Grippers for collaborative robots
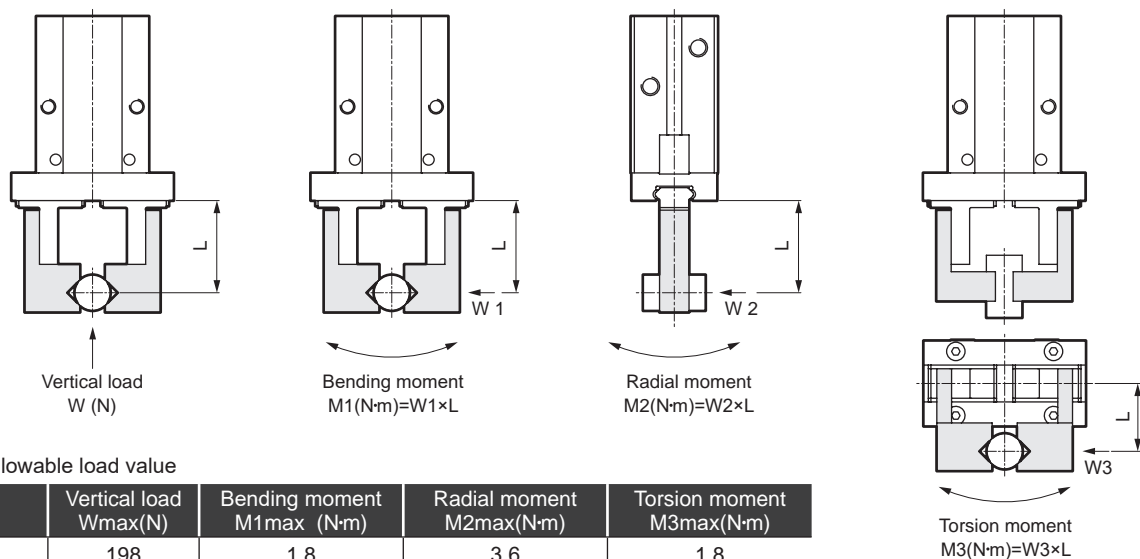
Attachments

● Use the attachments that are as short and lightweight as possible. If it is long or heavy, the inertial force during opening and closing will be large, which may cause the fingers to become loose or accelerate the wear of the finger sliding portion, which can have a negative impact on the lifespan.
● When mounting an L-shaped attachment, select the length as shown below.
  Example: For an L-shape, when the finger direction is 30 mm and 90 mm after bending 30 degrees, the length of the attachment should be 60 mm
● The length of the attachment should be within the value of the gripping force performance data.
● The weight of the attachment affects durability, so follow the table below.

Model	Weight per attachment (W)
RLSH	W < 80g
RHLF	W < 100g
RCKL	W < 95g

External forces applied to the fingers

When an external force is applied to a finger such as when conveying and inserting workpieces, use it within [Table 1] parameters.
(* When using it for conveying, consider the impact to the terminal.)

Vertical load
W (N)

Bending moment
M1(N·m)=W1×L

Radial moment
M2(N·m)=W2×L

Torsion moment
M3(N·m)=W3×L

L: Distance to the point where load is applied

[Table 1] Allowable load value

Model	Vertical load Wmax(N)	Bending moment M1max (N·m)	Radial moment M2max(N·m)	Torsion moment M3max(N·m)
RLSH	198	1.8	3.6	1.8
RHLF	164	0.94	2	1.1

• Sample calculation for external forces applied to the fingers

Sample calculation (1): When conveying a workpiece
Model No.: RLSH-A20D1N, attachment (weight m_k: 0.07kg, center of gravity distance L_k When a workpiece (weight m=0.7kg, center of gravity distance L=40mm) is gripped and transported at = 30mm)
(g: Gravity acceleration 9.8m/s^2, α: Coefficient of impact generated at end = 3)
$M_1 = α × W_1 × L = α × (m_k × g × L_k × 2 + m × g × L)$
  $= 3 × (0.07 × 9.8 × 30 × 10^{-3} × 2 + 0.7 × 9.8 × 40 × 10^{-3} ≈ 0.95$N·m, M1 Can be used since it is max=1.8N·m or less

Sample calculation (2): When inserting a workpiece
Model No.: RLSH-A20D1N, L=40mm for load W_1: When 30 N is added
$M_1 = W_1 × L = 30 × 40 × 10^{-3} = 1.2$N·m and M1max= 1.8N·m or less, so use is possible

Repeatability

The repeatability here indicates the same conditions (gripper fixed, same workpiece used) Indicates the displacement of the workpiece when clamping and unclamping are repeated in [S: Right].

Conditions
· Workpiece dimensions, shape, weight
· Workpiece transfer position
· Clamp method, length
· Workpiece and workpiece receiving surface resistance
· Fluctuation of gripping power (air pressure), etc.

Base line

●: Base line

CKD