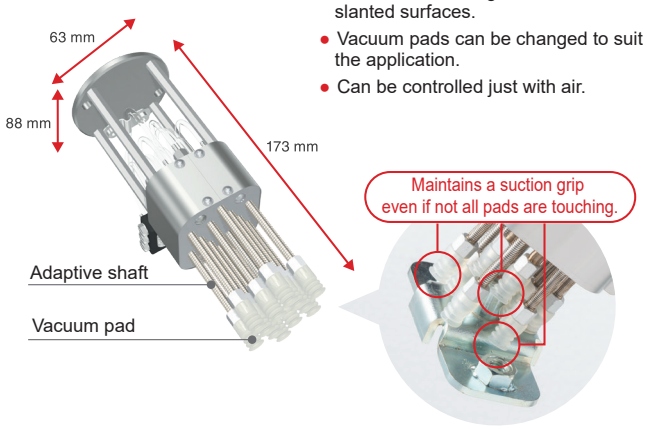
Adaptive Gripper Series TNH

The Adaptive Gripper Series TNH is a general-purpose robot gripper that is both small and lightweight, capable of suctioning or gripping workpieces with complex shapes in a stable manner through its ability to adapt its form to the workpiece.
The mounting flange can be installed on ISO-standard robots (ISO 9409-1-50-4-MS).

Adaptive Suction Gripper

The built-in flow restrictor allows the robot gripper to maintain a suction grip with a single vacuum source even if suction error occurs in half of the 12 vacuum pads.

- Bellows vacuum pads with 2.5 folds excel at conforming to curved and slanted surfaces.
- Vacuum pads can be changed to suit the application.
- Can be controlled just with air.



Industrial Products


Machine part

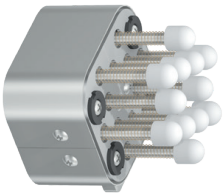

Machine part

Medical, Cosmetic, and Everyday Products

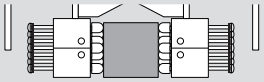

Blister pack

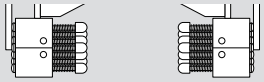

Spray bottle

Adaptive Gripper

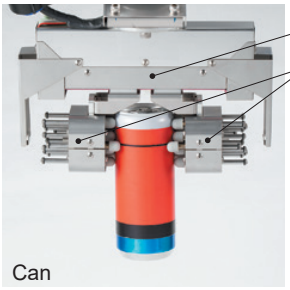


Mechanical Clamping/UnclampIng Mechanism*


Adaptive shaft is locked and clamped with the force used to grip the workpiece.


Adaptive shaft is unlocked and unclamped with the force used to open the hand.

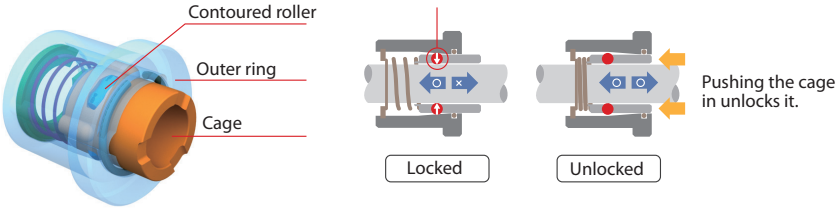
*Complete mechanical clamping unit



Operation Mechanism

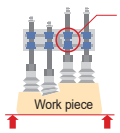
- **Quick Clamper elements lock/unlock each shaft's movement.**
- **Each of the 12 shafts locks in place according to the shape of the workpiece.**
- **Even complex workpieces can be held via gripping or suction and transported/placed in the same orientation as they were when picked up.**

Quick Clamper Element





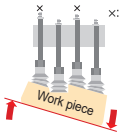
Adaptive Suction Gripper



Dual Quick Clamper elements are arranged facing each other to lock movement in both directions.

Shafts are fixed in place and maintain the object's orientation.

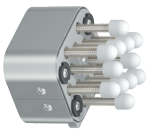
Generic Suction Gripper

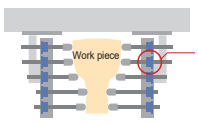


×: Shaft that will not raise.

Shafts extend and cannot maintain the object's orientation.

Adaptive Gripper





Quick clamper elements lock movement in the direction they are pushed.

Conforming to the object's shape allows a stable grip over the entire surface.

Generic Gripper



Only protruding areas are held, making the grip unstable.

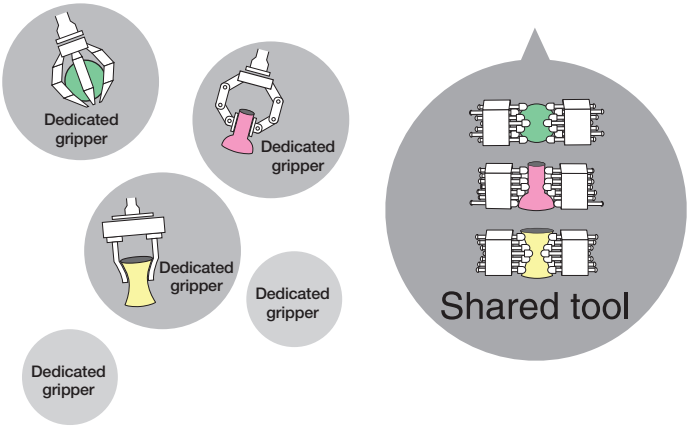
Benefits

Dedicated Grippers

Multiple grippers are needed for different work pieces.

Adaptive Gripper

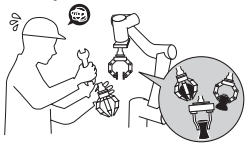
One tool adapts to different workpiece shapes!



Saves **time**

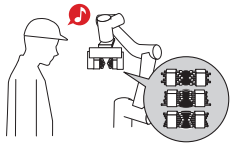
Dedicated Gripper

Changing tools for each workpiece wastes time.



Adaptive Gripper

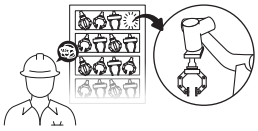
No need to change the shared tool!



Frees up **space**

Dedicated Gripper

Unused hands take up storage space.



Adaptive Gripper

Keep things orderly by eliminating unnecessary tools!



Lowers **costs**

Dedicated Gripper

The need for multiple spares becomes costly.



Adaptive Gripper

Only using one type lowers costs!



Specifications

Item		Adaptive Suction Gripper TNH04-V12-00	Adaptive Gripper TNH04-N12-00
Size		W: 88 mm, D: 63 mm, H: 173 mm	W: 60 mm, D: 65 mm, H: 65 mm
Mass		0.5 kg	0.3 kg
Shaft quantity		12	12
Shaft end	Shape	Bellows vacuum pad with 2.5 folds: ϕ9	Dome-shaped: ϕ9
	Material	Silicone rubber	Silicone rubber
Adaptive stroke		30 mm	20 mm
Max. reaction force when adapting (push position)		12 N (15 mm) 25 N (29 mm)	10 N
Grippable workpiece size		—	—
Permissible workpiece mass (for suction/gripping)		1 kg (approx.)	—
Axial load		—	Max. 10 N/shaft
Clamp/unclamp driving force		—	10 N
Clamp/unclamp mechanism		Air cylinder (Running air pressure: 0.3 Mpa to 0.7 Mpa)	Mechanical
Operating temperature range		0°C to 60°C	0°C to 60°C
Mounting specifications		ISO 9409-1-50-4-M6	—
Appearance			

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