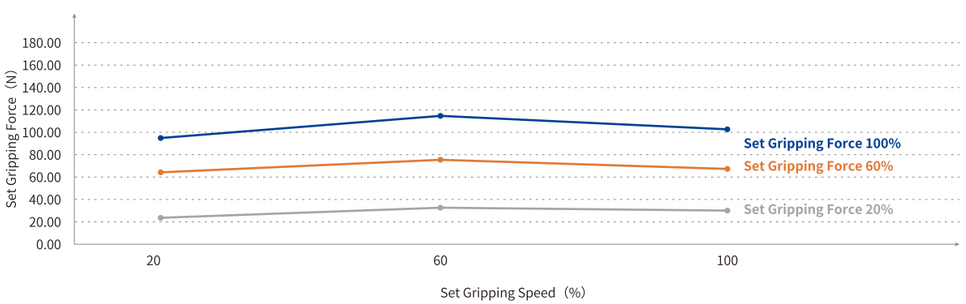
PGEA-15-26



PGEA-50-26

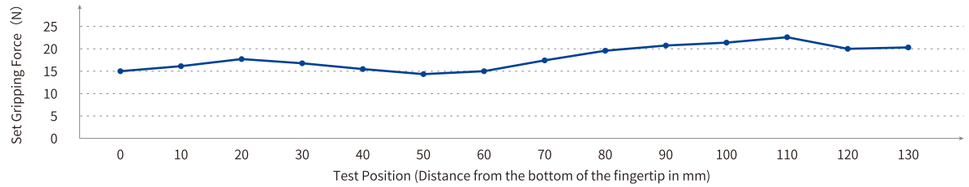


PGEA-100-26

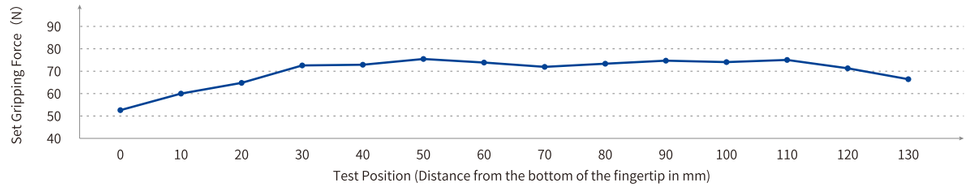


Gripping Distance Force Decay Reference Curve

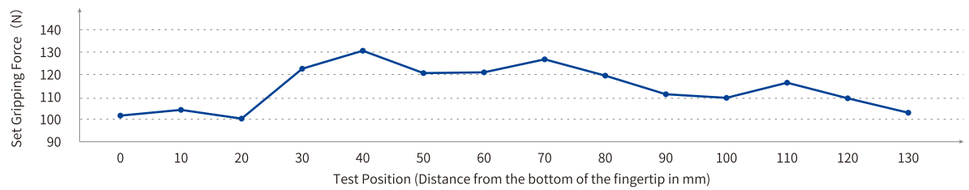
PGEA-15-26 Finger Length and Gripping Force Test



PGEA-50-26 Finger Length and Gripping Force Test



PGEA-100-26 Finger Length and Gripping Force Test



Gripping Distance Oscillation Reference Curve

PGEA-15/50/100-40

Slim-type Electric Parallel Gripper

Selection Method

Serie	Gripping Force	Stroke	Brake	Cable Direction	Communication Protocol	Cable Selection	Fingertip Selection
PGEA	50	40	O	F1	M1	L1	J0

Gripping Force	Stroke	Brake	Cable Direction *⑤	Communication Protocol *①*②	Cable Selection	Fingertip Selection
15	40	O Without Brake	F1	M1 Modbus (RS485)+I/O (NN)	L1 1m Direct Cable Outlet	J0 Without Fingertip
50		W With Brake *③	F2	M2 Modbus (RS485)+I/O (PP)	L3 3m Direct Cable Outlet	J1 Standard Fingertip
100			F3	M3 Modbus (RS485)+I/O (NP)	L5 5m Direct Cable Outlet	
			F4	M4 Modbus (RS485)+I/O (PN)	L10 10m Direct Cable Outlet	
					Robot Cable *④	
					C01	
					C02	

*① I/O(NN)：NPN/NPN　I/O(PP)：PNP/PNP　I/O(NP)：NPN/PNP　I/O(PN)：PNP/NPN

*② It is recommended that no more than 4units of DH-Robotics products be accessed on a single 485 bus, otherwise 485 communication anomalies may occur.

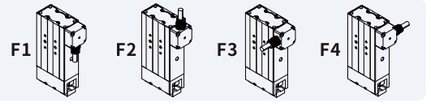
*③When selecting a model with a brake, the gripper can maintain a certain gripping force after power-off, preventing materials from falling. "Power-off" here refers to cutting off the 220V power supply, at which point the gripping force will decrease to 85% of the powered-on level.

*④

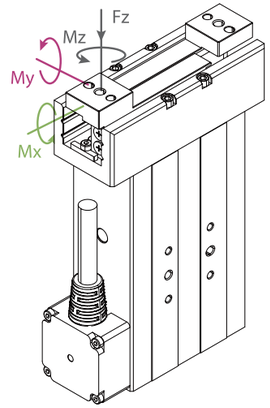
C01	SIASUN	DOBOT CR	UR CB	**C02** JAKA
Elite CS	Hanwha A	DOBOT Nova	UR E	

Note：The RS485 module option has been removed from the selection parameters. Please purchase separately if needed.

*⑤



TECHNICAL SPECIFICATIONS



Static Vertical Allowable Load

Fz	150 N

Allowable Loading Moment

Mx	4.5 N·m
My	5 N·m
Mz	7 N·m

Product Parameter	PGEA-15-40	PGEA-50-40	PGEA-100-40
Gripping force(per jaw)	6~15 N	15~50 N	30~100 N
Recommended workpiece weight*⑥	0.25 kg	1 kg	2 kg
Stroke	40 mm	40 mm	40 mm
Repeat accuracy (positioning)	± 0.02 mm	± 0.02 mm	± 0.02 mm
Weight	0.6 kg (with or without brake)		
Dimensions (L xW x H)	118mm*73.8mm*29mm with or without brake	118mm*73.8mm*29mm (Without Brake) 138mm*73.8mm*29mm (With Brake)	
Noise emission	< 50 dB		
Driving method	Rack and Pinion Crossed Roller Guide		
Working Environment			
Communication interface	Standard: Modbus RTU (RS485)、Digital I/O Optional: TCP/IP、USB2.0、CAN2.0A、PROFINET、EtherCAT *⑦		
Nominal voltage	24 V DC ± 10%		
Nominal & Max. current	0.3 A (Rated) 0.8 A (Peak)	0.2 A (Rated) 0.8 A (Peak)	0.3 A (Rated) 1.2 A (Peak)*⑧
Max power	20 W		30 W
IP protection class	IP 40		
Recommended operating environment	0~40°C, under 85% RH		
Overseas standards	CE, FCC, RoHS		

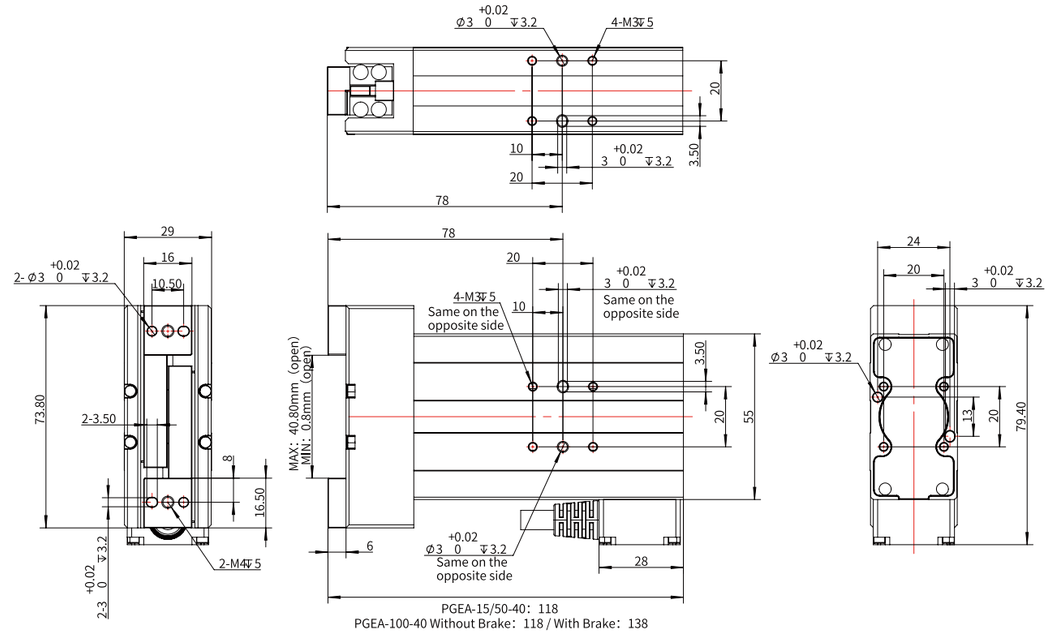
Build-in Controller　Gripping Force Adjustable　Position Adjustable　Speed Adjustable　Drop Detection　Self-locking Mechanism (Optional)

*⑥ The shift in the center of gravity of the object being gripped can also affect the load, depending on factors such as the shape of the object, the material of the contact surface, friction, and the acceleration of movement. If you have any questions, please feel free to contact us.

*⑦ Requires external communication convertor or customization, pleass contact sales or technical support.

*⑧ When selecting the power supply, please select according to the peak current. If the current is lower than the parameter, it will cause the product can not work normally.

Technical Drawings



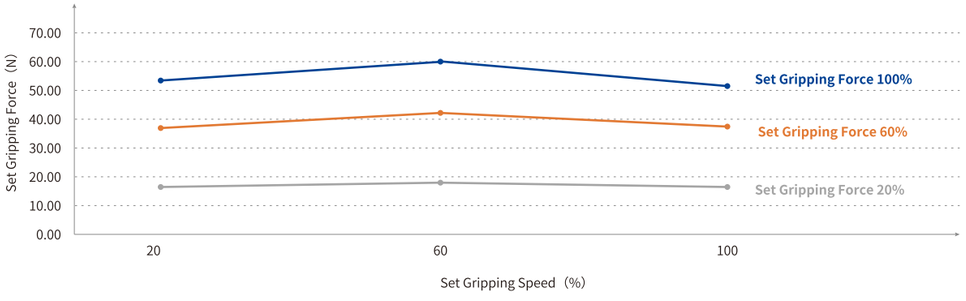
Gripping CT Reference Table

Test Type	Gripping Time (ms) [Impact, gripped object, target position set to 0, 50% force, 100% speed]			Gripping Time (ms) [Impact, gripped object, target position set to 0, 100% force, 100% speed]		
Test Item / Model	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm
PGEA-15-40	172	215	298	168	208	269
PGEA-50-40	177	244	413	142	190	306
PGEA-100-40	222	303	508	151	198	327

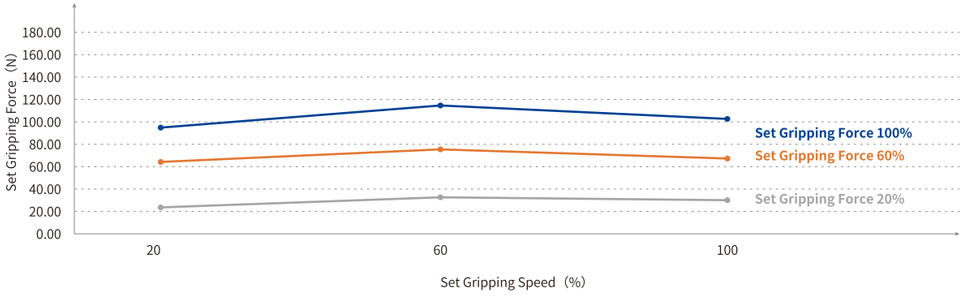
Test Type	Opening Time (ms) [50% force, 100% speed to position]			Opening Time (ms) [100% force, 100% speed to position]		
Test Item / Model	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm
PGEA-15-40	238	267	331	228	251	300
PGEA-50-40	240	307	473	237	273	383
PGEA-100-40	254	333	536	236	274	383

Actual Output Reference Curve for Different Force and Speed

PGEA-50-40

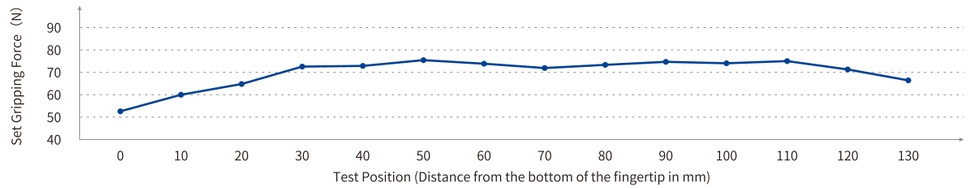


PGEA-100-40

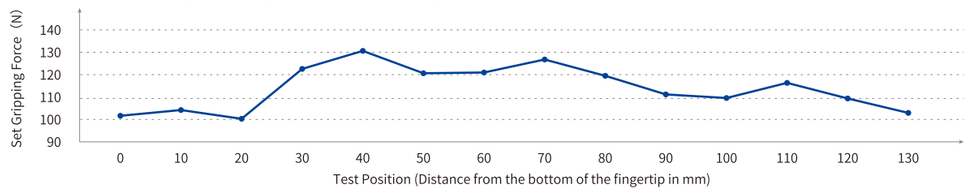


Gripping Distance Force Decay Reference Curve

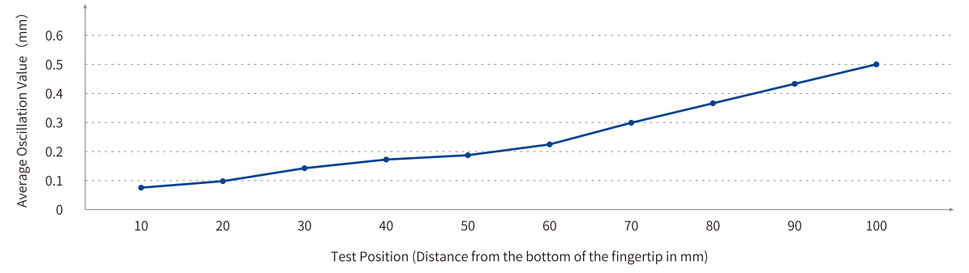
PGEA-50-40 Finger Length and Gripping Force Test



PGEA-100-40 Finger Length and Gripping Force Test



Gripping Distance Oscillation Reference Curve



Electric Parallel Gripper

PGIA Series

*The dimensions and mounting hole positions are the same as the original PGI model, with only the wiring direction changed.

Product Features

Based on the industrial requirements of “long stroke, high load, and high protection level”, DH-Robotics independently developed the PGIA series of industrial electric parallel gripper. The PGI series is widely used in various industrial scenarios with positive feedback.

Long Stroke

Long stroke reach to 80 mm. With the customiza tion fingertips, it can stably grasp the medium and large objects below 3kg and suitable for lots of industrial scenes.

High Protection Level

The protection level of PGIA-140-80 reaches to IP54, which is able to work under harsh environment with dust and liquid splash.

High Load

The maximum single-sided gripping force of PGIA-140-80 is 140 N, and the maximum recommend ed load is 3 kg, which can meet more diverse gripping needs.

Serie	Gripping Force (Per Jaw)	Recommended Workpiece Weight	Stroke	Reference Page
PGIA-80/140-80	16~80 N/40~140 N	1.6 kg/3 kg	80 mm	P21-24

PGIA-80/140-80

Electric Parallel Gripper

Selection Method

PGIA - 80 - 80 - O - F1 - M1 - L1 - J0

Serie	Gripping Force	Stroke	Brake	Cable Direction	Communication Protocol	Cable Selection	Fingertip Selection
80 140	80	O Without Brake W With Brake*③	*⑤ F1 F2 F3 F4	M1 Modbus (RS485)+I/O (NN) M2 Modbus (RS485)+I/O (PP) M3 Modbus (RS485)+I/O (NP) M4 Modbus (RS485)+I/O (PN)	*①*② M1 Modbus (RS485)+I/O (NN) M2 Modbus (RS485)+I/O (PP) M3 Modbus (RS485)+I/O (NP) M4 Modbus (RS485)+I/O (PN)	L1 1m Direct Cable Outlet L3 3m Direct Cable Outlet L5 5m Direct Cable Outlet L10 10m Direct Cable Outlet Robot Cable*④ C01 C02	J0 Without Fingertip J1 Standard Fingertip

*① I/O(NN): NPN/NPN I/O(PP): PNP/PNP I/O(NP): NPN/PNP I/O(PN): PNP/NPN

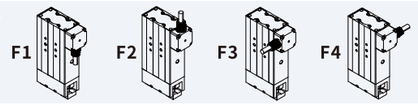
*② It is recommended that no more than 4units of DH-Robotics products be accessed on a single 485 bus, otherwise 485 communication anomalies may occur.

*③When selecting a model with a brake, the gripper can maintain a certain gripping force after power-off, preventing materials from falling. "Power-off" here refers to cutting off the 220V power supply, at which point the gripping force will decrease to 85% of the powered-on level.

*④

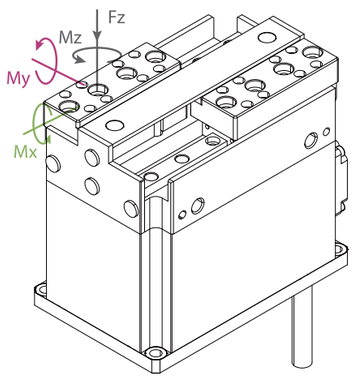
C01	SIASUN	DOBOT CR	UR CB	C02 JAKA
Elite CS	Hanwha A	DOBOT Nova	UR E	

*⑤



Note: The RS485 module option has been removed from the selection parameters. Please purchase separately if needed.

TECHNICAL SPECIFICATIONS



Static Vertical Allowable Load

Fz	300 N

Allowable Loading Moment

Mx	7 N·m
My	7 N·m
Mz	7 N·m

Product Parameter	PGIA-140-80	PGIA-140-80
Gripping force(per jaw)	16~80 N	40~140 N
Recommended workpiece weight*②	1.6 kg	3 kg
Stroke	80 mm	80 mm
Repeat accuracy (positioning)	± 0.02 mm	
Weight	1 kg	
Dimensions（L xW x H)	97mm*62mm*86mm	
Noise emission	< 50 dB	
Driving method	Rack and Pinion Crossed Roller Guide	

Working Environment

Communication interface	Standard: Modbus RTU (RS485)、Digital I/O(2 inputs 2 outputs) Optional: TCP/IP、USB2.0、CAN2.0A、PROFINET、EtherCAT*③
Nominal voltage	24 V DC ± 10%
Nominal & Max. current	0.7 A（Rated）/ 1.6 A（Peak)*④
Max power	40 W
IP protection class	IP 54
Recommended operating environment	0~40°C, under 85% RH
Overseas standards	CE, FCC, RoHS

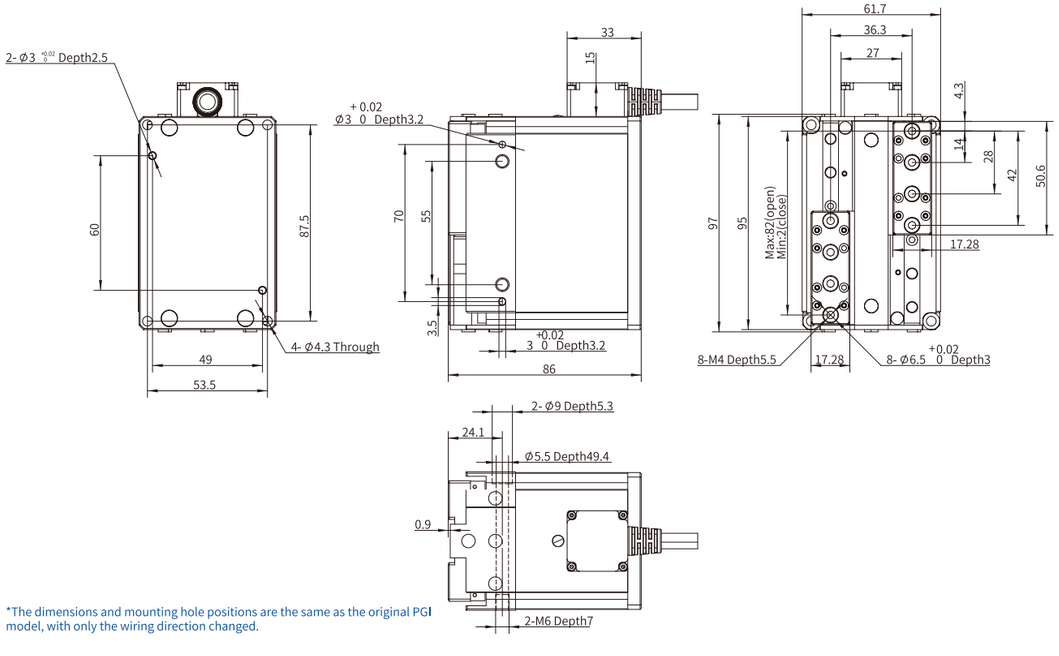
Build-in Controller | Gripping Force Adjustable | Position Adjustable | Speed Adjustable | Drop Detection | Self-locking Mechanism

*② The shift in the center of gravity of the object being gripped can also affect the load, depending on factors such as the shape of the object, the material of the contact surface, friction, and the acceleration of movement. If you have any questions, please feel free to contact us.

*③ Requires external communication convertor or customization, pleass contact sales or technical support.

*④ When selecting the power supply, please select according to the peak current. If the current is lower than the parameter, it will cause the product can not work normally.

Technical Drawings



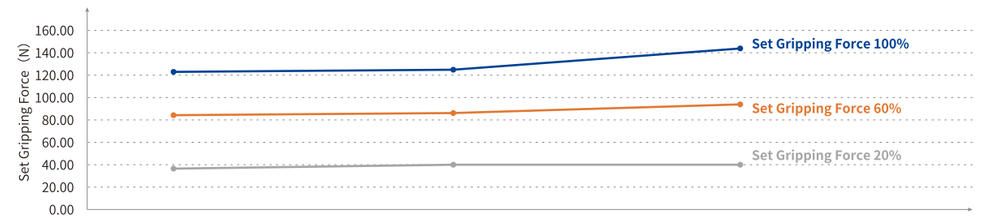
*The dimensions and mounting hole positions are the same as the original PGI model, with only the wiring direction changed.

Gripping CT Reference Table

Test Type	Gripping Time (ms) [Impact, gripped object, target position set to 0, 50% force, 100% speed]				Gripping Time (ms) [Impact, gripped object, target position set to 0, 100% force, 100% speed]			
Test Item / Model	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping
PGIA-140-80	185	244	387	1239	140	181	262	776

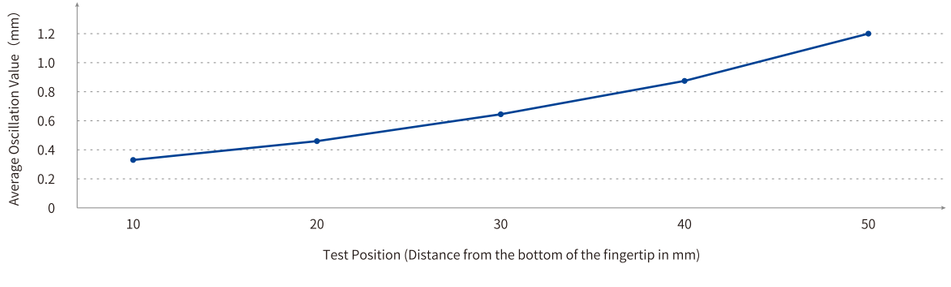
Test Type	Opening Time (ms) [50% force, 100% speed to position]				Opening Time (ms) [100% force, 100% speed to position]			
Test Item / Model	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping	Side Avoidance 3mm	Side Avoidance 5mm	Side Avoidance 10mm	Full Stroke Clamping
PGIA-140-80	189	243	383	1240	187	215	298	777

Actual Output Reference Curve for Different Force and Speed



Gripping Distance Force Decay Reference Curve

Gripping Distance Oscillation Reference Curve



Short Wire Correspondence Table

Our gripper can directly connect to the end interface of each brand of collaborative robot through a short wire.
(The serial number represent the short wire type.)

Support electric gripper models	UR CB Series	UR E Series	Elite CS Series	SIASUN	Hanwha A Series	ROKAE CR Series	DOBOT CR Series	Jaka
Small current electric gripper (Peak current≤0.6A)	C01							
Small current electric gripper (Peak current<1.5A)		C01	C01	C01	C01			C02
High current electric claw (Peak current>1.5A)								
In common (Support large and small current electric gripper)						C01	C01	

Dh-robotics’ Gripper And Cylinder Communication Converter

The communication within DH-Robotics' Servo Gripper and Servo Electric Cylinder defaults to Modbus RTU (RS485) and a small number of I/O(2 inputs 2 outputs). If customers choose other communication converter, they will need to use the communication converter. The following communication converter are available for selection:

	communication converter Name	Ordering Model
	EtherCAT 1-1	M2E-B1-1
	EtherCAT 1-4	M2E-B1-4
	EtherCAT to I/O 1-More	Please contact our technical staff confirm the specific parameters
	TCP/IP 1-1	M2T-B1-1-YBT
	PROFINET 1-2	M2P2-B1-2-HJ
	PROFINET 1-11	M2P-B1-11-9
	Modbus RTU (RS485) to USB Converter Module	A801-0036-WG

Customer Trust

More than 800 customers around the world are using DH-Robotics products
The number of customers continues to grow rapidly. . .

Version Change Log

Revision Date	Released Version	Change Log
2025.04	CN.2504	· New option added for robot short-line configuration.; · The free configuration for Modbus RTU (RS485) to USB module has been canceled. If needed, please place a separate order for purchase.。
2025.03	CN.2503	· Version one