

# Depend on GramForce™ grippers to be gentle when the going gets delicate.

**W**ith the sleek, new GramForce gripper, you'll find all the features you'd expect to find in Airpot's family of Accurate Force Pneumatic products—and then some. At every turn, expect minute friction levels that assure uncompromising force accuracy. With wide operating temperature ranges. And repeatability you can depend on, time after time, for millions of times. Lubrication? Never! A mere 205 grams total mass keeps this gripper light on its feet. Its stainless steel mounting blocks accommodate finger lengths up to 75 mm. And combined with its synchronous and parallel design, it is counterbalanced to provide unchanging gripping force in any mounting orientation: It's a versatile gripper like no other.

So, in short, we've gone to great lengths to design the GramForce gripper for your most exacting applications—powerfully tough on the inside, but with a grip as gentle as the flutter of a butterfly's wings.

## What's it good for?

Whether the parts you need to work with are exceedingly fragile, soft, delicate, or sensitive, you'll see they can now be accurately and safely grasped, held, or positioned with this impressively adroit gripper. It's ideal

for precision assembly equipment, test and measurement devices, robotic arm end-effectors, small parts handling, and the most delicate of machining operations you can think up.

## What's in it for you?

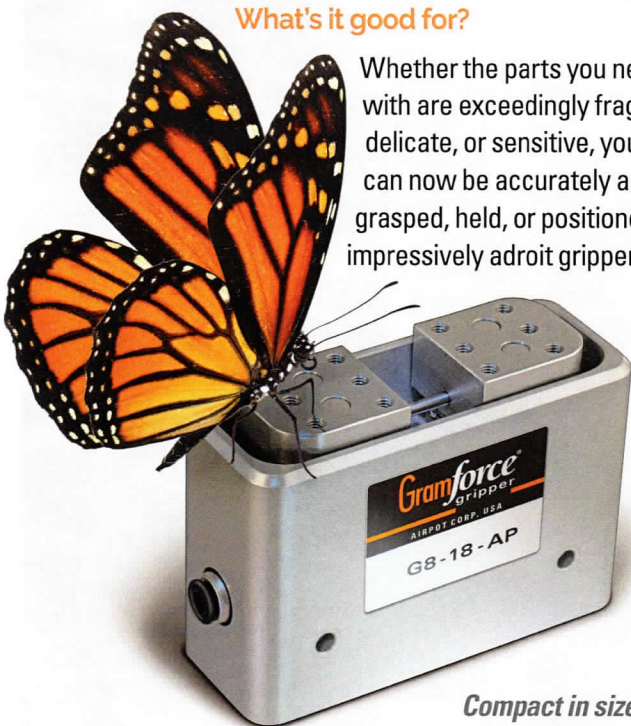
Inside the Airpot® GramForce gripper (see below) you'll find it is driven by two tiny 5.6 mm bore, ultra-low friction pneumatic Airpot actuators, enhanced with our Airpel® Plus technology.

If that doesn't catch your attention, the carriage blocks mounted on an IKO® precision stainless steel rail will. Along with its ability to operate at pressures from 0.02 MPa to 0.7 MPa—all while providing precise holding forces as low as 0.25 N up to a heftier 8.6 N.

Are you operating in a clean environment? It will be right at home. Plus, the light-weight compact design saves space while allowing easy mounting from the bottom or either side. The versatile finger mounting blocks make it a snap to attach holding jaws of your own design.

So, there really is a lot in this gripper for you!

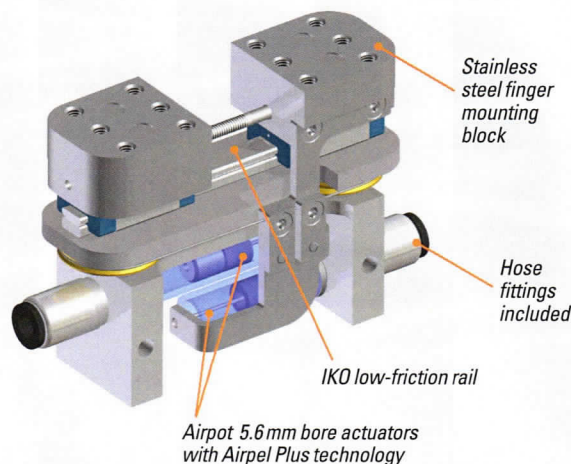
Like the migrating monarch, let your design imagination take flight: you'll discover little that is too small or too delicate for the Airpot GramForce gripper to handle—whatever your most demanding designs may be. When the going gets delicate, designers get GramForce.



*Inside and out,  
expect precision.*

## Compact in size, mighty by nature

A monarch butterfly with a 90 mm wingspan seems larger than life when it alights upon the smooth stainless steel and anodized aluminum surfaces of the compact GramForce gripper.



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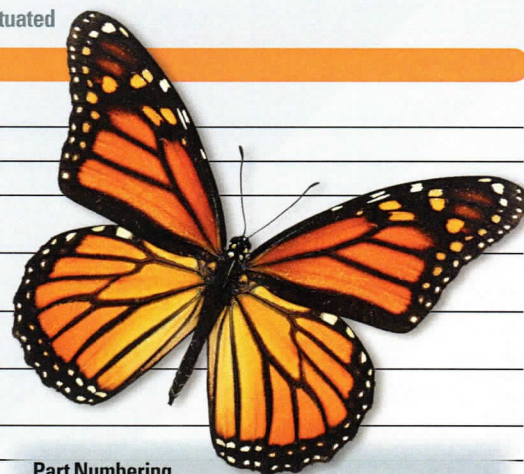
**Gramforce®**  
gripper



# GramForce™ Gripper Specifications

The GramForce: synchronous, parallel, piston actuated

Stroke	18	mm
Effective piston area	12.3	mm <sup>2</sup>
Pressure range	0.02 to 0.7	MPa
Gripping force $F$ as a function of supply pressure $P$ (unit for supply pressure $P$ is MPa)	$F = P \times 12.3$ $F = P \times 1250$	N gf
Maximum gripping force	8.6 875	N gf
Minimum gripping force	0.25 25	N gf
Maximum friction force $F_f$ as a function of gripping force $F$ (unit for gripping force $F$ is Newtons)	$F_f = F \times 0.015 + 0.15$ $F_f = F \times 1.5 + 15$	N gf
Cycle life	5	million cycles
Cycle rate	3	Hz
Max leak rate when supplied with 0.34 MPa	1.6	standard L/min
Recommended maximum finger length	75	mm
Total mass of gripper without user-supplied fingers	205	g
Effective moving mass without user-supplied fingers	80	g
Operating temperature range	-20 to +80 -4 to +176	°C °F



## Part Numbering

Model	Stroke	Hose Fitting
G8	18	AP [4.0 mm (5/32 inch) OD tubing]
		BP [3.2 mm (1/8 inch) OD tubing]

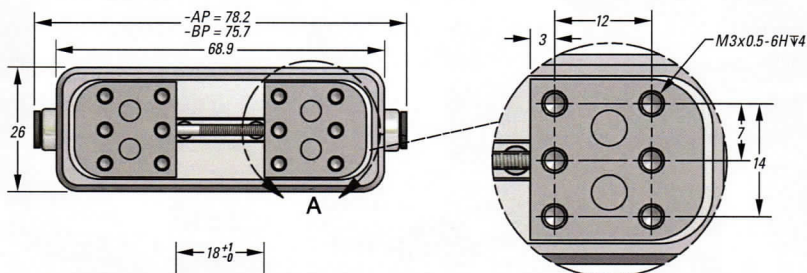
## Part Numbers:

■ G8-18-AP ■ G8-18-BP

## Air preparation and other information

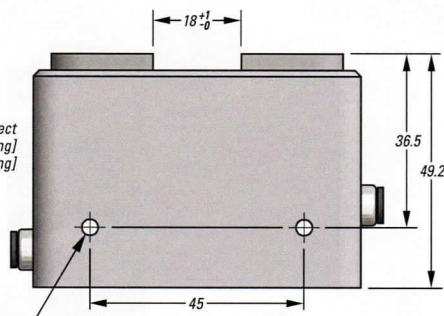
- Supply with clean, dry, unlubricated air. ■ A coalescing filter is required with particle filtration at one micron or less.
- A particle filter upstream of the coalescing filter is recommended.

All dimensions below are in millimeters.



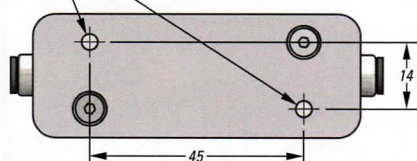
Detail: Finger Mounting Blocks

FITTINGS: Push to Connect  
-AP [4 mm (5/32") OD tubing]  
-BP [3.2 mm (1/8") OD tubing]



Ø3.4 2x Bottom Mounting Holes  
M3x0.5x6.5  
□ Ø3.4x2.5

Ø3.4 2x Side Mounting Holes  
Screws provided: Qty. 2 of M3x0.5x30 long  
0.5 thick spacing washers also provided



## Maximum Loading on Mounting Block

$F_z$	20.0	N
$M_x$	2.9	Nm
$M_y$	2.3	Nm
$M_z$	1.9	Nm

