

# Air gripper(180° open/close style)

AirTAC

## HFR Series

### How to select product

#### 1. Confirmation of effective gripping force

1.1) Though the coefficient of friction between the attachments and the workpiece is different, select a gripping force which is 10 to 20 times greater than the workpiece weight.

1.2) If high acceleration or impact forces are encountered during motion, a further margin of safety should be considered.

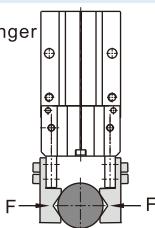
Example: When the workpiece weight is 0.05 and the gripping point distance L is 30mm, the operating pressure will be 5kgf/cm<sup>2</sup>.

Effective gripping force=0.05kg×20 times×9.8m/s<sup>2</sup>=more than 10N

Model selection: HFR16 is recommended. The effective gripping force is 17N, which is 20 times greater than the set value of gripping force.

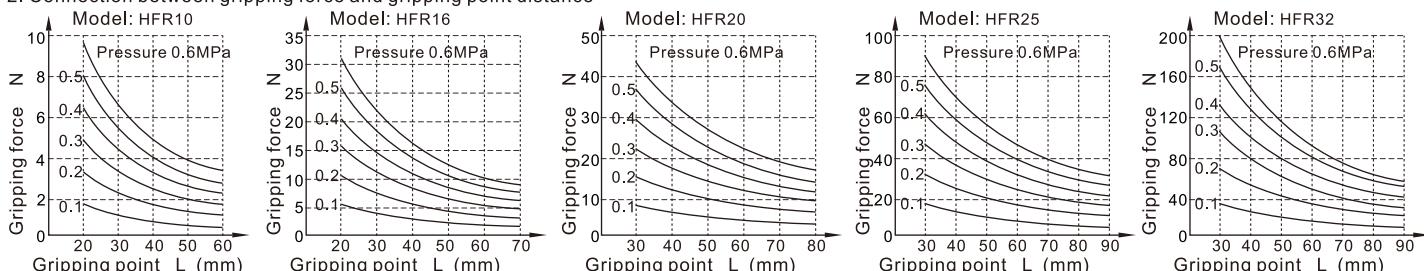
L: Gripping point

F: Single finger thrust



1.3) The finger thrust is expressed as F, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.

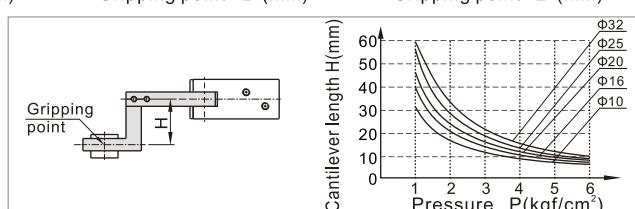
#### 2. Connection between gripping force and gripping point distance



#### 3. The selection of the gripping point

3.1) Please select the gripping point within the limited field shown left. Over the limits, gripping jaws would be subjected to excessive torque loads, and lead to short life of the air gripper.

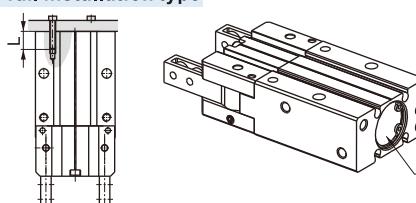
3.2) In the allowable range of gripping point, it is better to design for short and light fittings. If the fittings are long and heavy, the inertia force when the finger is open and close will become larger, and the performance of gripping jaw will be degraded, at the same time it will affect the life.



### Installation and application

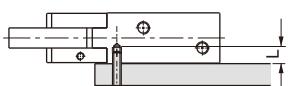
1. Due to the abrupt changes, the pressure is low, which will lead to the decrease of the gripping force and falling of the work-pieces. In order to avoid the harm to the human body and damage to the equipment, anti-dropping device must be equipped.
2. Don't use the air gripper under strong external force and impact force.
3. When install and fix the air gripper, avoid falling down, collision and damage.
4. When fixing the gripping jaw parts, don't twist the gripping jaw.
5. There are several kinds of installation method, and the torque of fastening screw must be within the prescribed moment range shown in the below chart. If the locking moment is too large, it will cause the dysfunctional. If the locking moment is too small, it will cause the position deviation and fall.

#### Tail installation type



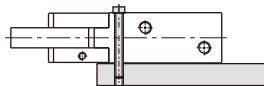
Bore size	The bolts type	Max. locking moment	Max. screwed depth	The aperture of the positioning bore	The depth of the positioning bore
10	M3×0.5	1.0N.m	6mm	Φ11mmH9	1.5mm
16	M4×0.7	2.0N.m	8mm	Φ17mmH9	1.5mm
20	M5×0.8	4.5N.m	10mm	Φ21mmH9	1.5mm
25	M6×1.0	7.0N.m	12mm	Φ26mmH9	1.5mm
32	M6×1.0	7.0N.m	14mm	Φ34mmH9	2.0mm

#### The installation of the front threaded hole



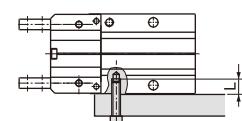
Bore size	The bolts type	Max. locking moment(Nm)	Max. screwed depth(mm)
10	M3×0.5	1.0	6
16	M4×0.7	2.0	8
20	M5×0.8	4.5	10
25	M6×1.0	7.0	12
32	M6×1.0	7.0	14

#### The installation of the front through hole



Bore size	The bolts type	Max. locking moment(Nm)
10	M3×0.5	1.0
16	M4×0.7	2.0
20	M5×0.8	4.5
25	M6×1.0	7.0
32	M6×1.0	7.0

#### Surface installation type



Bore size	The bolts type	Max. locking moment(Nm)	Max. screwed depth(mm)
10	M3×0.5	0.6	4
16	M4×0.7	1.5	5
20	M5×0.8	3.5	8
25	M6×1.0	6.0	10
32	M6×1.0	6.0	12

6. The installation method of the gripping jaw fittings. When install the gripping jaw fittings, you have to pay particular attention that you can only hold the gripping jaw by using spanner, and then lock the screws with allen wrench. Never clamp the body directly and then lock the screws, otherwise the parts will be easily damaged.
7. Other contents of installation and operation are the same with those of HFY. Refer to the "Installation and Operation" instruction of HFY.

Bore size	The bolts type	Max. locking moment(Nm)
10	M3×0.5	0.6
16	M3×0.5	0.6
20	M4×0.7	0.8
25	M5×0.8	1.5
32	M6×1.0	3.0

