Reliable. Flexible. Productive.

O-ring Assembly Gripper ORG

A gripper, attached with appropriate attachment fingers allows assembly of O-rings, including square rings and others both on shafts (O.D. assembly) and in bores (I.D. assembly)

Field of Application

The gripper should be used in a clean environment, particularly in automated assembly.

Advantages – Your benefits

O.D. and I.D. assembly with one gripper ensures flexibility and cost-saving

Process reliable due to new mounting principle for high availability

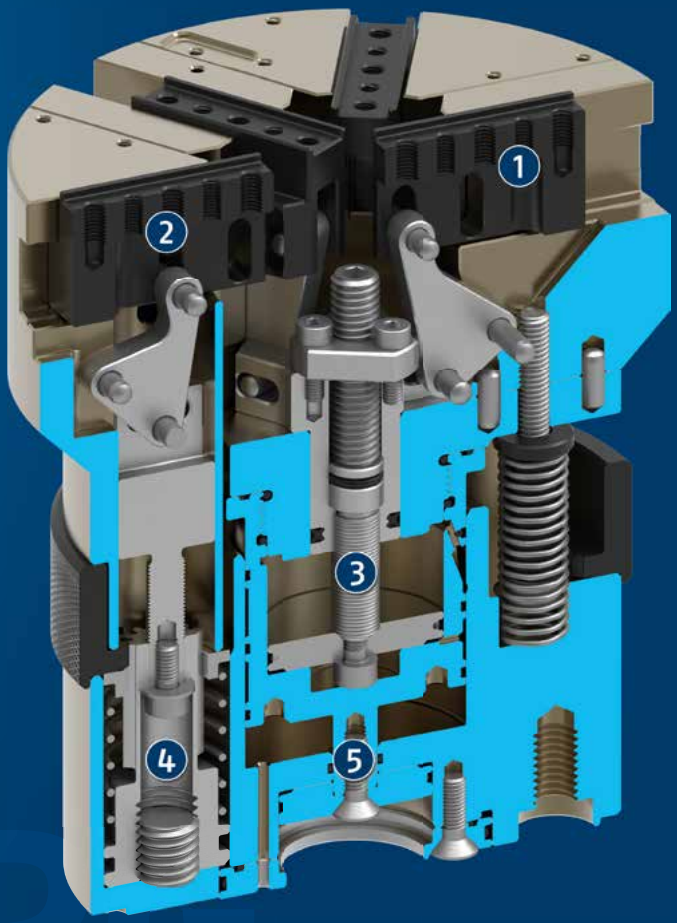
Standard assembly finger for O.D. assembly for conventional ring sizes for fast commissioning

Sizes	Weight	Repeat accuracy
Quantity: 1	1.35 kg	0.02 mm

Functional Description

O.D. assembly
The O-ring is expanded by all six fingers, then the gripper is moved to the assembly groove on the shaft. First the three fingers of triple jaws A are retracted with the linear motion.
The O-ring is fit through the triangle shape, which adjusts to the remaining hold of the three fingers of triple jaws B, already partially in the groove. The entire gripper is now retracted. The O-ring is now forced completely into its assembly groove.

I.D. assembly
The O-ring is forced into a cloverleaf shape by the segment jaw of triple B and the finger of triple A. The gripper is moved with its fingers in the assembly bore. The segment jaws now press the O-ring onto a majority of the groove's circumference.
The fingers are retracted and the O-ring remains settles further in the groove. The fingers are now inside the O-ring and the segment jaws press the O-ring, forcing it into its groove.



① **Triple jaw A**
Double-acting

② **Triple jaw B**
One-way acting

③ **Drive**
For triple jaws A

④ **Drive**
For triple jaws B

⑤ **Drive**
For linear motion

General Notes about the Series

Operating principle: Two independent triple-finger combinations deform the O-ring in order to then install it.

Housing material: Aluminum

Base jaw material: Steel

Actuation: Pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4]

Warranty: 24 months

Scope of delivery: Centering sleeves, assembly instructions (operating manual with declaration of incorporation is available online)

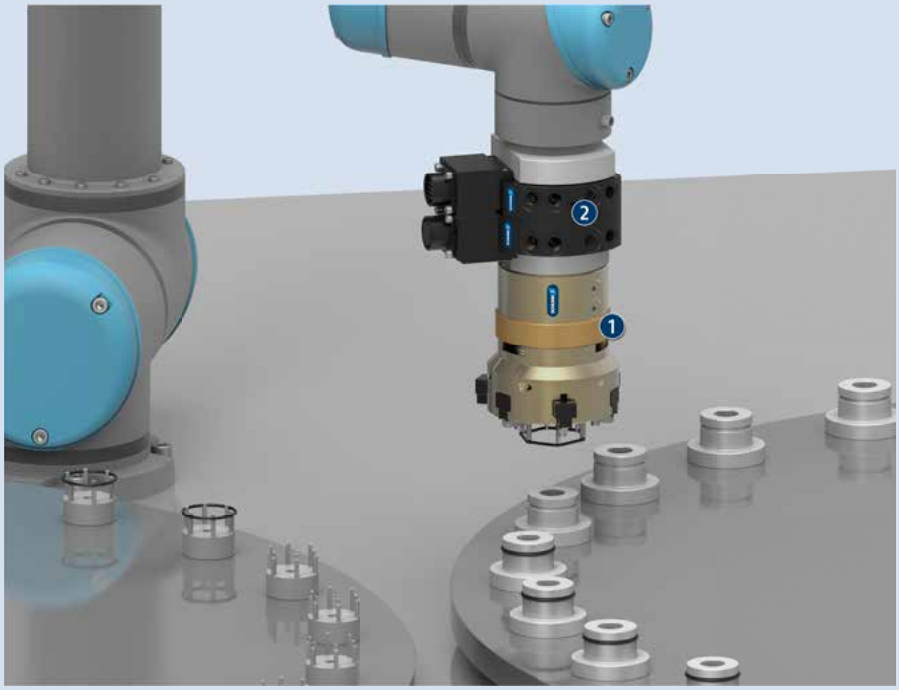
Gripping force: Is the arithmetic sum of the individual force applied to each jaw at distance P (see illustration)

Finger length: Is measured from the reference surface as the distance P in direction to the main axis.
The maximum permissible finger length applies until the nominal operating pressure is achieved. With higher pressures, the finger length must be reduced proportionally to the nominal operating pressure.

Repeat accuracy: Is defined as a distribution of the end position for 100 consecutive strokes.

Workpiece weight: Is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: Are purely the times that the base jaws or fingers are in motion. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.



Application Example

Gripping unit for assembling O-rings.

❶ O-ring gripper ORG

❷ Quick-change system SWS

SCHUNK offers more ...

The following components make the product ORG even more productive – the suitable addition for the highest functionality, flexibility, reliability, and process safety.

Assembly fingers

Inductive proximity switch

ⓘ Further information on these products can be found on the following product pages or at schunk.com. Please contact us: SCHUNK technical hotline +49-7133-103-2696

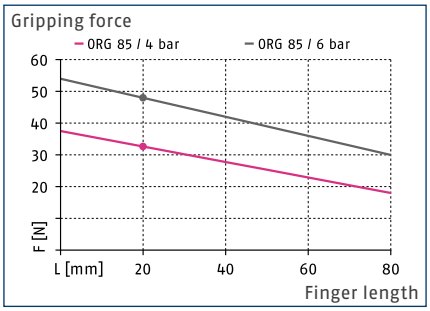
Options and special Information

For standard 0-ring sizes SCHUNK offers standard assembly fingers for external assembly. Assembly fingers for internal assembly are always 0-ring specific. On request, they can be purchased as customized components from SCHUNK or manufactured by customers themselves. Drawings and design instructions can be found in the extensive operating manual that is available online as a PDF document.
Max. 0-ring cord thickness: The max. 0-ring cord thickness to be installed is a diameter of 4 mm.

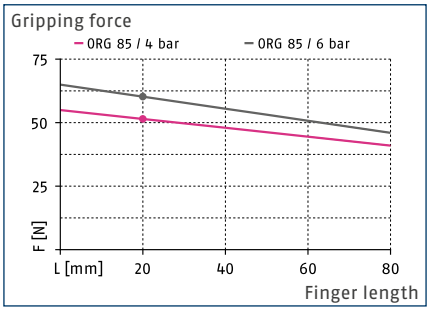
ORG 85

Special Grippers | O-ring Gripper

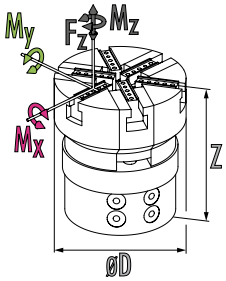
Triple jaws A outside gripping force



Triple jaws A inside gripping force



Dimensions and maximum loads



M_x max. 10.00 Nm
M_z max. 6.00 Nm
M_y max. 8.00 Nm
F_z max. 40.00 N

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		ORG 85
ID		0304120
Number of fingers		6
Triple jaws A: working principle		Double-acting
Triple jaws A: stroke per finger	[mm]	21.0
Triple jaws A: closing force	[N]	45.0
Triple jaws A: opening force	[N]	55.0
Triple jaws A: retraction stroke	[mm]	5.0
Triple jaws A: retraction force	[N]	20.0
Triple jaws A: fluid consumption per double stroke	[cm³]	11
Triple jaws A: fluid consumption per retraction stroke	[cm³]	6
Triple jaws B: working principle		One-way acting
Triple jaws B: stroke per finger	[mm]	15.0
Triple jaws B: opening force	[N]	125.0
Triple jaws B: fluid consumption per opening stroke	[cm³]	9
Closing/opening time	[s]	0.1/0.12
Weight	[kg]	1.35
Min./nom./max. operating pressure	[bar]	4/6/8
Max. permissible finger length	[mm]	80.0
Protection class IP		40
Min./max. ambient temperature	[°C]	5/90
Repeat accuracy	[mm]	0.02
Dimensions Ø D x Z	[mm]	85 x 98

ⓘ The principle mountability of O-rings depends on the shape (O-ring, square ring, etc.), shore hardness, inner diameter, and cord strength, as well as installation depth. In general, Ø 5 mm to Ø 160 mm O-rings can be mounted for outside assembly, and for internal assembly O-ring from Ø 10 mm to Ø 120 mm are used.
Triple jaws A and B can both be adjusted with regard to their opening stroke – the closed position remains unaffected.
Please contact SCHUNK to ensure ultimate installation compatibility.

More detailed, up-to-date information on the SCHUNK product including drawings, CAD data, and operating manuals are available online at: schunk.com/org