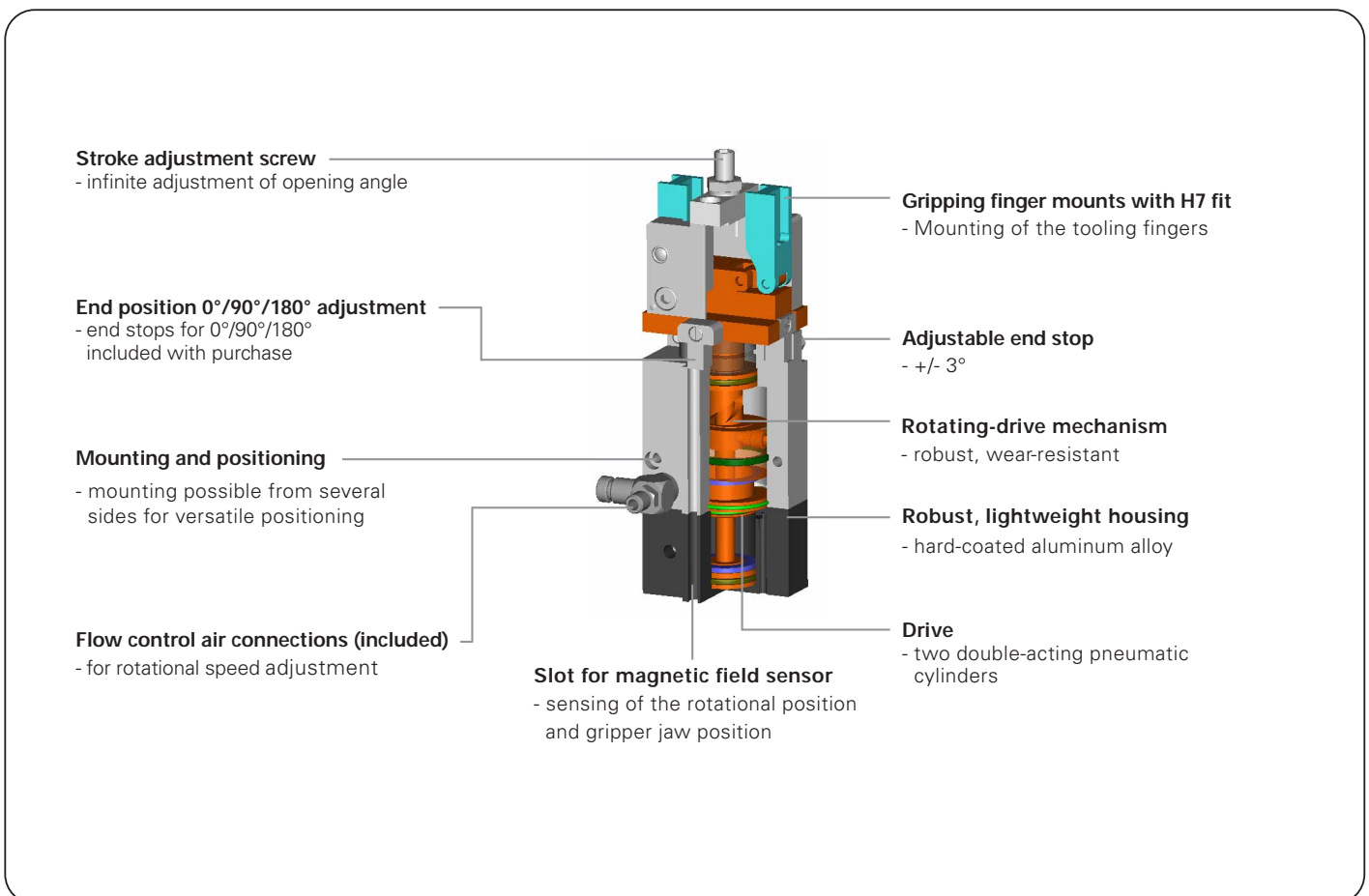


# Grip & Rotate Pivoting Arm Gripper

## ➤ Features

- Grip and rotate functions can be controlled separately
- Grip and rotate, either 90° or 180°, combined in a compact module
- Gripper opening angle infinitely adjustable from 1° to 180°
- At 180° opening angle, the workpiece is clear of the jaws, therefore no linear retraction stroke is needed

## Functional diagram



## Terms

- Gripping force:** the arithmetic sum of the individual forces occurring at the jaws
- Closing/opening time:** time required for gripper jaws to cover maximum stroke distance
- Repeatability:** at end stops after 50/100 consecutive cycles
- Cycle:** one complete movement of the piston forward and back
- Maintenance:** recommended at 5 million cycles (please refer to the Operating manual for constraints)
- low operating costs due to longer maintenance intervals
  - long lifespan

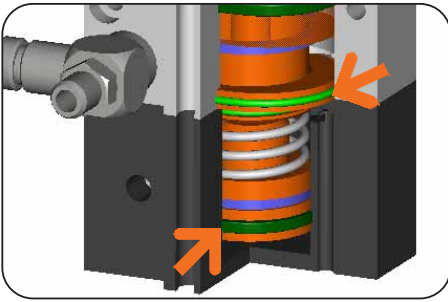
## Model guide

**N:** Standard design (long stroke - standard force)

Order No.	Opening angle per jaw	Gripping torque in closing	Self locking via	Torque
DGK20N	90°	3 Nm	DSV*/MS	0.5 Nm

*\*DSV= Pressure safety valve/one -way valve (Part No.DSV1/8); MS= Mechanical self-locking at 0° opening-angle*

# Grip & Rotate Pivoting Arm Gripper



## Drive

### Gripping

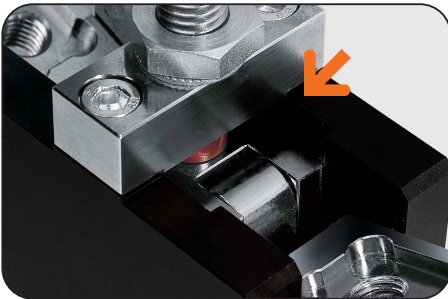
Double-acting pneumatic cylinder

- maximum drive moment
- gripping torque up to 3 Nm

### Rotation

Double-acting pneumatic cylinder with oval piston

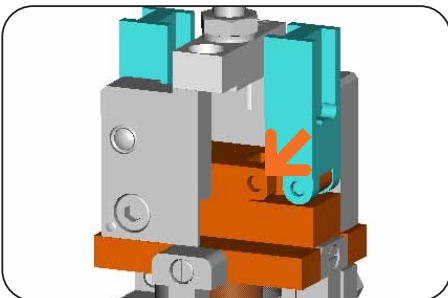
- maximum torque during rotation
- approximately 30% more piston area with comparable round piston
- virtually no play



## Guidance

The guides for the linkage are in the side plates

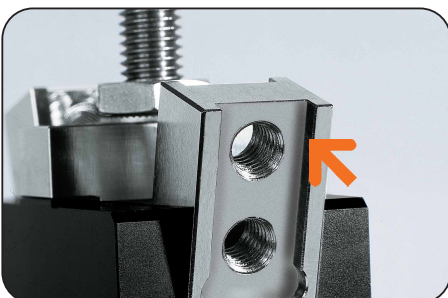
- for better repeatability
- precise guide
- virtually no play



## Power transfer

Piston and toggle linkage

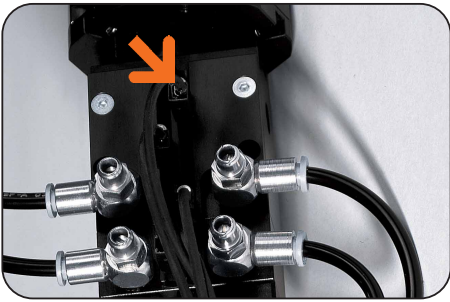
- maximum gripping force through the linkage
- efficient conversion of piston force to the linkage
- centrally linked
- jaws are synchronized



## Gripper jaw positioning

Gripping finger mounts with H7 fit

- attachment of tooling fingers

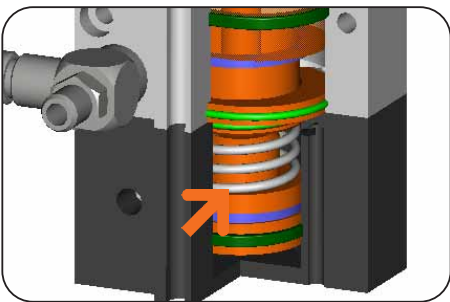


### Position sensing

#### Slot for mounting of magnetic field sensor

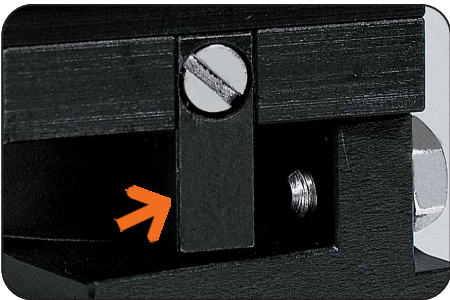
Sensing of the piston position

- compact – all sensors and cables are outside the swivel area
- stable, separate sensing of the gripping and rotating positions
- for magnetic field sensor with bracket for C-nut



### Grip force safety device

Mechanical self-locking at 0° opening-angle via toggle linkage alternately, a pressure safety valve (Part Nr. DSV1/8) can be used, which prevents loss of grip force via pressure retention.



### Rotation angle

90° or 180°

Individually adjustable

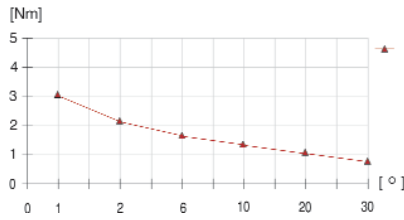
- simple relocation of end stop
- both stops included in delivery
- easily adaptable from one application to the next

# Grip & Rotate Pivoting Arm Gripper

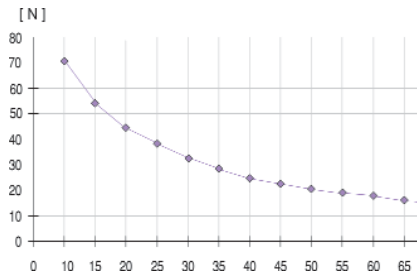


## Gripping-force diagram

Gripping force as a function of opening angle.

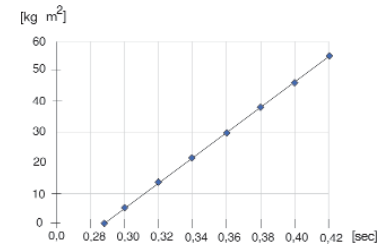


Gripping force as a function of jaw length measured at 1° opening angle.



Measured from upper edge of housing

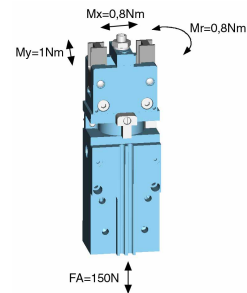
## Rotation-time diagram



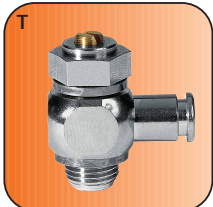
Rotation time as a function of mass moment of inertia.

## Forces and moments

Max. allowable static forces and moments.



## Included with purchase



Flow control air fittings  
Part No. DRVM5x4



End stop 90° + 180°  
Part No. ANS0002

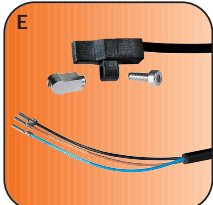
## Recommended accessories



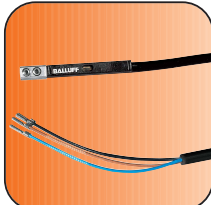
Compressed air fittings  
(Angled)  
Part No. WVM5x4



Compressed air fittings  
Part No. GVM5



Magnetic field sensor  
Part No. MFS103KHC42



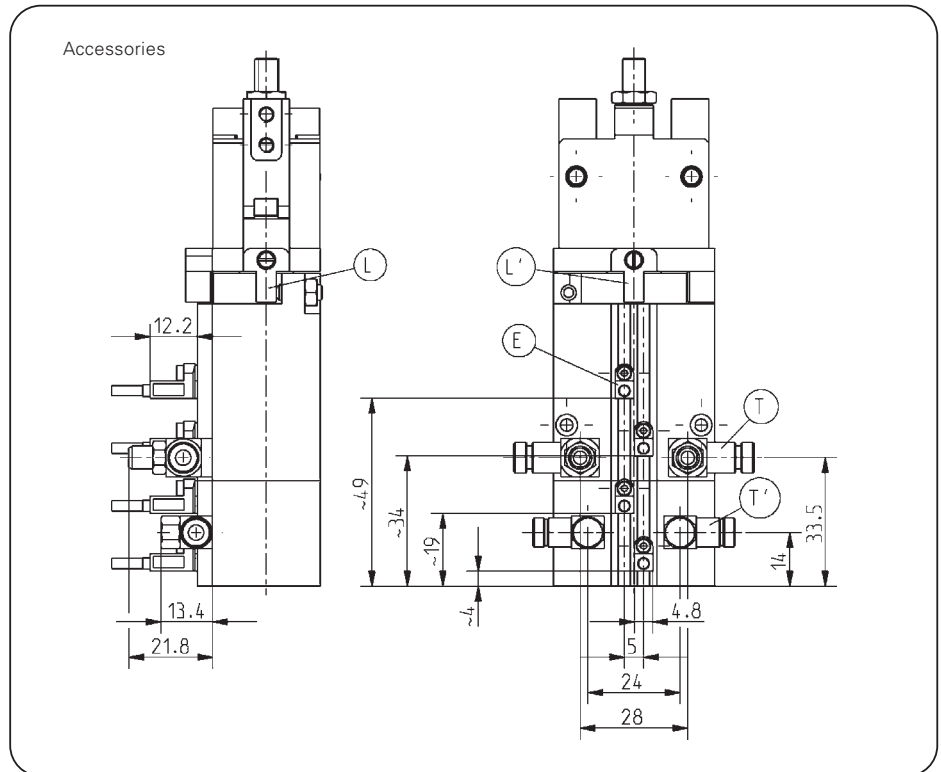
Magnetic field sensor  
Part No. MFS303KHC30



Connector 3-plug  
Part No. S12-G-3



Pressure safety valve/  
one-way valve  
Part No. DSV1/8



Order No.:		DGK20N
<b>Gripping</b>	Stroke per jaw [°]:	90
	Gripping force in closing [N]**:	150
	Gripping torque in closing [Nm]:	3
	Max. suggested workpiece weight [g]*:	772
	Closing time/opening time [s]:	0.25
	Repeatability +/- [mm]:	0.1
Air volume per cycle [cm³]:		9
<b>Rotation</b>	Torque [Nm]:	0.5
	Rotation angle (90° or 180°) adjustable +/- [°]:	3
	Repeatability [°]:	0.05
	Bearing load axial/radial [N/Nm]:	960/10
	Air volume per cycle 90°/180° [cm³]:	4.6/9.2
<b>General</b>	Operating pressure min./max. [bar]:	3/8
	Operating temperature min./max. [°C]**:	5/80
	Weight [g]:	550

All data measured at 6 bar  
 \* Value determined with friction coefficient  $\mu=0.1$  and safety factor  $v = 2$ , Spacing from top edge of housing  $\blacklozenge = 40$  mm  
 \*\* High-temperature-resistant model (up to 150° C) add "T" to part number  
 \*\*\* Measured at 10 mm from upper housing  $\blacklozenge$  and 1° opening angle

