Superior Clamping and Gripping

SCHUNK®

Product data sheet

Pressure maintenance valve SDV-P

Reliable. Compact. Safe.

SDV-P pressure maintenance valve

In case of pressure failure, venting of the module will be prevented by the pressure maintenance valve. Therefore a temporary force or position maintenance can be implemented via different actuators. This is particularly suitable for grippers which cannot be equipped with a mechanical gripping force maintenance.

Field of application

Use in applications, where temporary force or position maintenance is required, among others for complementing grippers, rotary or linear modules.

Advantages – Your benefits

Prevention of pressure drop in the pneumatic actuator in the case of pressure failure of the entire system for greater operational safety when pneumatic components are used

well-proven in industrial automation

Robust design for long term reliable applications

Universally applicable can be combined with almost any pneumatic actuator

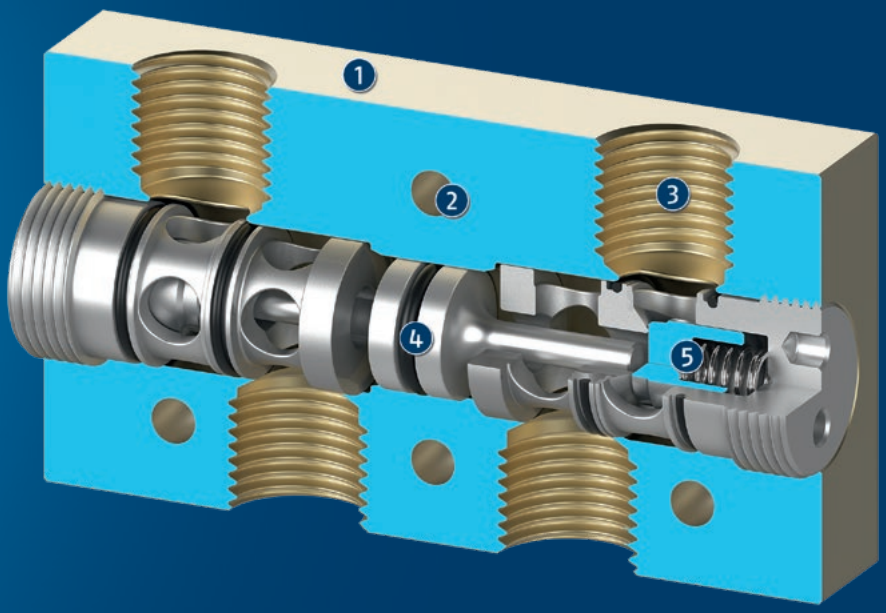
Variant with manual venting for greater operating comfort

Variant for direct mounting on parallel grippers as a result, space-saving and no additional fastening is necessary

Sizes	Weight	Nominal flow
Quantity: 2	0.1 .. 0.4 kg	

Functional description

Two check valves are parallelly switches, and automatically open and ventilate the return flow direction on alternating sides. In the event of a pressure failure, the supply lines close the return flow valves and prevent a loss in pressure.



① **Housing**
is weight-optimized due to the use of high-strength aluminum alloy

② **Mounting option**
for universal assembly of the Pressure Maintenance Valve

③ **Thread for pneumatic connection**
for compressed air hose connection

④ **Piston**
actuators

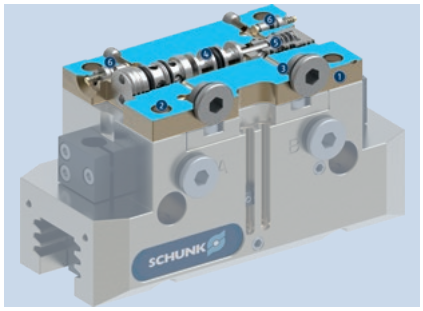
⑤ **check valve**
closes in the event of a pressure drop and prevents pressure loss

Detailed functional description

Air bleed screw sectional diagram

1. Housing
2. Ventilation button for connection A
3. Ventilation button for connection B
4. Return spring

Variant SDV-P-E-P for direct mounting on SCHUNK grippers



1. Housing
   is weight-optimized due to the use of high-strength aluminum alloy
2. Mounting option
   for the direct connection to different SCHUNK grippers
3. Pneumatic connection
   Can choose between thread or via hose-free direct connection
4. Piston
   actuators
5. check valve
   closes in the event of a pressure drop and prevents pressure loss
6. Ventilation button for connection A and B

General notes about the series

Housing material: Aluminum

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

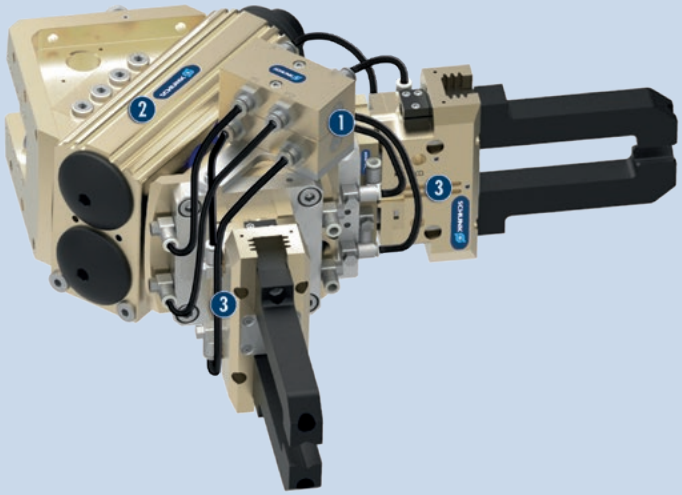
Warranty: 24 months

Rate of flow: For the SDV-P and SDV-P-E variants, the possible volume of flow through the valve depends on the used pneumatic hoses. The table shows the flow rate according to the used pneumatic hose (reference pressure 6 bar).
The diameter refers to the outer diameter of the hose. The relevant inner diameter can be slightly different depending on the manufacturer and minimally affect the values. The SDV-P-E-P variant does not have hose-dependent flow rates

Valve switching time: purely the switching time of the SDV-P valve without other loads. Valve switching times must be added to the movement times on the load side, such as the opening and closing times of the respective gripper.

Pressure loss, input/output: Describes the pressure loss between input and output pressure through the spring-actuated check valves. This pressure loss may have to be taken into account when the connected actuators are configured.

Manual quick ventilation: The SDV-P-E and SDV-P-E-P variants are equipped with manual quick-release ventilation. They allow venting the connected actuators without having to remove the pneumatic hoses (for example, During set-up or before restarting the system after an emergency stop).



Application example

1. SDV-P pressure maintenance valve
2. Swivel head SRH-plus
3. 2-finger parallel gripper PGN-plus

SCHUNK offers more ...

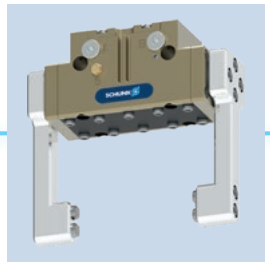
The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.

Universal gripper PGN-plus

Pneumatic Long Stroke Gripper PHL

Flat swivel unit SRU-plus

Universal gripper PZN-plus



DPG-plus sealed universal gripper

Universal angular gripper PWG-plus

Universal Gripper with a thru-bore PGB

3-finger centric gripper PZH-plus

Sealed Long Stroke Gripper PSH

ⓘ For more information on these products can be found on the following product pages or at schunk.com.

SDV-P

Pressure maintenance valve

Technical data

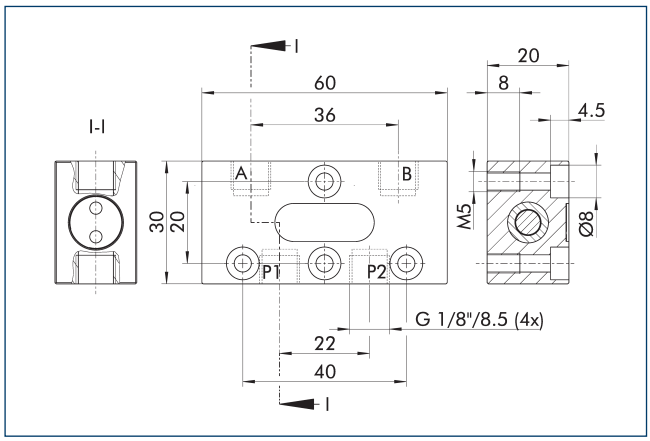
Description		SDV-P 04	SDV-P 04-E	SDV-P 07	SDV-P 07-E	SDV-P 10-E
ID		0403130	0300120	0403131	0300121	0300109
Manual quick ventilation		no	yes	no	yes	yes
Thread		G1/8"	G1/8"	G1/4"	G1/4"	G3/8"
Nominal diameter (DN)	[mm]	4	4	7	7	10
Flow rate, hose Ø 6mm	[l/min]	200	200	350	350	400
Flow rate, hose Ø 8mm	[l/min]	250	250	500	500	1000
Flow rate, hose Ø 10mm	[l/min]	340	340	600	600	1400
Recommended hose diameter	[mm]	6	6	8	8	10
Pressure loss, input/output	[bar]	0.5	0.5	1	1	0.5
Min./max. operating pressure	[bar]	2/10	2/10	2/10	2/10	2/10
IP protection class		67	67	67	67	67
Min./max. ambient temperature	[°C]	-10/80	-10/80	-10/80	-10/80	-10/80
Valve switching time	[ms]	15	15	10	10	10
Weight	[kg]	0.1	0.1	0.2	0.2	0.4

ⓘ The possible volume of flow through the valve depends on the used pneumatic hoses. The table shows the flow rate according to the used pneumatic hose (reference pressure 6 bar). In order to alleviate the choice of the SDV-P, SCHUNK has defined a recommended hose diameter. This is relevant for the allocation suggested by SCHUNK.

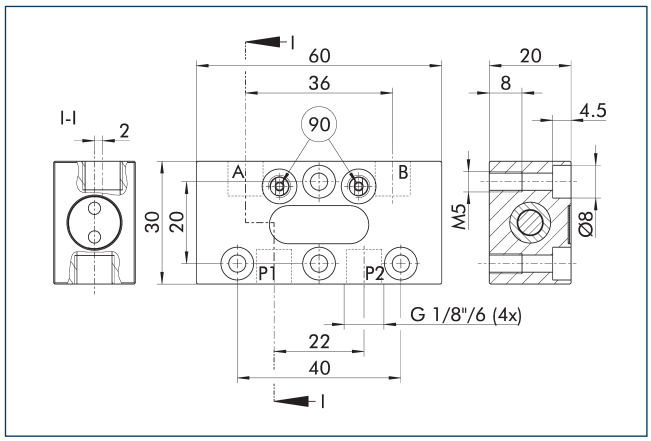
In general, possible additional combinations can be determined as follows:
1. Calculation of the required flow rate for the variant of the components:
required flow rate Q [l/min]
Fluid consumption per double stroke V [cm3]
Closing or opening time t [s]
Q = 0.21*(V/t)

2. Selection of the right SDV-P: the flow rate of the SDV-P must be larger or equal to the calculated required flow rate Q. If this is not taken into consideration, the cycle time may increase.

SDV-P 04 main view

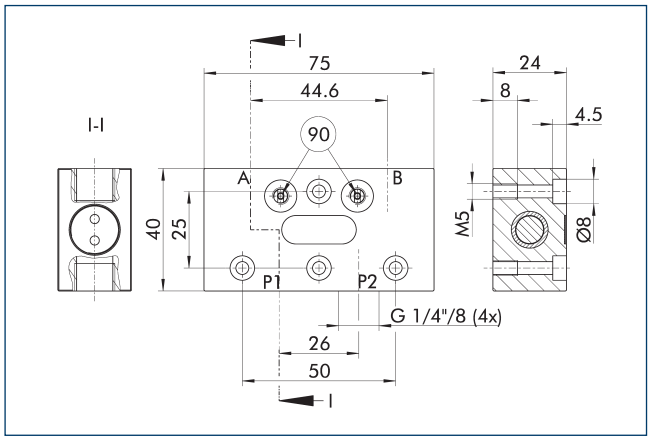


SDV-P 04-E main view



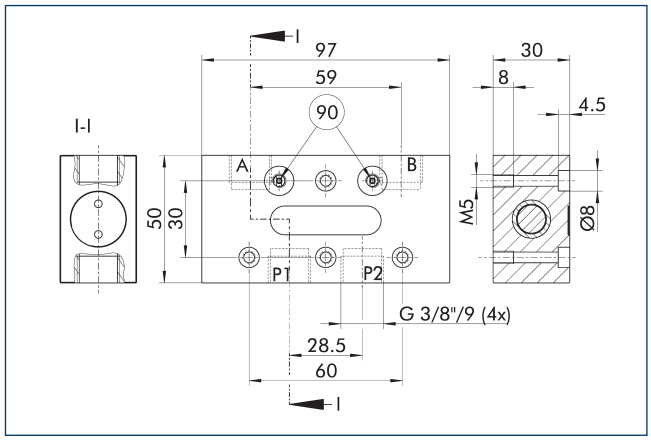
(90) Manual quick ventilation

SDV-P 07(-E) main view



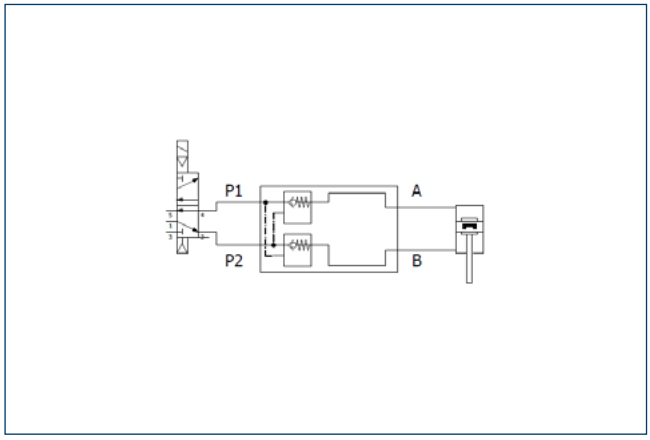
(90) The manual quick exhaust valve is only available in the variant (-E). All other dimensions are identical.

SDV-P 10-E main view

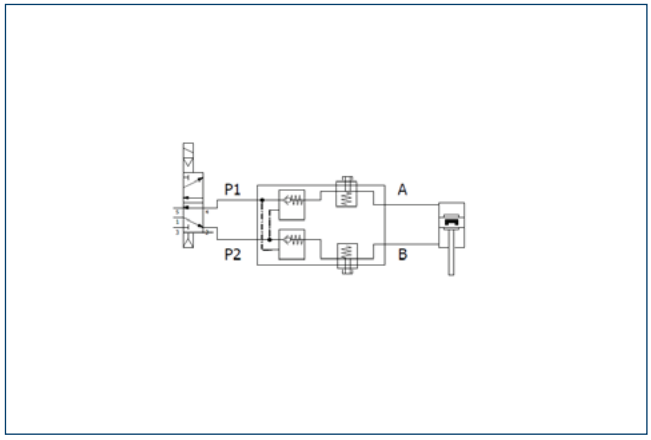


(90) Manual quick ventilation

SDV-P electrical circuit diagram without manual air bleed screw



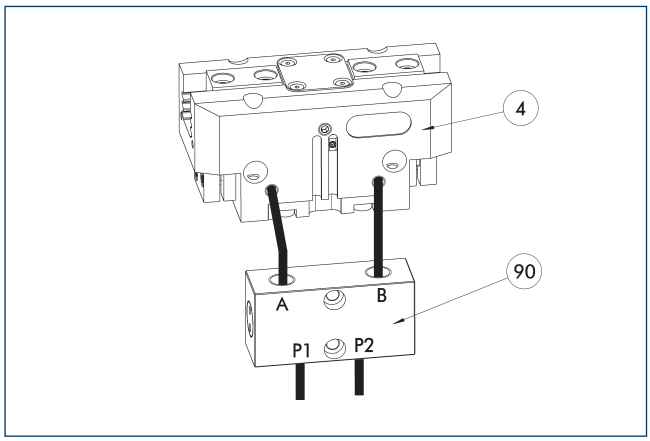
SDV-P electrical circuit diagram with manual air bleed screw



SDV-P

Pressure maintenance valve

Version example with gripper



(4) Grippers

(90) SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

SDV-P E-P

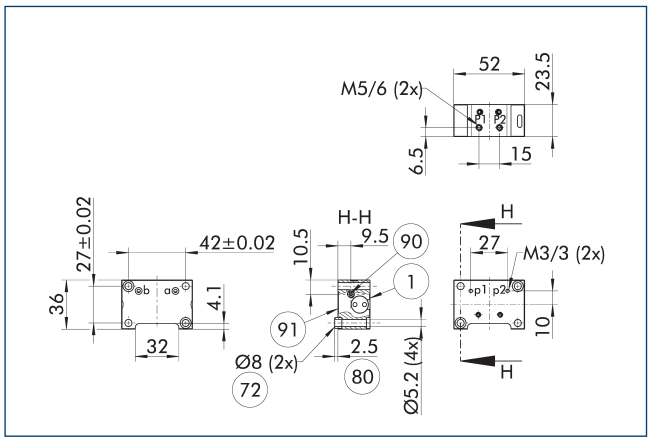
Pressure maintenance valve

Technical data

Description		SDV-P 64-E-P	SDV-P 80-E-P	SDV-P 100-E-P	SDV-P 125-E-P
ID		0300124	0300125	0300126	0300127
Manual quick ventilation		yes	yes	yes	yes
Direct connection to*		PGN-plus 64	PGN-plus 80	PGN-plus 100	PGN-plus 125
Nominal diameter (DN)	[mm]	2.5	2.5	2.5	4
Rate of flow	[l/min]	150	150	180	200
Pressure loss, input/output	[bar]	0.5	0.7	0.6	0.5
Min./max. operating pressure	[bar]	2/9	2/9	2/9	2/9
IP protection class		67	67	67	67
Min./max. ambient temperature	[°C]	-10/80	-10/80	-10/80	-10/80
Valve switching time	[ms]	10	20	20	30
Weight	[kg]	0.12	0.16	0.23	0.33

* also suitable for other grippers with the same screw connection diagram

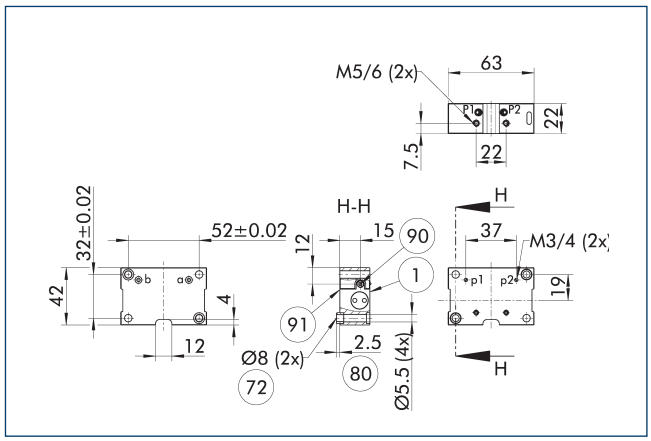
SDV-P 64-E-P



(1) Gripper connection
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part
(90) Manual quick ventilation (on both sides)
(91) Robot-side connection

The SDV-P E-P pressure maintenance valve has integrated air feed-throughs, to be able to use the hose-free direct connection for the appropriate grippers.

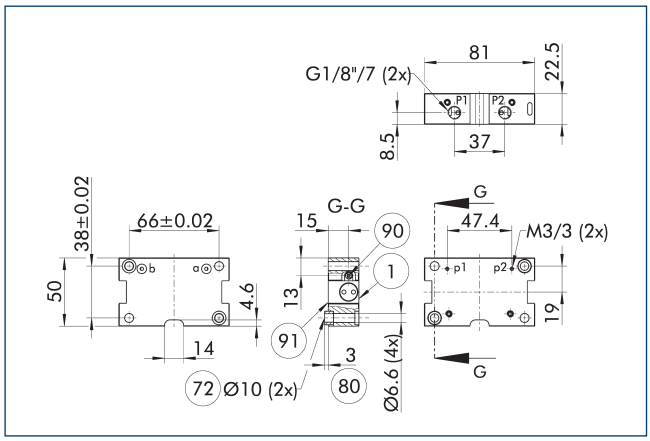
SDV-P 80-E-P



(1) Gripper connection
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part
(90) Manual quick ventilation (on both sides)
(91) Robot-side connection

The SDV-P E-P pressure maintenance valve has integrated air feed-throughs, to be able to use the hose-free direct connection for the appropriate grippers.

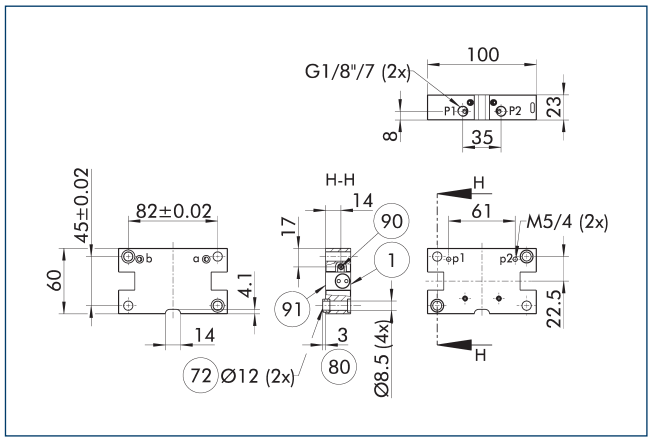
SDV-P 100-E-P



(1) Gripper connection
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part
(90) Manual quick ventilation (on both sides)
(91) Robot-side connection

The SDV-P E-P pressure maintenance valve has integrated air feed-throughs, to be able to use the hose-free direct connection for the appropriate grippers.

SDV-P 125-E-P



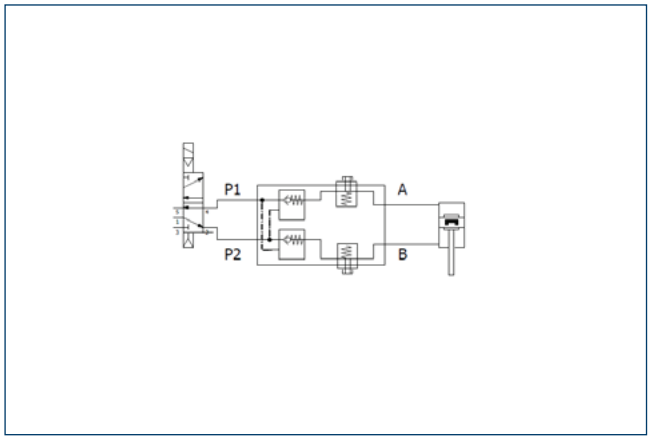
(1) Gripper connection
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part
(90) Manual quick ventilation (on both sides)
(91) Robot-side connection

The SDV-P E-P pressure maintenance valve has integrated air feed-throughs, to be able to use the hose-free direct connection for the appropriate grippers.

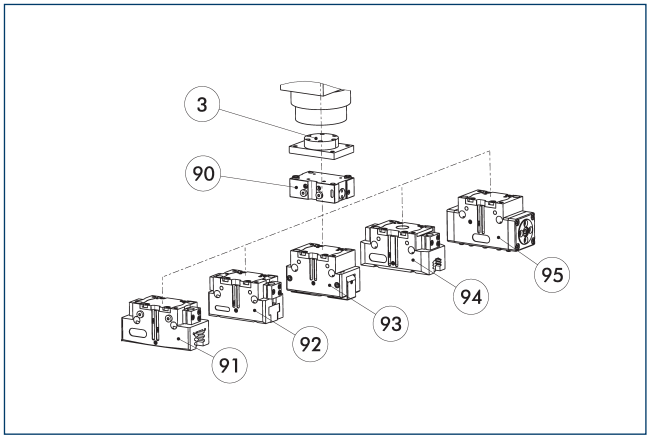
SDV-P E-P

Pressure maintenance valve

SDV-P electrical circuit diagram with manual air bleed screw



Modular system



(3) Adapter
(90) SDV-P E-P pressure maintenance valve
(91) 2-finger parallel gripper PGN-plus/PGN-plus-P
(92) JGP 2-finger parallel grippers
(93) 2-finger angular gripper PWG-plus
(94) 2-finger parallel gripper PGB
(95) Sealed DPG-plus gripper

The unit is part of a modular system in which various components such as grippers or compliant devices can be threaded to one another directly.

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