Grippers for collaborative robots
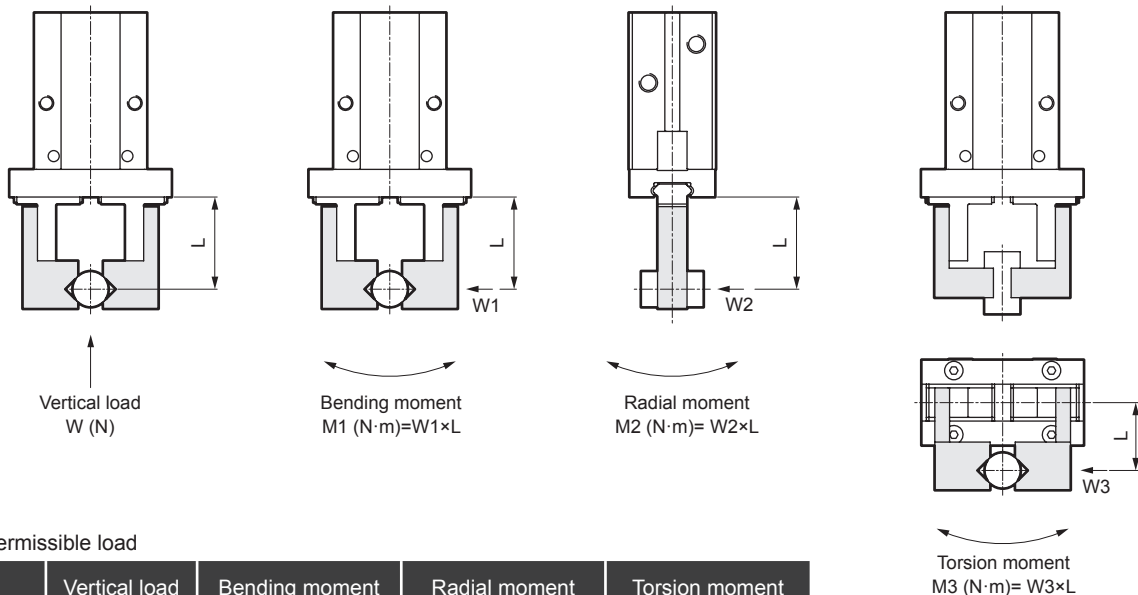
About the attachment

● Use the lightest and shortest attachment 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.
● Select the length for when an L-shaped attachment is attached as shown below.
Example: For an L-shape, when the finger direction is 30 mm and 30 mm after bending 90 degrees, the length of the attachment should be 60 mm
● Make sure that the length of the attachment is according to the value in the gripping force performance data.
● Be sure to follow the table below because the mass of the attachment affects the lifespan.

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

About 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.
(* To use it while 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

[Table 1] Permissible load

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

L: Distance up to the point where load is applied

• Sample calculation for external forces applied to the fingers

Sample calculation ①: When conveying a workpiece
When a workpiece (mass m = 0.7 kg, center of gravity distance L=40 mm) is gripped and conveyed with Model number: RLSH-A20DIN
attachment (mass m_k: 0.4 kg, center of gravity distance L_k=30 mm)
(g: Gravity acceleration = 9.8 m/s^2, α: Impact coefficient generated at the terminal = 3)
$M_1 = \alpha \times W_1 \times L = \alpha \times (m_k \times g \times L_k \times 2 + m \times g \times L)$
   $= 3 \times (0.4 \times 9.8 \times 30 \times 10^{-3} \times 2 + 0.7 \times 9.8 \times 40 \times 10^{-3}) \fallingdotseq 1.5$ N·m, and M_1max=1.8 N·m or less, so it can be used

Sample calculation ②: When inserting a workpiece
When a load of W_1: 30 N is applied to Model number: RLSH-A20DIN, L=40 mm
$M_1 = W_1 \times L = 30 \times 40 \times 10^{-3} = 1.2$ N·m, and $M1_{max}$=1.8 N·m or less, so it can be used

CKD