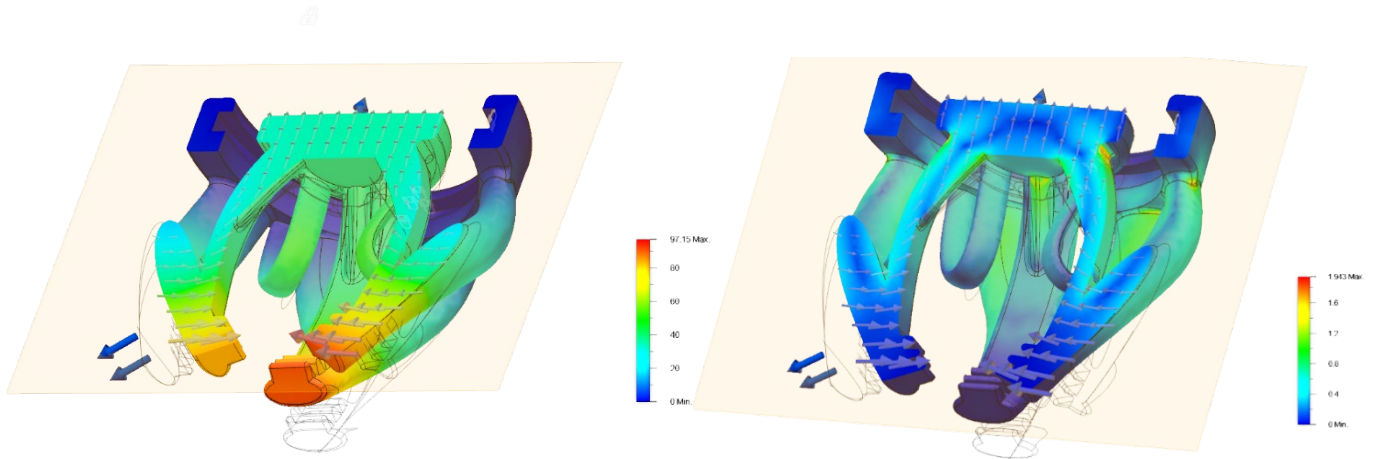


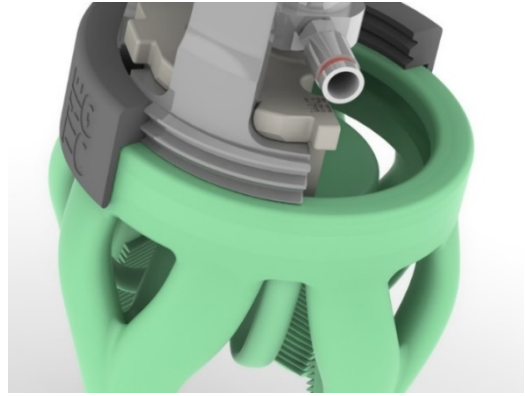
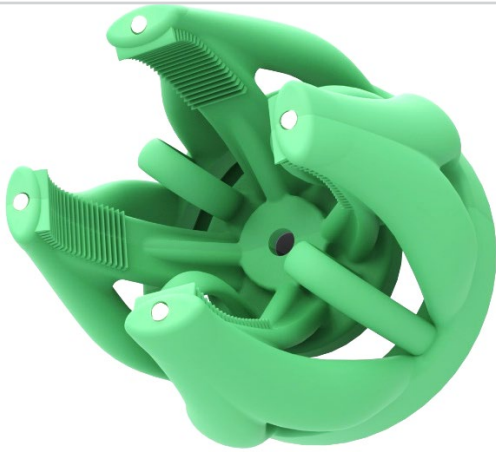
Swift yet gentle

The lip has a build-in self compliance based on principals of biomimicry, which allows it to handle objects, of significantly varying size and shape, in a gentle yet secure and speedy manner. This makes the lip ideal for solving jobs with organic or irregular inputs, such as food manufacturing, agriculture, or parcels sorting.

The compliance originates from a unique structural design of the lip, made of an elastic material, enabling it to stretch and contract in all the right places. Hereby, during a pick-up motion, when the actuator starts to contract, the lip begins to conform around the object at specific points for an optimal grasp. Then, as the piston hits the end, the elastic material is instantly pulled fully together, and the object held firmly in place. Returning the object applies the forces of the bionic compliance in exact reverse order, making it a highly predictable and easily controllable motion. It is possible to either just relax the material or, push the piston all the way to the opposite end and expand the lip outwards. The former option gently drops the object from the grasp of the lib. Whereas the latter actively pushes the object out of the lip and sends it flying or squeezes it into a tight fit. Thus, with careful timing, the placement is done with grace and accuracy



Gripper Lips



Four Fingers Lip TGC-SFG-4X-MRIB-XX

- Handles familiar human hand sized products such as stone fruits and greenhouse plant plugs and pots, eggs, meat poultry and even fish. Nonfood items are a piece of cake for this gripper lip. The interface to the Any-Mount allows to be attached to all material handling robots

Designed for gentle grasp

- Material shore factor optimized to accommodate firm grip though still gentle.
- Fingertips with soft lamellas prevent object point browsing and ensures sliding free grasp. Same fine lamellas ensure no damage to the workpiece surface, even with relative high compression forces.
- Cavity opens so release is controlled ensuring accurate and repetitive release of products despite various size and shape. In most cases, like food items an air cylinder actuation will provide fast and reliable operation. In cases where high level on dexterity is required you may consider the Servo-motor driven actuation. This provides the industry's highest level of force, speed and position controlling.
- Fingers has the option of integrated steel rods enhancing the stiffness of the lower end of the finger that ensures an even impact force onto the workpiece and enhances the saturation forces that can be up on the workpiece. For higher compliance applications and where un-regular interference surfaces are met, it can be have a solid finger.
- In shifted orientation the closed bands alongside the fingers ensures workpieces of varying size and shapes will be evenly secured even with one generic gripper setting, and during release will be gently push downward out of the gripper

Low clearance requirements

- Products may be presented in a dense collection even in a bin in multiple layers. Also, when placement may often require a thigh-fit the slim design gives you the best options to overcome such requirements.

Best in class Total cost of ownership, saves up to 90% energy

- Save up to 90% energy compared to your standard suction cup. Make your own consumption savings calculation - link

Safely and ease of use and handling

- As our grippers reflects bionic design its intuitively easy to get a basic idea about how our grippers works. The

High compliance

- Innovative gripper design delivers a unique outstanding level of self-compliance, providing a firm but natural gentleness when conforming around the workpiece.

Typical workpieces



Apples, Pears, Citrus, peaches Tomatoes. For picking and even harvesting, sorting, and packaging application.



Fish pick and place is a delicate task. this gripper provides the industry's best performing grasp.



Poultry, pork and meat represents a grasping challenge due to the non-rigid non-uniform item shapes. Also, the slippery surfaces are a great challenge for grippers in general. Hence, the Four Fingers Lip is an excellent choice.



fragile objects, like glass-blow are perfect for this gripper's unique features



Plastic, metal and bio-material parts of various shapes and sizes.



Four Fingers Lip - TGC-SFG-4X-MRIP-XX

SKU	Lip color	Fingertips	Max Pull (N)	Max push [N]	Actuator stroke [mm]	Min/Max. items size ¹	Esp. MTBF [mil]	recyclable	Food Grade
TGC-SFG-4X-MRIB A35 G SS-4x30 GF	Green	21xripples	100	100	30	25/96	3	yes	No
TGC-SFG-4X-MRIB A50 R SS-4x30 GF	Red	21xripples	80	80	30	20/106	2.5	yes	No
TGC-SFG-FG-4X-MRIB A35 B SS-4x30 GF ²	Blue	21xripples	100	100	30	25/96	3	yes	Yes

- 1) Top view Diameter, trials would have to validate the case specific feasibility
- 2) Exp. release Q4 20

SKU	Type	release
TGC-AIM- AIR-S25	Compressed air cylinder Food compliant	Aug. 2020
TGC-AIM- SM-M4	Servo motor	Jan. 2021
TGC-AIM- SN	Solenoid	Nov. 2020

